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Glossary of Terms

AKÜDER	Industry group for batteries and accumulators
Annex I	Refers specifically to Annex I of the IED
Annex	Refers to an Annex to the specified directive
ANNEX	Refers to an ANNEX of this report
BAT	Best available techniques
BREF	BAT Reference document prepared by EIPPCB
EC	European Commission
ECJ	European Court of Justice
EEA	European Environment Agency
EIPPCB	European IPPC Bureau
EU	European Union
FDM BREF	Food, Drink and Milk Industries BREF
G2G Project	Government to Government Project
GPS	Global Positional System
IED	Industrial Emissions Directive (2010/75/EC)
IEP	Integrated Environmental Permit
IPPC	Integrated Pollution Prevention and Control
LCP	Large Combustion Plant
LVIC BREF	Large Volume Inorganic Chemicals – Ammonia, Acids and Fertilisers BREF
LVIC – S	Large Volume Inorganic Chemicals – Solids and other industry BREF
LVOC BREF	Large Volume Organic Chemical Industry BREF
MoEU	Ministry of Environment and Urbanisation
MENR	Ministry of Energy and Natural Resources
MoLSS	Ministry of Labour and Social Security
MW	megawatt
NACE	European Classification of Economic Activities
NEC	National Emissions Ceilings (Directive 2001/81/EC)
NGO	Non Governmental Organisation
OYAK	Turkish Armed Forces Assistance (and Pension) Fund owning and operating a
	number of IEP Activities
PRODCOM	European Classification of Industrial Products
PRTR	Pollutant Release and Transfer Register (Regulation (EC) No. 166/2006)
RIA	Regulatory Impact Assessment
SIC BREF	Speciality Inorganic Chemicals BREF
STOS BREF	Surface Treatment using Organic Solvents BREF
TOBB	The Union of Chambers and Commodity Exchanges of Turkey

PART 1

1.0 Background

The Inventory of Installations subject to Integrated Environmental Permitting (IEP), hereinafter "Inventory" has been prepared as an output of Project "Technical Assistance for IPPC - Integrated Pollution Prevention and Control -TR0802.04-02/001"

The Terms of Reference (TOR) for the Project referred to databases of installations held by the Ministry of Environment and Urbanisation (MoEU), other Ministries including Ministry of Food, Agriculture and Livestock (MFAL) and Turkish Statistical Institution (TurkStat) as being useful sources of data. Review of databases held by The Union of Chambers and Commodity Exchanges of Turkey (TOBB) was also recommended.

2.0 Introduction

The Inventory has been prepared to assist commencement of implementation of the Industrial Emissions Directive (IED) (2010/75/EU) in Turkey. The Inventory, as prepared, is considered to fulfil the requirements of the IED.

The Inventory is seen as a working database that will continue to be updated as additional information is gathered. New information is expected to be obtained from site visits to each of the approximately six thousand sites listed. Such visits should be carried out by staff from the competent authority for IEP in Turkey, namely the MoEU. Site visit will provide confirmation of the activity occurring at the site and will confirm the capacity of the installation.

The Inventory list installations in Turkey in terms of the principal activity known to be carried out at the site of the installation. Where other activities that require an IEP are known to be carried out on the same site, these are recorded in the "Notes" section of the entry for the particular installation. This practice was adopted in order to avoid duplication in the entries in the Inventory. It should be noted that when permitting installations having more than one activity, all activities that require an IEP must be covered by a permit.

2.1 Industrial Emissions Directive

The Industrial Emissions Directive (2010/75/EU) was published 24th of November 2010. The IED repeals the IPPC Directive (2008/1/EC) from 7th of January 2014. In addition the IED repeals a further six directives including the Large Combustion Plant Directive 2001/80/EC and Directive (1999/13/EC) commonly known as the Solvents Directive.

The most significant aspect of the IED, relevant to the preparation of the Inventory, is that Annex I of the IED has extended the list of activities that require IEP. The largest extension of activities is to be found in Category 5 of Annex I designated as "Hazardous Waste Management. There have also been some additions to Category 6 of Annex I designated in the IED as "Other Activities".

2.2 Annex I to the Industrial Emissions Directive

Annex I of the IED, hereinafter "Annex I", consists of the following six categories:

- Energy Industries
- Production and Processing of Metals
- Mineral Industry
- Chemical Industry
- Waste Management
- Other Activities

These six categoriess are divided into eighty five sub-categories. An activity falling within any of the sub-categories is required to obtain an IEP in order to operate.

2.3 Relevant Turkish Legislation

It is planned to implement the IED in Turkey by means of new legislation. A draft Regulation on "Integrated Environmental Permit" has been prepared and discussed with all relevant stakeholders. The draft regulation closely follows the IED and the activities that will be required to obtain an IEP to operate are identical to those set in Annex I of the IED.

2.4 Position of Turkey in relation to EU Legislation

Turkey was accepted as a candidate for membership of the European Union (EU) on 12th of December 1999. Negotiations on membership were opened on 3rd of October 2005.

This means that Turkey is not obliged to comply with EU legislation but rather is expected to "approximate" its legislation towards that of the EU during the accession process. This position is fully recognised in this Report. Thus any recommendations made in this Report carry no weight beyond that of advice on "good practice" or "common practice" in Member States.

3.0 Methodology Used in Compilation of the Inventory Over

The TOR for the Project suggested that the following data sources should be elaborated in order to compile the Inventory:

- Information produced during previous studies
- Industry Databases
- Databases of TurkStat
- Existing Databases of the related line ministries which may involve the MoEU, Ministry of Food, Agriculture and Livestock (MFAL), Ministry of Energy and Natural Resources (MENR), Ministry of Labour and Social Security (MLSS), etc.

Having considered the databases listed, it was decided to focus on the review of Industry databases. This was because the other databases are "horizontal" in nature. In other words, they cover a wide range of activities but it is difficult to isolate those activities that fall within Annex I. If the approach of interrogating the horizontal databases had been used, it also would be difficult to set up a system of cross-checking any data gathered using this method.

The Inventory compiled by the Dutch Government to Government (G2G) Project in 2006 was helpfully provided by the MoEU. The 2006 Inventory was incorporated into the current Inventory. Where activities were identified from the 2006 Inventory, the Inventory acknowledges this source.

3.1 Accessing Industry Databases

The support of TOBB in compilation of the Inventory was actively sought with the help of MoEU. Initially support was sought at central level within TOBB. Subsequently meetings of a number of Assemblies and Industry Groups were attended. At each meeting presentations concerning IEP were made both by the MoEU and by the Technical Assistance Component Team (TA). Every Group promised to assist the Project but in practice very few did.

At a later stage, TOBB agreed to release production data if the TA provided a list of NACE Codes to be interogated. TOBB provided production data for sixty five thousand of it members. This data was particularly useful in cases where the production data could be directly related to the capacity limits set in Annex I of the IED. The NACE Codes that were interogated can be found in Annex IX.

Five meetings were held with TOBB at central level and eleven more held at Assembly and Industry Group level. In addition presentations were made to the Pension Fund Group, OYAK. A meeting was also held with AKÜDER, the accumulator Industry Group. More recently, meetings were held with Istanbul Chamber of Commerce, BOSAD, the Automotive Industry Group, the Cement Group and the Plastics Industry Group.

TOBB consists of fifty nine Assemblies representing different industrial and commercial activities. The economic areas covered by these Assemblies were assessed by the TA and thirty Assemblies were considered likely to represent industrial activities that will require IEP. The Assemblies and those considered likely to be involved in IEP (IPPC) can be found as ANNEX VI to this Report.

In addition to the Assemblies, many Industry Groups exist, each of which represents a specific industrial sector. Fifty five Industry Groups, whose members are considered likely to be involved

with IEP, were identified. Some of these Industry Groups e.g. Iron and Steel can be clearly associated with activities set out in Annex I. Other Industry Groups e.g. the Automotive and Machinery, are not as clearly associated, although it is reasonable to assume many of the members of these two Groups are involved in surface coating activities (Category 6.7) and thus to require an IEP. These issues are discussed in more detail under the specific sub-categories.

Where available, the membership lists of the fifty five relevant Industry Groups were accessed on line. After careful consideration of the lists of members of the Industry Groups were placed into the most appropriate Category of Annex I. Approximately four thousand five hundred activities were identified in this way.

After the Inventory had been completed, it was not clear that all the members of some Industry Groups e.g. automotive are involved in an activity that requires IEP. In the case of other groups e.g. food it was not clear whether all the members are involved in an activity that exceeds the capacity threshold set in Annex I. The members of twenty five Industry Groups were identified as falling into one or other of these areas of uncertainty. It was decided to ask TOBB for feedback in these cases.

The draft Inventory was broken down into twenty five sections, each specific to a particular Industry Group. These twenty five sections were then sent to TOBB by MoEU. TOBB distributed these sections of the Inventory to the relevant Assemblies which in turn provided comments from their members. This feedback loop with TOBB has been particularly useful in confirming these activities are above the capacity thresholds set in Annex I. At the completion of this process, TOBB indicated that their Assemblies have no comment on the Inventory. This comment means that all the larger industries have been included in the Inventory.

TOBB also placed the provincial inventories on line and requested the Provincial Industry Assemblies to comment in relation to their Province. Excellent feedback was received from 12 Provinces including Izmir. The list of Provincial Industry Assemblies providing feed back can be found as Annex X. Unfortunately no useful feedback was received from three Provinces that contain large numbers of installations, namely Istanbul, Kocaeli and Ankara.

If MoEU can obtain feedback from these three Provinces this would further enhance confidence in the Inventory.

3.2 Information Produced during Previous Studies

The database of IPPC Industry compiled in 2006 by the Dutch G2G Project comprised some 4,000 activities. This proved to be beneficial as the 2006 Database was used to confirm the draft Inventory in many categories. There was a heavy overlap between the two inventories with more than two thousand activities being duplicated. These duplicates were removed from the current Inventory. Some one thousand, six hundred and sixty (1660) activities of more than four thousand (4000) activities from the 2006 Inventory were retained in the final Inventory. The activities removed were mainly duplicates.

The 2006 Inventory was particularly extensive in industry sectors such as refineries and manufacture of plastics and paints. From the numbers of activities listed in the 2006 Inventory, it is clear that these activities must be relatively small in size and at least in some cases not to require IEP.

Some mineral oil activities were included in the 2006 Inventory as Category 3.4 "Melting of Mineral Substances" but these were transferred to Category 1.2 "Refineries". The primary source for compilation of the 2006 Inventory has not been identified which made it difficult to assess the quality and relevance of the data. However following extensive evaluation,

recommendations on how to manage these smaller activities have been made later in this Report under the relevant sub-Category.

Feedback, especially that received from the Provincial Industry Assemblies, has showed that at least 10% of the activities listed in the 2006 Inventory are no longer in operation and these were removed from the Inventory.

The Inventory prepared by the Project "Improving Emissions Control" (TR0802.03-02/001) which finished in 2012, was also accessed. The Inventory, prepared by that project in relation to National Emissions Ceilings (NEC), showed close correlation with the current Inventory in the sectors common to both.

3.3 Inventory Size

The Inventory consists of approximately fivethousand and three hundred (5,300) entries. The number found in each sub-category can be found in ANNEX II. ANNEX II also lists the number of installations found in Europe for each category where this data is available. Such comparison provides a useful check, at least for some categories, on the quality of the Inventory.

3.4 Nature of the Inventory

The Inventory has been prepared with the following fields:

Identification, Industry, sub-industry, IPPC Category, Association, Company Name, Phone, Address, Province, Notes, Sources, Category thresholds, Geographic location information (latitude / longitude), Expert comments and flags.

- Identification A unique code is given to each entry in the Inventory. It is proposed that this code should be used in all correspondence between MoEU and the company, including permit applications, thereby avoiding any chance of duplication.
- Industry this is simply the main IPPC category that the company is within
- **Sub-industry** this can be the IPPC sub-category that the company is within. It can also contain information about the products and processes of the company.
- **IPPC Category** this is the numerical sub-category of IPPC that the company is within
- Association this is the TOBB Assembly or Industry Group the company is in
- **Company Name** should be noted this is not always a unique identifier hence the need for Identification
- **Phone** contact details
- Address contact details
- Province an important categorisation of the activities that has implications for allocation of resources within MoEU
- Notes this can include a reference to any secondary category of IPPC activity carried out on the site e.g. a Large Combustion Plant (LCP) activity associated with a main activity of food processing. Where data on the capacity of the activity was available it was included in this field.
- **Source** basically whether the data came from a TOBB source, Industrial Groups sources or from the 2006 Inventory.
- **Category thresholds** to provide guidance for experts on their decisions where applicable.
- **Geographic location information –** latitude and longitude of installations.
- **Expert comments and flag** free text field for experts to comment whether the installation is IPPC or not and mark it accordingly.

These fields are considered adequate at this stage but the number can be extended as

discussed below.

3.5 Extension to Inventory Fields

The fields can be extended to include a geographical locator (GPS Coordinates). This will require an additional source of data. For example a geographical locator can be required to be submitted as part of a permit application or it can be acquired by MoEU personnel as part of the site visit. The minimum accuracy on such coordinates should be a 100x100m grid in order to avoid any confusion between sites.

The MoEU has indicated that inclusion of production capacities given in Annex I would be useful, if a request is made to industry to challenge its inclusion in the Inventory. This inclusion will be made when the Inventory is put on line.

The inventory database application is designed to allow easy extension the attributes provided for installations such as the above examples.

4.0 Quality of the Inventory

The quality of the Inventory should be assessed against the quality and accessibility of the existing databases held by public authorities. Unfortunately this has been limited. The Inventory has been checked against the 2006 Inventory and the 2012 NEC Inventory. The Inventory has been checked by TOBB through consultation with its Assemblies. Each of these checks has strengthened the Inventory.

4.1 Industry Databases

The Industry Group membership lists can be closely aligned with categories of activity in IED Annex I. Use of this source was particularly advantageous. In this context the membership lists can be considered to be reliable.

4.2 Database of Turkstat

While the database of TurkStat is clearly the most comprehensive database, use of this database to prepare the Inventory suffers from the obvious difficulty of alignment of the data with the IPPC Categories found in IED Annex I. This can be overcome in part by reviewing the TurkStat Data by way of the NACE Codes. This can provide a reliable analysis for many IPPC Categories but not every IPPC Category can be aligned unequivocally with a NACE Code. Use of NACE Codes for the purpose of preparing the Inventory would require the assessment of very large numbers of activities cf the sixty five thousand in the case of TOBB.

4.3 Databases of Ministry of Environment and Urbanisation

Use of the MoEU databases of environmental permit holders suffers similar drawbacks to using the TurkStat database, namely difficulty of alignment of the databases with the IPPC Categories. This could in part be overcome by cross checking the current IPPC Inventory with the MoEU databases, although such cross-checking would have to be carried out by a person having a good working knowledge of the industries involved.

The one MoEU database, vital for preparation of the IPPC Inventory, was the Waste Management Database. This database provided a list of the Activities that fall within Category 5 of Annex I (Waste Management Activities) and also activities involved in the processing of scrap metals (Category 2 of Annex I). Unfortunately, the MoEU database does not include data on capacity in relation to these activities and so the Inventory may include some smaller activities in these sectors which can be removed from the Inventory when the capacity data is made available.

In addition, the information available in the National Waste Management Plan was used to include the proposed new landfills that will require IEP.

4.4 Databases held by other Line Ministries

It has not been possible to access the databases held by other line ministries. Of these, the databases held by the MFAL are the most significant as far as preparation of the Inventory is concerned. Access to these databases could provide a useful crosscheck on the Inventory in the Food, Food related and Agricultural Sectors, namely Categories 6.3, 6.4, 6.5 and 6.6 of Annex I.

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4.5 Assessment of the Inventory as prepared

The Inventory as prepared has both strengths and weaknesses which are set out below, but overall it is considered sufficiently strong as to provide a good starting point for planning the implementation of IEP in Turkey.

4.6 Strengths of the Inventory

The strength of the Inventory as prepared is that it is taken from the membership lists of Industrial Groups known to represent activities that fall within Annex I. These lists were returned to TOBB for cross checking the details and evaluation of whether or not a particular installation was above the capacity threshold found in Annex I. It is considered reasonable to assume that Industry Groups and their members are more familiar with their activities than anyone else. It is acknowledged that this approach is not without its limitations but in all discussions with TOBB to date, TOBB accepted that it was to the advantage of their members to plan as early as possible towards implementation of IEP. This cross checking by industry itself is seen as the major strength of the Inventory.

Confidence was built further when a high level of overlap was found between the 2006 Inventory and the current Inventory particularly in the main IPPC categories. In addition an extremely high degree of overlap was found between the Inventory prepared for the NEC Project and the current Inventory.

The TOBB Assemblies accepted the Inventory without comment indicates that all the larger activities are present in the Inventory.

Specific feedback was received from the Cement Industry Group, the Textiles Group, the Automotive Group and AKÜDER. This resulted in the removal of approximately 100 activities in these as either being non-IPPC eg grinding of cement clinker, or because the activities fall below the relevant thresholds. The Inventory can now be consider to be highly reliable in these four sectors.

Indicative feedback has been received from the plastics sectors which resulted in many small activities being removed from the Inventory. The Inventory can now be considered reliable in these sectors.

Feedback was received from 12 provincial industry assemblies. This resulted in approximately three hundred activities being removed. Approximately 50% of those removed came from the 2006 Inventory and are no longer in operation and the other 50% are considered to fall below the thresholds for integrated environmental permitting. The inventories for these 12 provinces are considered highly reliable.

The feedback from TOBB on production levels of their members against a list of NACE codes requested by the TAT. This resulted in data on approximately sixty five thousand companies being provided by TOBB. This data was processed by the TAT and provided very reliable capacity data for the food and agricultural sectors in particular. The food and agricultural sectors are considered reliable. This feedback also provided a very good cross check in sectors such as chemicals and metals and resulted in many activities being more accurately assigned to the appropriate sub-activity class. The Inventory has undoubtedly been strengthened in these two sectors.

Feedback on the waste management sector was provided by the Waste Department of the Ministry. The Waste Department provided the TAT with the full databases of waste

management activities, albeit without capacity data. The data provided great strengthens the waste management section of the Inventory and also the metals sector where this sector is involved in processing scrap metals. It should be noted that the entire database provided was included in the Inventory, which means that at least some of the installations listed are likely to fall below the thresholds in Annex I. However these can only be eliminated through discussion with the Waste Department of MoEU which has precise capacity data.

4.7 Weaknesses of the Inventory

There are several weaknesses in the Inventory but none is considered to be fatal. The major weakness is that it is a desk top study. This means that no confirmation by way of site visit has been made. The use of site visits was rejected as impracticable within the scope of the Project as only a very limited number could have been undertaken and such a number would be statistically insignificant. Each site visit would take at least a day (travel, inspection, reporting) and so five thousand visits would consume more than twenty years of working time.

In an ideal world, the Inventory would have been compiled by the competent authorities that have already issued environmental permits to industry in the fields of water, air and waste permits. These competent authorities would be familiar with each of the sites. These competent authorities that require IEP. In a minority of cases where agreement was not reached, site visits would have been undertaken to confirm whether or not an activity required an IEP.

The major weakness is the apparent paranoia concerning capacity with many industry groups unwilling to discuss this even in the most general manner. This does not bode well for the implementation of the IED where a much wider range of data is routinely considered as being available to the public. This has made the task of cross checking the Inventory extremely difficult in some sectors for example the paint and lime sectors.

The initial Inventory contained approximately six hundred paint manufacturers. Informal discussion with BOSAD indicates that most of these are not involved in primary pigment manufacture and thus should not be included as Category 4.1(j) activities. These discussions also indicate that less than fifty of these and perhaps less than twenty are likely to exceed the threshold of 200 tonnes per year usage of organic solvents that would place them as potential Category 6.7 activities. However even though the BREF for "Surface Coating using Organic Solvents" excludes the manufacture of paint, it is considered preferable that this sector is included at least at this stage.

The Lime Industry Group indicated the the eighty six activities listed as Category 3.1(b) was too high but then declined to discuss the matter further with the TAT.

Finally Category 6.7 "Surface Treatment using Organic Solvents" contains approximately seven hundred activities. Many of these are likely to be quite small and may well fall below the threshold of 200 tonnes per year.

4.8 Absence of Cross – Checking

It did not prove possible to gain access to databases held by other line ministries. Clearly cross – checking of these databases with the current Inventory would further strengthen confidence in the current Inventory.

4.9 Proposal for Strengthening the Inventory

It is proposed that the Inventory is placed on the MoEU/Project website with an invitation for all parties to comment.

It should be made clear that in the absence of comment, within two months, every Activity listed will be required to apply for an IEP by the date that will be set in legislation.

The expected result is that smaller activities on the edge of IPPC will write to the MoEU making the case to be removed from the list. If the case is reasonable, the activity should be removed from the list.

In addition, as the Inventory has been made public, comments should be invited from the Non-Government Organizations (NGOs) and the public concerning any activity that they think should be included in the list. Again if a comment received appears reasonable, the activity should be added to the list.

A second method to further strengthen the Inventory would be for the MoEU to require the Provincial Authorities in Istanbul, Ankara and Kocaeli to assess the Inventory prepared for their province and to remove any activity no longer in operation or that is considered to fall below the capacity limits found in Annex I of the Directive. These three provinces represent more than 50% of the Inventory.

4.10 Use of the Inventory and Development of the Inventory

The initial use of the Inventory is a planning tool for the MoEU. The Inventory as it stands provides a good estimate of the numbers of activities in each sector. This should allow the MoEU to estimate the workload involved in receipt of applications for IEPs and the issuing of IEPs. Based on this workload, the MoEU can estimate the level of staffing required and the length of time that will be needed for completion of this task.

The second use of the Inventory is as a starting point for dialogue with industry/agriculture. This dialogue should be initially to confirm the Inventory although it should be recognised that the Inventory will only be finalised after every installation has been visited and inspected. Even then the Inventory will continue to be refined as existing industries are closed or expanded and new industries are developed.

The third use of the inventory is as a management tool for implementation of IEP.

5.0 Guidance on whether an Activity falls within Annex I

No direct guidance exists on whether an activity falls within Annex I or not, although a number of important sources provide varying degrees of guidance on this topic. These sources include:

- Best Avaiable Techniques (BAT) Reference Documents (BREFs)
- IPPC Guidance provided by the European Commission (EC)
- Decisions made by the European Court of Justice (ECJ)
- Pollution Release and Transfer Register (PRTR) Reports

5.1 BREF Documents

The BREFs are prepared by the European IPPC Bureau and adopted by the EC via the IPPC Forum. The BREFs are not legal documents but provide guidance on determining the techniques that may be considered to represent BAT for industry sectors that fall within Annex I.

The BREFs are currently being revised by the European IPPC Bureau and updated to provide clear "BAT Conclusions". The BAT Conclusions are being adopted by the EU in the form of "EU Decisions" which must be followed when any IEP is issued. To date only two BREFs, namely the Iron and Steel Industry BREF and the Glass Industry BREF have been fully revised and have BAT Conclusions adopted.

BREFs were not prepared to provide guidance on activities that should be considered to fall within Annex I. However not to make use the indirect guidance provided would be to ignore a valuable source of data. In the "Scope" section of each "vertical" BREF, the activities covered by the BREF are indicated. In the case of some BREFs close alignment is found with the activities set in Annex I. However in other cases, further sections of the BREF need to be studied to understand the full range of activities covered by the BREF.

For some other activities falling within Annex I, the effective "BREF" is in fact separate EU legislation. Examples of this are landfills (Annex I Category 5.4) and incineration/co-incineration (Annex I Category 5.2), where the Landfill Directive (1999/31/EC) and the Waste Incineration Directive (2000/76/EC) (shortly to be repealed by the IED – Annex VI) provide the methodology for operation and in the case of incineration set emission limit values.

All twenty seven issued vertical BREFs were considered in preparing this Report. Seven of these BREFs are currently under review and the latest drafts were also considered. Two new BREFs which are at the earliest stages of preparation namely "Production of Wood Based Products" and the Wood and Wood Products Preservation with Chemicals" were also noted.

The six horizontal BREFs were not consulted as these are applicable to many sectors and do not offer any guidance for the preparation of an Inventory.

5.2 European Commission Guidance

The European Commission (EC) has provided guidance on interpretation of Annex I. This guidance focuses on the issue of "capacity" and the interface between the Waste Directive (2008/98/EC) and the IPPC Directive (2008/1/EC). Whilst this guidance was prepared in relation to the IPPC Directive, the issue of "capacity" remains unchanged for the IED. The EC guidance is useful but covers a limited range of activities. The EC guidance is found at: <u>ec.europa.eu/environment/industry/air/pollutants/stationary/ippc/general_guidance.htm.</u>

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The EC has recently issued guidance on "frequently asked questions" concerning IED which is found at: <u>http://ec.europa.eu/environment/air/pollutants/stationary/ied/fag.htm</u>

The most recent guidance provides additional clarification of the "additivity rule" for capacity, some guidance on the activities that fall within Annex VII and stresses the importance, in determining whether or not a waste management activity requires IEP, of whether a waste, being managed by the activity, is hazardous or non-hazardous. The most recent guidance is focussed on implementation of the IED rather than providing additional guidance on interpretion of Annex I. The sections of both sets of EC Guidance most significant for preparation of the Inventory can be found as ANNEX VII to the Report.

The EC Guidance was used mainly in the preparation of the "Guidance Sector by Sector" prepared within the Project to assist both the MoEU and industry (TOBB) identify installations that fall within Annex I.

5.3 European Court of Justice (ECJ) Rulings

The ECJ has ruled only on a relatively small number of IPPC cases to date and these rulings provide only very limited direction applicable to understanding Annex I.

The ECJ has made rulings in relation to issues of waste. These rulings are important in determination of within which category a waste management activity falls but have little impact on the number of activites that require IEP, as most waste management activities are involved in more than one Annex I activity.

Any ECJ judgment must be followed by a Member State. It is recognised that although Turkey is not a Member State and not bound by any ECJ ruling, Turkey should be aware of relevant ECJ rulings and develop its policies accordingly.

5.4 Pollution Release and Transfer Register (PRTR) Reports

The PRTR reports are available on the website of the European Environment Agency. While the system of PRTR reporting covers a wider range of activities than IPPC, it does provide a useful comparison on the number of certain types of activities in each Member State.

A summary of the reporting for 2007 by the Member States is to be found as ANNEX III to this Report. The numbers of installations reporting for four sectors are found in this ANNEX. These sectors were selected because of the large numbers of installations reported in the 2006 Inventory. An examination of ANNEX III shows that the number of installations in these four sectors reported for Turkey greatly exceed the numbers reported by Member States in the same sectors. This suggests that the installations reported in these four sectors in the 2006 Inventory are likely be quite small and may fall outside the scope of IEP. Recommendations on this issue are found later in this Report.

6.0 Role of the BREFs in Interpretation of Annex I

Article 14 (3) of the IED states:

"BAT conclusions shall be the reference for setting the permit conditions"

BAT conclusions refer to specific activities and BAT conclusions follow directly from the relevant BREF. Following from this it is clear that the BREFs provide an important source of guidance for the Activities that fall within Annex I.

The BREFS have been prepared by groups of technical experts and cover the main activities that fall within Annex I. Any activity that is listed in a BREF should be considered to require an IEP.

This leaves the question of other activities that are not clearly listed within any BREF but that may be interpreted to fall within Annex I. The most reasonable view is to note that the EC is required to organise an exchange of information between the Member States and Industry on BAT (Directive 2008/1/EC Art. 17(2)). This information exchange led to the preparation of the BREFs. It should be noted that Art. 17(2) does not limit the exchange of information to certain industries. Thus it is reasonable to consider that the BREFs cover at least the most important sectors of industry. By extension it is reasonable when preparing an Inventory, to assume an activity not falling covered by a BREF does not require an IEP. Exceptions to this will be found on the basis of individual activities, but these exceptions should be added to the Inventory where they have been identified.

An alternative view is that it is clear that the BREFs and BAT Conclusions do not cover all IPPC Activities e.g. Category 1.4 - Gasification is not found specifically in any BREF, and in such cases it should be a matter for each National Competent Authority to determine those activities that are included in the national system of IEP.

The second view, i.e. that National Competent Authorities should determine the additional activities that fall within Annex I, is supported by Article 14 (6) of the IED which states:

"Where an activity or a type of production process carried out within an installation is **not covered** by any of the BAT conclusions or where those conclusions do not address all the potential environmental effects of the activity or process, the competent authority shall, after prior consultations with the operator, set the permit conditions on the basis of the best available techniques that it has determined for the activities or processes concerned, by giving special consideration to the criteria listed in Annex III (of the IED)".

Should a National Competent Authority consider extending the requirement for IEP beyond the scope of the BREFs, the following competing needs must be balanced against each other:

- the use of Competent Authority resource, i.e. how many extra staff will be required in the MoEU,
- the cost to industry,
- the likely improvement to the quality of the environment.

Thus if a particular industry sector has a large number of small activities, unless such a sector falls clearly within Annex I, a National Competent Authority is well advised to leave such a sector out of IEP, at least for the time being, and focus its efforts towards the larger activities that have significant impact on the environment.

The most relevant part of the Inventory prepared by the project "Improving Emissions Control" (TR 0802.03-02/001) is summarised in Table 1.

Table 1 National Emissions

Industry Sector	% of National SO ₂ Emissions	% of National NOx Emissions	
Electricity (LCP)	60	34	
Other Industry (including cement)	23	11	

These figures show clearly that the priority for permitting should lie with the larger activities. By comparison the smaller activities have an insignificant impact and should be omitted unless good reason can be shown for their inclusion.

6.1 Interpretation of Activities falling within Annex I

Ultimately it is left to the Competent Authority of each Member State to use judgement as to whether or not a particular activity requires an IEP to operate. The Competent Authority is required to ensure that the Directive is implemented in full and to follow any relevant judgment delivered by the ECJ.

In many cases it is clear whether or not an activity falls within Annex I of the IED. The main challenges in interpretation relate to small and medium activities that fall just within or just outside Annex I and many of these relate to the issue of "capacity".

In the case of Turkey, the final arbiter of whether or not an activity requires an IEP is the MoEU. In cases of doubt or dispute, the MoEU should visit the installation and carry out an inspection and discuss the findings of the inspection with the management team of the installation. The MoEU should make its decision based on the findings of the inspection.

The impact on the environment of an activity that falls close to a capacity limit in Annex I will tend be small in comparison to impact of the larger activities that fall clearly within Annex I. Recognising the limited impact on the environment of a smaller activity, it may not be critical for the MoEU to include such an activity within the system of IEP. Such a decision can be reviewed by MoEU at a later date and the decision reversed.

Indeed EU Member States have taken different views whether or not to include certain smaller activities within the system of IEP.

In recognising that flexibility of interpretation exists, the MoEU should be careful to ensure that it is consistent in its interpretation across all sectors. The MoEU should ensure that an industry sector, interpreted to fall outside the scope of IEP, does not have cumulatively a significant impact on the environment as a whole.

6.2 Guidance on Interpretation provided by the Project

Guidance on Interpretation has been prepared in relation to each of the eightyfive (85) subcategories. This Guidance based on the EC Guidance and is focused particularly on the issues of "capacity" and of "accumulation". Accumulation occurs where there may be more than one similar small activity at an installation but when the capacities of the small activities are added

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together, the combined total exceeds the capacity threshold in Annex I, thereby bringing the activity above the threshold at which IEP is required.

Within the Guidance provided by the Project, as far as was practicable, each sub-category was aligned with a NACE code in order to make identification of installations easier for the TOBB Assemblies and Industry Groups. Full alignment of IPPC sub-categories with NACE codes is not possible because the NACE codes tend to be more specific and thus fail to align fully with the broader definitions of activity found in Annex I.

PRODCOM codes are even more difficult to work from as these are extremely specific and literally hundreds of PRODCOM codes cover a sector such as food. Thus using a PRODCOM code based approach would initially bring in many hundreds of small installations that subsequently have to be eliminated.

PART 2

Detailed Evaulation of the Inventory and of Annex 1 of IED

The Inventory has been developed in keeping with Annex I. Each category is now discussed in detail. Commentary has been expanded for certain sectors in which the MoEU has shown particular interest. Any particular strength or weakness of the sector Inventory is noted.

The paragraph numbering in this section follows that found in Annex I as far a possible.

Recommendations for action by MoEU have been made at the foot of many categories. Particular recommendations have been made for categories 1.2, 4.1(h), 4.1(j) and 6.7 where many smaller activities included from the 2006 Inventory are found.

The relevant BREFs have been summarised in the Table found in ANNEX I of this Report, the numbers of installations in Turkey and in the EU have been summarised in ANNEX II, the numbers of PRTR reports for categories 1.2, 4.1(h), 4.1(j) and 6.7 can be found in ANNEX III, ANNEX IV lists the documents and legislation consulted in preparing this report, ANNEX V lists the industry groups whose membership lists were used, ANNEX VI lists the TOBB Assemblies relevant for IEP, ANNEX VII provides the EC Guidance on IPPC and the number of Installations in each Province is found in ANNEX VIII.

In the following commentary on each sub-category, many direct quotations from the BREFs are found. These are not acknowledged individually as this would detract from the flow of the text. The numbers of industries in Europe all come from the BREFs.

Category 1 of IED Annex I – Energy Industries

Category 1 of Annex I consists of four main sub-categories which include some of the largest and potentially most polluting of all activities that require IEP. Each of these four sub-categories is now set out together with the relevant BREFs.

1.1. Combustion of fuels in installations with a total rated thermal input of 50 MW or more

The combustion of fuels category covers all installations with a total rated thermal input of 50 MW or more. Installations in this category are known as LCP.

The relevant BREF for LCPs is the LCP BREF. The LCP BREF covers most but not all LCPs as explained below.

If there are two or more LCPs with a rated thermal input of 15 MW or more and discharged through a common stack, the capacities are added and if the total exceeds 50 MW, this is considered to be a LCP (Art 29 IED).

LCPs are either stand alone or provide energy directly to other installations that require IEP. Most stand alone LCPs are found in the electricity production sector. This is the sector that is listed in the Inventory. Stand alone LCPs can also be found where district heating plants are provided but no such plant has been identified in Turkey.

LCPs are also encountered in industry sectors such as the food sector where large food processing activities, e.g. sugar and milk processing activities, frequently include combustion plants in excess of the 50MW limit. No non-stand alone LCP has been included in the Inventory, as this would result in double counting of activities.

The main refineries (Category 1.2) and the larger cement installations are also LCPs in their own right. Some of the larger chemical installations are also LCPs. These have not been included as LCPs in the Inventory as again this would result in double counting.

The LCP BREF does not cover:

- combustion installations which use process-related residues or by-products as fuel, for example the black liquor boiler used in the pulp and paper industry, or combustion installations using refinery fuel gas and liquid fuels that cannot be sold as a specified fuel on the fuel market
- installations where the combustion process is an integrated part of a specific production, for example the coke oven used in the iron and steel industry, or the pulp and paper industry, or the cement kiln used for the production of cement.

These LCPs are covered by the relevant industry sector BREF.

Emission Limit Values for LCPs are now set in Annex V of the IED, together with a timescale for compliance. Chapter III of the IED does not cover the following combustion plants:

- (a) plants in which the products of combustion are used for the direct heating, drying, or any other treatment of objects or materials;
- (b) post-combustion plants designed to purify the waste gases by combustion which are not operated as independent combustion plants;
- (c) facilities for the regeneration of catalytic cracking catalysts;
- (d) facilities for the conversion of hydrogen sulphide into sulphur;
- (e) reactors used in the chemical industry;

- (f) coke battery furnaces;
- (g) cowpers (i.e. a hot blast stove using coke oven gas);
- (h) any technical apparatus used in the propulsion of a vehicle, ship or aircraft;
- (i) gas turbines and gas engines used on offshore platforms;
- (j) plants which use any solid or liquid waste as a fuel (i.e. incinerators) other than waste biomass.

Commentary

The recently completed Project "Improving Emissions Control" (TR0802.03-02/001) in its final report identified that the Electricity Sector is responsible for 60% of the national emissions of SO2 and 34% of the national emissions of NOx. Figures quoted in the same report indicate these emissions are responsible for almost €8bn euro of marginal damage costs to the environment. For this reason it is recommended that this sector is given a high priority in terms of IEP by the Ministry. These costs will be re-examined in the RIA Report to be prepared by the current Project.

It should be noted that EC is obliged to report by 31st December 2012 on reducing the limit of 50MW attaching to LCPs (Art. 73 IED). A previous attempt to reduce the limit to 20MW (the same as in Directive 2009/29/EC on Emissions Trading) was rejected on ground of cost vs. benefit.

Numbers of Installations

In 1997, there were in the region of 1214 companies generating electrical and thermal energy throughout the EU. In addition, there were approximately 590 industrial companies operating industrial combustion plants and producing electrical and thermal energy to cover their own plant's demand.

In Turkey, there are some 108 stand alone LCPs included in the Inventory with an as yet unidentified number in the food sector. In relative terms, this appears to be a reasonable number to find in the Inventory.

1.2. Refining of mineral oil and gas - Relevant BREF

The relevant BREF for refining of mineral oil and gas is the Refining Industry BREF.

The Refining Industry BREF states that it covers all refineries regardless of size but does not cover exploration, production, transportation or marketing. The BREF notes that energy production and olefin production are covered by other BREFs.

The BREF goes on to state that "refineries are typically big and fully integrated" and describes the full set of operations carried out at large integrated refineries.

The BREF also refers to smaller stand alone units in particular for the production of lubricating oils and also for the production of bitumen. Such units should also be considered to be refineries.

Numbers of Installations

The BREF states there are 130 integrated refineries in Europe together with four on-shore natural gas plants. There are four integrated refineries in Turkey. This number of integrated refineries seems reasonable.

Other oil and gas processes

The production of biodiesel does not fit easily within the Annex I categories although it is mentioned in the Refinery BREF. In view of the type of processing involved, involving esters and mixtures of esters, it is considered to fall within Category 4.1(b). However control of production of biodiesel might be left under Chapter V (Annex VII Category 12).

Recovery and re-processing of lube oils and similar oils is a waste management process and is considered to fall within Category 5.1 (j).

1.3. Production of Coke

The relevant BREF for the coking sector is the Iron and Steel BREF as production of coke sector is closely associated with the Iron and Steel Sector.

It is clear from the Iron and Steel BREF that only coke ovens associated with the iron and steel industry are covered by Category 1.3 of Annex I. This is supported by the number of PRTR returns (ANNEX III).

The number of coking plants is not listed in the BREF, although about forty blast furnaces and about 100 basic oxygen furnaces exist in the EU. Coking activities take place in sixteen of the Member States.

There are 7 coking plants in Turkey which seems to be a reasonable number.

1.4. (a) Gasification or liquefaction of coal

1.4. (b) Gasification or liquefaction of other fuels in installations with a total rated thermal input of 20 MW or more.

There is no relevant BREF for either Gasification Activity. As deduced from the category gasification specifically involves either the processing of coal or of other fuels to produce gas. No such activity has been identified in Turkey. There are approximately thirty PRTR returns for the gasification sector in Europe.

It should be noted that gasification is a process that has been adopted at a number of European refineries (Category 1.2). Such gasification activity is considered to be part of the refinery activity and is covered by the Refinery BREF.

Gasification of municipal waste in particular has been adopted in small numbers of installations in Europe. The process is considered to be similar to incineration and thus falls with Category 5.2 of Annex I.

Category 2 of IED Annex 1 – Production and Processing of Metals

Category 2 of Annex I consists of six main sub-categories which are set out in Annex I to this Report together with the relevant BREFs.

2.1. Metal ore (including sulphide ore) roasting or sintering - Relevant BREF

The relevant BREFs for the metal ore roasting or sintering sectors are (a) the Iron and Steel Production BREF and (b) the Non-Ferrous Metal Industries BREF depending on the type of ore.

(a) Iron and Steel Production BREF

The Iron and Steel BREF covers the following processes:

- The loading, unloading and handling of bulk raw materials
- The blending and mixing of raw materials
- The sintering and pelletisation of iron ore
- The production of <u>coke from coking coal</u>
- The production of hot metal by the blast furnace route, including slag processing
- The production and refining of steel using the basic oxygen process, including upstream ladle desulphurisation, downstream ladle metallurgy and slag processing
- The production of steel by electric arc furnaces, including downstream ladle metallurgy and slag processing
- Continuous casting (thin slab/thin strip and direct sheet casting (near shape))

The Iron and Steel Production BREF does not cover:

- Production of lime in kilns cover by the Cement and Lime and Magnesium Oxide Manufacturing Industries BREF
- The treatment of dusts to recover non-ferrous metals (e.g. electric arc furnace dust) and the production of ferroalloys covered by the Non-Ferrous Metals Industries BREF (NFM)
- Sulphuric acid plants in coke ovens covered by the Large Volume Inorganic Chemicals Ammonia, Acids Fertilisers Industries BREF (LVIC-AAF BREF). However a useful description of the main types of coke oven gas desulphurisation processes is provided in the Iron and Steel BREF."

Pelletisation and sintering are two process used to agglomerate iron-containing materials. Sinter is practically always produced at the steelworks site for various reasons, Pellets are mainly produced at the site of the mine or its shipping port.

In the EU there is only one pelletisation plant as part of an integrated steelworks and four standalone plants. In Turkey thirteen plants have been identified as being in Category 2.1. It is not clear whether these plants process ferrous or non-ferrous metals and how many of them are stand alone.

(b) Non-Ferrous Metal Industries BREF

The Non-Ferrous Metals Industries BREF covers the production of the metals from both primary and secondary raw materials. The metals are covered in ten separate groups. The groups are:

- Copper (including Tin and Beryllium) and its alloys
- Aluminium

- Zinc, Lead and Cadmium (+ Antimony, Bismuth, Indium, Germanium, Gallium, Arsenic, Selenium and Tellurium)
- Precious Metals (e.g. Gold and Silver
- Mercury
- Refractory Metals (e.g. W)
- Ferro Alloys
- Alkali and Alkaline Earth Metals
- Nickel and Cobalt
- Carbon and Graphite

Carbon and graphite production was included as a separate group as many such processes are associated with primary aluminium smelters. (See Category 6.8 of Annex I)

The non-ferrous metals for which the sintering process is used are lead (Pb) and zinc (Zn). The sintering process is normally associated with the main production site. Sintering is sometimes used in processing the ferro-alloys.

The Non-Ferrous Metal Industries BREF does not cover:

• Mining and ore treatment at the site

It should be noted that the Inventory includes gold mines as cyanide is used at the site of the mine to scavenge gold from its ores. These gold mines have been included in the Inventory as activities under Category 4.1(g).

Number of Facilities

The metal ore roasting and sintering sector includes the processing of both ferrous and non-ferrous metals, but does not include the mining of these metals.

The number of installations present within the EU is set out in Table 2 below.

Table 2 Number of Installations in Europe producing Ferrous and non-Ferrous Metals

Metal	Fe	Cu	AI	Zn	Pb	Cr	W
No. of Installations	40	10	22	16	2	2	10
	F						
Metal	Alloy	Mg	Na	Sr	Ca	Ni + Co	Graphite

The number of installations in Turkey is 13 which appears to be reasonably in line with the number in Europe.

2.2. Production of pig iron or steel (primary or secondary fusion) including continuous casting, with a capacity exceeding 2,5 tonnes per hour

The relevant BREF for the production of pig iron and steel is the Iron and Steel Production BREF which is described in Para. 2.1 above.

The production of steel includes the recovery of scrap ferrous metals. These are normally recovered in the electric arc furnaces.

There are 81 blast furnaces (sometimes with more than one furnace on the same site), 95 basic oxygen furnaces and 203 electric arc furnaces in the EU. There are also 149 continuous casting plants for billets and blooms and 65 continuous casting plants for slabs.

There are 150 installations in Turkey which appears to be relatively high number.

2.3.(a) Processing of ferrous metals - operation of hot-rolling mills with a capacity exceeding 20 tonnes of crude steel per hour

The relevant BREF for the processing of ferrous metals using hot-rolling mills is the Ferrous Metals Processing BREF which covers:

- Hot and cold forming
- Continuous coating
- Batch Galvanising

It should be noted that Annex I does not include cold rolling of ferrous metals, although the BREF does. A straightforward interpretation would exclude cold rolling from IEP. However cold rolling involves many processes such as pickling and degreasing that are also found with hot rolling. Such processes are similar to those covered by categories 2.6 (Surface Treatment of Metals) and 6.7 (Surface Treatment using Organic Solvents), and so an argument can be made for the inclusion of cold rolling in IEP.

The main operational steps regarding <u>continuous processing</u> that are covered:

- Reheating and heat treatment of input materials like: slabs (150-400mm), blooms (150-300mm sq), billets (150mmsq) and ingots
- Surface rectification and preparation processes: scarfing (removal of surface defects using flame cutting methods), grinding, descaling, degreasing, pickling
- Shaping of steel: rough milling, hot rolling, cold rolling, drawing
- Processing yielding special materials or product qualities: annealing, temper rolling/skin pass rolling
- Hot dip coating and finishing

Regarding <u>batch hot dip processing</u> of fabricated steel products the following operational steps will be addressed:

- Surface preparation of fabricated steel: degreasing, rinsing, pickling, fluxing, drying
- Coating with molten metal
- After treatment/finishing: cooling, greasing

Number of hot-rolling mills

There are 74 mills producing flats and 161 producers of steel tubes in the EU. There are 309 mills in Turkey which seems to be a very high number although supported by TOBB lists. In addition another four installations have been assigned to Category 2.3 and it is not clear whether or not these are rolling mills.

2.3. (b) Processing of ferrous metals - operation of smitheries with hammers the energy of which exceeds 50 kilojoule per hammer, where the calorific power used exceeds 20 MW

The relevant BREF for this sector is the Smitheries and Foundries BREF. This BREF reports that no European smitheries fall within this category. None have been identified in Turkey.

2.3.(c) Processing of ferrous metals - application of protective fused metal coats with an input exceeding 2 tonnes of crude steel per hour

The relevant BREF for the processing of ferrous metals by application of protective fused metal coats is the Ferrous Metals Processing BREF which is described in Para 2.3(a) above.

Number of Activities

There are 63 continuous hot dipping lines in EU involved in galvanising and aluminising of steel and also application of lead – tin coating to steel.

There are 595 batch hot-dip galvanising plants in the EU. Eight such installations have been identified in Turkey, although this seems to be a small number.

2.4. Operation of ferrous metal foundries with a production capacity exceeding 20 tonnes per day

The relevant BREF for this sector is the Smitheries and Foundries BREF.

The Smitheries and Foundries BREF covers the following processes:

- Pattern making
- Raw materials storage and handling
- Melting and metal treatment
- Mould and Core production and moulding techniques
- Casting or pouring and cooling
- Shake out
- Finishing
- Heat treatment

There are approximately 3000 foundries in the EU. 119 have been identified so far in Turkey. This seems to be a reasonable number.

2.5.(a) Processing of non-ferrous metals - production of non-ferrous crude metals from ore, concentrates or secondary raw materials by metallurgical, chemical or electrolytic processes

The relevant BREF for this sector is the Non-Ferrous Metals Industries BREF which is described in Para. 2.1 above.

Discussions with AKÜDER have shown that a number of their members involved in the recovery of lead from accumulators are involved in this sub-sector.

The number of installations processing non-ferrous metals in the EU is indicted in Table 3 below, which is repeated for convenience.

Metal	Fe	Cu	AI	Zn	Pb	Cr	W
No. of Installations	40	10	22	16	2	2	10
Metal	Ferro Alloy	Mg	Na	Sr	Са	Ni + Co	Graphite
No. of Installations	60	2	2	1	1	6	44

Table 3 Number of Installations in Europe producing Ferrous and non-Ferrous Metals

169 installations have been identified in Turkey but this seems to be a large number.

2.5. (b) Processing of non-ferrous metals - melting, including the alloyage, of non-ferrous metals, including recovered products and operation of non-ferrous metal foundries, with a melting capacity exceeding 4 tonnes per day for lead and cadmium or 20 tonnes per day for all other metals

The relevant BREF for the processing of non-ferrous metals in foundries is the Smitheries and Foundries BREF which is described in Para 2.4 above

The Smitheries and Foundries BREF excludes cadmium, titanium and precious metal foundries on grounds of size and also excludes bell and art casting for the same reason.

There are approximately 3000 foundries in the EU.

There are 358 foundries in Turkey which seems to be a reasonable number. In addition a further 26 installations have been identified as Category 2.5. These require further investigation.

2.6. Surface treatment of metals or plastic materials using an electrolytic or chemical process where the volume of the treatment vats exceeds 30 m3

The relevant BREF for the surface treatment of metals and plastics is the Surface Treatment of Metals and Plastics BREF. This BREF covers all activities that fall within Category 2.6 of Annex I. The BREF states:

Interpretation of "where the volume of the treatment vats exceeds 30 m³" is important in deciding whether a specific installation requires and IPPC permit. The introduction to Annex I of the Directive (2008/1/EC) is crucial: "Where one operator carries out several activities falling under the same subheading in the same installation or on the same site, the capacities of such activities are added together".

Many installations operate a mixture of small and large production lines, and a mixture of electrolytic and chemical processes, as well as associated activities. This means that all processes within the scope, irrespective of the scale on which they are carried out, are included.

In practical terms the electrolytic and chemical processes currently used are water based. Directly associated activities are also described.

The BREF does not deal with:

- Hardening (with the exception of hydrogen de-embrittlement)
- Other physical surface treatments such as vapour deposition of metals

- Hot dip galvanising and bulk pickling of iron and steels: these are discussed in the BREF for the ferrous processing industry
- Surface treatment processes that are described in the BREF for surface treatment using solvents (STS), although solvent degreasing is referred to in the BREF as a degreasing option
- Electropainting (electrophoretic painting) which is also discussed in the STOS BREF

The Technical Working Group for the BREF, in considering the definition of Category 2.6 of Annex I, accepted that the 30 m^3 threshold is the total of the volume of all the process tanks in the installation.

The BREF recognises that surface treatment of metals and plastics finds many industries as customers (Table 4)

Customer Industry for Electroplating	% of Market
Automotive	22
Aerospace	-
Information Systems	-
Telecommunications	-
Construction – Building	9%
Bathroom Fittings	-
Hardware	-
Food And Drink Containers	8%
Printing Domestic Appliances	-
Jewellery Spectacles and Ornaments	-
Clothing	-
Furniture	-
Coinage	-
Medical	-

Table 4 Customers using electroplated products

It is important to note that this sector consists both of stand alone specialist operators and activities that are associated with other activities that require IEP. The Inventory has been compiled with the intention of including only the specialist operators. Activities such as the Automotive Sector have been included as Category 6.7 Activities because this seems to be the principal activity in the case of this sector (See discussion for Category 6.7 below)

Numbers of Installations

There are 18,300 installations (both IPPC and non-IPPC) in this sub-sector in the EU. Of this figure, some 10,000 are specialist installations while the other 8,300 are surface treatment facilities within another installation, some of which are involved in other IPPC activities.

There are 173 installations in Turkey which seems to be a relatively small number.

Category 3 of IED Annex 1 – Mineral Industry

Category 3 of Annex I consists of five main sub-categories which are set out in Annex I of this Report together with the relevant BREFs.

3.1.(a) Production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or in other kilns with a production capacity exceeding 50 tonnes per day

The relevant BREF for the cement sector is the Cement, Lime and Magnesium Oxide BREF which covers the processes involved in the production of cement and lime. The main operations covered are:

- Raw materials storage and preparation.
- Fuels storage and preparation.
- The kiln systems.
- Products preparation and storage.
- Packing and dispatch.

Quarrying and shaft kilns for cement clinker production are not covered.

A key issue at many cement installations is fuel substitution and whether or not the installation is engaged in the activity of co-incineration. Fuel substitution may involve the use of fuels that have been derived from waste and provided they meet the appropriate fuel quality standards, there are no further implications. However if unprocessed waste is being used to fuel the kiln, this is considered to be co-incineration and any IEP that is issued must reflect this issue. Coincineration in cement kilns has not been recorded as a separate activity for the purpose of preparation of the Inventory.

There are 252 cement installations in the EU. There are 48 in Turkey.

3.1.(b) & (c) Production of lime or magnesium oxide in kilns with a production capacity exceeding 50 tonnes per day

The relevant BREF for the lime and magnesium oxide sectors is the Cement, Lime and Magnesium Oxide BREF which is described in Para 3.1(a) above.

The process for the production of Magnesium Oxide is identical to that used to produce lime with the difference being the raw material used.

Waste oils are sometimes used as a fuel in lime plants. However if the oil is of poor quality, this again may become a case of co-incineration.

There are 238 lime installations (~450 kilns) in the EU. It is estimated there may be 6 kilns producing MgO. In addition there are many "captured" lime kilns associated with industry sectors such as sugar. There are 86 lime installations in Turkey.

3.2. Production of asbestos or the manufacture of asbestos-based products

The production of asbestos has been banned and this category appears to have been retained in Annex I for historic reasons or in cases where site clean-up or monitoring is still required.

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3.3. Manufacture of glass including glass fibre with a melting capacity exceeding 20 tonnes per day - Relevant BREF

The relevant BREF for the glass sector is the Glass Manufacturing Industry BREF which covers the following two categories of Annex I:

- 3.3. Manufacture of glass including glass fibre with a melting capacity exceeding 20 tonnes per day
- 3.4. Melting mineral substances including the production of mineral fibres with a melting capacity exceeding 20 tonnes per day

For the purposes of this BREF the industrial activities falling within these descriptions in the Directive are referred to as the glass industry, which is considered to be comprised of eight sectors. These sectors are based on the products manufactured but inevitably there is some overlap between them. The eight sectors are:

- Container Glass
- Flat Glass
- Continuous Filament Glass Fibre
- Domestic Glass
- Special Glass (Including Water Glass)
- Mineral Wool (With Two Subsectors, Glass Wool and Stone Wool)
- Ceramic Fibre
- Frits

There are 233 installations in Turkey. There are very many installations in EU and no number of installations in Europe is provided in the BREF.

3.4. Melting mineral substances including the production of mineral fibres with a melting capacity exceeding 20 tonnes per day

The earlier 2006 Inventory showed 319 activities falling within this category. As these activities seem to be involved in the processing of mineral oil products these are not covered by the Glass Manufacturing Industries BREF. Accordingly the activities found in this category in the 2006 Inventory have been transferred to Category 1.2 – Refineries when the current Inventory was prepared.

No installation has been identified in Turkey that produce mineral fibres. As this is a highly specialised sector, this may well be reasonable. No number of installations in Europe has been provided in the BREF.

3.5. Manufacture of ceramic products by firing, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain with a production capacity exceeding 75 tonnes per day and/or with a kiln capacity exceeding 4 m³ and with a setting density per kiln exceeding 300 kg/m³

The relevant BREF for category 3.5 of Annex I is the Ceramics Manufacturing Industry BREF. The Ceramics Manufacturing Industry BREF covers the manufacture of:

- Wall and Floor Tiles
- Bricks and Roof Tiles
- House Hold Ceramics
- Refractory Products

- Sanitary Ware
- Technical Ceramics
- Vitrified Clay Pipes
- Expanded Clay Aggregates
- Inorganic Bonded Abrasives

This sector is typically made up of a large number of small installations. For example there are approximately 1.000 installations in the EU that manufacture bricks.

There are 281 installations in Turkey which seems to be a reasonable number.

Category 4 of IED Annex 1 – Production of Chemicals

The production of chemicals represents a wide range of industrial activity. It ranges from the large volume organics sector which lies immediately downstream of the refineries through to the fine organics sector comprising of speciality chemicals such as pharmaceutical products.

In parallel to the organics sectors there are the inorganics sectors ranging from the production of ammonia in plant not dissimilar to the large volume organics through to speciality inorganic chemicals.

A basic definition of the chemicals sector often heard is that any activity, which uses a chemical reaction to produce a product on an industrial scale, is included. As this is an extremely broad and all encompassing definition, some interpretation should be applied to determine exactly what "using a chemical reaction to produce a product" and "industrial scale" mean in practice. The "Chapeau" to Section 4 of Annex I states:

"For the purpose of this section, production within the meaning of the categories of activities contained in this section means the production on an industrial scale by chemical or biological processing of substances or groups of substances listed in points 4.1 to 4.6 (of Annex I)"

This appears to restrict the definition to only those substances or groups of substances listed in points 4.1 to 4.6 of Annex I. This in turn seems to be substantially reflected the content of the BREFs for the Chemicals Sector.

Interpretation of Annex I for the chemicals sector has been made more difficult by the omission of "Chemical Installations", found previously in Annex I of the IPPC Directive 2008/1/EC from the definition of the sub-categories found in the chemicals sector. This seems to mean that any product produced by means of a chemical or biological process has to fall within IEP. Before accepting such a wide interpretation, the EC guidance produced in relation to the IPPC Directive (96/61/EC & 2008/1/EC) should be carefully considered.

The EC Guidance in relation to the chemical sector is clear and makes the following points:

- If an activity is carried out for "commercial purposes", it should be considered as production on an industrial scale,
- "Chemical processing" implies that transformation by one or several chemical reactions takes place during the production process.
- An activity involving only physical processing is not covered.
- Building or repair activities involving chemical reactions are not covered.
- The term "basic" should be interpreted in a wide sense. It does not mean just those chemicals requiring further processing.

As a general remark and in view of the very large number of possible situations (as regards chemical processing, chemical substances or groups of substances produced, types and places of activities), it remains for the **competent authorities** to make an informed and justified judgment on whether or not a particular installation falls under the scope of the IED, using this guidance as a tool **to promote consistency and prevent possible abuse in the interpretation** of the scope of the Directive as regards section 4 of Annex I.

Ultimately the courts will make a ruling on the meaning of the IED in relation to "chemical reaction" but in the meantime **it is recommended the MoEU** considers this issue carefully and

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omits any such producer where the impact on the environment is trivial. For example the production of polyurethane for insulation purposes in buildings or the slaking of lime might be omitted.

Some production of chemicals takes place in less obvious sectors such as the cosmetics and cleaning materials sectors. Such sectors need realistic but sympathetic evaluation.

The Inventory has been produced using mainly data from chemicals sectors. The MoEU should be aware of this and make sure that other sectors are checked for "production of chemicals"

4.1. Production of organic chemicals – Relevant BREF

The relevant BREFs for Category 4.1 are the Large Volume Organic Chemicals BREF and the Polymers BREF.

4.1.1 Relevant BREF for Categories 4.1 (a) to (g)

The relevant BREF for Categories 4.1 (a) to (g) is the Large Volume Organic Chemicals (LVOC) BREF.

Sectors 4.1 (a) to (g) are as follows:

(a) simple hydrocarbons (linear or cyclic, saturated or unsaturated, aliphatic or aromatic);

(b) oxygen-containing hydrocarbons such as alcohols, aldehydes, ketones, carboxylic acids, esters and mixtures of esters, acetates, ethers, peroxides and epoxy resins;

(c) sulphurous hydrocarbons;

(d) nitrogenous hydrocarbons such as amines, amides, nitrous compounds, nitro compounds or nitrate compounds, nitriles, cyanates, isocyanates;

- (e) phosphorus-containing hydrocarbons;
- (f) halogenic hydrocarbons;
- (g) organometallic compounds;

The LVOC BREF specifically covers approximately 90 chemicals that are produced in volumes exceeding 100kt/annum in Europe.

The LVOC sector encompasses a large range of chemicals and processes. In very simplified terms it can be described as taking refinery products and transforming them, by a complex combination of physical and chemical operations, into a variety of 'commodity' or 'bulk' chemicals, normally in continuously operated plants. LVOC products are usually sold on chemical specifications rather than brand name, as they are rarely consumer products in their own right. LVOC products are more commonly used in large quantities as raw materials in the further synthesis of higher value chemicals (e.g. solvents, plastics, drugs). LVOC processes are usually located on large, highly integrated production installations that confer advantages of process flexibility, energy optimisation, by-product re-use and economies of scale.

The LVOC industry has been divided into eight sub-sectors (based on functional chemistry) and, from these, seven 'illustrative processes' have been selected to demonstrate the application of BAT. The seven illustrative processes are characterised by major industrial importance, significant environmental issues and operation at a number of European sites. There are no illustrative processes for the LVOC sub-sectors covering sulphur, phosphorous and organo-metal compounds but the illustrative processes used for other sub-sectors are set out in Table 5.

Table 5 Sub-sectors used as Illustrative Processes in the LVOC BREF

Sub-sector	Illustrative process
Lower Olefins	Lower olefins (by the cracking process) - Chapter 7 of BREF
Aromatics	Benzene / toluene / xylene (BTX) aromatics – Chapter 8 of BREF
Oxygenated compounds	Ethylene oxide & ethylene glycols – Chapter 9 of BREF Formaldehyde – Chapter 10 of BREF
Nitrogenated	Acrylonitrile – Chapter 11 of BREF
compounds	Toluene diisocyanate – Chapter 13 of BREF
Halogenated compounds	Ethylene dichloride (EDC) & Vinyl Chloride Monomer (VCM) – Chapter 12 of BREF

As commented previously in this Report, the gold mines which use the cyanide process to recover gold have been included as Category 4.1(g) activities. **It is recommended that MoEU** consider this issue and if the MoEU consider that the gold mines are already adequately controlled under the mining legislation (e.g. implementing Directive 2006/21/EC on Management of Waste from Extractive Industries), the gold mines can be removed from the Inventory.

In Turkey there are 33 installations categorised as being within sector 4.1 although these need to be assigned to specific sub-categories. In addition fourteen (14) installations fall within Category 4.1(a), 37 installations within 4.1(b), one within 4.1(d) and 12 within 4.1(g).

No information on the number of installation in Europe is provided in the BREF.

4.1.2 Relevant BREF for Categories 4.1 (h) and (i)

The Polymers BREF is the relevant BREF for categories:

4.1 (h) plastic materials (polymers, synthetic fibres and cellulose-based fibres) and

4.1 (i) synthetic rubbers,

The Polymers BREF focuses on the main products of the European polymer industry both in production figures and in environmental impact, mainly produced in dedicated installations for the production of one specific polymer. The list of products covered is not conclusive but includes polyolefins, polystyrene, polyvinyl chloride, **unsaturated polyesters**, emulsion polymerised styrene **butadiene rubbers**, **solution polymerised rubbers containing butadiene**, polyamides, **polyethylene terephthalate fibres and viscose fibres**.

Following discussions with the Plastics Industry Sector, five (5) installations have been identified as being within the primary plastics sector in Turkey and included in the Inventory.

Around 45 multinational companies in the EU-15 produce the large volume thermoplastic materials (primary production) which are sold to around 30000 small and medium sized companies which process (secondary processing) the polymers into products for end use. Secondary processes include for example blow moulding, injection moulding and calendaring.

Five installations producing synthetic rubber, Category 4.1(i), have been identified in Turkey. There are ten plants in Europe producing Emulsion Styrene Butadiene Rubber (ESBR) and fifteen that produce Solution Rubber.

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4.1.3 Relevant BREF for Category 4.1(j)

The relevant BREF for category 4.1(j), dyes and pigments, is the Organic Fine Chemicals BREF. The BREF on Organic Fine Chemicals (OFC) focuses on the batch manufacture of organic chemicals in multipurpose plants.

Following the same theme of batch manufacture in multipurpose plants the following category of chemicals is addressed in the BREF although not explicitly named in Annex I:

• optical brighteners (belonging to dyes and pigments)

The main source used in the preparation of the Inventory for category 4.1(j) was the 2006 Inventory. This is one of the largest single sectors found in the current Inventory, with a total of 603 installations. This is a large number of activities when compared with the 66 such activities reported for the same sector by Germany. The disparity in numbers of activities in this sector between the two countries is so large that it requires a careful evaluation. Indicative discussions with BOSAD show that perhaps only twenty or so of their members might be involved.

The 2006 Inventory places activities in the paint industry in this sector. It seems reasonable to assume that the paint industry sector consists mainly of activities that formulate paints. Such formulation activity is completely different from the chemical production of dye stuffs and pigments described in the Organic Fine Chemicals BREF. In fact the Organic Fine Chemicals BREF makes no reference to the paint industry and it seems reasonable to remove the paint industry this category within the Inventory. Assuming that volatile organic solvents still play a significant role in the formulation of paints, all of these activities have been transferred to Category 6.7. The paint industry sector is further discussed under Category 6.7.

4.1.4 Relevant BREF for Categories 4.1 (k) Production of surface-active agents and surfactants.

No BREF specifically covers the production of all surfactants, although the Organic Fine Chemicals BREF covers speciality surfactants. Inorganic phosphate detergents are covered in the Large Volume Inorganic - Solids BREF.

In Turkey, 44 installations have been placed in this category. In the absence of a specific BREF, no number for the installations in Europe is available.

4.2. Relevant BREFS for Category 4.2 Production of inorganic chemicals.

Category 4.2 consists of five sub-categories as follows:

- 4.2 (a) Production of inorganic chemicals, such as gases, such as ammonia, chlorine or hydrogen chloride, fluorine or hydrogen fluoride, carbon oxides, sulphur compounds, nitrogen oxides, hydrogen, sulphur dioxide, carbonyl chloride;
- 4.2. (b) Production of inorganic chemicals, such as acids, such as chromic acid, hydrofluoric acid, phosphoric acid, nitric acid, hydrochloric acid, sulphuric acid, oleum, sulphurous acids;
- 4.2. (c) Production of inorganic chemicals, such as bases, such as ammonium hydroxide, potassium hydroxide, sodium hydroxide;
- 4.2. (d) Production of inorganic chemicals, such as salts, such as ammonium chloride, potassium chlorate, potassium carbonate, sodium carbonate, perborate, silver nitrate;
- 4.2. (e) Production of inorganic chemicals, such as non-metals, metal oxides or other inorganic compounds such as calcium carbide, silicon, silicon carbide.

Category 4.2 is covered by four different BREFS, namely:

- Chlor-Alkali BREF
- Large Volume Inorganic Chemicals Ammonia, Acids and Fertilisers BREF
- Speciality Inorganics BREF
- Large Volume Inorganic Chemicals Solids and others

Due to this division of sub-categories between BREFs, Category 4.2 is now discussed by BREF, rather then by sub-category.

4.2.1 Chlor-Alkali BREF

The chlor-alkali industry is the industry that produces chlorine (Cl2) and alkali, sodium hydroxide (NaOH) or potassium hydroxide (KOH), by electrolysis of a salt solution. The main technologies applied for chlor-alkali production are mercury, diaphragm and membrane cell electrolysis, mainly using sodium chloride (NaCl) as feed or to a lesser extent using potassium chloride (KCl) for the production of potassium hydroxide.

Number of Installations

There are 22 4.2(a) category installations and 6 category 4.2(c) installations in Turkey compared with 93 Chlor-alkali plants in Europe. These numbers seems to be reasonable.

4.2.2. Large Volume Inorganic Chemicals (LVIC) – Ammonia, Acids and Fertilisers BREF

The LVIC BREF targets the following categories from Annex I:

4.2 (a) ammonia, hydrogen fluoride

4.2 (b) hydrofluoric acid, phosphoric acid, nitric acid, sulphuric acid, oleum

4.3 phosphorus-, nitrogen- or potassium-based fertilisers (simple or compound fertilisers).

Although the main use of ammonia, nitric acid, sulphuric acid and phosphoric acid is the downstream production of fertilisers, the scope of the LVIC BREF is not restricted to the manufacture of fertiliser grade products. By addressing the items listed above, the scope of the LVIC BREF includes the production of synthesis gas for the production of ammonia and the production of sulphuric acid based on SO_2 gases from various processes, e.g. SO_2 gases from non-ferrous metals production or regeneration of spent acids.

Number of Installations

There are 22 category 4.2(a) installations, 26 category 4.2(b) installations and 186 category 4.3 installations in Turkey, compared with 39 ammonia installations, 12 HF installations and 35 NPK installations in Europe. The numbers of installations in Turkey seem to be high although the European figures only cover integrated NPK installations.

4.2.3 Speciality Inorganics BREF

This BREF focuses on the 'Speciality Inorganic Chemicals' (SIC) sector. Because the IED does not define the term SIC and since there is no common understanding of this term in industry, the BREF proposes criteria to differentiate between SIC and Large Volume Inorganic Chemicals (LVIC). In addition, the following working definition of SIC has been used for the purpose of the BREF:

'Speciality Inorganic Chemical (SIC) is taken to mean an inorganic substance manufactured industrially by chemical processing, generally in relatively small quantities, according to

specifications (i.e. purity) tailored to meet the particular requirements of a user or industry sector (e.g. pharmaceutical).'

Given the huge variety of SIC, associated raw materials and production processes, the SIC BREF focuses on a limited number of (illustrative) families of SIC and concludes on BAT for each of these specific families. From the illustrative families and the specific associated BAT conclusions, the SIC BREF infers generic (or common) BAT conclusions that are considered applicable to the production of a wider range of SIC. The illustrative families developed in the SIC BREF are speciality **inorganic pigments**, phosphorus compounds, silicones, **inorganic explosives** and cyanides.

Number of Installations

These installations tend to be smaller and spread across different categories. 26 installations in Turkey have been placed within category 4.2(b) and 6 within 4.2(c). It has to be clarified whether or not these are SIC installations. No number of European installations is given in the BREF.

4.2.4 Large Volume Inorganic Chemicals – Solids and others

A homogeneous and strictly defined LVIC-S industry does not really exist, and there no clear borderlines between the above-mentioned three inorganic chemical industry groups and associated BREFs. The scope of this BREF is related in particular to activities covered in points 4.2.d and 4.2.e.

Annex I does not give any threshold value of the capacity for chemical industry plants, neither does it define the concepts of 'large volume', 'cornerstone' and 'selected illustrative' LVIC-S products used in the LVIC-S BREF, however, the following criteria were adopted for the selection of the processes covered in the LVIC-S BREF:

- scale and economic importance of the production
- number of plants and their distribution in different Member States
- impact of a given industry on the environment
- accordance of the industrial activities with the structure of Annex I
- representativeness for a wide range of technologies applied in the LVIC-S industry
- validated data and information on LVIC-S products sufficient to formulate 'Techniques to consider in the determination of BAT' and to draw BAT conclusions for the manufacture of these products.

The LVIC-S products addressed in the BREF include:

Five products at the so-called 'cornerstone' level:

- soda ash (sodium carbonate, including sodium bicarbonate)
- titanium dioxide (chloride and sulphate process routes)
- carbon black (rubber and speciality grades)
- synthetic amorphous silica (pyrogenic silica, precipitated silica, and silica gel)
- inorganic phosphates (detergent, food and feed phosphates).

17 LVIC-S products at the so-called 'selected illustrative' level, addressed at a lesser level of detail are set out in Table 6 below.

Table 6 Selective Illustrative Compounds found in the LVIC BREF

Selective Illustrative Compounds found in the LVIC BREF		
Aluminium fluoride	Magnesium compounds	Sodium chlorate
Calcium carbide	Sodium silicate	Sodium perborate
Carbon disulphide	Silicon carbide	Sodium percarbonate
Ferrous chloride	Zeolites (synthetic aluminosilicates)	Sodium sulphite
Copperas and related products (FeSO4)	Calcium chloride	Zinc oxide
Lead oxide	Precipitated calcium carbonate	

Numbers of Activities

In Turkey there are 40 installations in Category 4.2 (d) and 23 in Category 4.2(e). This compares with 80 "cornerstone" and 300 "illustrative" installations found in Europe. The Turkish figures look to be low and should be further investigated.

4.3 Relevant BREFs for production of phosphorous-, nitrogen- or potassium-based fertilisers (simple or compound fertilisers)

There are two relevant BREFs for Category 4.3 namely:

- Large Volume Inorganic Chemicals Ammonia, Acids and Fertilisers BREF
- Speciality Inorganics BREF

Numbers of Installations

186 installations in this category are reported for Turkey. This compares with the 35 NPK installations reported for Europe. However the inclusion of speciality chemicals for which no number of installations in Europe is available may distort this picture.

4.4 Relevant BREFs for production of plant protection products or of biocides

4.5 Relevant BREFs for production of Pharmaceutical products (chemical and biological processes)

4.6 Relevant BREFs for production of Explosives (as far as the manufacture of organic compounds is concerned)

The same two BREFs are relevant for each of Categories 4.4, 4.5 and 4.6 namely:

- Organic Fine Chemicals BREF
- Speciality Inorganics BREF

The scope of the Speciality Inorganics BREF has been provided in Para. 4.2.3.

Organic Fine Chemicals BREF

The BREF on Organic Fine Chemicals (OFC) focuses on the batch manufacture of organic chemicals in multipurpose plants. Specifically the OFC BREF targets the following sections from Annex I:

- 4.4 Plant health products and biocides
- 4.5 Pharmaceutical products (chemical and biological processes) and additionally
- 4.6 Explosives (as far as the manufacture of organic compounds is concerned)

Following the same theme of batch manufacture in multipurpose plants the following categories of chemicals are addressed in the OFC BREF although not explicitly named in Annex I:

- Organic Intermediates
- Specialised Surfactants
- Flavours, Fragrances, Pheromones
- Plasticisers
- Vitamins (Belonging to Pharmaceuticals)
- Optical Brighteners (Belonging to Dyes and Pigments)
- Flame-Retardants.

This list is not conclusive and no specific threshold was established in drawing a borderline to large volume production. Therefore it is implied that an OFC production site may also include dedicated production lines for "larger" volume products with batch, semi-batch or continuous operation.

The scope covers an enormous variety of produced substances. Therefore the OFC BREF does not describe the production of specific, individual products but deals with environmentally relevant unit processes and unit operations, as well as with the usual infrastructure found at a typical site. The OFC BREF cannot and is not intended to replace the chemical textbooks on "green chemistry" and indeed it gives only general guidance for the early stage of process design – and deals mainly with process modifications and especially with the management of unavoidable waste streams.

Numbers of Installations

In Europe there is no reported number of installations as the installations tend to be small to medium in size and exist in a very large number.

In Turkey there are 123 installations reported in Category 4.4, 160 in Category 4.5 and 28 in Category 4.6. Given the absence of numbers for Europe, little comment can be made on these numbers other than to say that 28 installations producing explosives appears to be a large number.

Category 5 of Annex 1 – Waste Management

Preparation of the Inventory

The databases held by the Waste Department of the MoEU were used to prepare this section of the Inventory and thus can be considered to be highly reliable. Unfortunately the database does not include the information on the capacity of these installations. The Inventory has been compiled to include the entire databases held by the Waste Department. It is likely that a number of smaller installations will be removed as the capacity data becomes available.

The National Waste Management Plan identifies existing installations such as waste incinerators. The Plan also sets out the number of landfill sites that are planned to be developed. All waste installations found in the Plan, both existing and planned, have been included in the Inventory. These numbers have been confirmed in discussion with the Waste Management Department of MoEU.

As the Metropolitan Municipalities prepare their waste management plans it is likely that additional waste management infrastructure will be required. It is likely that this sector will prove to be the sector that will experience the greatest growth in numbers of installations that require IEP over the next five to ten years.

A further development that may be considered likely in this sector is the involvement of private sector investment in waste management. Heavy private sector investment in waste management has occurred in many countries. Involvement of the private sector is a policy issue but if/when it occurs, the demand for IEP will be high.

Numbers of Installations

The number of installations identified in the sector is summarised in Table 7 below. Installations have been identified in only eleven of the twenty five sub-sectors that make up the Waste Management Sector. It is expected that as the National Waste Management Plan is implemented that installations will be provided for more of the categories. No co-incineration installation has been specifically identified because most co-incineration currently occurs at the installations producing cement. The installations producing cement are already to be found within Category 3.1(a) of the Inventory and to reproduce the list within the waste management sector would be to duplicate these installations.

Sub-Category	No Installations in Turkey	No Installations in Europe
5.1.(a)	0	615
5.1.(b)	0	9.907
5.1(c)	0	540
5.1.(d)	1	-
5.1.(e)	5	106
5.1.(f)	20	126
5.1 (g)	1	13
5.1(h)	6	20
5.1(i)	0	20
5.1.(j)	63	35
5.2 (a)	-	477
5.2.(b)	4	189
5.2 Sewage Sludge	-	57
5.3 (b) (i)	4	-
5.3 (b) (ii)	50	-
5.3 (b) (iv)	75	-
5.4.	161	-
5.5.	6	-
Waste Transfer Stations	-	2.905
Preparation + Use of Waste Oil as Fuel	-	274
Waste Fuel Preparation	-	266
Total	397	15.030

 Table 7

 Summary of Installations found in each Sub-Category in the Waste Management Sector

Background to Interpreting Annex I for Waste Management Installations

The key EU legislation in the field of waste management is Directive 2008/98/EC, commonly known as the "waste framework directive". It repeals earlier EU legislation on waste and specifically the following three directives:

- Directive 2006/12/EC Waste Framework
- Directive 91/689/EEC Hazardous Waste
- Directive 75/439/EEC Waste Oils

Directive 2008/98/EC has four Annexes each of which has significance for implementation of the IED. The four annexes are:

- Annex I Disposal Operations
- Annex II Recovery Operations
- Annex III Properties of Waste which render it hazardous
- Annex IV Examples of Waste Prevention Measures as required under Article 29 of Directive 2008/98/EC

Annex I and Annex II set out a series of "operations" for either for the disposal or recovery of waste and correspond to a number of the activities set out in Annex I. The correspondence between is described in ANNEX I of this Report.

Annex III sets out the properties that render waste hazardous. Understanding of Annex III is important in preparation of this Inventory because sub-sectors 5.1(a to k), 5.2(b), 5.5 and 5.6 all involve activities for the management of hazardous waste. The waste catalogue (Decision 2000/532/EC) lists all types of wastes, including those considered to be hazardous.

Annex IV does not impact directly in the Preparation of the Inventory but is likely to in future. Annex IV provides examples of waste prevention measures as required under Article 29 of Directive 2008/98/EC. This Article requires the establishment of a National Waste Prevention Programme. As prevention of waste is one key requirement of the IED, the correspondence of these measures is clear.

Relevant BREFS for the Waste Management Sector

There are two main BREFs for the Waste Management Sector, the Waste Treatment BREF and the Waste Incineration BREF. The scope sections from each BREF are set out below to allow better understanding of the range of activities that fall within the waste management sector.

Waste Treatment BREF

The BREF provides an updated picture of the technical and environmental situation of the waste treatment sector covered. It contains a brief technical description of the activities and processes found in the sector and is complemented by the actual emissions and consumptions found in the installations. More concretely, the information in the BREF describes:

- commonly applied techniques such as generic management of installations, reception, acceptance, traceability, quality assurance, storage and handling, energy systems
- biological treatments such as anaerobic and aerobic digestion and off-site biotreatment of soil
- physico-chemical treatments applied to waste waters, waste solids and sludges
- recovery of materials from waste such as regeneration of acids and bases, catalysts, activated carbon, solvents and resins as well as re-refining of waste oils
- preparation solid/liquid waste fuel from non-hazardous and hazardous waste
- emission abatement treatments to air, waste water and residues generated in the WI installations).

In Table 7, a list of many of the installations that are found in the waste management sector are set out. A key decision must be made in all cases, namely whether or not the waste under treatment is hazardous. Such a decision will be made on the basis of the criteria set out in Annex III of the Waste Directive 2008/98/EC. It is likely that the majority of wastes, falling outside of the municipal and commercial waste categories, should be designated as hazardous.

Categorisation for a range of waste management activities is provided in Table 8. This categorisation should be taken as being indicative as many waste management activities have unique characteristics and final categorisation can only be made when full knowledge of the activities become available to the Competent Authority.

Type of Installation	IEP Category where Hazardous Waste	IEP Category where non-Hazardous Waste
Waste transfer installations	Category 5.5 or categories 5.1(c) or (d) if blending or repackaging of waste takes place	A non IEP Activity
Installations containing a biological treatment of waste	5.1(a) for both disposal and recovery activities	5.3(a)(i) for disposal only
Installations for the physico- chemical treatment of waste waters	5.1(b) for both disposal and recovery activities	5.3(a)(ii) for disposal only
Installations for the treatment of combustion ashes and flue- gas cleaning residues	5.1(b) for both disposal and recovery activities	5.3(a)(iv) for disposal only
Installations for the treatment of waste contaminated with PCBs	5.1(b) for both disposal and recovery activities	PCBs are hazardous
Installations for treatment of waste oil	5.1(j) for both disposal and recovery activities also 5.2(b)	-
Installations for treatment of waste solvent	5.1(e) for both disposal and recovery activities also 5.2(b)	-
Installations for the treatment of waste catalysts, waste from pollution abatement and other inorganic waste	5.1(i) for both disposal and recovery activities	-
Installations for treatment of activated carbon and resins	5.1(h) for both disposal and recovery activities	-
Installations for the treatment	5.1(g) for both disposal and	-
Installations for the treatment of contaminated wood	5.2(b)	-
Installations for the treatment of contaminated refractory ceramics	5.1(b) for recovery activities	-
Installations for the preparation of waste to be used as fuel	5.1(c) for both disposal and recovery activities	-
Biological treatments of waste	5.1(a) for recovery activities	-
Anaerobic digestion		5.3.(b) (i) Recovery of non-hazardous waste with a capacity exceeding 100 tonnes per day involving biological treatment
Mechanical biological treatments	5.1(a) for recovery activities	-
Biological treatments applied to contaminated soil	5.1(a) for recovery activities	-

Table 8 Installations for the treatment of waste

Physico-chemical treatments of waste 5.1(b) for both disposal and recovery activities Physico-chemical treatments of waste waters 5.1(b) for both disposal and recovery activities Unit operations used in Ph-c treatments of waste waters 5.1(b) for both disposal and recovery activities Physico-chemical treatments 5.1(b) for both disposal and recovery activities Physico-chemical treatments 5.1(b) for both disposal and recovery activities	
Physico-chemical treatments of waste waters 5.1(b) for both disposal and recovery activities Unit operations used in Ph-c treatments of waste waters 5.1(b) for both disposal and recovery activities Physico-chemical treatments 5.1(b) for both disposal and recovery activities	
of waste waters recovery activities Unit operations used in Ph-c 5.1(b) for both disposal and treatments of waste waters recovery activities Physico-chemical treatments 5.1(b) for both disposal and	
treatments of waste waters recovery activities Physico-chemical treatments 5 1(b) for both disposal and	
Physico-chemical treatments 5 1(b) for both disposal and	
of waste solids and waste sludges -	
Extraction and separation 5.1(b) for both disposal and	
recovery activities	
Thermal treatments 5.1(b) for both disposal and recovery activities -	
Mechanical separation 5.1(b) for both disposal and	
5 1(b) for both disposal and	
Conditioning	
Immobilisation 5.1(b) for disposal activities -	
Dewatering 5.1(b) for both disposal and	
recovery activities	
High temperature drying 5.1(b) for both disposal and -	
Thermal distillative drving 5 1(b) for both disposal and	
plants recovery activities	
Thermal desorption 5.1(b) for recovery activities -	
Vapour extraction 5.1(b) for recovery activities -	
Solvent extraction 5.1(e) for recovery activities -	
Excavation and removal of 5.1(b) for both disposal and	
contaminated soil recovery activities	
5.1(b) for both disposal and	
Soli washing recovery activities	
Treatment of asbestos 5.1(b) for disposal activities -	
Bottom ash treatment 5.1(b) for both disposal and	
Unit operations used in the	
physico-chemical processing 5.1(b) for both disposal and	
of waste solids and sludges	
Physico-chemical treatments 5.1(b) for both disposal and	
of other wastes recovery activities	
The re-refining of waste oils 5.1(j) for recovery activities -	
Pretreatment of waste oil 5.1(j) for recovery activities -	
Pretreatment of waste oil 5.1(j) for recovery activities - Cleaning of waste oil 5.1(j) for recovery activities -	
Pretreatment of waste oil 5.1(j) for recovery activities - Cleaning of waste oil 5.1(j) for recovery activities - Fractionation of waste oil 5.1(j) for recovery activities -	
Pretreatment of waste oil 5.1(j) for recovery activities - Cleaning of waste oil 5.1(j) for recovery activities - Fractionation of waste oil 5.1(j) for recovery activities - Finishing of waste oil 5.1(j) for recovery activities -	
Pretreatment of waste oil 5.1(j) for recovery activities - Cleaning of waste oil 5.1(j) for recovery activities - Fractionation of waste oil 5.1(j) for recovery activities - Finishing of waste oil 5.1(j) for recovery activities - Regeneration Technologies - -	
Pretreatment of waste oil 5.1(j) for recovery activities - Cleaning of waste oil 5.1(j) for recovery activities - Fractionation of waste oil 5.1(j) for recovery activities - Finishing of waste oil 5.1(j) for recovery activities - Regeneration Technologies - - used for the re-refining of 5.1(j) for recovery activities -	
Pretreatment of waste oil 5.1(j) for recovery activities - Cleaning of waste oil 5.1(j) for recovery activities - Fractionation of waste oil 5.1(j) for recovery activities - Finishing of waste oil 5.1(j) for recovery activities - Regeneration Technologies - - used for the re-refining of 5.1(j) for recovery activities - Regeneration of waste - - Regeneration of waste 5.1(j) for recovery activities -	
Pretreatment of waste oil 5.1(j) for recovery activities - Cleaning of waste oil 5.1(j) for recovery activities - Fractionation of waste oil 5.1(j) for recovery activities - Finishing of waste oil 5.1(j) for recovery activities - Regeneration Technologies - - waste oils 5.1(j) for recovery activities - Regeneration of waste 5.1(j) for recovery activities - Regeneration of waste 5.1(j) for recovery activities - Solvents 5.1(j) for recovery activities -	
Pretreatment of waste oil 5.1(j) for recovery activities - Cleaning of waste oil 5.1(j) for recovery activities - Fractionation of waste oil 5.1(j) for recovery activities - Finishing of waste oil 5.1(j) for recovery activities - Regeneration Technologies - - used for the re-refining of 5.1(j) for recovery activities - Regeneration of waste 5.1(j) for recovery activities -	
Pretreatment of waste oil 5.1(j) for recovery activities - Cleaning of waste oil 5.1(j) for recovery activities - Fractionation of waste oil 5.1(j) for recovery activities - Finishing of waste oil 5.1(j) for recovery activities - Regeneration Technologies - - used for the re-refining of waste oils 5.1(j) for recovery activities - Regeneration of waste solvents 5.1(j) for recovery activities - Regeneration of waste catalysts and recovery of 5.1(j) for recovery activities -	
Pretreatment of waste oil5.1(j) for recovery activities-Cleaning of waste oil5.1(j) for recovery activities-Fractionation of waste oil5.1(j) for recovery activities-Finishing of waste oil5.1(j) for recovery activities-Regeneration Technologies5.1(j) for recovery activities-used for the re-refining of5.1(j) for recovery activities-Regeneration of waste5.1(j) for recovery activities-Regeneration of waste5.1(j) for recovery activities-Solvents5.1(j) for recovery activities-Catalysts and recovery of components from abatement5.1(i) for recovery activities-	

Regeneration of activated carbon	5.1(h) for recovery activities	-
Regeneration of resins	5.1(f) for recovery activities	-
Regeneration of waste acids	5.1(g) for both disposal and	
and bases	recovery activities	-
Regeneration of spent		
sulphuric acid	5.1(g) for recovery activities	-
Regeneration of spent		
hydrochloric acid	5.1(g) for recovery activities	-
Treatment of solid		
neatment of Solid	5.1(b) for recovery activities	-
nhetegraphie weste	5.1(c) for recovery activities	-
photographic waste		
		5.3.(a) (III) Disposal of
The stars and a main suite size solution		non-nazardous waste
I reatments primarily almed at		with a capacity
producing material to be used	-	exceeding 50 tonnes per
as fuel or for improving its		day involving pre-
energy recovery		treatment of waste for
		incineration or co-
		incineration
		5.3.(a) (iii) Disposal of
		non-hazardous waste
		with a capacity
Preparation of solid waste fuel	_	exceeding 50 tonnes per
mainly from solid waste		day involving pre-
		treatment of waste for
		incineration or co-
		incineration
		5.3.(b) (i)&(ii) Recovery
Proparation of solid waste fuel		of non-hazardous waste
by machanical (and biological)		with a capacity
treatment from non, bazardous	-	exceeding 50 tonnes per
		day involving pre-
wasies		treatment of waste for
		co-incineration
Preparation of solid waste fuel		
mainly from liquids and semi-	5.1(c) for recovery activities	-
liquid hazardous waste		
Preparation of solid waste fuel		
by the carbonisation of	5.1(b) for recovery activities	-
contaminated wood		
Preparation of liquid waste		
fuels	5.1(c) for recovery activities	-
Preparation of organic liquid		
waste fuels by blending mainly	5.1(c) for recovery activities	-
hazardous wastes		
Preparation of liquid waste		
fuels by fluidification of	5.1(c) for recovery activities	_
hazardous wastes		
Preparation of emulsions from		
liquid/semi-liquid hazardous	5.1(c) for recovery activities	-
waste		
114610		

Treatments of waste oil where waste OUT is basically used as a fuel	5.1(c) for recovery activities	-
Direct burning of waste oils	5.2. (b) Recovery of waste in waste in waste co-incineration plants for hazardous waste with a capacity exceeding 10 tonnes per day.	-
Mild reprocessing of waste oils	5.1(j) for recovery activities	-
Severe reprocessing	5.1(j) for recovery activities	-
Thermal cracking	5.1(j) for recovery activities	-
Hydrotreatment	5.1(j) for recovery activities	-
Production of biodiesel from vegetable waste oils	-	Does not require IEP? 4.1(a)?
Preparation of gaseous fuel from waste	5.2. (b) Disposal or recovery of waste in waste in waste incineration plants for hazardous waste with a capacity exceeding 10 tonnes per day.	5.2. (a) Disposal or recovery of waste in waste in waste incineration plants for hazardous waste with a capacity exceeding 10 tonnes per day.

Waste Incineration BREF

The BREF deals only with the dedicated incineration of waste and not with other situations where waste is thermally treated, e.g. co-incineration processes such as cement kilns and large combustion plants.

Although incineration provides the main focus of the BREF, it also includes some information on waste pyrolysis and gasification systems.

The Waste Incineration BREF does not:

- deal with decisions concerning the selection of incineration as a waste treatment option
- compare waste incineration with other waste treatment options.

Although approaches vary greatly, the incineration sector may approximately be divided into five main sub-sectors:

- Mixed Municipal Waste Incineration
- Pretreated Municipal or Other Pretreated Waste Incineration
- Hazardous Waste Incineration
- Sewage Sludge Incineration
- Clinical Waste Incineration

Category 6 of IED Annex I – Other Activities

The "Others Activities" category of Annex I is the most diverse of the categories in the range of activities that it covers. A description of the main features of each sub-category is now provided.

6.1 Relevant BREF for Categories 6.1(a) and 6.1(b) Pulp and Paper

The relevant BREF for categories 6.1(a) and 6.1(b) is the Pulp and Paper Industry BREF. This BREF covers the processes involved in the production of pulp and paper in integrated pulp and paper mills as well as for non-integrated pulp mills (market pulp) and non-integrated paper-mills using purchased pulp for paper production.

A paper mill may simply reconstitute pulp made elsewhere or may be integrated with the pulping operations on the same site. That is to say, the activities involved in pulping and recovered paper processing and those involved in papermaking may be undertaken separately or in combination on the same site. Both pulp mills and paper mills are operated in non-integrated and integrated ways. Mechanical pulping and recycled fibre processing is usually an integrated part of papermaking but has now also become a stand-alone activity.

Recovered fibre has become an indispensable raw material for the paper manufacturing industry, accounting about one-third of the total raw materials because of the favourable price of recovered fibres in comparison with the corresponding grades of market pulp and because of the promotion of wastepaper recycling by many European countries. In Europe there is an average utilisation rate of recovered paper of 43 %.

In preparation of this section of the Inventory good feedback was received from the Turkish Paper and Paper Products Industry Assembly and thus a high degree of reliability can be placed on this section of the Inventory.

A total of 113 paper mills are found in Turkey, this compares with 222 pulp mills (74 for market pulp) and 1.064 paper mills in Europe. No pulp mill was reported for Turkey.

6.1. (c) Production in industrial installations of one or more of the following wood-based panels: oriented strand board, particleboard or fibreboard with a production capacity exceeding 600 m³ per day,

A new BREF, the Production of Wood Based Products BREF, is currently at the earliest stages of preparation. The proposed scope for this BREF is that it covers production of:

- Particle Board
- Oriented Strand Board
- Fibre Board (Dry and Wet Process)

The proposed scope of the BREF excludes:

- Plywood and Veneer
- Plastic Wood Composites
- Cement and Gypsum bound wood-composites

This makes it clear that all such activities should require an IEP

In the meantime the relevant BREF for Category 6.1(c) is the Surface Treatment using Organic Solvents (STOS) BREF. The STOS BREF relates to the use of organic solvents. It is

recommended (see Category 6.7 for further discussion) that the capacity limit of using 200 tonnes (or 150 kg/hour) of organic solvent is used as one of the factors to determine whether or not an installation falls within Category 6.1(c).

It is recommended that the MoEU designate any installation producing wood panels that falls within the scope of the draft BREF or using more than 200 tonnes of organic solvents per year falls within Category 6.1(c) and requires IEP. The case for using 200 tonnes of organics solvent per year as a capacity limit for Category 6.1(c) is strengthened by the statement in the STOS BREF that, in particular, it covers:

• Coating of Furniture and Wood Materials

There are 66 installations that fall within this category in Turkey. No figure for installations in Europe is available.

6.2. Pre-treatment (operations such as washing, bleaching, mercerisation) or dyeing of textile fibres or textiles where the treatment capacity exceeds 10 tonnes per day

The relevant BREF for Category 6.2 is the Textile Industry BREF. This BREF covers the following processes:

- Fibre Preparation
- Pre-Treatment
- Dyeing
- Printing
- Finishing

Upstream processes which may have a significant influence on the environmental impact of the subsequent wet processing activities are also briefly described.

The backing of carpets is included in the Textile Industry BREF because it is an intrinsic part of carpet manufacturing and has the potential to pollute the environment.

All main textile fibre types, namely natural fibres, man-made fibres derived from natural polymers such as viscose and cellulose acetate as well as man-made fibres derived from synthetic polymers are described, including their blends.

A total of 103 textile producers were found in Turkey. No number of installations is reported for EU as the sector is made up of many small producers.

6.3. Tanning of hides and skins where the treatment capacity exceeds 12 tonnes of finished products per day

The relevant BREF for Category 6.3 is the Tanning of Hides and Skins BREF.

In this sector interpretation of '12 tonnes of finished products per day' is critical in deciding whether a specific installation requires an IEP.

The processes included in the BREF follow the technical definition of tanning as stabilising hides and skins and all associated activities.

The types of hides and skins included in the BREF are restricted to those of ovine (sheep) and bovine (cattle) origin, because the production capacities for any other type of raw material for the production of leather and furs are far below the threshold value in the Directive.

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In producing the Inventory for this sector note was taken of the capacity threshold set in the IED and all the larger producers were included in the Inventory. However this is another sector where additional investigation will need to be carried out by the MoEU concerning the producers that are just above the threshold in their production capacity or just below. It is recommended that MoEU work closely with the Turkish Leather and Leather Products Industry Assembly in relation to this issue.

A total of 76 installations have been identified in Turkey. No number of installations is reported for EU as the sector is made up of many small producers.

6.4.(a) Operating slaughterhouses with a carcass production capacity greater than 50 tonnes per day and 6.5. Installations for the disposal or recycling of animal carcases and animal waste with a treatment capacity exceeding 10 tonnes per day

The Relevant BREF for Categories 6.4 (a) and 6.5 is the Slaughterhouses and Animal By-Products BREF

Some processes are in this BREF because they are associated activities of 6.4.(a) even though on first examination they would more obviously be 6.5. activities, but they fall below that threshold.

The BREF considers that for large animals, such as cattle, sheep and pigs, the "slaughter" activity is considered to end with the making of standard cuts and for poultry, with the production of a clean whole saleable carcase. In recent years there has been a change in the terminology used to describe outputs from slaughterhouses. The term "by-product" is being used increasingly and the word "waste" is only used when referring to disposal activities.

The BREF considers that animal by-products activities covered include the treatments for entire bodies or parts of animals and those for products of animal origin. These activities include the treatments of animal by-products both intended for and not intended for human consumption. A wide range of by-products activities are covered. These include fat melting; rendering; fish-meal and fish-oil production; bone processing; blood processing associated with slaughterhouses and to the degree where the blood becomes a material for use in the preparation of another product. The incineration of carcases, parts thereof and animal meal and the burning of tallow are covered principally as routes for disposal. Land spreading; land injection; biogas production; composting; the preservation of hides and skins for tannery use, in slaughterhouses and gelatine manufacture are also covered. Landfill is not covered, except when mentioned as a route for disposal.

In implementing IEP in Categories 6.4(a) slaughterhouses and 6.5 rendering plants, it is important to note the Animal By-Products Regulation (EC) No. 1069/2009. It is recommended that MoEU discuss the interface between IEP and the Animal By-Products Regulation with their colleagues in the MFAL.

A total of 26 slaughterhouses were identified as well as 28 rendering plants. In the EU there are approximately a 1.500 slaughterhouses and about 400 rendering plants.

6.4.(b) Treatment and proce

ssing animal raw materials with a finished product production capacity greater than 75 tonnes per day or vegetable raw materials with a finished product production capacity greater than 300 tonnes per day and 6.4 (c) Treatment and processing of milk only, the quantity of milk received being greater than 200 tonnes per day.

The relevant BREF for Categories 6.4 (b) and 6.4(c) is the Food, Drink and Milk (FDM) Industry BREF.

6.4 (c) Processing of milk

The FDM BREF lists the following milk based products as being within its scope:

- Dairy products
- Milk and cream
- Condensed and powdered milk
- Butter
- Cheese
- Yoghurt
- Ice-cream
- Whey

Category 6.4(c) is the easier of these two categories to interpret. Milk supply to such activities tends to be seasonal in nature, due to the time of calving of cows. The summer peak of milk supply may be three or four times the volume of the winter supply. However for the purpose of determining whether or not a milk processing activity falls within Annex I, the capacity is determined as the daily quantity processed determined on the annual average. This is calculated by taking the total quantity of milk (in tonnes) processed in a given calendar year and dividing by 365 (days). If the average figure exceeds 200 tonnes per day the activity requires an IEP. The feedback from TOBB was evaluated against this criterion and any installation processing more than 200 tonnes per day has been included in the Inventory.

A total of 37 installations in Turkey have been included in the Inventory. A total of 26,000 FDM installations are reported for Europe but clearly many of these are smaller installations.

6.4 (b) Production of food from both animal and vegetable sources.

The first challenge is to determine the types of activity that are covered by this definition. The FDM BREF provides clear guidance on this issue.

The scope of the FDM BREF is wide and includes the whole range of activities producing food for human consumption and animal feed that can be found in European installations with capacities exceeding the above threshold values.

The FDM BREF does not cover small scale activities, such as catering or activities in restaurants or activities that do not use animal or vegetable raw materials. Upstream activities such as agriculture, hunting, slaughtering of animals and the manufacture of non-food products such as soap, candles, cosmetics, pharmaceuticals; manufacture of gelatine and glue from hides, skin and bones are also excluded. Thus no such activities are deemed to require an IEP under Category 6.4 (b), though clearly some activities in agriculture, slaughtering of animals and the manufacture of non-food products such as soap, candles, cosmetics, pharmaceuticals and manufacture of gelatine and glue from hides, skin and bones fall within other Categories on Annex I and those that do will require an IEP under the relevant Category.

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The FDM BREF lists the following products (Table 9) as being within its scope and it can be seen that animal products include fish and shellfish.

 Meat and Poultry 	Wheat Strach
Fish and Shellfish	Modified (physical/chemical) Starch
Olive Oil	Moist Petfood
Condensed and Powdered Milk	Confectionery
Yoghurt	Cocoa
Grain Mill Products	Sugar
Maize Strach	Sugar Refining
Sweeteners	Instant Coffee
 Animal Feed and Dry Petfood 	Malting
Bread	Fermentation
Cakes	Scotch Whisky
Boiled Sweets	 Soft Drinks (including Spring Water)
Sugar Cane	Cooked Ham
Roasting coffee	 Vegetable Oils and Fats
Yeast	Milk and Cream
Mashing	Cheese
Distilling	Whey
Wine	Starch
 Canned Meat (Beef Muscle in Gelatine) 	Potato Starch
 Fruit and Vegetables 	Animal Feed
Dairy Products	Semi-Moist Petfood
Butter	Dry Pasta
Ice-Cream	

Table 9 Products falling with FDM BREF

The list is extensive but is meant to be indicative rather than exhaustive and thus production of Turkish specialities such as raki should be included. The only product on this list that might be queried is spring water as it is of neither animal nor vegetable origin. The MoEU should decide whether or not to include bottlers of water with IEP.

The second challenge of interpretation is whether or not an installation exceeds the capacity thresholds set in the Category 6.4.

The threshold set for animal products is 75 tonnes per day. This capacity is a processing capacity based on whether or not the activity has the capability to process 75 tonnes of animal products. The capacity is not based on the average daily throughput of product but is based on the installed production capacity. In other words, if 75 tonnes of animal product material is available, if the installation can process this quantity of material within a 24 hour period, the activity requires an IEP.

The threshold set for vegetable products is 300 tonnes per day. Again this capacity is a processing capacity based on whether or not the activity has the capability to process 300 tonnes of vegetable products. The capacity is not based on the average daily throughput of product but is based on the installed production capacity. In other words, if 300 tonnes of vegetable product material is available, if the installation can process this quantity of material within a 24 hour period, the activity requires an IEP.

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There is the special case in the case of processing vegetable products which arises when the installation operates for a period of no more than 90 consecutive days in the year. This provision is directed mainly towards the sugar beet industry where sugar beet installations usually operate only for about a 90 day period during the last quarter of each year and for the rest of the year these installations lie idle. In the case of such installations the threshold is set at 600 tonnes of vegetable products. Most sugar beet installations comfortably exceed this threshold for commercial reasons.

In the case that an installation processes both animal and vegetable products, the threshold capacity is set linearly between 75 tonnes and 300 tonnes per day, determined by the relative percentage of animal to vegetable products being processed.

The final consideration is that packaging is excluded for purposes of determining the amount of product processed. In most cases this issue will probably not be very significant as the weight of packaging is likely to be low, relative to the weight of product. However in some cases particularly where glass packaging is used, this issue may become more significant.

Numbers of Installations

A total of twenty six thousand (26,000) FDM installations are reported for Europe but clearly many of these are smaller installations. In Turkey there are 33 meat processing installations, four hundred and 117 installations processing vegetable matter and 37 milk processing installations. In addition there are 17 installations just listed as "food" producing installations.

6.6. (a) Intensive rearing of poultry with more than 40 000 places for poultry; 6.6. (b) Intensive rearing of pigs with more than 2 000 places for production pigs (over 30 kg) and 6.6. (c) Intensive rearing of pigs with more than 750 places for sows

The Relevant BREF for Categories 6.6(a), 6.6(b) and 6.6 (c) is the Intensive Rearing of Poultry and Pigs BREF.

Intensive Poultry

The Directive does not define the term 'poultry'. However the Technical Working Group (TWG) for the BREF concluded that in the BREF the scope of poultry is chicken laying hens and broilers, turkeys, ducks and Guinea fowls.

The area required to house each bird is determined by the animal welfare requirements. The animal welfare requirements are set in Directive 1999/74/EC which lays down minimum standards for the protection of <u>laying hens</u> and which bans the use of cage systems. Further, more general, animal welfare requirements are set in Directive 98/58/EC.

It is recommended that the MoEU discuss the requirements of these animal health directives with their colleagues in the Ministry of Agriculture to determine the area that must be provided for each bird.

The MoEU can determine the number of places provided by simply measuring the area of each poultry house and calculating the maximum number of birds that can be housed based on the formula agreed with the Ministry of Agriculture. A typical formula provides 250 cm² per hen.

Number of Installations

A total of 102 poultry installations have been identified in Turkey. The number in Europe is about 3,000. The number in Turkey seems relatively low, although this industry may consist of a small number of extremely large installations.

Intensive Pigs

The production of pigs includes the rearing of weaners, whose growing/finishing starts at a weight that varies between 25 and 35 kg of live weight. The rearing of sows includes mating, gestating and farrowing sows and gilts.

No installation has been identified.

Intensive Cattle Rearing

Cattle Rearing has never been part of the schedule of activities found in Annex I. This has been essentially because cattle rearing have largely been an extensive activity with little imported feed being used and the majority of the feed produced on the land subsequently used for spreading the manure. Essentially the nutrients are in reasonable balance. However the issue has been raised within the European Parliament and the IED requires that the EC report to the European Parliament on this issue and on the spreading of manure by 31st of December 2012. (Art 73 IED)

6.7. Surface treatment of substances, objects or products using organic solvents, in particular for dressing, printing, coating, degreasing, waterproofing, sizing, painting, cleaning or impregnating, with an organic solvent consumption capacity of more than 150 kg per hour or more than 200 tonnes per year and 6.10. Preservation of wood and wood products with chemicals with a production capacity exceeding 75 m3 per day other than exclusively treating against sap-stain.

The relevant BREF for Category 6.7 is the Surface Treatment using Organic Solvents (STOS) BREF. The STOS BREF relates to the use of organic solvents. It is recommended that the capacity limit of use of 200 tonnes (or 150 kg/hour) of organic solvent is used as the factor to determine whether or not an installation falls within Category 6.7.

Category 6.7 (Chapter II of IED) has an important interface with the activities (set out in Annex VII of IED) and controlled under Chapter V of IED. Both Category 6.7 and Annex VII control the use of organic solvents in the case of many of the same activities (see Table No. 9). Category 6.7 controls such emissions by ensuring the use of BAT and Chapter V through enforcement of emission limit values. The Chapter V controls control only emissions of organic solvents to atmosphere. The Chapter II (Category 6.7) control noise, production of waste and emissions to water in addition to emissions of organic solvents to atmosphere. Whilst the controls imposed under Chapter V are generally binding in nature for an activity falling within Annex VII, an derogation to these controls is provided by Article 59 (2) of the IED. Article 59 (2) essentially means that provided an activity that falls within Annex VII obtains an IEP, operates to BAT and that no significant risks to human health or environment are expected, then the requirements of Chapter V are satisfied. By strictly adoption the Capacity Limit of 200 tonnes per year (150 kg/hour) for Category 6.7, the MoEU is ensuring there is a clear delineation of the controls imposed under Chapter II and under Chapter V of the IED.

The STOS BREF does not consider the following processes:

- other dressing, waterproofing, sizing or impregnation processes that may be in the scope of the BREF(s) on Textiles and Tanneries
- the production of laminate boards, chipboard, etc. as these use water-based resins (See Category 6.1(c))
- industries (or those parts of) or activities using solvents widely known to operate below the thresholds (i.e. those that are controlled under Chapter V of IED)
- the manufacture of **paints**, **inks**, adhesives, etc., which are not within the scope. (See below for further discussion)

Comparison between Category 6.7 and activities covered by Annex VII

The main activities discussed in the STOS BREF are set out in the first column of Table 10. Alongside these activities, the activities found in Annex VII are placed alongside. The overlap between Category 6.7 and Annex VII becomes clear. It is important that MoEU considers the recommendation made that the Capacity Limit of 200 tonnes of organic solvent be made the demarcation between the two systems.

It should also be noted the overlap between Annex VII and other Annex I categories including Categories 4.1(i), 4.5, 6.4 (i) and 6.4 (ii). Recommendations concerning these overlaps are made at the section dealing with each Category.

STOS BREF Activities	Annex VII Activities	
Heatset web offset – printing	9. (b) Printing (b) heatset web offset – a web- fed printing activity using an image carrier in which the printing and non-printing area are in the same plane, where web-fed means that the material to be printed is fed to the machine from a reel as distinct from separate sheets. The non-printing area is treated to attract water and thus reject ink. The printing area is treated to receive and transmit ink to the surface to be printed. Evaporation takes place in an oven where hot air is used to heat the printed material	
Flexible packaging – printing	9.(g) Printing varnishing – an activity by which a varnish or an adhesive coating for the purpose of later sealing the packaging material is applied to a flexible material	
Publication gravure – printing	9.(d) Printing - publication rotogravure – a rotogravure printing activity used for printing paper for magazines, brochures, catalogues or similar products, using toluene-based inks	
Manufacture of Adhesive Tape	2. Adhesive coating Any activity in which an adhesive is applied to a surface, with the exception of adhesive coating and laminating associated with printing activities.	
Coating of Cars	3.(a)(i) Any activity in which a single or multiple application of a continuous film of a	

Table 10 Comparison of Activities using Organic Solvents – Annex I vs. Annex VII

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		step before or after any other activity shall be
considered as one surface cleaning activity.		considered as one surface cleaning activity.

	This set is the design of the family the strange of
	This activity does not refer to the cleaning of
	the equipment but to the cleaning
	of the surface of products.
Coating of Plastic Work-pieces	16. Wood and plastic lamination
	Any activity to adhere together wood and/or
	plastic to produce laminated products.
Coating of Eurniture and Wood	16. Wood and plastic lamination
Materials	Any activity to adhere together wood and/or
Materials	plastic to produce laminated products
Manufacture of Mirroro	No direct equivalent
	7. Manufacturing of coating mixtures,
	varnishes, inks and adhesives
	The manufacture of the above final products,
	and of intermediates where carried out at the
	same site, by mixing of pigments, resins and
	adhesive materials with organic solvent or
	other carrier, including dispersion and
	predispersion activities viscosity and tint
	adjustments and operations for filling the final
	product into its container
COMMENT	Product into its container.
	8. Manufacturing of pharmaceutical products
This Annex VII activity has a clear overlap with	The chemical synthesis, termentation,
Category 4.5 of Annex I	extraction, formulation and finishing of
	pharmaceutical products and, where car-
	ried out at the same site, the manufacture of
	intermediate products.
COMMENT	10. Rubber conversion
There may be some overlap between this	Any activity of mixing, milling, blending,
Annex VII activity with Category 4.1 (i) of	calendering, extrusion and vulcanisation of
Annex I	natural or synthetic rubber and any ancillary
	operations for converting natural or synthetic
	rubbar into a finished product
COMMENT	10 Vegetable ail and animal fat avtraction and
	12. Vegetable oli and animai lat extraction and
This Annex VII activity appears to cover the	vegetable oil refining activities
production of biodiesel, an activity that does	
not fall clearly within Annex I other than	Any activity to extract vegetable oil from seeds
possibly into Category 4.1 (b).	and other vegetable matter, the processing of
The processing of dry residues to produce	dry residues to produce animal feed, the
animal feed and the purification of fats and	purification of fats and vegetable oils derived
vegetable oils derived from seeds, vegetable	from seeds, vegetable matter and/or animal
matter appears to overlap with Category 6.4	matter.
(ii) of Annex I. The purification of fats derived	
from animal matter appears to overlap with	
Cotogorion 6 1/i) and 6 5 of Appayl	
Calegones 6.4(I) and 6.5 of Annex I.	

Paint Industry

The paint industry (note not the production of pigments and colours) is specifically excluded from the STOS BREF as noted above. This is because the paint industry does not involve heating of the mixture when the paint is formulated. Thus limited emissions of solvents should occur.

This position can be supported by the fact that the paint can be considered as a coating mixture and is controlled under Chapter V of the IED virtue of the fact coating mixtures are specified Annex VII Category 7. It can be further supported by the fact that Directive 2004/42/EC substantially reduces the amount of organic solvent that can be formulated into paints, thus largely eliminating the issue at source.

Alternatively, the MoEU can decide to impose the criteria that any producer of paints using more than 200 tonnes of organic solvent per year falls within Category 6.7 and is subject to IEP. It is recommended there are discussions within the MoEU as to the approach that is most appropriate for Turkey. In the meantime, all paint manufacturers have been excluded from the Inventory.

732 Category 6.7 Installations have been identified in Turkey.

6.8. Production of carbon (hard-burnt coal) or electrographite by means of incineration or graphitization

The relevant BREF for the Production of carbon (hard-burnt coal) or electrographite by means of incineration or graphitisation is the Non-Ferrous Metals Industries BREF.

This sector is a specialist sector and is closely associated with aluminium smelters where graphite electrodes are required.

There are 44 in the EU; none has been identified in Turkey.

6.9. Capture of CO2 streams from installations covered by this Directive for the purposes of geological storage pursuant to Directive 2009/31/EC

There is no BREF for the capture of CO2 streams from installations covered by this Directive for the purposes of geological storage pursuant to Directive 2009/31/EC.

This is a new category of activity envisioned within Directive 2009/31/EC. As a result of this Directive, any proposal to develop new LCP in excess of 300MW (Category 1.1 of Annex I), must include an assessment of whether suitable storage sites are available for the storage of CO2 and the feasibility of transport facilities for the CO2. (see Art. 36 of IED).

No such storage facilities currently exist in the EU and none have been identified in Turkey.

6.10. Preservation of wood and wood products with chemicals with a production capacity exceeding 75 m3 per day other than exclusively treating against sap-stain

At present there is no BREF that is specific to this Category although a Wood and Wood Products Preservation with Chemicals BREF is about to be prepared. At present only the title of the BREF is available.

The only BREF that refers to this Category is the Surface Treatment using Organics Solvents BREF. STOS has been mainly prepared for Category 6.7 which contains a capacity limit of 200 tonnes per year usage of organic solvents. In view of the toxic nature of wood preservatives, it is recommended that the MoEU ignore this capacity limit and require any installation that preserves wood or wood products using chemicals, with a production capacity exceeding 75m3 per day, to obtain an IEP.

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6.11. Independently operated treatment of waste water not covered by Directive 91/271/EEC and discharged by an installation covered by Chapter II (of IED)

There is no BREF for independently operated treatment of waste water. The following clarification of the exact nature of such waste water treatment plants has been prepared by the Project.

1. Waste Water Installations falling within Category 6.11

For a waste water installation to fall within the definition contained in 6.11, it must meet both the following requirements:

- (a) Be independently operated
- (b) Receive waste water from any other installation falling within Annex I

2. Examples of Waste Water Installations falling within Category 6.11

The two most common situations falling within Category 6.11 are as follows:

- (a) Assume there is a milk factory (An Annex I Category 6.4 (c) activity) which discharges its waste water to a waste water treatment plant that is owned and operated by a person (or company) who is independent from the owner of the milk factory. In this situation there will be a contract between the milk factory and the operator of the waste water treatment plant and the milk factory will pay the owner of the waste water treatment plant to treat the waste water from the milk factory. The key point is that operation of the waste water treatment plant is the principal activity that is carried out by the owner of the waste water treatment plant. The independently owned waste water treatment plant falls within Category 6.11 and must receive an integrated permit.
- (b) Assume there is an industrial zone where there are a number of activities, with at least one activity in the industrial zone that falls within Annex I. An example in this case might be a textile activity that falls within Category 6.2 of Annex I. The waste water from the textile activity is discharged to a waste water treatment plant that is owned and operated by the owner of the industrial zone. This waste water treatment plant may receive waste water from a number of activities and treat the combined waste water from all of the activities. In this case, because one of activities (Textiles) falls within Annex I, the combined waste water treatment plant for the industrial zone falls within Category 6.11 and must receive an integrated permit.

3. Examples of Waste Water Treatment Plants that do not fall within Category 6.11

- (a) Any municipal waste water treatment plant i.e. one covered by the Urban Waste Water Directive (91/271/EEC) DOES NOT require an IEP in order to operate, even if it receives waste water from an activity falling within Annex I. Thus the municipal waste water treatment plant, for example in Ankara, may receive waste water from a milk factory (An Annex I Category 6.4 (c) activity) and treat this waste water in combination with municipal waste water and waste water from other industrial activities. The Ankara municipal waste treatment plant does not require an IEP under Category 6.11 to be allowed to operate.
- (b) Assume again there is a milk factory (An Annex I Category 6.4 (c) activity) but in this case the milk factory has its own waste water treatment plant and treats its own waste

water. In this case the waste water treatment plant will be controlled by an integrated permit issued under Category 6.4 (c), as the principal activity in this case is the processing of milk and **not** the treatment of waste water.

(c) Assume again there is an industrial zone where there are a number of activities but none of the activities in this industrial zone fall within Annex I. Again the waste water from all the activities is discharged to a waste water treatment plant that is owned and operated by the owner of the industrial zone. In this case, because none of the activities falls within Annex I, the combined waste water treatment plant for the industrial zone does not fall within Category 6.11 and therefore does not need an IEP.

Activities falling within Category 6.11

A total of 56 activities have been identified in Turkey that fall within Category 6.11. It is not known how many such activities exist in Europe.

Annex 1

In this annex each sub-category is aligned with a BREF where this is relevant. In some subsectors more than one BREF is relevant.

1. Energy industries		
Sub-Category	Relevant BREF	Additional Comments
1.1. Combustion of fuels in installations with a total rated thermal input of 50 MW or more	Large Combustion Plant BREF	The LCP BREF also covers the use of secondary fuels in LCPs. The LCP BREF does not cover incineration or cases where the combustion is an integral part of the process e.g. coke in iron and steel. ELVs for LCPs are found in the Industrial Emissions Directive.
1.2. Refining of mineral oil and gas	Mineral Oil and Gas Refineries BREF	Covers all refineries regardless of size but does not cover exploration, production, transportation or marketing. Energy production or olefin production are covered by the Large Volume Organics BREFs. Refineries are typically big and fully integrated.
1.3. Production of coke	Iron and Steel BREF	The BREF does not cover H2SO4 plants attached to coke installations, as these are the subject of the LVI Chemicals BREF.
1.4. (a) Gasification or liquefaction of coal	No relevant BREF	
1.4.(b) Gasification or liquefaction of other fuels in installations with a total rated thermal input of 20 MW or more.		
2. Production and processing of metals		
Sub-Category	Relevant BREF	Additional Comments
2.1. Metal ore (including sulphide ore) roasting or sintering	Iron and Steel BREF Non-Ferrous Metals BREF	
2.2. Production of pig iron or steel (primary or secondary fusion) including continuous casting, with a capacity exceeding 2,5 tonnes per hour	Iron and Steel BREF	The BREF does not cover the recovery of bag filter dusts as these are the subject of the Non- ferrous Metals BREF. Secondary Fusion is equivalent for ferrous metals to Activity R4 of Annex II of Directive 2008/98/EC Capacity may be technically constrained by loading times etc
2.3.(a) Processing of ferrous metals -operation of hot-rolling mills with a capacity exceeding 20 tonnes of crude steel per hour	Ferrous Metals Processing BREF	Covers: • reheating and heat treatment • surface rectification and preparation • shaping of steel • annealing and tempering • hot dip metal coating
2.3. (b) Processing of ferrous metals - operation of smitheries with hammers the energy of which exceeds 50 kilojoule per hammer, where	Smitheries and Foundries BREF	No European smitheries have been reported to exist that fall within this category (BREF p(i))

the colorific power used		
avcoade 20 MW		
2.3 (c) Processing of forrous	Ferrous Metals	Covers:
metals -	Processing RRFF	 reheating and heat treatment
application of protective fused		 reneating and near treatment surface rectification and preparation
metal coats with an input		 standed rectilication and preparation shaping of steel
exceeding 2 tonnes of crude		 annealing and tempering
steel per hour		 bot dip metal coating
2.4 Operation of ferrous	Smitheries and	
metal foundries with a	Foundries BREF	
production capacity exceeding		
20 tonnes per dav		
2.5.(a) Processing of non-	Non-Ferrous Metals	Recovery of non-ferrous metals is included
ferrous metals:	BREF	,
production of non-ferrous		
crude metals from ore,		
concentrates or secondary raw		
materials by metallurgical,		
chemical or electrolytic		
processes;		
2.5. (b) Processing of non-	Smitheries and	Cadmium, Litanium and precious metal
Terrous metals:	Foundries BREF	foundries have been excluded from the BREF
of non-formula metals		(PREE p(i))
including recovered products		
and operation of non- ferrous		Recovery of non-ferrous metals is included –
metal foundries, with a melting		this is equivalent for non-ferrous metals to
capacity exceeding 4 tonnes		Activity R4 of Annex II of Directive 2008/98/EC
per day for lead and cadmium		,
or 20 tonnes per day for all		
other metals.		
2.6. Surface treatment of	Surface Treatment of	
metals or plastic materials	Metals and Plastics	
using an electrolytic or	BREF	
chemical process where the		
volume of the treatment vats		
exceeds 30 m3		
Sub-Category	Relevant BREE	Additional Comments
3 1 (a) Production of cement	Cement Lime and MgO	1 The BREE does not cover quarrying/mining
clinker in rotary kilns with a	BRFF	or production of clinker using shaft kilns
production capacity exceeding	2.12.	2. If cement kilns also co-incinerate more than
500 tonnes per day or in other		10 t/day of hazardous waste they are also
kilns with a production capacity		covered as activities by sub-sectors 5.1 and
exceeding 50 tonnes per day		5.2(b)
3.1.(b) Production of lime in	Cement, Lime and MgO	
kilns with a production capacity	BREF	
exceeding 50 tonnes per day		
3.1.(c) Production of	Cement, Lime and MgO	1. The BREF covers the dry production of MgO
magnesium oxide in kilns with	BREF	from MgCO3
a production capacity		
exceeding 50 tonnes per day.		
3.2. Production of asbestos or		
the manufacture of aspestos-		
2.2 Manufacture of class		
5.5. Wanuacture of glass	GIDSS DREF	
melting capacity exceeding 20		
mening capacity exceeding 20		

tonnes per day		
3.4. Melting mineral	Glass BREF	
substances including the		
production of mineral fibres		
with a melting capacity		
exceeding 20 tonnes per day		
3.5. Manufacture of ceramic	Ceramics BREF	The BREF includes manufacture of:
products by firing, in particular		 wall and floor tiles
roofing tiles, bricks, refractory		 bricks and roof tiles
bricks, tiles, stoneware or		house hold ceramics
porcelain with a production		refractory products
capacity exceeding 75 tonnes		
per day and/or with a kiln		• Salitary wate
capacity exceeding 4 m3 and		technical ceramics
with a setting density per kiln		Vitrified clay pipes
exceeding 300 kg/m3		 expanded clay aggregates
		 inorganic bonded abrasives
4. Chemical Industry		For the purpose of this section, production
		within the meaning of the categories of
		activities contained in this section means the
		production on an industrial scale by chemical
		or biological processing of substances or
		groups of substances listed in points 4.1 to 4.6
Sub-Category	Relevant BREF	Additional Comments
4.1.(a) Production of organic	Large Volume Organic	The Large Volume Organic Chemicals BREF
chemicals, such as simple	Chemicals BREF	covers the approximately 90 chemicals that are
hydrocarbons (linear or cyclic,		produced in volumes exceeding 100kt/annum
saturated or unsaturated.		in Europe
aliphatic or aromatic)		'
4.1. (b) Production of organic	Large Volume Organic	The Large Volume Organic Chemicals BREF
chemicals, such as oxygen-	Chemicals BREF	covers the approximately 90 chemicals that are
containing hydrocarbons such		produced in volumes exceeding 100kt/annum
as alcohols, aldehydes,	Polymers BREF	in Europe
ketones carboxylic acids		
esters and mixtures of esters		Biodiesel production is considered to fall within
acetates ethers peroxides		this category
and enoxy resins:		the eategory
4 1 (c) Production of organic	Large Volume Organic	The Large Volume Organic Chemicals BREE
chemicals such as sulphurous	Chemicals BREF	covers the approximately 90 chemicals that are
hydrocarbons:		produced in volumes exceeding 100kt/annum
nyuloouloono,		in Europe
4.1 (d) Production of organic	Large Volume Organic	The Large Volume Organic Chemicals RREE
chemicals such as		covers the approximately 00 chemicals that are
nitrogenous hydrocarbons		produced in volumes exceeding 100kt/appum
such as aminos, amidos		in Europe
nitrous compounds, nitro		
compounds or pitrate		
compounds, minies, cyanales,		
1 (a) Production of organic	Largo Voluma Organia	The Large Volume Organic Chemicals BBEE
4.1. (e) Production of organic		The Large volume Organic Chemicals BREF
chemicals, such as		covers the approximately 90 chemicals that are
priosphorus-containing		produced in volumes exceeding Toukt/annum
4.1. (I) Production of organic	Large volume Organic	The Large volume Organic Unemicals BREF
chemicals, such as halogenic		covers the approximately 90 chemicals that are
nyarocarbons		produced in volumes exceeding 100kt/annum
4.1. (g) Production of organic	Large Volume Organic	The Large Volume Organic Chemicals BREF
cnemicals, such as	Chemicals BREF	covers the approximately 90 chemicals that are

organometallic compounds		produced in volumes exceeding 100kt/annum in Europe	
		Gold mines are considered to fall within this category	
4.1. (h) Production of organic chemicals, such as plastic materials (polymers, synthetic fibres and cellulose-based fibres)	Polymers BREF		
4.1. (i) Production of organic chemicals, such as synthetic rubbers	Polymers BREF		
4.1. (j) Production of organic chemicals, such as dyes and pigments	Organic Fine Chemicals BREF		
4.1. (k) Production of organic chemicals, such as surface-active agents and surfactants	Not specifically covered by any BREF	Production of speciality surfactants is covered by the Organic Fine Chemicals BREF. Production of general surfactants is not covered by any of the BREFs	
4.2. (a) Production of inorganic chemicals, such as gases, such as ammonia, chlorine or hydrogen chloride, fluorine or hydrogen fluoride, carbon oxides, sulphur compounds, nitrogen oxides, hydrogen, sulphur dioxide, carbonyl chloride:	Chlor-Alkali BREF Large Volume Inorganic Chemicals – Ammonia, Acids and Fertilisers BREF Speciality Inorganics BREF		
4.2. (b) Production of inorganic chemicals, such as acids, such as chromic acid, hydrofluoric acid, phosphoric acid, nitric acid, hydrochloric acid, sulphuric acid, oleum,	Large Volume Inorganic Chemicals – Ammonia, Acids and Fertilisers BREF Speciality Inorganics		
sulphurous acids; 4.2. (c) Production of inorganic	BREF Chlor-Alkali BREF		
chemicals, such as bases, such as ammonium hydroxide, potassium hydroxide, sodium hydroxide;	Speciality Inorganics BREF		
4.2. (d) Production of inorganic chemicals, such as salts, such as ammonium chloride, potassium chlorate, potassium carbonate, sodium carbonate, perborate, silver nitrate;	Large Volume Inorganic Chemicals – Solids and others Speciality Inorganics BREF	The BREF covers five main products: Soda Ash Titanium Dioxide Carbon Black Synthetic Amorphous Silica Inorganic Phosphates In addition the BREF covers seventeen other products although this list is non-exhaustive Aluminium Fluoride Calcium Carbide Carbon Disulphide Ferrous Chloride Copperas Lead Oxide Magnesium Compounds Sodium Silicate Silicon Carbide	

4.2. (e) Production of inorganic chemicals, such as non- metals, metal oxides or other inorganic compounds such as calcium carbide, silicon, silicon carbide.	Large Volume Inorganic Chemicals – Solids and others Speciality Inorganics BREF	Zeolites Calcium Chloride Precipitated Calcium Carbonate Sodium Perchlorate Sodium Perborate Sodium Perborate Sodium Sulphite Zinc Oxide The BREF covers five main products: • Soda Ash • Titanium Dioxide • Carbon Black • Synthetic Amorphous Silica • Inorganic Phosphates and seventeen other products • Aluminium Fluoride • Calcium Carbide • Carbon Disulphide • Ferrous Chloride • Copperas • Lead Oxide • Magnesium Compounds • Sodium Silicate • Silicon Carbide • Zeolites • Calcium Chloride • Precipitated Calcium Carbonate • Sodium Perborate • Sodium Percarbonate • Sodium Percarbonate • Sodium Sulphite • Zinc Oxide
4.3. Production of phosphorous, nitrogen or potassium-based fertilisers (simple or compound fertilisers)	Large Volume Inorganic Chemicals – Ammonia, Acids and Fertilisers BREF	
	BREF	
4.4. Production of plant protection products or of biocides	Organic Fine Chemicals BREF Speciality Inorganics BREF	
4.5. Production of pharmaceutical products including intermediates	Organic Fine Chemicals BREF Speciality Inorganics BREF	Manufacture of pharmaceuticals includes extraction from natural plants. An example that has been identified in Turkey is the extraction of morphine from hashish.
4.6. Production of explosives	Organic Fine Chemicals BREF Speciality Inorganics BREF	
5. Waste management		
Sub-Category	Relevant BREF	Additional Comments

In Category 5.1, storage capacity of 10 tonnes per day is taken as meaning the physical capacity to store 10 tonnes of hazardous waste. Temporary storage of such wastes at the sites where the waste is produced is not considered to be within the definition. Temporary storage pending disposal via one of the routes set out in 5.1 is also considered not to be within the definition. 5.1.(a) Disposal or recovery of hazardous Waste waste with a capacity exceeding 10 tonnes per Treatments Industries **BREF** day involving biological treatment 5.1.(b) Disposal or recovery of hazardous Waste waste with a capacity exceeding 10 tonnes per Treatments day involving physico-chemical treatment Industries BREF 5.1.(c) Disposal or recovery of hazardous Waste waste with a capacity exceeding 10 tonnes per Treatments day involving blending or mixing prior to Industries BREF submission to any of the other activities listed in points 5.1 and 5.2 5.1.(d) Disposal or recovery of hazardous Waste waste with a capacity exceeding 10 tonnes per Treatments day involving repackaging prior to submission Industries BREF to any of the other activities listed in points 5.1 and 5.2 5.1.(e) Disposal or recovery of hazardous Waste Equivalent to Activity R2 in Annex II of waste with a capacity exceeding 10 tonnes per Treatments Waste Directive 2008/98/EC day involving solvent reclamation/regeneration Industries BREF 5.1.(f) Disposal or recovery of hazardous Equivalent to Activity R5 in Annex II of Waste Treatments waste with a capacity exceeding 10 tonnes per Waste Directive 2008/98/EC day involving recycling/reclamation of inorganic Industries BREF materials other than metals or metal compounds 5.1.(g) Disposal or recovery of hazardous Waste Equivalent to Activity R6 in Annex II of waste with a capacity exceeding 10 tonnes per Treatments Waste Directive 2008/98/EC day involving regeneration of acids or bases Industries **BREF** 5.1.(h) Disposal or recovery of hazardous Equivalent to Activity R7 in Annex II of Waste waste with a capacity exceeding 10 tonnes per Treatments Waste Directive 2008/98/EC day involving recovery of components used for Industries BREF pollution abatement 5.1.(i) Disposal or recovery of hazardous Waste Equivalent to Activity R8 in Annex II of waste with a capacity exceeding 10 tonnes per Waste Directive 2008/98/EC Treatments day involving recovery of components from Industries BREF catalysts 5.1.(j) Disposal or recovery of hazardous Waste Equivalent to Activity R9 in Annex II of waste with a capacity exceeding 10 tonnes per Treatments Waste Directive 2008/98/EC day involving oil re-refining or other reuses of Industries **BREF** oil 5.1.(k) Disposal or recovery of hazardous Equivalent to Activity D4 in Annex I of Waste Waste Directive 2008/98/EC waste with a capacity exceeding 10 tonnes per Treatments day involving surface impoundment. Industries **BREF** 5.2.(a) Disposal or recovery of waste in waste The Waste Incineration BREF covers: Waste incineration plants or in waste co-incineration Incineration Incineration plants for non-hazardous waste with a capacity BREF Pyrolysis • exceeding 3 tonnes per hour Gasification 5.2.(b) Disposal or recovery of waste in waste Waste The Waste Incineration BREF covers: incineration plants or in waste co-incineration Incineration Incineration plants for hazardous waste with a capacity BREF **Pyrolysis** • exceeding 10 tonnes per day. Gasification 5.3 Disposal and Recovery of nonhazardous waste 5.3.(a) (i) Disposal of non-hazardous waste with Waste Equivalent to Activity D8 in Annex I of a capacity exceeding 50 tonnes per day Treatments Waste Directive 2008/98/EC.

involving biological treatment, and excluding	Industries BREF	When the only biological waste
91/271/EEC of 21 May 1991 concerning urban		treatment activity carried out is
waste-water treatment		anaerobic digestion, the capacity
		tonnes per day.
5.3.(a) (ii) Disposal of non-hazardous waste	Waste	Equivalent to Activity D9 in Annex I of
involving physico-chemical treatment, and	I reatments	Waste Directive 2008/98/EC
excluding activities covered by Council		
Directive 91/271/EEC of 21 May 1991		
5.3 (a) (iii) Disposal of non-bazardous waste	Waste	
with a capacity exceeding 50 tonnes per day	Treatments	
involving pre-treatment of waste for incineration	Industries BREF	
or co-incineration, and excluding activities		
May 1991 concerning urban waste-water		
treatment		
5.3.(a) (iv) Disposal of non-hazardous waste	Waste	
involving treatment of slags and ashes, and	Industries BREF	
excluding activities covered by Council		
Directive 91/271/EEC of 21 May 1991		
5.3.(a) (v) Disposal of non-hazardous waste	Waste	
with a capacity exceeding 50 tonnes per day	Treatments	
involving treatment in shredders of metal waste,	Industries BREF	
equipment and end-of-life vehicles and their		
components, and excluding activities covered		
by Council Directive 91/271/EEC of 21 May		
5.3 (b) (i) Recovery, or a mix of recovery and	Waste	
disposal, of non-hazardous waste with a	Treatments	
capacity exceeding 75 tonnes per day involving	Industries BREF	
covered by Directive 91/271/EEC		
5.3 (b) (ii) Recovery, or a mix of recovery and	Waste	
disposal, of non-hazardous waste with a	Treatments	
capacity exceeding 75 tonnes per day involving	Industries BREF	
incineration, and excluding activities covered by		
Directive 91/271/EEC		
5.3 (b) (iii) Recovery, or a mix of recovery and disposal of non-bazardous waste with a	Waste	
capacity exceeding 75 tonnes per day involving	Industries BREF	
treatment of slags and ashes, and excluding		
activities covered by Directive 91/271/EEC		
disposal, of non-hazardous waste with a		
capacity exceeding 75 tonnes per day involving		
treatment in shredders of metal waste,		
Including waste electrical and electronic		
components, and excluding activities covered		
by Directive 91/271/EEC		
5.4. Landfills, as defined in Article 2(g) of		The Landfill Directive acts as the
Council Directive 1999/31/EC 01 20 April 1999		

on the landfill of waste, receiving more than 10 tonnes of waste per day or with a total capacity exceeding 25 000 tonnes, excluding landfills of inert waste		
5.5. Temporary storage of hazardous waste not covered under point 5.4 pending any of the activities listed in points 5.1, 5.2, 5.4 and 5.6 with a total capacity exceeding 50 tonnes, excluding temporary storage, pending collection, on the site where the waste is generated	Waste Treatments Industries BREF	
5.6. Underground storage of hazardous waste with a total capacity exceeding 50 tonnes	Waste Treatments Industries BREF	The Landfill Directive acts as the effective BREF for Landfill Activities Similar to Activity D12 in Annex I of Waste Directive 2008/98/EC
6 Other activities		
Sub-Category	Relevant BREE	Additional Comments
C. (a) Dreduction in inductrial is stallations (
6.1. (a) Production in industrial installations of pulp from timber or other fibrous materials	Pulp and Paper BREF	
6.1. (b) Production in industrial installations of paper or card board with a production capacity exceeding 20 tonnes per day	Pulp and Paper BREF	
6.1. (c) Production in industrial installations of one or more of the following wood-based panels: oriented strand board, particleboard or fibreboard with a production capacity exceeding 600 m3 per day.	Surface Treatment using Organics Solvents BREF Production of Wood Based Products BREF*	* The Production of Wood Based Products BREF has reached the stage of having a "Meeting Report". The Meeting Report contains a proposed scope for the BREF and this proposed scope has been utilised in the preparation of this Report.
6.2. Pre-treatment (operations such as washing, bleaching, mercerisation) or dyeing of textile fibres or textiles where the treatment capacity exceeds 10 tonnes per day	Textile Industry BREF	The Textile Industry BREF includes: • Fibre preparation • Pre-treatment • Dyeing • Printing • Finishing
6.3. Tanning of hides and skins where the treatment capacity exceeds 12 tonnes of finished products per day	Tanning of Hides and Skins BREE	The Tanning of Hides and Skins BREF is confined to ovine and bovine hides and skins
6.4.(a) Operating slaughterhouses with a carcass production capacity greater than 50 tonnes per day	Slaughterhouses and Animal By- Products BREF	BREF covers landspreading
6.4.(b) (i) Treatment and processing, other than exclusively packaging, of the following raw	Food, Drink and Milk Industries	Packaging is not be included in the final weight of the product.
unprocessed, intended for the production of food or feed from only animal raw materials (other than exclusively milk) with a finished product production capacity greater than 75 tonnes per day	DREF	 meat sector fish and shellfish sector fruit and vegetable sector vegetables oils and fats sector dairy sector starch sector sugar sector coffee sector drinks sector milk powder buttermaking cheesemaking

 e. ce-cream manufacturing brewing winemaking cittre caid 6.4.(b) (ii) Treatment and processing, other than exclusively packaging, of the following raw materials, whither previously processed of uprocessed of uprocessed of uprocessed at any year 6.4.(b) (ii) Treatment and processing, other than exclusively packaging, of the following raw materials with a finished product production of poetates for a pendod of no more than 90 consecutive days in any year Food, Drink and Mik Industries BREF Food, Drink and material (in processing, other than exclusively packaging, of the following raw materials, whether previously processed of uprocessed, intended for the production of food or feed from animal and vegetable raw materials, whether previously processed of uprocessed of uprocessing of mik only, in combined and separate products, with a finished product production of food or feed from animal and vegetable raw materials, whether previously processed of uprocessing of mik only, in a gravity of mik received being greater than: - 75 if A is equal to 10 or more; or, - [300-(225 × A)] in any other case, where 'A' is the portion of animal material (in percent of weight) of the finished product product products with a treatment capacity in toxics and annual basis). 6.5. Disposal or recycling of animal carcases or animal waste with a treatment capacity in toxics BREF 7.6. (a) Intensive rearing of polity with more than 40 0000 places for poultry. 8.6. (b) Intensive rearing of polys with more than 40 0000 places for poultry. 8.6. (b) Intensive rearing of pigs with more than 40 0000 places for poultry. 8.7. Surface treatment of substances, objects or products only, discusse, praving or grains solvents, in particular, or an and approximation was and group part using organic solvents, in particular, organic solvents, in particular, organic solvents, in particular, organic solvents, an partonal part of productino		1	1 1
			ice-cream manufacturing
 e. whereaking e. ditric acid food, Drink and food of feed from only vegetable raw materials with a finished product production operates for a period of no more than 90 consecutive days in any vear food, Drink and food, Drink and processing, other the installation operates for a period of no more than 90 consecutive days in any vear food, Drink and BREF food, Drink and thinker previously processed of uprocessed, intended for the production of another products with processing, other than exclusively packaging, of the following raw materials, whether previously processed in the production capacity in tonnes per day greater than: 75 if A is equal to 10 or more; or. — 75 if A is equal to 10 or more; or. — 75 if A is equal to 10 or more; or. — 75 if A is equal to 10 or more; or. — 60.4 (c) Treatment and processing of milk only, the quantity of milk received being greater than 200 tonnes per day (average value on an annual basis). 6.5. Disposal or recycling of pointim carases or animal waste with a treatment capacity. 6.6. (a) Intensive rearing of polytriv with more than 40 000 places for polytics. food, place for products mother than 200 bit processing of milk of the BREF 6.7. Surface treatment of substances, objects or products, with more than 200 bit prevent of substances, objects or products, products, with more than 200 bit prevent of substances, objects or products, products, products and therefore there therefore. 6.7. Surface treatment of substances, objects or products on therefore. 6.7. Surface treatment of substances, objects or produ			• brewing
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and derived products not intended for human consumption6.6. (a) Intensive rearing of poultry with more than 40 000 places for poultry;Pigs and Poultry BREFBREF covers landspreading6.6. (b) Intensive rearing of pigs with more than 2 000 places for production pigs (over 30 kg)Pigs and Poultry BREFBREF covers landspreading6.6. (c) Intensive rearing of pigs with more than 750 places for sowsPigs and Poultry BREFBREF covers landspreading6.7. Surface treatment of substances, objects or products using organic solvents, in particular for dressing, printing, coating, degreasing, waterproofing, sizing, painting, cleaning or impregnating, with an organic solvent consumption capacity of more than 150 kg per hour or more than 200 tonnes per yearSurface Solvents BREFThe Surface Treatment using Organics Solvents BREF0three printing processes using solvents on a large scale (heatset web offset, flexible packaging and publication gravure)• three printing or winding wires, cars and commercial vehicles, buses, trains, agricultural equipment, ships and yachts, aircraft, steel and aluminium coil, metal packaging			rules as regards animal by-products
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2 000 places for production pigs (over 30 kg)BREFDirector barren b	6.6. (b) Intensive rearing of pigs with more than	Pigs and Poultrv	BREF covers landspreading
 6.6. (c) Intensive rearing of pigs with more than 750 places for sows 6.7. Surface treatment of substances, objects or products using organic solvents, in particular for dressing, printing, coating, degreasing, waterproofing, sizing, painting, cleaning or impregnating, with an organic solvent consumption capacity of more than 150 kg per hour or more than 200 tonnes per year Surface treatment of substances, objects or products using organics solvents breat and publication gravure) Coating and/or painting of winding wires, cars and commercial vehicles, buses, trains, agricultural equipment, ships and yachts, aircraft, steel and aluminium coil, metal packaging 	2 000 places for production pigs (over 30 kg)	BREF	
750 places for sows BREF 6.7. Surface treatment of substances, objects or products using organic solvents, in particular for dressing, printing, coating, degreasing, waterproofing, sizing, painting, cleaning or impregnating, with an organic solvent consumption capacity of more than 150 kg per hour or more than 200 tonnes per year Surface The Surface Treatment using Organics Solvents BREF hour or more than 200 tonnes per year Solvents BREF • three printing processes using solvents on a large scale (heatset web offset, flexible packaging and publication gravure) • coating and/or painting of winding wires, cars and commercial vehicles, buses, trains, agricultural equipment, ships and yachts, aircraft, steel and aluminium coil, metal packaging	6.6. (c) Intensive rearing of pigs with more than	Pigs and Poultry	BREF covers landspreading
 b.7. Surface treatment of substances, objects or products using organic solvents, in particular for dressing, printing, coating, degreasing, waterproofing, sizing, painting, cleaning or impregnating, with an organic solvent consumption capacity of more than 150 kg per hour or more than 200 tonnes per year b.7. Surface Surface Treatment using Organics Solvents BREF Solvents BREF Solvents BREF Solvents BREF three printing processes using solvents on a large scale (heatset web offset, flexible packaging and publication gravure) coating and/or painting of winding wires, cars and commercial vehicles, buses, trains, agricultural equipment, ships and yachts, aircraft, steel and aluminium coil, motal packaging 	/50 places for sows	BKEF Surface	The Surface Treatment using
for dressing, printing, coating, degreasing, waterproofing, sizing, painting, cleaning or impregnating, with an organic solvent consumption capacity of more than 150 kg per hour or more than 200 tonnes per year Solvents BREF Organics Solvents BREF Organics Solvents BREF Solvents BREF Solvents BREF Solvents BREF Solvents BREF Solvents BREF Solvents BREF Solvents BREF Solvents Organics Solvents BREF towers the following industry sectors: • three printing processes using solvents on a large scale (heatset web offset, flexible packaging and publication gravure) • coating and/or painting of winding wires, cars and commercial vehicles, buses, trains, agricultural equipment, ships and yachts, aircraft, steel and aluminium coil, metal packaging	or products using organic solvents in particular	Juliace	Organice Solvents RPEE covers the
 waterproofing, sizing, painting, cleaning or impregnating, with an organic solvent consumption capacity of more than 150 kg per hour or more than 200 tonnes per year Solvents BREF three printing processes using solvents on a large scale (heatset web offset, flexible packaging and publication gravure) coating and/or painting of winding wires, cars and commercial vehicles, buses, trains, agricultural equipment, ships and yachts, aircraft, steel and aluminium coil, metal packaging 	for dressing printing coating degreasing	Organics	following industry sectors:
 impregnating, with an organic solvent consumption capacity of more than 150 kg per hour or more than 200 tonnes per year coating and/or painting of winding wires, cars and commercial vehicles, buses, trains, agricultural equipment, ships and yachts, aircraft, steel and aluminium coil, metal packaging 	waterproofing sizing painting cleaning or	Solvents BREE	three printing processes using
 consumption capacity of more than 150 kg per hour or more than 200 tonnes per year (heatset web offset, flexible packaging and publication gravure) coating and/or painting of winding wires, cars and commercial vehicles, buses, trains, agricultural equipment, ships and yachts, aircraft, steel and aluminium coil, metal packaging 	impregnating, with an organic solvent	Contonic Brizi	solvents on a large scale
 hour or more than 200 tonnes per year packaging and publication gravure) coating and/or painting of winding wires, cars and commercial vehicles, buses, trains, agricultural equipment, ships and yachts, aircraft, steel and aluminium coil, metal packaging 	consumption capacity of more than 150 kg per		(heatset web offset, flexible
gravure) • coating and/or painting of winding wires, cars and commercial vehicles, buses, trains, agricultural equipment, ships and yachts, aircraft, steel and aluminium coil, metal packaging	hour or more than 200 tonnes per year		packaging and publication
 coating and/or painting of winding wires, cars and commercial vehicles, buses, trains, agricultural equipment, ships and yachts, aircraft, steel and aluminium coil, metal packaging 			gravure)
winding wires, cars and commercial vehicles, buses, trains, agricultural equipment, ships and yachts, aircraft, steel and aluminium coil, metal packaging			 coating and/or painting of
commercial vehicles, buses, trains, agricultural equipment, ships and yachts, aircraft, steel and aluminium coil, metal packaging			winding wires, cars and
trains, agricultural equipment, ships and yachts, aircraft, steel and aluminium coil, metal packaging			commercial vehicles, buses,
snips and yachts, aircraft, steel and aluminium coil, metal packaging			trains, agricultural equipment,
Sieci and addining			snips and yachts, aircraft,
near oackaolio			metal packaging
		 furniture and wood, as well as other metal and plastic surfaces adhesive application in the manufacture of abrasives and adhesive tapes impregnation of wood with preservatives cleaning and degreasing associated with these activities. No separate degreasing industry was identified. 	
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		Solvent that is incorporated into a product is also included for solvent consumption capacity	
6.8. Production of carbon (hard-burnt coal) or electrographite by means of incineration or graphitisation	Non-Ferrous Metals BREF	The Non-Ferrous Metals BREF covers the production of graphite electrodes.	
6.9. Capture of CO2 streams from installations covered by this Directive for the purposes of geological storage pursuant to Directive 2009/31/EC		Any LCP for which the original construction licence or operating licence was granted after the coming into force of Directive 2009/31/EC (i.e. 13 th May 2009) is required to investigate whether suitable storage sites for CO2 are available. (Art. 36 IED)	
6.10. Preservation of wood and wood products with chemicals with a production capacity exceeding 75 m3 per day other than exclusively treating against sap-stain	Surface Treatment using Organics Solvents BREF *Wood and Wood Products Preservation with Chemicals BREF	* The Wood and Wood Products Preservation with Chemicals BREF is at the proposal stage with nothing beyond the title published at this time.	
6.11. Independently operated treatment of waste water not covered by Directive 91/271/EEC and discharged by an installation covered by Chapter II		Such plants may exist on industrial estates where common waste water treatment plants may be provided for a number of industries.	

Annex II

This table has been produced for comparison purposes to allow some judgement to be exercised as to how realistic the Inventory is. Comparisons such as this are somewhat invidious as countries vary greatly in the make up of their economies. However it may be useful to have at least some indication as to whether the number of installations listed appears either to be very high or very low.

On a population basis if Turkey is taken to be 75 million and the EU about 500 million, Turkey represents about 15% of Europe. The number of installations in Turkey can reasonably be expected to be approximately 15% of the European total. However Turkey will be relatively stronger in some sectors than in others and some of the European data taken from the BREFs dates from ten years ago. Thus this table should be used with caution.

1. Energy industries		
Sub-Category	Number Installations in Turkey	Number Installations in Europe
1.1. Combustion of fuels in installations with a total rated thermal input of 50 MW or more	108	1214 stand alone 590 associated with other industry
1.2. Refining of mineral oil and gas	4	130
1.3. Production of coke	7	40 BF 101 BAF
1.4. (a) Gasification or liquefaction of coal	0	30
1.4.(b) Gasification or liquefaction of other fuels	0	
2. Production and processing of metals		
Sub-Category		
2.1. Metal ore (including sulphide ore) roasting or sintering	13	Fe 40 NF 74 Ferro Alloy 60
2.2. Production of pig iron or steel (primary or secondary fusion)	150	231 EAF 101 BOF
2.3.(a) Processing of ferrous metals - operation of hot-rolling mills	309	74 + 161 mills producing tubes
2.3. (b) Processing of ferrous metals - operation of smitheries	0	None exist
2.3.(c) Processing of ferrous metals - application of protective fused metal coats	8	63 continuous processing 595 hot batch dipping
2.4. Operation of ferrous metal foundries with a production capacity exceeding 20 tonnes per day	119	~3000 including NFM
2.5. Processing of non-ferrous metal (This is not an Annex I Category). These must be re-assigned to specific sub-categories)	26	
2.5.(a) Processing of non-ferrous metal from ore;	169	NF 74 Ferro Alloy 60
2.5. (b) Processing of non-ferrous metals in non- ferrous metal foundries	358	~3000 including ferrous
 2.6. Surface treatment of metals or plastic materials using an electrolytic or chemical process 2. Minoral inductry 	173	10,000 stand alone + 8,300 associated with other IPPC
5. Wineral industry		

3.1.(a) Production of cement clinker	48	252
3.1.(b) Production of lime	86	238
3.1.(c) Production of magnesium oxide	0	-
3.2. Production of asbestos or the manufacture of asbestos-based	0	0
		No number
3.3. Manufacture of glass including glass fibre	233	available
3.4. Melting mineral substances including the production of mineral fibres	0	No number available
3.5. Manufacture of ceramic products	281	1000 producing bricks
4. Chemical industry		
4.0 (This is not an Annex I Category) These must be re-assigned to specific sub-categories	0	
4.1 (This is not an Annex I Category) These must be re-assigned to specific sub-categories	33	No number available
4.1.(a) Production of organic chemicals, such as simple hydrocarbons (linear or cyclic, saturated or unsaturated, aliphatic	14	No number
or aromatic)		available
4.1. (b) Production of organic chemicals, such as oxygen- containing hydrocarbons such as alcohols, aldehydes, ketones, carboxylic acids, esters and mixtures of esters, acetates, ethers, peroxides and epoxy resins;	37	No number available
4.1.(c) Production of organic chemicals, such as sulphurous hydrocarbons;	0	No number available
4.1. (d) Production of organic chemicals, such as nitrogenous hydrocarbons such as amines, amides, nitrous compounds, nitro compounds or nitrate compounds, nitriles, cyanates, isocyanates;	1	No number available
4.1. (e) Production of organic chemicals, such as phosphorus- containing hydrocarbons;	0	No number available
4.1. (f) Production of organic chemicals, such as halogenic hydrocarbons	0	No number available
4.1. (g) Production of organic chemicals, such as organometallic compounds	12	No number available
4.1. (h) Production of organic chemicals, such as plastic materials (polymers, synthetic fibres and cellulose-based fibres)	5	45 Primary Producers in Europe 30,000 Secondary Producers
4.1. (i) Production of organic chemicals, such as synthetic rubbers	5	10 ESBR 15 Solution Rubber
4.1. (j) Production of organic chemicals, such as dyes and pigments	602	66 reported by Germany in PRTR
4.1. (k) Production of organic chemicals, such as surface-active agents and surfactants	44	No number available
4.2. (a) Production of inorganic chemicals, such as gases, such as ammonia, chlorine or hydrogen chloride, fluorine or hydrogen fluoride, carbon oxides, sulphur compounds, nitrogen oxides, hydrogen, sulphur dioxide, carbonyl chloride;	22	93 Chlor Alkali Installations 39 Ammonia Installations
4.2. (b) Production of inorganic chemicals, such as acids, such as chromic acid, hydrofluoric acid, phosphoric acid, nitric acid, hydrochloric acid, sulphuric acid, oleum, sulphurous acids;	26	12 HF Installations 35 NPK Installations
4.2. (c) Production of inorganic chemicals, such as bases, such as ammonium hydroxide, potassium hydroxide, sodium hydroxide;	6	93 Chlor Alkali Installations
4.2. (d) Production of inorganic chemicals, such as salts, such as ammonium chloride, potassium chlorate, potassium carbonate,	40	80 Producers "Cornerstone"

sodium carbonate, perborate, silver nitrate;		Chemicals 300 Producers of "Illustrative" Chemicals
4.2. (e) Production of inorganic chemicals, such as non-metals, metal oxides or other inorganic compounds such as calcium carbide, silicon, silicon carbide.	23	No number available
4.3. Production of phosphorous, nitrogen or potassium-based fertilisers	186	39 Ammonia Installations 12 HF Installations 35 NPK Installations
4.4. Production of plant protection products or of biocides	123	No number available
4.5. Production of pharmaceutical products including intermediates	160	No number available
4.6. Production of explosives	28	No number available
5. Waste management		
5.1.(a) Disposal or recovery of hazardous waste involving biological treatment	0	615
5.1.(b) Disposal or recovery of hazardous waste involving physico-chemical treatment	0	9970
5.1.(c) Disposal or recovery of hazardous waste involving blending or mixing prior to submission to any of the other activities listed in points 5.1 and 5.2	0	540
5.1.(d) Disposal or recovery of hazardous waste involving repackaging prior to submission to any of the other activities listed in points 5.1 and 5.2	1	No number available
5.1.(e) Disposal or recovery of hazardous waste involving solvent reclamation/regeneration	5	106
5.1.(f) Disposal or recovery of hazardous waste involving recycling/reclamation of inorganic materials other than metals or metal compounds	20	126
5.1.(g) Disposal or recovery of hazardous waste involving regeneration of acids or bases	1	13
5.1.(h) Disposal or recovery of hazardous waste involving recovery of components used for pollution abatement	6	20
5.1.(i) Disposal or recovery of hazardous waste involving recovery of components from catalysts		20
5.1.(j) Disposal or recovery of hazardous waste involving oil re- refining or other reuses of oil	63	35
5.1.(k) Disposal or recovery of hazardous waste involving surface impoundment.	0	No number available
5.2.(a) Disposal or recovery of waste in waste incineration plants or in waste co-incineration plants for non-hazardous waste with a capacity exceeding 3 tonnes per hour	0	477 + 57 Sewage Sludge
5.2.(b) Disposal or recovery of waste in waste incineration plants or in waste co-incineration plants for hazardous waste	4	189
5.3 Disposal and Recovery of non-hazardous waste		
5.3.(a) (i) Disposal of non-hazardous involving biological treatment	0	No number available
5.3.(a) (ii) Disposal of non-hazardous waste involving physico- chemical treatment	0	No number available
5.3.(a) (iii) Disposal of non-hazardous waste involving pre- treatment of waste for incineration or co-incineration,	0	No number available
5.3.(a) (iv) Disposal of non-hazardous waste involving treatment of	0	No number

slags and ashes		available
5.3.(a) (v) Disposal of non-hazardous waste involving treatment in		No number
shredders of metal waste, including waste electrical and electronic	0	available
equipment and end-of-life vehicles and their components		
5.3 (b) (i) Recovery, or a mix of recovery and disposal of non-	4	No number
hazardous waste involving biological treatment	•	available
5.3 (b) (ii) Recovery, or a mix of recovery and disposal, of non-		No number
hazardous waste involving pre-treatment of waste for incineration	50	available
or co-incineration		available
5.3 (b) (iii) Recovery, or a mix of recovery and disposal, of non-	0	No number
hazardous waste involving treatment of slags and ashes.	0	available
5.3 (b) (iv) Recovery, or a mix of recovery and disposal, of non-		
hazardous waste involving treatment in shredders of metal waste,	75	No number
including waste electrical and electronic equipment and end-of-life	15	available
vehicles and their components.		
5.4 Landfille	161	No number
	101	available
5.5. Tomporary storage of bezerdeue weste	e	No number
5.5. Temporary storage of hazardous waste	0	available
E.C. Linderground storage of beneride up wests	0	No number
5.6. Underground storage of nazardous waste	0	available
6. Other activities		
C. 4. (a) Deschustion of such from time or other fibrous motorials	0	222 pulp mills (74
6.1. (a) Production of pulp from timber or other fibrous materials	0	for the market)
6.1. (b) Production of paper or card board	113	1064 paper mills
		No number
6.1. (c) Production in industrial installations of wood-based panels	66	available
	100	No number
6.2. Pre-treatment of textile fibres or textiles	103	available
	70	No number
6.3. Tanning of hides and skins	76	available
6.4.(a) Operating slaughterhouses	26	~1500
6.4 (b) (This is not an IPPC Category)		
6.4.(b) (i) Treatment of animal raw materials	33	26.000 in FDM
6 4 (b) (ii) Treatment of vegetable raw materials	117	26,000 in FDM
6.4 (b) (iii) Treatment of animal and vegetable raw materials		20,000 111 2111
combined	0	26,000 in FDM
6.4 (c) Treatment of milk	37	26 000 in FDM
6.5 Disposal or recycling of animal carcases or animal waste with	01	20,000 111 210
a treatment canacity exceeding 10 tonnes per day	28	~200
6.6 (This is not an IPPC Activity)		
6.6 (a) Intensive rearing of poultry	102	3000
6.6. (b) Intensive rearing of pige	0	>1600
6.6. (c) Intensive rearing of page	0	>700
	0	No numbor
6.7. Surface treatment using organic solvents,	732	
6.9 Draduction of carbon	0	avaliable Crophite 44
	0	Ma number
6.9. Capture of CO2 streams	0	
6.10. Preservation of wood and wood products	0	NO NUMDER
' 		available
6.11 Independently operated treatment of waste water plants	56	INO NUMBER
	-	available

Annex III – PRTR Returns 2007

The PRTR reports from a number of Member States for 2007 were examined for four categories in particular. These categories were chosen because they lie at the centre of understanding significant parts of the 2006 Inventory. In common with the comparison of the number of installation in Turkey with the number in Europe caution in interpretation is necessary. However in general the indications have been used to support the recommendations made to the MoEU on the best course to take to control these categories.

Country	Category 1.2	Category 4.1(h)	Category 4.1 (j)	Category 6.7
Austria	15	13	-	5
Belgium	32	33	6	21
Bulgaria	14	-	-	-
Czech	6	29	34	5
Denmark	12	-	2	1
Estonia	4	-	-	2
Finland	11	4	-	8
France	40	123	36	60
Germany	84	168	66	50
Greece	22	-	-	3
Hungary	8	5	-	1
Ireland	4	-	-	8
Italy	74	24	2	46
Lithuania	9	-	-	2
Netherlands	31	37	8	16
Poland	30	7	1	19
Portugal	20	30	-	31
Rumania	18	1	-	8
Slovakia	14	19	-	4
Slovenia	0	-	3	6
Spain	43	33	15	57
Sweden	14	29	-	5
UK	97	25	35	4
Turkey	243	369	661	724

Annex IV – Documents Consulted or Referenced

Directives + Decisions

- Industrial Emissions Directive 2010/75/EU
- 2012/134/EU BAT Conclusions Glass
- 2012/135/EU BAT Conclusions Iron and Steel
- IPPC 2008/1/EC
- Large Combustion Plant Directive 2001/80/EC
- Solvents Directive 1999/13/EC
- Waste Incineration Directive 2000/76/EC
- Landfill Directive 1999/31/EC
- Waste Directive 2008/98/EC
- Waste Directive 2006/12/EC
- Hazardous Waste Directive 91/689/EEC
- Waste Oils Directive 75/439/EEC
- Waste Catalogue 2000/532/EC
- Protection of laying hens Directive 1999/74/EC
- Animal Welfare Directive 98/58/EC
- Storage of CO2 Directive 2009/31/EC
- Emissions Trading Directive 2009/29/EC
- Urban Waste Water Treatment Directive 91/271/EEC
- Nitrates Directive 91/676/EEC
- Groundwater Directive 2006/118/EC
- Use of Volatile Organic Solvents in Products Directive 2004/42/EC
- Management of Waste from Extractive Industries Directive 2006/21/EC
- Regulation (EC) No. 1069/2009 laying down health rules as regards animal by-products and derived products not intended for human consumption

BREFS

- Cement, Lime and Magnesium Oxide Manufacturing Industries
- Ceramic Manufacturing Industry
- Intensive Rearing of Poultry and Pigs
- Iron and Steel Production
- Large Combustion Plants
- Large Volume Inorganic Chemicals -Ammonia Acids and Fertiliser Industries
- Large Volume Inorganic Chemicals Solids and Others Industry
- Large Volume Organic Chemical Industry
- Manufacture of Glass
- Manufacture of Organic Fine Chemicals
- Non-Ferrous Metals Industries
- Production of Chlor-alkali
- Production of Polymers
- Production of Speciality Inorganic Chemicals
- Pulp and Paper Industry
- Refining of Mineral Oil and Gas
- Slaughterhouses and Animal By-products Industries
- Smitheries and Foundries Industries
- Surface Treatment of Metals and Plastics
- Surface Treatment Using Organic Solvents

- Tanning of Hides and Skins
- Textiles Industry
- Waste Incineration
- Waste Treatments Industries
- Wood Based Panels Production
- Wood and Wood Products Preservation with Chemicals

General Documents

- "On the road to Sustainable Production in an Enlarged EU Integrated Pollution Prevention and Control" Conference Proceedings Dresden 20-22nd September 2005
- National Waste Management Plan for Turkey December 2008
- EC Guidance on Interpretation and Determination of Capacity under the IPPC Directive
- EC Report 2010 Implementation of IPPC
- EC Frequently asked Questions on IED

Annex V – Industry Groups

The membership lists of these industry groups were consulted

1.ENERGY	
Türkiye Petrol Sanayi Derneği (PETDER)	
Anadolu LPG Sanayicileri Derneği	No member list
Türkiye LPG Derneği	
Türkiye Enerji Enstitüsü	No member list
Alternatif Enerji ve Biyodizel Üreticileri Derneği	No member list
Elektrik Üreticileri Derneği	
Türkiye Elektrik Sanayi Birliği	
Türkiye Kojenerasyon ve Temiz Enerji Teknolojileri Derneği	No member list
2.METAL	
Türkiye Metal Sanayicileri Sendikası	
Türkiye Demir Çelik Üreticileri Derneği	
Türkiye Alüminyum Sanayicileri Derneği	
Türkiye Döküm Sanayicileri Derneği	
Akümülatör ve Geri Kazanım Sanayicileri Derneği	
3.MİNERAL ÜRÜNLER	
Türkiye Çimento Müstahsilleri Birliği	
Çimento, Cam, Seramik ve Toprak Ürünleri İhracatçıları Birliği	
Anadolu Kireç Üreticileri Derneği	
Türkiye Kireç Sanayicileri Derneği	
Türkiye Seramik Federasyonu	
4.КІ́МҮА	
Kimya Sanayicileri Derneği	
Boya Sanayicileri Derneği	
Plastik Sanayicileri Derneği	
Zirai Mücadele İlaçları Üreticileri Derneği	
Türkiye İlaç Sanayi Derneği	
Kozmetik ve Temizlik Ürünleri Üreticileri Sanayicileri Derneği	
Akümülatör ve Geri Kazanım Sanayicileri Derneği	
6.DİĞER	
Türkiye Süt, Et, Gıda Sanayicileri ve Üreticileri Birliği	
Ambalajlı Süt ve Süt Ürünler Sanayicileri Derneği	
Bebek Besinleri Sanayicileri Derneği	
Beyaz Et Sanayicileri ve Damızlıkçıları Birliği Derneği	
Bitkisel Yağ Sanayicileri Derneği	
Gıda Katkı ve Yardımcı Madde Sanayicileri Derneği	
Meşrubatçılar Derneği	
Meyve Suyu Endüstrisi Derneği	

Mutfak Ürünleri ve Margarin Sanayicileri Derneği	
Nişasta ve Glikoz Üreticileri Derneği	
Susam, Tahin, Helva ve Reçel İmalatçıları Derneği	
Şarap Üreticileri Derneği	
Şekerli Mamül Sanayicileri Derneği	
Türkiye Makarna Sanayicileri Derneği	
Tarım Ürünleri Hububat, Bakliyat İş ve Paketleme Sanayicileri Derneği	
Otomotiv Sanayi Derneği	
Taşıt Araçları Yan Sanayicileri Derneği	
Makine İmalatçıları Derneği	
Türkiye Metal Sanayicileri Sendikası	
Türkiye Alüminyum Sanayicileri Derneği	
Plastik Sanayicileri Derneği	
Boya Sanayicileri Derneği	
Selüloz ve Kağıt Sanayi Vakfı	
Ambalaj Sanayicileri Derneği	No member list
Türkiye Orman Ürünleri İthalatçıları ve Sanayicileri Derneği	
Ulusal Ahşap Birliği	
Türkiye Tekstil Terbiye Sanayicileri Derneği	
Pamuklu Tekstil Sanayicileri Derneği	
Deri Sanayicileri Derneği	
Organize Sanayi Bölgeleri Üst Kuruluşu	

Annex VI – TOBB Assemblies

Sector #	Sector Assembly	IED, Annex I Category
2	T. Animal Husbandry Assembly	6.6
4	T. Automotive Industry Assembly	6.7
5	T. Automotive Parts and Components Industry Assembly	6.7
8	T. Beverage Industry Assembly	6.4, 6.4(b)(ii), 6.4(c)
11	T. Casting Industry Assembly	2.2, 2.4 ve 2.5 (b)
12	T. Cement and Cement Products Assembly	3.1 (a), 3.1 (b) ve 3.1 (c)
13	T. Ceramic and Refractory Industry Assembly	3.4 ve 3.5
14	T. Chemical Industry Assembly	4 Hepsi
15	T. Civil Aviation Assembly	6.7
18	T. Computer Hardware and Communication Technologies Assembly	6.7
20	T. Consumer Durables Assembly	6.7
22	T. Cosmetics and Cleaning Products Industry Assembly	4.1 (k) + diğer 4s or 6.7
25	T. Energy Assembly	1.1, 1.3 & 1.4
27	T. Ferrous and Nonferrous Metals Assembly	2.1, 2.2, 1.3, 2.3, 2.4, 2.5 – Belki 2.6
28	T. Food Industry Assembly	6.4, 6.5
29	T. Forestry Products Assembly	6.10, 6.7 (Mobilya), 6.1(c)
31	T. Furniture Products Assembly	6.7 – Büyük üreticiler
32	T. Glass and Glass Products Industry Assembly	3.3 & 3.4
36	T. Leather and Leather Products Industry Assembly	6.3
37	T. Liquefied Petroleum Gas (LPG) Assembly	1.2, 1.4
38	T. Machine and Equipment Manufacturing Assembly	6.7
39	T. Marine Assembly	6.7
40	T. Media and Communication Assembly	6.7
42	T. Mining Assembly	4.1(g)
44	T. Paper and Paper Products Industry Assembly	6.1 (a&b)
46	T. Petrol and Petroleum Products Industry Assembly	1.2 & 4.1
47	T. Pharmaceutical Industry Assembly	4.5
52	T. Soil Industry Products Assembly	3.5? Aynı zamanda belki 3.3 ve 3.4
54	T. Textile Industry Assembly	6.2
23	T. Defense Industry Assembly	4.6, 6.7

Annex VII – EC Guidance

Guidance on the IPPC Directive has been included as much of this remains relevant for the IED, although caution must be exercised. Those portions of the advice clearly no longer relevant have been removed.

The Chapeau to Annex I of IED simply states:

"The threshold values given below generally refer to production capacities or outputs. Where several activities falling under the same activity description containing a threshold are operated in the same installation, the capacities of such activities are added together. For waste management activities, this calculation shall apply at the level of activities 5.1, 5.3(a) and 5.3(b)"

Guidance on Interpretation and Determination of Capacity under the IPPC Directive

The aim of these documents is to provide guidance in implementing the IPPC Directive 96/61/EC by suggesting an approach to some questions on how certain provisions of the Directive should be understood. The guidance does not represent an official position of the Commission and cannot be invoked as such in the context of legal proceedings. Final judgements concerning the interpretation of the Directive can only be made by the European Court of Justice.

1 Add-up rule of Annex I

Does the second provision in the chapeau of Annex I apply to activities that do not explicitly refer to "capacity" or "output"?

Annex I to Council Directive 96/61/EC concerning integrated pollution prevention and control (the IPPC Directive) includes two general provisions, the second of which states that:

"2. The threshold values given below generally refer to production capacities or outputs. Where one operator carries out several activities falling under the same subheading in the same installation or on the same site, the capacities of such activities are added together."

There are examples in Annex I where the word "capacity" is not used but an analogous expression is used for a technical capacity of the activity, for example:

"2.6. Installations for surface treatment of metals and plastic materials using an electrolytic or chemical process where the volume of the treatment vats exceeds 30 m³

6.6. Installations for the intensive rearing of poultry or pigs with more than:

- (a) 40 000 places for poultry
- (b) 2 000 places for production pigs (over 30 kg), or
- (c) 750 places for sows"

In conclusion, the second provision of the chapeau of Annex I of the IPPC Directive **generally** refers to production capacities or output.

However, in section 6.6 referring to the intensive rearing of poultry or pigs, it is considered that the add-up rule does not apply across the different thresholds for poultry, production pigs and sows. Rather, it only applies for adding-up places – and thus determining whether a threshold

is exceeded – for the same animal types. Section 6.6 clearly establishes different and separate thresholds in different subheadings for poultry, production pigs and sows. More generally, the second provision of the chapeau of Annex I provides for aggregation at the level of the <u>subheading</u>, which is taken to refer to the individual activity descriptions.

2 Daily and hourly capacity

Does a capacity threshold in "tonnes per day" refer to 24 hours of continuous operation at rated capacity?

Consumption capacity, produced material or similar criteria, expressed for instance as tonnes per day, are frequently used in Annex I to determine the scope of the IPPC Directive.

In sectors such as textiles and tanneries, most installations do not operate continuously for 24 hours a day. Many smaller units do however operate in very close contact with market demand, with the result that normal working hours may be exceeded at very short notice. Declared working practice is therefore an unreliable guide to the real capacity of an installation and does not reflect the pollution potential of the installation.

The coherent meaning of "capacity" is the maximum capacity to which the installation is limited technically or legally. That is to say, it is the capacity of the installation to operate 24 hours a day, provided that the equipment is not technically or legally restricted from operating in that way.

Where Annex I refers to the hourly capacity, the above paragraph can be applied in the same way.

3 Technical limitations on capacity

Can technical limitations be taken into account in determining the capacity of an installation?

Where a capacity threshold is specified for the installation as a whole or for a particular activity (e.g. 2.2, 2.4, 2.5(b), 3.3, 6.2, 6.5, 6.7) in determining the capacity

of an installation it is appropriate to consider all process steps which could limit the throughput of a process. The necessary time taken to load, unload and clean equipment between process batches, for example, may technically restrict the number of process cycles possible in any 24 hour period and thus restrict the capacity of the whole process. Equally, where one part of a process represents a technical restriction to the throughput of the whole process, this is a valid consideration. By way of example, the overall throughput of a meat processing line may be technically constrained by the installed cooling or freezing capacity of the installation.

Thus it is appropriate for technical restrictions to be taken into account in determining the capacity of an installation. This may include deliberately-introduced technical constraints intended to prevent the installation from being able to operate above the level specified by an IPPC threshold. However, such a constraint would have to be reasonably secure and reliable, in order to support the conclusion that an installation does not exceed a given capacity threshold. A simple undertaking from the operator not to exceed the threshold, or a constraint that could be removed without significant effort, would not suffice.

Where the capacity of a specific piece of equipment is mentioned (e.g. 2.3(a), 2.3(b), 2.6), then only the capacity of that equipment should be considered in determining whether IPPC applies. However, where such a capacity threshold is specified by reference to a time period (e.g. 2.3(a) – hot rolling mills with a capacity exceeding 20 tonnes of crude steel per

hour) it remains appropriate to take account of technical limitations (e.g. loading, unloading, cleaning, as described above) relating to such specific equipment.

4 Legal limitations on capacity

Where the technical capacity of an installation exceeds a threshold of an activity as defined in Annex I of the IPPC Directive, is it possible that the capacity is limited by legal means to a capacity below the mentioned threshold in Annex I of the Directive so that the installation does not come under the scope of the Directive? As a result the installation would not need a permit according to the provisions of the IPPC Directive and no other requirement of the Directive would apply.

In some Member States, restrictions upon an installation may be in place through a general or specific legal instrument (for example, development consent or health and safety legislation) with the result that the installation's effective capacity definitively falls beneath the relevant IPPC threshold. Two types of such legal instruments are:

a) Instruments with general validity, definitely restricting installation capacity and not justifying further monitoring or reporting, as long as compliance with such a legal instrument can be safely assumed and may be checked for its own sake (e.g.: laws restricting working hours, laws requiring times of noise reduction, traffic restriction times, etc.).

b) Instruments created to limit the capacity of a specific installation. In such cases a degree of monitoring and reporting is justified to guarantee that the legal restriction is effective. For instance, the operator should demonstrate that the installation does not exceed the maximum allowed capacity, and should monitor and report this to the competent authority (for example, annually). The competent authority should also check compliance with the restriction.

Where such legal instruments are used, it will be for the Member State concerned to establish the specific mechanism to be applied and to ensure this guarantees that the Directive is fully implemented.

One possible approach in this respect, falling under category (b) of the two types of legal instruments mentioned above, would be to make provision, under the legislation transposing the IPPC Directive, to legally limit the capacity of individual installations. For instance, there could be a possibility for an operator to declare an intention not to operate above the IPPC threshold, leading to the imposition under the legislation of a simple legal limitation to this effect rather than the grant of an IPPC permit. The mechanism establishing such a system would need to address details such

as the obligations of the operator (e.g. what information would be needed to support the declaration and to demonstrate ongoing compliance?) and those of the regulator (e.g. how would the declaration be assessed and a legal capacity limit imposed?).

If an operator subject to such a limitation were later to wish to increase its output and exceed the IPPC threshold, an IPPC permit would be required before this could occur.

6 Solvent consumption capacity in Annex I section 6.7

Section 6.7 of Annex I of the IPPC Directive refers to "Installations for the surface treatment of substances, objects or products using organic solvents, in particular for dressing, printing, coating, degreasing, waterproofing, sizing, painting, cleaning or impregnating, with a consumption capacity of more than 150 kg per hour or more

than 200 tonnes per year".

a) Does "consumption capacity" include solvents remaining in the product?

The question of whether a solvent can be considered to be "consumed" by the installation does not depend on whether the solvent is subsequently emitted in the product or in some other way. Solvents remaining in the product must therefore be included in determination of the "consumption capacity".

b) How can solvent consumption capacity be determined?

Activity 6.7 includes both hourly and annual capacity thresholds for capacity to consume organic solvents. However, the annual capacity is not necessarily equal to

8760 times the hourly capacity, since there may be technical or legal restrictions as described in sections 3 and 4 above. These may include, for instance, non-productive machine-time needed for activities such as make-ready and maintenance, legally binding restrictions on working time or numbers of shifts, operational safety requirements, or even explicitly imposed maximum solvent consumption limits.

The capacity to consume solvents may be further restricted through factors such as: the capacity of drying and curing ovens; the capacity of ancillary equipment; the technical characteristics of the manufacturing operations of the installation such as necessarily intermittent rather than continuous; the coating needs of the products and materials produced; the solvent content of the coating materials used; etc.

The consumption capacity for organic solvents can be related to the production capacity for the products or materials that are produced by the installation. As an illustration, if an installation has a capacity to produce X products per year, each unit of product consuming up to Y grams of varnish with a maximum solvent content of Z%, its consumption capacity for organic solvents will be $X^*Y^*Z/100$ grams of solvent per year. However this approach does not work for all solvent using processes.

Should the introductory paragraph 1 of Annex I be understood to be restricted to installations or parts of installations <u>solely</u> used for research, development or testing?

It seems highly unlikely that the intention could have been to exclude from the scope of the Directive installations or parts of installations normally used for industrial production simply because they are occasionally used for research, development or testing.

Is the ferro-alloy industry covered by Annex I section 2.5(b)?

The production of ferro-alloys involves alloyage of non-ferrous metals and is therefore covered by Annex I section 2.5(b).

How should the term "treatment vat" in Annex I section 2.6 be understood?

The thresholds for installations for surface treatment of metals and plastics in Annex I section 2.6 are expressed in terms of the volume of the treatment vats. In addition to the main process step, vats are typically used for processes such as soak clean, pickling, degreasing, acid dip, passivation and rinsing. With the exception of rinsing, all of these process steps involve an alteration of the surface as a result of an electrolytic or chemical process, and therefore fall under the definition of "treatment". Conversely, non-electrolytic, non-chemical surface treatments such as ultrasound, grit blasting, water blasting and annealing are not considered to fall under this definition. For the purposes of determining which installations are covered in this

section, the volume of the treatment vats is to be calculated as the total volume of vats used for those process steps involving alteration of the surface as a result of an electrolytic or chemical process.

It should nevertheless be noted that, for those installations covered by the Directive, all steps including rinsing should be regarded as an "associated activity" within the meaning of Article 2(3), in accordance with the <u>guidance on the meaning of "installation"</u>.

In Annex I section 4, what is the meaning of "production on an industrial scale by chemical processing" and of the use of the term "basic" in particular in the expressions "basic organic chemicals" and "basic inorganic chemicals"?

"Production on an industrial scale":

Annex I Section 4 ("chemical industry") contains no quantitative capacity thresholds but only a reference to "production on an industrial scale". The scale of chemical manufacture can vary from a few grams of a highly specialised product to many tonnes of a bulk chemical product, yet both scales may correspond to "industrial scale" for that particular activity. If the activity is carried out for "commercial purposes", it should be considered as production on an industrial scale, even if the material is an intermediate product and therefore not itself traded. By contrast, other activities producing chemicals exclusively for their own consumption - for example domestic, academic or laboratory activities - would not be covered.

Furthermore, "commercial purposes" may be taken generally to imply that the activity is being undertaken principally as a professional business activity. The existence of a form of trading account associated with the activity, or other such indicators, may illustrate the conduct of a business. If such indicators are absent, for example as may be the case in the small-scale production of "artisanal soap", it may be concluded that the activity is not being undertaken for "commercial purposes" and hence is not on an industrial scale.

"Production on an industrial scale by chemical processing":

The Chapeau of section 4 makes reference to production on an industrial scale by "chemical processing". "Chemical processing" implies that transformation by one or several chemical reactions takes place during the production process. An activity involving only physical processing (for instance simple blending or mixing of substances which do not chemically react, dewatering, dilution, repackaging of acids/bases) would not be covered.

For activities involving essentially physical processing but to a certain degree some chemical reactions (for instance, the mixing of two or more chemical substances to produce a third one which is then immediately sprayed or painted onto a surface, or the situation where a two-component adhesive reacts to provide the actual adhesive material), competent authorities would have to exert their judgment on the basis that only "chemical installations" are covered by section 4 (section 4.5 uses another wording). Such types of activities carried out in places which would not commonly be considered as a chemical installation (for instance for building or repair activities) may be considered not covered by this part of Annex I.

Use of the term "<u>basic</u>":

Section 4 refers at several occasions to the term "basic" in the description of the substances of groups of substances listed in this section.

The term "basic" should be interpreted in a wide sense. It cannot only mean those chemicals requiring further processing, as some of the chemicals listed explicitly in section 4 of Annex I could themselves be final (but still basic) chemical products (for instance synthetic rubbers, dyes and pigments, polymers synthetic fibers) which can undergo further processing but not in the meaning of chemical production.

The term "basic chemicals" would not cover final products which can not be considered as chemical products. For instance, the production of tyres from rubber with other ingredients (such as carbon black, sulphur, textile) involves some form of chemical processing (in particular vulcanization) without producing a "basic chemical product".

As a general remark and in view of the very large number of possible situations (as regards chemical processing, chemical substances or groups of substances produced, types and places of activities), it remains for the competent authorities to make an informed and justified judgment on whether or not a particular installation falls under the scope of the IPPC Directive, using this guidance as a tool to promote consistency and prevent possible abuse in the interpretation of the scope of the Directive as regards section 4 of Annex I.

Are enzymes covered by Annex I section 4 or 6.4?

Many plant health products and pharmaceutical products are enzymes, and these are covered by sections 4.4 and 4.5 respectively. Beyond this, there does not appear to be any sound argument for their general inclusion. In particular, the link between enzyme production and food production (section 6.4) is tenuous, since even though enzymes may be used in such activities they are not themselves food products.

Does Annex I section 4.2 include gaseous oxygen?

Even though oxygen (O_2) is not explicitly included in the list of gases in 4.2(a), it is clearly a "basic inorganic chemical". However, this list given is indicative only since it begins with the words "gases, such as...". The production of oxygen using a chemical process is therefore covered. However, oxygen is usually produced by physically (cryogenically) separating it from air. Since section 4 refers to "production...by chemical processing", such physical separation from a mixture of gases seems not to be an Annex I activity.

Can an installation which produces explosives for the production of military weapons in installations operated by the armed forces be excluded from the IPPC Directive because of Art. 296 of the Treaty establishing the European Community?

Category n° 4.6 of Annex I of the IPPC Directive covers "Chemical installations for the production of explosives"

The IPPC Directive has no provision which excludes military installations from its scope. In contrast <u>Council Directive 96/82/EC</u> of 9 December 1996 on the control of major-accident hazards involving dangerous substances excludes those installations[1]. Subject to the exemptions allowed under the <u>Directive 2003/35/EC</u> of the European Parliament and of the Council on Public Access to Environmental Information, a consequence of applicability of the IPPC Directive for military installations is that Member States are obliged to give the public access to the permit application if a new installation were to be built or an existing installation were to be substantially changed, amongst the other requirements of the Directive.

However, the Treaty establishing the European Community in Art. 296 includes a general exemption from the Treaty and therefore the whole Community legislation based on it.[3]

"Article 296

1. The provisions of this Treaty shall not preclude the application of the following rules:

(a) no Member State shall be obliged to supply information the disclosure of which it considers contrary to the essential interests of its security;

(b) any Member State may take such measures as it considers necessary for the protection of the **essential interests of its security** which are connected with **the production of** or trade in **arms, munitions and war material**; such measures shall not adversely affect the conditions of competition in the common market regarding products which are not intended for specifically military purposes.

2. The Council may, acting unanimously on a proposal from the Commission, make changes to the list, which it drew up on 15 April 1958, of the products to which the provisions of paragraph 1(b) apply."

In conclusion, since there are already examples in other Community legislation based on Art. 174 of the Treaty, which explicitly excludes these installations, and the IPPC Directive includes no similar provision, installations for the production of explosives operated by the military are not excluded from the IPPC Directive in general.

There is a clear Community interest that these installations are operated in such a way that a high level of protection of the environment is safeguarded.

Nevertheless, since it could imply requirements which would be in conflict with essential security interests, such as public participation during the permit procedure, an exclusion from these provisions by a Member State would be justified according to Art. 296 (1a).

A general exemption from the complete IPPC Directive would not be appropriate. This is underpinned by the lack of an exclusion provision from the scope of the Directive whereas other Community environmental legislation includes similar provisions explicitly.

All requirements that are deemed non-sensitive from the point of view of national security can be fulfilled. Moreover, confidentiality aspects are not confined to military installations. The competent authorities also need to handle business secrets. Each Member State must manage confidentiality aspects in accordance with the principle of subsidiarity and <u>Directive 2003/04/EC</u> on Public Access to Environmental Information.

Does Annex I section 5.1 include installations mainly used for a purpose other than the treatment of waste but which treat external hazardous waste with a capacity exceeding 10 tonnes per day?

This question concerns co-incineration of waste in combustion installations or production installations such as cement kilns. It should first be noted that the question is only relevant in cases where the installation is not already covered by virtue of another part of Annex I.

Such installations are covered by section 5.1 provided that at least one of the recovery operations R1, R5, R6, R8, R9 defined in Annex II B of Directive 75/442/EEC (now replaced by <u>Directive 2008/98/EC</u>) is carried out. This includes, for example, combustion plants burning hazardous waste and cement kilns that consume more than 10 tonnes per day of hazardous waste as a means to generate energy or for any of the other recovery operations mentioned.

Some landfills covered by <u>Council Directive 1999/31/EC on the landfill of waste</u> also fall within the scope of Council Directive 96/61/EC concerning integrated pollution prevention and control (categories 5.1 and 5.4 in annex I). What are the IPPC provisions competent authorities have to take into account for these landfills, in addition to the requirements of the Landfill Directive?

According to Art. 18(2), second subparagraph, of the IPPC Directive, "the technical requirements applicable for the landfills ... shall be fixed by the Council ... in accordance with the procedures laid down in the Treaty." This provision is mirrored by Art. 1(2) of the Landfill Directive stating that "in respect of the technical characteristics of landfills, this Directive contains, for those landfills to which Directive 96/61/EC is applicable, the relevant technical requirements in order to elaborate in concrete terms the general requirements of that Directive. The relevant requirements of Directive 96/61/EC shall be deemed to be fulfilled if the requirements of this Directive are complied with."

As a consequence, the requirements laid down in Annex I to the Landfill Directive take the place of the emission limit values, equivalent parameters and technical measures based on best available techniques required by Art. 9 (4) IPPC in the permit conditions.

The cut-off date for the distinction between "existing" and "new" installations is 31 October 1999 under the IPPC Directive (Art. 2 point 4), and 16 July 2001 under the Landfill Directive (Art. 14). For existing installations, the final date for full compliance is 31 October 2007 under the IPPC Directive (Art. 5), and 16 July 2009 under the Landfill Directive (Art. 14).

As a consequence, the competent authority has to issue an integrated permit to existing landfills covered by the IPPC Directive before 31 October 2007. Full compliance with the requirements of Annex I to the Landfill Directive, however, is only compulsory as of 16 July 2009. "New" landfills authorised after 16 July 2001 have to comply with these requirements from the outset. In cases of changes to a landfill, it is up to the competent authority to decide if the change is "substantial" or not, in accordance with Article 12 IPPC. Whereas any change triggers a permit update under the landfill Directive, the additional IPPC requirements (e.g. in terms of public participation) would only apply to a "substantial" change in the meaning of the IPPC Directive.

Article 13(1) IPPC Directive requires competent authorities to periodically reconsider and, where necessary, update permit conditions. This obligation is independent from pollution levels, substantial changes in best available techniques, safety requirements or new legislative provisions. No corresponding provision exists in the Landfill Directive. Any landfill also covered by the IPPC Directive must be made subject to such periodic reconsideration.

 Article 6 IPPC specifies information that must be included in the application for a permit. Much, but not all, of this information is also required under the Landfill Directive (Art. 7). On the other hand, some requirements are specific to the Landfill Directive (see Article 7(i)).

It should be noted that the IPPC Directive requires information on the sources of emissions from the installation as well as the nature and quantities of foreseeable emissions into each medium and identification of significant effects on the environment (i.e. also for non-EIA projects).

An application for an IPPC landfill has to comply with both the provisions of Article 6 IPPC and Article 7 of the Landfill Directive.

 Article 15 IPPC requires that permit applications for new or substantially changed installations are made available to the public. The public is given the right to comment on them before the competent authority reaches its decision. The decision, a copy of the permit and of any permit updates as well as the results of release monitoring must be made available to the public. No corresponding provision exists in the Landfill Directive.

Any landfill also covered by the IPPC Directive must be made subject to public participation and information as outlined above.

 Article 17 IPPC requires a transboundary information exchange where the operation of an IPPC installation is likely to have significant negative effects on the environment of another Member State. No corresponding provision exists in the Landfill Directive.

In principle, any landfill also covered by the IPPC Directive should be subject to this information exchange. In practice, however, a landfill likely to have significant negative effects on another Member State should not obtain a permit according to the Landfill Directive (Article 8(a)(i) in conjunction with Annex I). Article 12 Landfill Directive providing for control and monitoring programmes as well as for the notification of any significant adverse effect constitutes an additional safeguard in this respect.

It is therefore unlikely that a Member State in whose territory the permit application was submitted finds itself under the obligation to forward the information to another Member State. However, a neighbouring Member State might feel itself to be significantly affected and request information according to Article 17 IPPC.

In Annex I section 6.1, what is the meaning of the term "industrial"?

The relevance of this question concerns 6.1(a) (pulp production) for which there is no quantitative threshold. The response to the separate question concerning the <u>chemical</u> industry (Annex I section 4) also applies here.

What is meant by "board" in Annex I activity 6.1(b)?

Activity 6.1(b) refers to plants for the production of "paper and board". In the English language, the term "board" could be interpreted as meaning cardboard or more broadly as including timber board made from compressed or laminated wood. However, other language versions of the Directive refer explicitly to cardboard. There is also a technical logic in grouping paper and cardboard. It is therefore considered that "board" means cardboard in this context.

Is a paper or board production installation which uses fibres (wooden or textile fibres) and washes these fibres before the actual production of paper, and which does not exceed the threshold of category n° 6.1 but exceeds the threshold of category n° 6.2, covered by the Directive?

Category n° 6.1 of Annex I of Council Directive 96/61/EC (IPPC) lists "Industrial plants for the production of:

- (a) pulp from timber or other fibrous materials
- (b) paper and board with a production capacity exceeding 20 tonnes per day."

Category n° 6.2 of Annex I of the IPPC Directive lists "Plants for the pre-treatment (operations such as washing, bleaching, mercerisation) or dyeing of **fibres** or textiles where the treatment capacity exceeds 10 tonnes per day" as being covered.

All paper and board production installations use fibres, and will wash, bleach or otherwise pretreat these fibres before the actual production of paper or board. Thus, if this pre-treatment were considered to fall under activity 6.2, the effect would be to make installations pre-treating fibres prior to use in paper or board production subject to the Directive in the case of the fibre treatment capacity exceeding 10 tonnes per day. It seems unlikely that this was the intention, however, since it would effectively make the production capacity threshold of 6.1 (b) of 20 tonnes a day – which was specifically set for paper and board production – redundant. Moreover, there is a technical logic in the Directive's grouping of paper and pulp activities together (6.1 (a) and (b)), and separately covering textiles (6.2), such that it would be anomalous if 6.2 also covered paper fibres, but with a different threshold.

In Annex I section 6.3, what is meant by "finished product"?

Tannery products frequently leave the installation in wet form, and consequently weigh considerably more than the final product. The inclusion of the qualifier "finished" in the term "finished products" implies some activity of finishing or treatment beyond what is actually carried out on-site. A "finished product" is thus a leather fit for making up into consumer goods, but not necessarily coated or coloured.

In Annex I section 6.4 (b) and (c), does the term "raw materials" apply to materials (such as flour) that have already been processed but are used as the raw material for the production of a food product?

The term "raw materials" is normally used to refer to any materials, processed or not, used as

Frequently Asked Questions (FAQ) concerning IED (20-12-2012)

These FAQ are intended to assist stakeholders by developing the wording and intent of the Industrial Emissions Directive (IED) 2010/75/EU so that Member States transpose and implement the Directive in a consistent manner. Note that the FAQ:

- only concern interpretation of the English language version of the IED.
- should be read in conjunction with the existing FAQ on this website for the component directives of the IED.
- do not represent an official position of the Commission and cannot be invoked as such in the context of legal proceedings. Final judgements concerning the interpretation of the Directive can only be made by the European Court of Justice.

General Interpretation

IED III.5 - What is the intent of article 42(1) which excludes from scope certain gasification and pyrolysis plants?

This Article should be read taking into account the judgment of the European Court of Justice in the case C-209/09 (second judgment in the preliminary ruling concerning Lahti Energia, Finland).

This ruling makes clear that a gas, obtained by the gasification of a (solid or liquid) waste, and which is subsequently purified to such an extent that it has properties "similar to a fossil fuel",

would need to be considered as a product and no longer as a waste. The firing of such a gas in a power plant could not be considered as incineration or co-incineration of waste.

If the gas is not purified to the extent that is has properties similar to a fossil fuel and is burned subsequently in a power plant, the combination of gasification / combustion will be considered as a co-incineration plant.

Article 42(1) clarifies that the quality of the syngas following possible purification should be assessed in relation to the potential emissions that could result from its combustion. It will be up to the competent authorities issuing the permit for the plant to consider thoroughly whether the produced gas is sufficiently purified to fulfil the criteria set out in this article.

IED III.7 - How to apply the aggregation rules for activity 1.1. of Annex I and under Article 29 (Chapter III) of IED?

Annex I, activity 1.1

The list of activities in Annex I, which include in many cases capacity thresholds, defines the scope of Chapter II (see Article 10). The chapeau provision of Annex I contains a general aggregation rule for all activities:

"Where several activities falling under the same activity description containing a threshold are operated in the same installation, the capacities of such activities are added together. For waste management activities, this calculation shall apply at the level of activities 5.1, 5.3(a) and 5.3(b)."

This provision aims to ensure equal treatment of comparable installations and to prevent artificial splitting of installations.

For activity 1.1 "Combustion of fuels in installations with a total rated thermal input of 50 MW or more", this general aggregation rule means that all combustion activities within an installation need to be considered, i.e. there is no threshold at unit level. If the total rated thermal input of all those combustion activities within the installation is 50 MW or more, then the whole installation falls under the scope of Chapter II.

Combustion units totalling less than 50 MW may also be covered by Chapter II as directly associated activities if they are part of an installation which operates another Annex I activity, e.g. a food processing plant, textile plant.

Chapter III

Chapter III contains the specific provisions for large combustion plants, in particular with reference to the EU-wide emission limit values and monitoring requirements laid down in Annex V. For the purposes of Chapter III, Article 29 lays down specific aggregation rules based on the "common stack" approach.

Any combination of two or more separate combustion plants belonging to the following categories shall be considered as a single combustion plant and, for the purpose of calculating the total rated thermal input, their capacities shall be added together:

a) the waste gases of the separate combustion plants are discharged through a common stack;

b) the separate combustion plants have been granted a permit for the first time on or after 1 July 1987, or the operators have submitted a complete permit application on or after that date, and they are installed in such a way that, taking technical and economic factors into account, their waste gases could in the judgment of the competent authority, be discharged through a common stack.

For the purpose of calculating the total rated thermal input of a combination of combustion plants, individual combustion plants with a rated thermal input below 15 MW shall not be considered. Where that total rated thermal input is 50 MW or more, the entire combustion plant is covered by Chapter III.

It should be noted that the scope of activity 1.1 is broader than the combustion plants covered by Chapter III, due to:

- the abovementioned aggregation rules;
- the exemptions listed in Article 28;
- the definition of fuel as laid down in Article 3(24), which includes not only commercial fuels but also waste.

Further explanation of this issue can be found in the following <u>presentation</u> that was given to the Industrial Emissions Expert Group (IEEG) on 4 June 2012.

<u>Chapter IV: Special provisions for waste incineration plants and waste co-incineration plant &</u> <u>Annex VI Technical Provisions</u>

IED IV.1 - The term 'existing waste co-incineration plant' is undefined. How should it be interpreted for the understanding of Annex VI, part 6, section 2.5 (continuous measurements) and Annex VI, part 4 (determination of emission limit values for co-incineration of waste)?

For the purposes of the above-mentioned sections, the term 'existing waste co-incineration plant' should be interpreted in the same way as the definition of 'existing waste incineration plant' in part 1(a) of Annex VI.

<u>Chapter V: Special provisions for installations and activities using organic solvents & Annex VII</u> <u>Technical Provisions</u>

IED V.1 - The Annex VII special provisions apply to the manufacture of pharmaceutical products (Part 1(8)). Is the manufacture of active ingredients for pharmaceutical products captured by virtue of the reference to the 'manufacture of intermediate products'?

According to Article 3(15) of Regulation (EC) No 1907/2006 ("REACH") an "intermediate" means a substance that is manufactured for and consumed in or used for chemical processing in order to be transformed into another substance.

An active ingredient of a pharmaceutical product is not transformed into another substance in the further finishing process (e.g. addition of coagulating agents, starch, sugar, etc) resulting in the final pharmaceutical product. Therefore, the active ingredient can not be regarded as an intermediate product, but has to be regarded as a pharmaceutical product.

The manufacture of an active ingredient, as well as the manufacture of the final pharmaceutical product (in the form of pills, pastilles, syrup, suppositories, etc), either together or separately, falls within the scope of Annex VII.

ANNEX I: Categories of activities referred to in Article 10

5. Waste management

IED AI(5)1 - Does IED cover installations carrying out the dismantling of end-of-life vehicles (ELV) and the processing of waste electrical and electronic equipment (WEEE)?

Annex I to Commission Decision 2000/532/EC of 3 May 2000 establishing a list of waste determines the classification of ELV, waste from the dismantling of ELV, WEEE and components from WEEE as hazardous or as non-hazardous waste (sections 16.01 and 16.02). Furthermore, the provisions of Articles 3(2) and 7 and of Annex III of Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste are to be taken into account for this purpose.

Whether ELV dismantling and WEEE processing are activities covered by Annex I, point 5, of the IED, depends on the classification of such waste as hazardous or non-hazardous, on the nature of the waste treatment activities and on the capacity of the installation concerned, as follows:

- The disposal and/or recovery of hazardous waste is covered by the IED if it involves one or several of the activities listed under point 5.1 of Annex I and the installation capacity exceeds 10 tonnes per day.

- The disposal of non-hazardous waste is covered by the IED if it involves one or several of the activities listed under point 5.3(a) of Annex I and the installation capacity exceeds 50 tonnes per day.

- The recovery, or a mix of recovery and disposal, of non-hazardous waste is covered by the IED if it involves one or several of the activities listed under point 5.3(b) of Annex I and the installation capacity exceeds 75 tonnes per day.

IED AI(5)2 - How should the terms "*pending any of the activities listed in points 5.1, 5.2, 5.4 and 5.6*" in point 5.5 of Annex I be interpreted?

The activity description in point 5.5 is concerned with the temporary storage of hazardous waste with a total capacity exceeding 50 tonnes and which is performed prior to any of the waste treatment activities listed in points 5.1, 5.2, 5.4 or 5.6.

The activity is covered irrespective of whether the subsequent waste treatment activities take place on the same site as the temporary storage. It is also irrelevant whether those subsequent activities exceed the capacity thresholds mentioned under the points 5.1, 5.2, 5.4 and 5.6.

Point 5.5 does not cover the temporary storage of hazardous waste that falls under point 5.4 (landfill), nor the temporary storage, pending collection, on the site where the waste is generated.

6. Other activities

IED AI(6)1 - In activity description 6.4 (b) (ii), why are there two different thresholds?

This activity description defines different production thresholds for different production profiles.

• For those food activities that operate throughout the year, the 300 tonnes per day threshold is generally applicable.

For those activities that take place for a limited period of time during the year (seasonal activities), the environmental impacts would generally be limited compared to those for activities operating throughout the year. A threshold of 600 tonnes per day applies, but only for installations that operate for no more than 90 consecutive days in any complete year.

Annex VIII – Inventory By Province List

Number	Province Name	# Installations
1	Adana	152
2	Adıyaman	10
3	Afyonkarahisar	33
4	Ağrı	2
5	Aksaray	10
6	Amasya	12
7	Ankara	438
8	Antalya	100
9	Ardahan	0
10	Artvin	6
11	Aydın	30
12	Balıkesir	82
13	Bartın	11
14	Batman	8
15	Bayburt	1
16	Bilicik	24
17	Bingöl	1
18	Bitlis	0
19	Bolu	36
20	Burdur	18
21	Bursa	317
22	Çanakkale	31
23	Çankırı	15
24	Çorum	33
25	Denizli	75
26	Diyarbakir	12
27	Düzce	26
28	Edirne	37
29	Elazığ	22
30	Erzincan	7
31	Erzurum	12
32	Eskişehir	75
33	Gaziantep	142
34	Giresun	6
35	Gümüşhane	8
36	Hakkari	1
37	Hatay	94
38	lğdır	0
39	Isparta	13
40	İstanbul	1652
41	İzmir	495

Number	Province Name	# Installations
42	Kahramanmaraş	31
43	Karabük	40
44	Karaman	23
45	Kars	5
46	Kastamonu	11
47	Kayseri	103
48	Kırıkkale	15
49	Kırklareli	51
50	Kırşehir	7
51	Kilis	2
52	Kocaeli	512
53	Konya	173
54	Kütahya	59
55	Malatya	27
56	Manisa	93
57	Mardin	28
58	Mersin	86
59	Muğla	18
60	Muş	3
61	Nevşehir	11
62	Niğde	18
63	Ordu	9
64	Osmaniye	27
65	Rize	2
66	Sakarya	81
67	Samsun	61
68	Siirt	2
69	Sinop	5
70	Sivas	25
71	Şırnak	5
72	Tekirdağ	221
73	Tokat	14
74	Trabzon	16
75	Tunceli	0
76	Şanlıurfa	24
77	Uşak	33
78	Van	13
79	Yalova	12
80	Yozgat	11
81	Zonguldak	70
	Undefined	215

Annex IX – Nace Codes

10.11.12	Meat of swine, fresh or chilled
10.11.13	Meat of sheep, fresh or chilled
10.11.14	Meat of goats, fresh or chilled
10.11.15	Meat of horses and other equines, fresh or chilled
10.11.20	Edible offal of bovine animals, swine, sheep, goats, horses and other equines, fresh
	or chilled
10.11.31	Meat of bovine animals, frozen
10.11.32	Meat of swine, frozen
10.11.33	Meat of sheep, frozen
10.11.34	Meat of goats, frozen
10.11.35	Meat of horses and other equines, frozen
10.11.39	Other meat and edible offal, fresh, chilled or frozen
10.11.41	Pulled wool, greasy, including fleece-washed pulled wool
10.11.42	Whole raw hides and skins of bovine or equine animals
10.11.43	Other raw hides and skins of bovine or equine animals
10.11.44	Raw hides and skins of sheep or lambs
10.11.45	Raw hides and skins of goats or kids
10.11.50	Fats of bovine animals, sheep, goats or pigs
10.11.60	Raw offal, inedible
10.12.10	Meat of poultry, fresh or chilled
10.12.20	Meat of poultry, frozen
10.12.30	Fats of poultry
10.12.40	Edible offal of poultry
10.12.50	Feathers and skins of birds with feathers
10.13.11	Swine meat, cuts, salted, dried or smoked (bacon and ham)
10.13.12	Bovine meat, salted, dried or smoked
10.13.13	Other meat and edible meat offal, salted, in brine, dried or smoked (excluding swine
	and bovine meat); edible flours and meals of meat or meat offal
10.13.14	Sausages and similar products of meat, offal or blood
10.13.15	Other prepared and preserved meat, meat offal or blood, except prepared meat and offal dishes
10.13.16	Flours, meals and pellets of meat unfit for human consumption; greaves
10.13.91	Cooking and other preparation services for the production of meat products
10.20.11	Fish fillets and other fish meat (whether or not minced), fresh or chilled
10.20.12	Fish livers and roes, fresh or chilled
10.20.13	Fish, frozen
10.20.14	Fish fillets, frozen
10.20.15	Fish meat, (whether or not minced), frozen
10.20.16	Fish livers and roes, frozen
10.20.21	Fish fillets, dried, salted or in brine, but not smoked
10.20.22	Fish livers and roes dried, smoked, salted or in brine; flours, meals and pellets of fish, fit for human consumption
10.20.23	Fish, dried, whether or not salted, or in brine
10.20.24	Fish, including fillets, smoked
10.20.25	Fish, otherwise prepared or preserved, except prepared fish dishes
10.20.26	Caviar and caviar substitutes
10.20.31	Crustaceans, frozen
10.20.32	Molluscs, frozen, dried, salted or in brine, smoked

10 20 33	Other aquatic invertebrates frozen dried salted or in brine smoked
10.20.33	Cructopoppe etherwise propered or propertied; molluses and other equation
10.20.34	invertebrates otherwise prepared or preserved, monuses and other aqualic
10 20 44	Floure media and pollete of fight crustereene melluses or other equation
10.20.41	Flours, means and penets of fish, clustaceans, monuses of other aquatic
10 20 42	Other inadiale products of fight crustopapars, mallungs or other equation invertebrates
10.20.42	
10.39.11	Vegetables, frozen
10.39.12	Vegetables provisionally preserved
10.39.13	Dried vegetables
10.39.15	Beans, preserved otherwise than by vinegar or acetic acid, except prepared
10.20.10	Vegetable disnes
10.39.16	Peas, preserved otherwise than by vinegar or acetic acid, except prepared
40.00.47	vegetable dishes
10.39.17	Other vegetables (except potatoes), preserved otherwise than by vinegar or acetic
10.00.10	acid, except prepared vegetable disnes
10.39.18	vegetables (except potatoes), fruit, nuts and other edible parts of plants, prepared or
10.00.01	preserved by vinegal of acetic acid
10.39.21	Fruit and nuts, uncooked or cooked, frozen
10.39.22	Jams, truit jellies and truit or nut puree and pastes
10.39.23	Nuts, groundnuts, roasted, salted or otherwise prepared
10.39.24	Fruit and nuts, provisionally preserved, not for immediate consumption
10.39.25	Other prepared or preserved fruits
10.39.30	Vegetable materials and vegetable waste, vegetable residues and by-products
10.41.11	Lard stearin, lard oil, oleostearin, oleo-oil and tallow oil, not emulsified or mixed or
	otherwise prepared
10.41.12	Fats and oils and their fractions, of fish and marine mammals
10.41.19	Other animal fats and oils and their fractions, whether or not refined, but not
40.44.04	chemically modified
10.41.21	Soya-bean oil, crude
10.41.22	Groundnut oil, crude
10.41.23	Olive oil, crude
10.41.24	Sunflower-seed oil, crude
10.41.25	Cotton-seed oil, crude
10.41.26	Rape, colza and mustard oil, crude
10.41.27	Palm oil, crude
10.41.28	Coconut oil, crude
10.41.29	Other vegetable oils, crude
10.41.30	Cotton linters
10.41.41	Oil-cake and other solid residues, of vegetable fats or oils
10.41.42	Flours and meals of oil seeds or oleaginous fruits, except those of mustard
10.41.51	Soya-bean oil and its fractions, refined but not chemically modified
10.41.52	Groundnut oil and its fractions, refined but not chemically modified
10.41.53	Olive oil and its fractions, refined but not chemically modified
10.41.54	Sunflower-seed oil and its fractions, refined but not chemically modified
10.41.55	Cotton-seed oil and its fractions, refined but not chemically modified
10.41.56	Rape, colza and mustard oil and their fractions, refined but not chemically modified
10.41.57	Palm oil and its fractions, refined but not chemically modified
10.41.58	Coconut oil and its fractions, refined but not chemically modified
10.41.59	Other oils and their fractions, refined but not chemically modified; fixed vegetable
	fats and other vegetable oils (except maize oil) and their fractions n.e.c. refined but
	not chemically modified
10.41.60	Animal or vegetable fats and oils and their fractions, hydrogenated, esterified, but

	not further prepared
10.41.71	Vegetable waxes (excluding triglycerides)
10.41.72	Degras; residues resulting from treatment of fatty substances or animal or vegetable
	waxes
10.42.10	Margarine and similar edible fats
10.51.11	Processed liquid milk
10.51.12	Milk and cream of > 6% fat, not concentrated or sweetened
10.51.21	Skimmed milk powder
10.51.22	Whole milk powder
10.51.30	Butter and dairy spreads
10.51.40	Cheese and curd
10.51.51	Milk and cream, concentrated or containing added sugar or other sweetening matter,
	other than in solid forms
10.51.52	Yoghurt and other fermented or acidified milk or cream
10.51.53	Casein
10.51.54	Lactose and lactose syrup
10.51.55	Whey
10.51.56	Dairy products n.e.c.
10.52.10	Ice cream and other edible ice
10.61.11	Husked rice
10.61.12	Rice, semi- or wholly milled or broken
10.61.21	Wheat or maslin flour
10.61.22	Other cereal flour
10.61.23	Vegetable flour and meal
10.61.24	Mixes for preparation of bakers' wares
10.61.31	Groats and meal of wheat
10.61.32	Cereal groats, meal and pellets n.e.c.
10.61.33	Breakfast cereals and other cereal grain products
10.61.40	Bran, sharps and other residues from the working of cereals
10.62.11	Starches; inulin; wheat gluten; dextrins and other modified starches
10.62.12	Tapioca and substitutes prepared from starch in flakes, grains and the like
10.62.13	Glucose and glucose syrup; fructose and fructose syrup; invert sugar; sugars and
	sugar syrups n.e.c.
10.62.14	Maize oil
10.62.20	Residues of starch manufacture and similar residues
10.71.11	Fresh bread
10.71.12	Fresh pastry goods and cakes
10.72.11	Crispbread, rusks, toasted bread and similar toasted products
10.72.12	Gingerbread and the like; sweet biscuits; waffles and wafers
10.72.19	Other dry or preserved bakers' wares
10.73.11	Macaroni, noodles and similar farinaceous products
10.73.12	Couscous
10.81.11	Raw cane or beet sugar, in solid form
10.81.12	Refined cane or beet sugar and chemically pure sucrose, in solid form, not
40.04.45	containing added flavouring or colouring matter
10.81.13	Refined cane or beet sugar, containing added flavouring or colouring matter; maple
40.04.44	sugar and maple syrup
10.81.14	
10.81.20	Beet-puip, bagasse and other waste of sugar manufacture
10.82.11	Cocoa paste, whether or not defatted
10.82.12	Cocoa putter, fat and oll
10.82.13	Cocoa powder, not containing added sugar or other sweetening matter

10.82.14	Cocoa powder, containing added sugar or other sweetening matter
10.82.21	Chocolate and food preparations containing cocoa (except sweetened cocoa
	powder), in bulk forms
10.82.22	Chocolate and food preparations containing cocoa (except sweetened cocoa powder) other than in bulk forms
10 82 23	Sugar confectionery (including white chocolate) not containing cocoa
10.82.20	Fruit nuts fruit-neel and other parts of plants, preserved by sugar
10.02.24	Coffee decaffeinated or roasted
10.83.12	Coffee substitutes: extracts essences and concentrates of coffee or coffee
10.00.12	substitutes: coffee busks and skins
10 83 13	Green tea (not fermented) black tea (fermented) and partly fermented tea in
10.00.10	immediate packings of a content $\leq 3 \text{ kg}$
10.83.14	Extracts, essences, concentrates and preparations of tea or maté
10.83.15	Herb infusions
10.84.11	Vinegar and substitutes for vinegar obtained from acetic acid
10.84.12	Sauces: mixed condiments and mixed seasonings: mustard flour and meal and
	prepared mustard
10.84.30	Food-grade salt
10.85.11	Prepared meals and dishes based on meat, meat offal or blood
10.85.12	Prepared meals and dishes based on fish, crustaceans and molluscs
10.85.13	Prepared meals and dishes based on vegetables
10.85.14	Prepared meals and dishes based on pasta
10.85.19	Other prepared dishes and meals (including frozen pizza)
10.86.10	Homogenised food preparations and dietetic food
10.89.11	Soups and broths and preparations thereof
10.89.12	Eggs, not in shell, and eggs yolks fresh or preserved; eggs in shells preserved or
	cooked; egg albumin
10.89.13	Yeasts (active or inactive); other single-cell micro-organisms, dead; prepared baking
	powders
10.89.14	Extracts and juices of meat, fish and aquatic invertebrates
10.89.19	Miscellaneous food products n.e.c.
10.91.10	Prepared feeds for farm animals, except lucerne meal and pellets
10.92.10	Prepared pet foods
11.01.10	Distilled alcoholic beverages
11.02.11	Sparkling wine of fresh grapes
11.02.12	Wine of fresh grapes, except sparkling wine; grape must
11.03.10	Other fermented beverages (e.g., cider, perry, mead); mixed beverages containing alcohol
11.04.10	Vermouth and other flavoured wine of fresh grapes
11.05.10	Beer, except dregs from brewing
11.05.20	Brewing or distilling dregs
11.06.10	Malt
11.07.11	Mineral waters and aerated waters, not sweetened nor flavoured
11.07.19	Other non alcoholic beverages
13.10.10	Wool grease (including lanolin)
13.10.21	Raw silk (not thrown)
13.10.22	Wool, degreased or carbonised, not carded or combed
13.10.23	Noils of wool or of fine animal hair
13.10.24	Wool and fine or coarse animal hair, carded or combed
13.10.25	Cotton, carded or combed
13.10.26	Jute and other textile fibres (except flax, true hemp and ramie), processed but not
	spun

13 10 29	Other vegetable textile fibres, processed but not spun
13 10 31	Synthetic staple fibres, carded, combed or otherwise processed for spinning
13 10 32	Artificial staple fibres, carded, combed or otherwise processed for spinning
13 10 40	Silk varn and varn spun from silk waste
13,10,50	Yarn of wool put up or not put up for retail store: varn of fine or coarse animal hair or
10110100	of horse hair
13.10.61	Cotton varn (other than sewing thread)
13.10.62	Cotton sewing thread
13.10.71	Flax varn
13.10.72	Yarn of jute or of other textile bast fibres; yarn of other vegetable textile fibres; paper
	yarn
13.10.81	Yarn of man made filaments, multiple or cabled (other than sewing thread, high
	tenacity yarn of polyamides, polyesters or viscose rayon), not put up for retail sale;
	man made filament yarn (other than sewing thread) put up for retail sale
13.10.82	Yarn other than sewing thread of synthetic staple fibres, containing \ge 85% by weight
	of such fibres
13.10.83	Yarn (other than sewing thread) of synthetic staple fibres, containing < 85% by
10.10.01	weight of such fibres
13.10.84	Yarn (other than sewing thread) of artificial staple fibres
13.10.85	Sewing thread and yarn of artificial and synthetic filaments and fibres
13.10.92	Garnetted stock and other cotton waste
15.11.10	l anned or dressed fur skins
15.11.21	Chamois leather
15.11.22	Patent leather and patent laminated leather; metallised leather
15.11.31	Leather, of bovine animals, without hair on, whole
15.11.32	Leather, of bovine animals, without hair on, not whole
15.11.33	Leather, of equine animals, without hair on
15.11.41	Sneep of lamb skin leather, without wool on
15.11.42	Goal of kid skin leather, without half on
15.11.43	Leather of sther enimels, without heir on
15.11.51	Composition leather with a basis of leather or leather fibre
17 11 11	Composition realiner with a basis of realiner of realiner fibre
17.11.11	Chemical wood pulp, dissolving grades
17.11.12	Chemical wood pulp, sold of sulphate, other than dissolving grades
17.11.13	Mechanical wood pulp; somi-chamical wood pulp; pulps of fibrous collulosic material
17.11.14	other than wood
17.12.11	Newsprint, in rolls or sheets
17.12.12	Handmade paper and paperboard
17.12.13	Paper and paperboard used as a base for photo-sensitive, heat-sensitive or electro-
_	sensitive paper; carbonising base paper; wallpaper base
17.12.14	Other paper and paperboard for graphic purposes
17.12.20	Toilet or facial tissue stock, towel or napkin stock, cellulose wadding and webs of
	cellulose fibres
17.12.31	Kraftliner, unbleached, uncoated
17.12.32	White top kraftliner; coated kraftliner
17.12.33	Semi chemical fluting
17.12.34	Recycled fluting and other fluting
17.12.35	Testliner (recycled liner board)
17.12.41	Uncoated kraft paper; sack kraft paper, creped or crinkled
17.12.42	Sulphite wrapping paper and other uncoated paper (other than that of a kind used
	for writing, printing or other graphic purposes)

47.40.40	
17.12.43	Filter paper and paperboard; felt paper
17.12.44	Ligarette paper not cut to size or in form of booklets or tubes
17.12.51	Officialed, Inside grey paperboard
17.12.59	Venetable needboard
17.12.60	glazed transparent or translucent papers
17.12.71	Composite paper and paperboard, not surface-coated or impregnated
17.12.72	Paper and paperboard, creped, crinkled, embossed or perforated
17.12.73	Paper and paperboard of a kind used for writing, printing or other graphic purposes, coated with kaolin or with other inorganic substances
17.12.74	Kraft paper (other than that of a kind used for writing, printing or other graphic
	purposes), coated with kaolin or with other inorganic substances
17.12.75	Kraft paperboard (other than that of a kind used for writing, printing or other graphic
	purposes), coated with kaolin or with other inorganic substances
17.12.76	Carbon paper, self-copy paper and other copying or transfer paper, in rolls or sheets
17.12.77	Paper, paperboard, cellulose wadding and webs of cellulose fibres, coated, impregnated, covered, surface coloured or printed, in rolls or sheets
17.12.78	Inside grey paperboard (other than that of a kind used for writing, printing or other graphic purposes), coated with kaolin or with other inorganic substances
17 12 79	Other paperboard (other than that of a kind used for writing, printing or other graphic
11.12.10	purposes), coated with kaolin or with other inorganic substances
17.21.11	Corrugated board, in rolls or sheets
17.21.12	Sacks and bags of paper
17.21.13	Cartons, boxes and cases, of corrugated board or corrugated paperboard
17.21.14	Folding cartons, boxes and cases, of non-corrugated paper or paperboard
17.21.15	Box files, letter trave, storage boxes and similar articles of a kind used in offices.
	shops or the like, of paper
19.10.10	Coke and semi-coke of coal, of lignite or of peat; retort carbon
19.20.11	Briguettes, ovoids and similar solid fuels manufactured from coal
19.20.12	Briguettes, ovoids and similar solid fuels manufactured from lignite
19.20.13	Briguettes, ovoids and similar solid fuels manufactured from peat
20.11.11	Hydrogen, argon, rare gases, nitrogen and oxygen
20.11.12	Carbon dioxide and other inorganic oxygen compounds of non-metals
20.11.13	Liquid air and compressed air
20.12.11	Zinc oxide and peroxide: titanium oxides
20.12.12	Chromium, manganese, lead and copper oxides and hydroxides
20.12.19	Other metal oxides, peroxides and hydroxides
20.12.21	Synthetic organic colouring matter and preparations based thereon; synthetic
	organic products of a kind used as fluorescent brightening agents or as luminophores; colour lakes and preparations based thereon
20.12.22	Tanning extracts of vegetable origin; tannins and their salts, ethers, esters and other
	derivatives; colouring matter of vegetable or animal origin
20.12.23	Synthetic organic tanning substances: inorganic tanning substances: tanning
	preparations; enzymatic preparations for pre-tanning
20.12.24	Colouring matter n.e.c.; inorganic products of a kind used as luminophores
20.13.21	Metalloids
20.13.22	Halogen or sulphur compounds of non-metals
20.13.23	Alkali or alkaline-earth metals; rare earth metals, scandium and yttrium; mercury
20.13.24	Hydrogen chloride; oleum; diphosphorus pentaoxide: other inorganic acids: silicon
	and sulphur dioxide
20.13.25	Oxides, hydroxides and peroxides; hydrazine and hydroxylamine and their inorganic
	salts

20 13 31	Metallic halogenates
20 13 32	Hypochlorites, chlorates and perchlorates
20.13.41	Sulphides, sulphites and sulphates
20.13.42	Phosphinates, phosphonates, phosphates, polyphosphates and nitrates (except of
20110112	potassium)
20.13.43	Carbonates
20.13.51	Salts of oxometallic or peroxometallic acids: colloidal precious metals
20.13.52	Inorganic compounds n.e.c., including distilled water; amalgams other than
	amalgams of precious metals
20.13.61	Isotopes n.e.c. and compounds thereof (including heavy water)
20.13.62	Cyanides, cyanide oxides and complex cyanides; fulminates, cyanates and
	thiocyanates; silicates; borates; perborates; other salts of inorganic acids or
	peroxoacids
20.13.63	Hydrogen peroxide
20.13.64	Phosphides, carbides, hydrides, nitrides, azides, silicides and borides
20.13.65	Compounds of rare earth metals, of yttrium or of scandium
20.13.66	Sulphur, except sublimed sulphur, precipitated sulphur and colloidal sulphur
20.13.67	Roasted iron pyrites
20.13.68	Piezo-electric quartz; other synthetic or reconstructed precious or semi-precious
	stones, unworked
20.14.11	Acyclic hydrocarbons
20.14.12	Cyclic hydrocarbons
20.14.13	Chlorinated derivatives of acyclic hydrocarbons
20.14.14	Supponated, nitrated or nitrosated derivatives of hydrocarbons, whether or not
20 14 10	Allogenated Allogenated
20.14.19	
20.14.21	Monobydric alcohols
20.14.22	Diols, polyalcohols, cyclical alcohols and derivatives thereof
20.14.23	Phenols: phenol-alcohols and derivatives of phenols
20.14.31	Industrial monocarboxylic fatty acids: acid oils from refining
20.14.32	Saturated acyclic monocarboxylic acids and their derivatives
20.14.33	Unsaturated monocarboxylic, cyclanic, cyclenic or cycloterpenic acyclic
	polycarboxylic acids and their derivatives
20.14.34	Aromatic polycarboxylic and carboxylic acids with additional oxygen functions; and
	their derivatives, except salicylic acid and its salts
20.14.41	Amine function compounds
20.14.42	Oxygen-function amino-compounds, except lysine and glutamic acid
20.14.43	Ureines; carboxymide-function compounds, nitrile function compounds; derivatives
	thereof
20.14.44	Compounds with other nitrogen functions
20.14.51	Organo-sulphur and other organo-inorganic compounds
20.14.52	Heterocyclic compounds n.e.c.; nucleic acids and their salts
20.14.53	Phosphoric esters and their salts or esters of other inorganic acids (excluding esters
	or nyarogen nalides) and their saits; and their halogenated, sulphonated, nitrated or
20 14 61	Aldebyde function compounds
20.14.01	Ketone and quinone function compounds
20.14.02	Ethers organic perovides enovides acetals and hemiacetals and their derivatives
20.14.03	Encrymes and other organic compounds n e c
20.14.04	Derivates of venetable or resin products
20.14.72	Wood charcoal
20.17.12	

20.14.73	Oils and other products of the distillation of high temperature coal tar, and similar
00 4 4 7 4	products
20.14.74	Undenatured etnyl alconol of alconolic strength by volume of 2 80%
20.14.75	Ethyl alconol and other spirits, denatured, of any strength
20.15.10	Nitric acid; sulphonitric acids; ammonia
20.15.20	Ammonium chloride; nitrites
20.15.31	Urea
20.15.32	Ammonium sulphate
20.15.33	Ammonium nitrate
20.15.34	Double salts and mixtures of calcium nitrate and ammonium nitrate
20.15.35	Mixtures of ammonium nitrate with calcium carbonate or other inorganic non-
00.45.00	
20.15.39	Other nitrogenous fertilisers and mixtures
20.15.41	
20.15.49	Other phosphatic fertilisers
20.15.51	Potassium chloride (muriate of potash
20.15.52	Potassium suipnate (suipnate of potasn)
20.15.59	Other potassic fertilisers
20.15.60	Sodium nitrate
20.15.71	Pertilisers containing three nutrients: hitrogen, phosphorus and potassium
20.15.72	Diammonium nydrogenortnopnospnate (diammonium phospnate)
20.15.73	Monoammonium phosphate
20.15.74	Fertilisers containing two nutrients: hitrogen and phosphorus
20.15.75	Pertuisers containing two nutrients: phosphorus and potassium
20.15.76	Potassium nitrates
20.15.79	Mineral or chemical fertilisers containing at least two nutrients (nitrogen, phosphate,
20 15 80	Animal or vogotable fortilisers n.e.c.
20.15.00	Polymers of ethylene in primary forms
20.10.10	Polymers of styrepe, in primary forms
20.16.20	Polymers of vinyl chloride or of other balogenated olefins, in primary forms
20.16.40	Polyacetals other polyethers and enovide resins in primary forms: polycarbonates
20.10.40	alkyd resins, polyallyl esters and other polyesters, in primary forms, polyearbonates,
20 16 51	Polymers of propylene or of other olefins, in primary forms
20.16.52	Polymers of vinyl acetate or of other vinyl esters and other vinyl polymers in primary
	forms
20.16.53	Acrylic polymers, in primary forms
20.16.54	Polyamides, in primary forms
20.16.55	Urea resins, thiourea resins and melamine resins, in primary forms
20.16.56	Other amino-resins, phenolic resins and polyurethanes, in primary forms
20.16.57	Silicones, in primary forms
20.16.59	Other plastics, in primary forms, n.e.c.
20.20.11	Insecticides
20.20.12	Herbicides
20.20.13	Anti-sprouting products and plant growth regulators
20.20.14	Disinfectants
20.20.15	Fungicides
20.20.19	Other pesticides and other agrochemical products
20.30.11	Paints and varnishes based on acrylic or vinyl polymers, in an aqueous medium
20.30.12	Paints and varnishes based on polyesters, acrylic or vinyl polymers, in a non-
	aqueous medium; solutions
20.30.21	Prepared pigments, opacifiers and colours, vitrifiable enamels and glazes, engobes,

20.20.22	liquid lustres and the like; glass frit
20.30.22	Other paints and varnishes; prepared driers
20.30.23	and the like
20.30.24	Printing ink
20.41.10	Glycerol
20.41.20	Organic surface-active agents, except soap
20.41.31	Soap and organic surface-active products and preparations for use as soap; paper,
	wadding, felt and non-wovens, impregnated, coated or covered with soap or
	detergent
20.41.32	Detergents and washing preparations
20.41.41	Preparations for perfuming or deodorising rooms
20.41.42	Artificial waxes and prepared waxes
20.41.43	Polishes and creams, for footwear, furniture, floors, coachwork, glass or metal
20.41.44	Scouring pastes and powders and other scouring preparations
20.51.11	Propellant powders and prepared explosives
20.51.12	Safety fuses; detonating fuses; caps; igniters; electric detonators
20.51.13	Fireworks
20.51.14	Signalling flares, rain rockets, fog signals and other pyrotechnic articles, excluding
	fireworks
20.51.20	Matches
20.52.10	Glues
20.53.10	Essential oils
20.59	Other chemical products n.e.c.
20.59.11	Photographic plates and film and instant print film, sensitised, unexposed;
	photographic paper
20.59.12	Sensitising emulsions for photographic uses; chemical preparations for photographic uses n.e.c.
20.59.20	Chemically modified animal or vegetable fats and oils; inedible mixtures of animal or
	vegetable fats or oils
20.59.30	Writing or drawing ink and other inks
20.59.41	Lubricating preparations
20.59.42	Anti-knock preparations; additives for mineral oils and similar products
20.59.43	Hydraulic brake fluids; anti-freezing preparations and prepared de-icing fluids
20.59.51	Peptones, other protein substances and their derivatives, n.e.c.; hide powder
20.59.52	Modelling pastes; dental wax and other preparations for use in dentistry with a basis
	of plaster; preparations and charges for fire-extinguishers; prepared culture media
	for development of micro-organisms; composite diagnostic or laboratory reagents
20 50 52	N.e.C. Chemical elements in disk form and compounds deped for use in electronics
20.59.53	Activated earbon
20.59.54	Activated calpoin
20.59.55	similar products
20.59.56	Pickling preparations; fluxes; prepared rubber accelerators; compound plasticisers
	and stabilisers for rubber or plastics; catalytic preparations n.e.c.; mixed
00 50 57	aikyidenzenes and mixed aikyinaphthalenes n.e.c.
20.59.57	Prepared binders for foundry moulds or cores; chemical products
20.59.59	iviscellaneous other chemical products n.e.c.
20.59.60	Gelatines and gelatine derivatives, including milk albumins
20.60.11	Synthetic staple and tow, not carded or combed
20.60.12	Polyamide and polyester high tenacity filament yarn
20.60.13	Other synthetic filament yarn, single

20.60.14	Synthetic monofilament; strip and the like, of synthetic textile materials
20.60.21	Artificial staple and tow, not carded or combed
20.60.22	Viscose high tenacity filament yarn
20.60.23	Other artificial filament yarn, single
20.60.24	Artificial monofilament; strip and the like of artificial textile materials
21.10.10	Salicylic acid, O-acetylsalicylic acid, their salts and esters
21.10.20	Lysine, glutamic acid and their salts; quarternary ammonium salts and hydroxides; phosphoaminolipids; amides and their derivatives and salts thereof
21 10 31	Lactones n.e.c. beterocyclic compounds with nitrogen betero-atom(s) only
21110.01	containing an unfused pyrazole ring, a pyrimidine ring, a piperazine ring, an unfused
	triazine ring or a phenothiazine ring system not further fused; hydantoin and its
	derivatives
21.10.32	Sulphonamides
21.10.40	Sugars, chemically pure, n.e.c.; sugar ethers and esters and their salts, n.e.c
21.10.51	Provitamins, vitamins and their derivatives
21.10.52	Hormones, derivatives thereof; other steroids, used primarily as hormones
21.10.53	Glycosides, vegetable alkaloids, their salts, ethers, esters and other derivatives
21.10.54	Antibiotics
21.10.60	Glands and other organs; extracts thereof and other human or animal substances
	n.e.c.
21.20.11	Medicaments, containing penicillins or other antibiotics
21.20.12	Medicaments, containing hormones, but not antibiotics
21.20.13	Medicaments, containing alkaloids or derivatives thereof, but not hormones or
	antibiotics
21.20.21	Antisera and vaccines
21.20.22	Chemical contraceptive preparations based on hormones or spermicides
21.20.23	Diagnostic reagents and other pharmaceutical preparations
21.20.24	Adhesive dressings, catgut and similar materials; first-aid boxes
22.21.10	Monofilament > 1 mm, rods, sticks and profile snapes, of plastics
22.21.21	rigid, of plastics
22.21.29	Other tubes, pipes, hoses and fittings thereof, of plastics
22.21.30	Plates, sheets, film, foil and strip, of plastics, not supported or similarly combined with other materials
22.21.41	Other plates, sheets, film, foil and strip, of plastics, cellular
22.21.42	Other plates, sheets, film, foil and strip, of plastics, non-cellular
23.11.11	Glass cast, rolled, drawn or blown, in sheets, but not otherwise worked
23.11.12	Float glass and surface ground or polished glass, in sheets, but not otherwise worked
23.12.11	Glass in sheets, bent, edge-worked, engraved, drilled, enamelled or otherwise
22 12 12	Safety dass
23.12.12	Glass mirrors: multiple walled insulating units of glass
23.12.13	Bricks blocks tiles and other ceramic goods of siliceous fossil meals or earth
23.20.11	Befractory bricks, blocks, tiles and similar refractory ceramic constructional goods
20.20.12	other than of siliceous fossil meals or earths
23.20.13	Retractory cements, mortars, concretes and similar compositions n.e.c.
23.20.14	Unfired refractory products and other refractory ceramic goods
23.31.10	Ceramic tiles and flags
23.32.11	Non-refractory ceramic building bricks, flooring blocks, support or filler tiles and the like
23.32.12	Roofing tiles, chimney-pots, cowls, chimney liners, architectural ornaments and other
	ceramic constructional goods
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23 32 13	Ceramic pipes conduits guttering and pipe fittings
23.32.13	Tableware kitchenware other household articles and toilet articles of porcelain or
20.41.11	china
23.41.12	Tableware, kitchenware, other household articles and toilet articles, other than of
	porcelain or china)
23.41.13	Statuettes and other ornamental ceramic articles
23.42.10	Ceramic sanitary fixtures
23.43.10	Electrical insulators of ceramics; insulating fittings, for electrical machines,
	appliances or equipment, of ceramics
23.44.11	Ceramic wares for laboratory, chemical or other technical uses, of porcelain or china
23.44.12	Ceramic wares for laboratory, chemical or other technical uses, other than of
	porcelain or china
23.49.11	Ceramic articles for use in agriculture and for the conveyance or packing of goods
23.49.12	Other non-structural ceramic articles n.e.c.
23.51.11	Cement clinkers
23.51.12	Portland cement, aluminous cement, slag cement and similar hydraulic cements
24.10.11	Pig iron and spiegeleisen in pigs, blocks or other primary forms
24.10.12	Ferro-alloys
24.10.13	Ferrous products obtained by direct reduction of iron ore and other spongy ferrous
	of 00.04% in lumps, pellets or similar forms, from having a minimum punity by weight
24 10 14	Grapulas and powders, of pig iron and spingeleison, or steel
24.10.14	Non allow steel in indots or other primary forms and semi-finished products of non
24.10.21	allov steel
24 10 22	Stainless steel in ingots or other primary forms and semi-finished products of
2	stainless steel
24.10.23	Other alloy steel in ingots or other primary forms and semi-finished products of other
	alloy steel
24.10.31	Flat rolled products of non alloy steel, not further worked than hot rolled, of a width of
	≥ 600 mm
24.10.32	Flat rolled products of non alloy steel, not further worked than hot rolled, of a width of
	< 600 mm
24.10.33	Flat rolled products of stainless steel, not further worked than hot rolled, of a width \geq
04.40.04	600 mm
24.10.34	Flat rolled products of stainless steel, not further worked than not rolled, of a width of
24 10 25	< 600 mm
24.10.35	Fial folled products of other alloy steer, not further worked than not folled, of a width $of > 600 \text{ mm}$
24 10 36	Flat rolled products of other alloy steel, not further worked than hot rolled, of a width
24.10.00	of $< 600 \text{ mm}$ (except products of silicon-electrical steel)
24.10.41	Flat rolled products of non alloy steel, not further worked than cold rolled, of a width
	of $\geq 600 \text{ mm}$
24.10.42	Flat rolled products of stainless steel, not further worked than cold rolled, of a width
	of ≥ 600 mm
24.10.43	Flat rolled products of other-alloy steel, not further worked than cold rolled, of a width
	of ≥ 600 mm
24.10.51	Flat rolled products of non alloy steel, of a width of ≥ 600 mm, clad, plated or coated
24.10.52	Flat rolled products of other alloy steel, of a width of \geq 600 mm, clad, plated or
	coated
24.10.53	Flat rolled products of silicon-electrical steel, of a width of ≥ 600 mm
24.10.54	Flat rolled products of silicon-electrical steel, of a width of < 600 mm

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24.10.55	Flat rolled products of high speed steel, of a width of < 600 mm
24.10.61	Bars and rods, hot rolled, in irregularly wound coils, of non alloy steel
24.10.62	Other bars and rods of steel, not further worked than forged, hot rolled, hot-drawn or
	extruded, but including those twisted after rolling
24.10.63	Bars and rods, hot rolled, in irregularly wound coils, of stainless steel
24.10.64	Other bars and rods of stainless steel, not further worked than forged, hot rolled, hot-
	drawn or extruded, but including those twisted after rolling
24.10.65	Bars and rods, hot rolled, in irregularly wound coils, of other alloy steel
24.10.66	Other bars and rods of other alloy steel, not further worked than forged, hot rolled,
	hot-drawn or extruded, but including those twisted after rolling
24.10.67	Hollow drill bars and rods
24.10.71	Open sections, not further worked than hot rolled, hot-drawn or extruded, of non
	alloy steel
24.10.72	Open sections, not further worked than hot rolled, hot-drawn or extruded, of
0440 70	stainless steel
24.10.73	Open sections, not further worked than hot rolled, hot-drawn or extruded, of other
044074	alloy steel
24.10.74	Sneet pling, of steel and welded open sections of steel
24.10.75	Rallway or tramway track construction material of steel
24.20.11	Line pipe of a kind used for oil or gas pipelines, seamless, of steel
24.20.12	Casing, tubing and drill pipe, of a kind used in the drilling for oil or gas, seamless, of
24 20 12	Steel Other tubes and pipes, of sirgular grass social of steel
24.20.13	Tubes and pipes, of circular cross-section and hollow profiles, of steel
24.20.14	Lips pipe of a kind used for all or das pipelines, welded, of an external diameter of s
24.20.21	406.4 mm of steel
24 20 22	Casing and tubing of a kind used in drilling for oil or gas, wolded, of an external
24.20.22	diameter of > 406,4 mm, of steel
24.20.23	Other tubes and pipes, of circular cross section, welded, of an external diameter of >
	406,4 mm, of steel
24.20.24	Other tubes and pipes, of circular cross section, such as open seam, riveted or
04.00.04	similarly closed, of an external diameter of > 406,4 mm, of steel
24.20.31	Line pipe of a kind used for oil or gas pipelines, weided, of an external diameter of \leq
24 20 22	400,4 mm, of steel
24.20.32	Casing and tubing, of a kind used in drilling for oil of gas, weided, of an external diameter of ≤ 406.4 mm of stool
24 20 33	Other tubes and pipes, of circular cross section, welded, of an external diameter of <
21.20.00	406.4 mm. of steel
24,20.34	Tubes and pipes, of non-circular cross-section, welded, of an external diameter of \leq
	406,4 mm, of steel
24.20.35	Other tubes and pipes, such as open seam, riveted or similarly closed, of an external
	diameter of ≤ 406,4 mm, of steel
24.20.40	Tube or pipe fittings of steel, not cast
24.41.10	Silver, unwrought or in semi-manufactured forms, or in powder form
24.41.20	Gold, unwrought or in semi-manufactured forms, or in powder form
24.41.30	Platinum, unwrought or in semi-manufactured forms, or in powder form
24.41.40	Base metals or silver, clad with gold, not further worked than semi-manufactured
24.41.50	Base metals clad with silver and base metals, silver or gold clad with platinum, not
	further worked than semi-manufactured
24.42.11	Aluminium, unwrought
24.42.12	Aluminium oxide, excluding artificial corundum
24 42 21	Aluminium powders and flakes

24.42.22	Aluminium bars, rods and profiles
24.42.23	Aluminium wire
24.42.24	Aluminium plates, sheets and strip, of a thickness > 0,2 mm
24.42.25	Aluminium foil, of a thickness ≤ 0,2 mm
24.42.26	Aluminium tubes, pipes and tube or pipe fittings
24.43.11	Lead, unwrought
24.43.12	Zinc, unwrought
24.43.13	Tin, unwrought
24.43.21	Lead plates, sheets, strip and foil; lead powders and flakes
24.43.22	Zinc dust, powders and flakes
24.43.23	Zinc bars, rods, profiles and wire; zinc plates, sheets, strip and foil
24.43.24	Tin bars, rods, profiles and wire
24.44.11	Copper mattes; cement copper
24.44.12	Copper, unrefined; copper anodes for electrolytic refining
24.44.13	Refined copper and copper alloys, unwrought; master alloys of copper
24.44.21	Copper powders and flakes
24.44.22	Copper bars, rods and profiles
24.44.23	Copper wire
24.44.24	Copper plates, sheets and strip, of a thickness > 0,15 mm
24.44.25	Copper foil, of a thickness ≤ 0,15 mm
24.44.26	Copper tubes, pipes and tube or pipe fittings
24.45.11	Nickel, unwrought
24.45.12	Nickel mattes, nickel oxide sinters and other intermediate products of nickel
_	metallurgy
24.45.21	Nickel powders and flakes
24.45.22	Nickel bars, rods, profiles and wire
24.45.23	Nickel plates, sheets, strip and foil
24.45.24	Nickel tubes, pipes and tube or pipe fittings
24.45.30	Other non-ferrous metals and articles thereof: cermets; ash and residues, containing
	metals or metallic compounds
25.61.11	Metallic coating services of metal
25.61.12	Non-metallic coating services of metal
25.61.21	Heat treatment services of metal, other than metallic coating
25.61.22	Other surface treatment services of metal
27.20.11	Primary cells and primary batteries
27.20.12	Parts of primary cells and primary batteries
27.20.21	Lead-acid accumulators for starting piston engines
27.20.22	Lead-acid accumulators, excluding for starting piston engines
27.20.23	Nickel-cadmium, nickel metal hydride, lithium-ion, lithium polymer, nickel-iron and
	other electric accumulators
27.20.24	Parts of electric accumulators including separators
29.10.11	Spark-ignition reciprocating internal combustion piston engines for vehicles, of a
	cylinder capacity ≤ 1 000 cm ³
29.10.12	Spark-ignition reciprocating internal combustion piston engines for vehicles, of a
	cylinder capacity > 1 000 cm ³
29.10.13	Compression-ignition internal combustion piston engines for vehicles
29.10.21	Vehicles with spark-ignition engine of a cylinder capacity ≤ 1500 cm ³
29.10.22	Vehicles with spark-ignition engine of a cylinder capacity > 1 500 cm ³
29.10.23	Vehicles with compression-ignition internal combustion piston engine (diesel or
	semi-diesel)
29.10.24	Other motor vehicles for the transport of persons
29.10.30	Motor vehicles for the transport of 10 or more persons

29.10.41	Goods vehicles, with compression-ignition internal combustion piston engine (diesel
29 10 42	Goods vehicles with spark-ignition internal combustion histon engine: other goods
20.10.42	vehicles
29.10.43	Road tractors for semi-trailers
29.10.44	Chassis fitted with engines, for motor vehicles
29.10.51	Crane lorries
29.10.52	Vehicles for travelling on snow, golf cars and the like, with engines
29.10.59	Special-purpose motor vehicles n.e.c
29.20.10	Bodies for motor vehicles
29.20.21	Containers specially designed for carriage by one or more modes of transport
29.20.22	Trailers and semi-trailers of the caravan type, for housing or camping
29.20.23	Other trailers and semi-trailers
29.20.30	Parts of trailers, semi-trailers and other vehicles, not mechanically propelled
30.11.10	Naval ships
30.11.21	Cruise ships, excursion boats and similar vessels for the transport of persons; ferry- boats of all kinds
30.11.22	Tankers for the transport of crude oil, oil products, chemicals, liquefied gas
30.11.23	Refrigerated vessels, except tankers
30.11.24	Dry cargo ships
30.11.31	Fishing vessels; factory ships and other vessels for processing or preserving fishery products
30.11.32	Tugs and pusher craft
30.11.33	Dredgers; light-vessels, floating cranes; other vessels
30.11.40	Offshore vessels and infrastructure
30.11.50	Other floating structures (including rafts, tanks, coffer-dams, landing stages, buoys
	and beacons)
30.11.91	Conversion and reconstruction of ships, floating platforms and structures
30.11.92	Fitting out services of ships and floating platforms and structures
30.12	Pleasure and sporting boats
30.12.11	Sailboats (except inflatable) for pleasure or sports, with or without auxiliary motor
30.12.12	Inflatable vessels for pleasure or sports
30.12.19	Other vessels for pleasure or sports; rowing boats and canoes
30.20.11	Rail locomotives powered from an external source of electricity
30.20.12	Diesel-electric locomotives
30.20.13	Other rail locomotives; locomotive tenders
30.20.20	Self-propelled railway or tramway coaches, vans and trucks, except maintenance or
20.00.04	Service venicies
30.20.31	Railway or tramway maintenance or service venicies
30.20.32	specialised vans
30.20.33	Railway or tramway goods vans and wagons, not self-propelled
30.20.40	Parts of railway or tramway locomotives or rolling-stock; mechanical traffic control
	equipment
30.20.91	Reconditioning and fitting out services ("completing") of railway and tramway
	locomotives and rolling-stock
30.30.11	Aircraft spark-ignition engines
30.30.12	Turbo-jets and turbo-propellers
30.30.13	Reaction engines, excluding turbo-jets
30.30.14	Ground flying trainers and parts thereof
30.30.15	Parts for aircraft spark-ignition engines
30.30.16	Parts of turbo-jets or turbo-propellers

30.30.20	Balloons and dirigibles; gliders, hang gliders and other non-powered aircraft
30.30.31	Helicopters
30.30.32	Aeroplanes and other aircraft, of an unladen weight \leq 2 000 kg
30.30.33	Aeroplanes and other aircraft, of an unladen weight > 2 000 kg but \leq 15 000 kg
30.30.34	Aeroplanes and other aircraft, of an unladen weight > 15 000 kg
30.30.40	Spacecraft (including satellites) and spacecraft launch vehicles
30.30.50	Other parts of aircraft and spacecraft
30.30.60	Overhaul and conversion services of aircraft and aircraft engines
33.15.10	Repair and maintenance services of ships and boats
33.16.10	Repair and maintenance services of aircraft and spacecraft
35.11.10	Electricity
35.21.10	Coal gas, water gas, producer gas and similar gases, other than petroleum gases

Annex X – Provincial Chambers That Provided Feedback

- Adana
- Afyonkarahisar
- Ankara
- Antalya
- Çorum
- Elazığ
- Erzincan
- Gaziantep
- Kayseri
- Konya
- Mersin
- Trabzon

Annex XI – Inventory

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