

## **CRITERIA FOR ENVIRONMENTAL LABELING OF TISSUE PAPER PRODUCTS**

**ARTICLE 1-** These criteria have been established under the Environmental Label Regulation dated 19.10.2018 and numbered 30570.

**ARTICLE 2-** The product group "tissue paper" shall comprise sheets or rolls of tissue papers fit for use for personal hygiene, absorption of liquids or the cleaning of soiled surfaces (Toilet tissues, kitchen or household towels, napkins, handkerchiefs, facial tissues). Tissue papers can be creped or embossed or in one or several plies. The fibre content of the product should be at least 90%.

**ARTICLE 3-** This product group shall not comprise any of the following:

- a) Wet wipes and sanitary products
- b) Tissue products laminated with other materials than tissue paper

**ARTICLE 4-** In order for the products in the 'tissue paper' product group to be awarded the Environmental Label within the scope of the Environmental Label Regulation, the criteria specified in this document must be fulfilled.

**ARTICLE 5-** The Environmental Label criteria and assessment and verification requirements established for the product group 'tissue paper' will be valid for 5 (five) years. The criteria may be updated within a five-year period when deemed necessary by the Environmental Labelling Board. The period of validity of the criteria may be extended based on the approval of the Environmental Labelling Board.

### **Assessment and Verification Requirements**

The specific assessment and verification requirements are indicated within each criterion.

Where the applicant is required to provide declarations, documentation, analyses, test reports or other evidence to show compliance with the criteria, these may originate from the applicant and/or his supplier(s) and/or their suppliers, etc., as appropriate.

Where appropriate, test methods other than those indicated for each criterion may be used if their equivalence is accepted by the Ministry assessing the application.

The Ministry recognises the tests performed by laboratories accredited by an accreditation body that is a party to the International Laboratory Accreditation Association (ILAC) - Mutual Recognition Agreement (MRA) according to TS EN ISO/IEC 17025. TÜRKAK accredited organisations can be accessed at <https://secure.turkak.org.tr/kapsam/search> TS EN ISO/IEC 17025 accreditation condition is not required if it is documented that there is no accredited organisation for the test method, which is mandatory within the scope of evaluation and verification requirements.

Where appropriate, the Ministry may require supporting information/documentation and may carry out independent verification.

When generating data on the classification of substances or mixtures, the provisions of the "Regulation on the Test Methods to be Applied in the Determination of the Physico-Chemical, Toxicological and Ecotoxicological Properties of Substances and Mixtures" published in the second repeated Official Gazette dated 11.12.2013 and numbered 28848 or methods that have been validated in accordance with internationally recognised scientific principles or international procedures should be considered.

The applicant must have fulfilled the necessary obligations under the Environmental Law and the current legislation that came into force pursuant to this law. Accordingly, the applicant is obliged to submit other documents required by the Ministry, such as the EIA Decision, Environmental Permit and License Certificate, Zero Waste Certificate, etc.

## **CRITERIA**

Environmental Label criteria cover pulp and paper production. The criteria cover the all sub-processes of the pulp raw material or recycled paper from the moment it enters the facility to its exit. Paper production, on the other hand, covers all sub-processes from pulping of ready-made pulp and/or recycled paper to winding the paper onto rolls.

Transport, converting and packaging of the pulp, paper or raw materials are not included.

Recycled pulp is defined as the pulp obtained as a result of recycling used paper, cardboard or paperboard obtained at the printing or consumer stages. Mill's own waste and purchased paper mill waste made from virgin pulp is not included in the definition.

### **Criterion 1 Emissions to Water and Air**

#### **Criterion 1.1. Chemical Oxygen Demand (COD), Phosphorus (P), Sulfur (S), Nitrogen oxides (NO<sub>x</sub>)**

For each of these parameters, emissions to air and/or water from cellulose, pulp and/or paper production shall be expressed with "P" numeric values for COD, P, S, and NO<sub>x</sub> as detailed below.

The score for any individual emission parameter of the P<sub>COD</sub>, P<sub>P</sub>, P<sub>S</sub>, P<sub>NO<sub>x</sub></sub> shall not exceed 1.5.

The total number of points (P<sub>TOTAL</sub> = P<sub>COD</sub>, P<sub>P</sub>, P<sub>S</sub>, P<sub>NO<sub>x</sub></sub>) shall not exceed 4.0.

The calculation of P<sub>COD</sub> shall be made as described below (the calculations of P<sub>P</sub>, P<sub>S</sub>, P<sub>NO<sub>x</sub></sub> shall be made in exactly the same manner with the corresponding reference values).

For each pulp ("i") used, the related measured COD emissions (COD<sub>pulp,i</sub> expressed in kg/air dry tonne — ADt) shall be weighted according to the proportion of each pulp used (pulp 'i' with respect to air dried tonne of pulp). The weighted COD emission for the pulp is then added to the measured COD emission from the paper production to give a total COD emission, COD<sub>total</sub>.

The weighted COD reference value for the pulp production shall be calculated in the same way, with the sum of the weighted reference value for each pulp used and added to the reference value for the paper production to give a total COD reference value  $COD_{ref, total}$ . The reference values for each pulp type used and for the paper products are given in Table 1.

Finally, the total COD emission is divided by the total COD reference value according to the formula below.

$$P_{COD} = \frac{COD_{TOTAL}}{COD_{REF,TOTAL}} = \frac{\sum_{i=1}^n [pulp, i \times (COD_{pulp, i})] + COD_{papermachine}}{\sum_{i=1}^n [pulp, i \times (COD_{ref pulp, i})] + COD_{ref papermachine}}$$

**Table 1:** Reference values for emissions from different pulp types and from paper production

Pulp grade/paper	Emissions (kg/ADt)			
	COD <sub>reference</sub>	P <sub>reference</sub>	S <sub>reference</sub>	NO <sub>x</sub> reference
Chemical pulp (other than sulphite)	18.0	0.045	0.6	1.6
Chemical pulp (sulphite)	25.0	0.045	0.6	1.6
Unbleached chemical pulp	10.0	0.02	0.6	1.6
CTMP (chemical thermo mechanical cellulose)	15.0	0.01	0.3	0.3
Recycled fibre pulp	3.0	0.01	0.03	0.3
Tissue paper	2.0	0.01	0.03	0.5

(1) ADt= Air dry tonne means 90% dry matter content for pulp. The actual dry matter content for paper is usually around 95%. The reference values for pulps in the calculations shall be adjusted to correspond to the dry pulp content of the paper, which is often over 90%.

In cases where co-generation system is used for heat and electricity at the same plant, the emissions of NO<sub>x</sub> and S shall be calculated according to the ratio obtained from the following equation:

$$\text{Share of emissions from electricity generation} = 2 \times (\text{MWh}(\text{electricity})) / [2 \times \text{MWh}(\text{electricity}) + \text{MWh}(\text{heat})]$$

The electricity in this calculation is the net amount of electricity. The part of working electricity that is used to generate energy at the plant is excluded. In other words, the net electricity is the part that is delivered from the power plant to the pulp/paper production.

The heat in this calculation is the net heat. The part of working heat that is used to generate energy at the power plant is excluded. In other words, the net heat is the part of the heat is delivered from the power plant to the pulp/paper production.

*Assessment and verification:* The applicant shall provide detailed calculations showing compliance with this criterion, together with related supporting documentation. Supporting documentation includes test reports showing test results obtained using the specific test method or equivalent standard methods used for each parameter. An up-to-date (preferably within the last 6 months) air emission measurement report must be submitted, indicating that

all emission measurement limit values provide limit values in line with the Regulation on the Control of Industrial Air Pollution.

**COD:** ISO 6060 or TS 2789; DIN 38409 chapter 41, NFT 90101, ASTM D 125283, Dr. Lang LCK 114, Hack or WTW.

**P:** TS EN ISO 6878, APAT IRSA CNR 4110, or Dr Lange LCK 349

**NO<sub>x</sub>:** TS EN 14792 or TS ISO 11564

**S (oxides):** TS EN 14791 or EPA No.8

**S (red.):** EPA No 15A, 16A or 16B

**S content in oil:** TS EN ISO 8754

**S content in coal:** TS 440 ISO 351

The supporting documentation shall include an indication of the measurement frequency and calculation of the points for COD, P, S, and NO<sub>x</sub>. Emissions to air shall include all emissions of S and NO<sub>x</sub> that occur during the production of pulp and paper, including steam generated outside the production site. Emissions related to the production of electricity are excluded. Measurements shall include recovery boilers, limekilns, steam boilers, and destructor furnaces for strong-smelling gases. Diffuse emissions shall be taken into account. Both oxidised and reduced S emissions (dimethyl sulfide, methyl mercaptan, hydrogen sulfide, etc.) shall be taken into account when reporting the S emission values released into the air.

Measurements of emissions to water shall be taken on samples at the effluent discharge point of the mills' wastewater treatment plant, T<sub>COD</sub>, T<sub>P</sub> calculations shall be done. The analysis of the samples taken is done without any filtering and settling processes. In cases where mill effluent is sent to a joint wastewater treatment plant, emissions of the mill effluent sewer discharge point shall be measured and results of T<sub>COD</sub>, T<sub>P</sub> multiplied by a standard removal efficiency factor for the joint wastewater treatment plant.

The COD parameter shall be measured every 2 weeks, and the T<sub>P</sub> (total phosphorus) parameter shall be measured every 2 months, and the 6-month average value shall be used in the calculations. An annual NO<sub>x</sub> measurement is sufficient for facilities that meet their energy needs from natural gas. S emissions from the production of heat energy from oil, coal or other external fuels containing S can be calculated and thus taken into account rather than being measured.

In cases where a new or reconstructed production facility, the emission measurement values to be made every other day for 45 consecutive days will be taken as the basis after the emission values of the facility have stabilized,

In the case of a new or rebuilt production plant, the emission values shall be based on the measurements made every other day for 45 subsequent days of the stable running of the plant.

In cases where the facility is located in an Organized Industrial Zone, if there is a wastewater treatment plant in the facility, the calculation should be made by taking samples from the

effluent discharge point reflecting the production base pollution load of the six months before the application, and also prove the production time of the products for which the Environmental Label application has been made. If the OIZ wastewater treatment plant is used, calculations should be made by modeling method, taking into account the wastewater treatment plant discharge values.

For the first Environmental Label application, total phosphorus measurement for the last 2 months is sufficient. In case the Environmental label application is deemed to be successful, the measurements shall be made in 2 month-periods.

### **Criterion 1.2. Adsorbable organic halogens (AOX)**

The weighted average value of AOX emissions from the production of the pulps used in the Environmental Labelled tissue paper product shall not exceed 0.12 kg/ADt. The AOX emissions from each individual pulp used in a paper shall not exceed 0.25 kg/ADt.

*Assessment and verification:* The applicant shall provide test reports using the test method below:

Detailed calculations showing compliance with this criterion shall be provided accompanied by related supporting documentation and tests obtained from the pulp supplier and performed by using the AOX TS EN ISO 9562 (1989) or equivalent proven tests.

The supporting documentation shall include an indication of the measurement frequency. AOX shall only be measured in processes where chlorine compounds are used for bleaching of the pulp. AOX need not be measured in the effluent from non-integrated paper production or in the effluents from pulp production without bleaching or where bleaching is performed with chlorine-free substances.

The measurements shall be taken once a month based on a 6-month production period. In the case of a new or rebuilt production plant, the results shall be based on emission measurements taken once a day for 45 consecutive days after the plant's emissions values have stabilised. They shall be representative of the respective campaign.

Measurements of AOX emissions to water shall be taken on samples at the effluent discharge point of the mills' wastewater treatment plant. The analysis of the samples taken is done without any filtering and settling processes. In cases where mill effluent is sent to a joint wastewater treatment plant, the emissions from the mill effluent sewer discharge point shall be measured, and AOX calculations shall be done with the results multiplied by a standard removal efficiency factor for the joint wastewater treatment plant.

### **Criterion 1.3. CO<sub>2</sub>**

Carbon dioxide emissions from non-renewable energy sources (fossil), including emissions from the production of electricity (whether on-site or off-site) shall not exceed 1500 kg per ADt paper produced.

The fuel used for converting tissue paper into a product and transport in distributing this product, pulps or raw materials shall not be included in the calculations.

The applicant shall provide data on the air emissions of carbon dioxide. Carbon dioxide emissions (whether on-site or off-site) from all non-renewable energy sources used during the production of pulp and paper, including the emissions from the electricity generation shall be reported.

In cases where the paper production facilities do not produce the steam in their own facilities but import it from outside; if the CO<sub>2</sub> emission per unit of steam cannot be obtained from the supplier company, CO<sub>2</sub> emission must be calculated by the steam consumed in the tissue paper production facility based on the fuel used by the supplier company, taking into account the emission factors in the table below.

The following emission factors shall be used in the calculation of carbon dioxide emissions from fuels:

**Table 2** CO<sub>2</sub> emission factors

<b>Fuel</b>	<b>CO<sub>2</sub> emissions</b>	<b>Unit</b>
Lignite	107	g CO <sub>2fossil</sub> /MJ
Bituminous Coal	85	g CO <sub>2fossil</sub> /MJ
Natural Gas	56	g CO <sub>2fossil</sub> /MJ
Fuel Oil	77	g CO <sub>2fossil</sub> /MJ
Diesel	72	g CO <sub>2fossil</sub> /MJ
LPG	63	g CO <sub>2fossil</sub> /MJ
Grid Electricity (2017) (ref: IEA, carbon footprint etc.)	630	g CO <sub>2fossil</sub> /kWh

In case the applicant presents documentation establishing the electricity from renewable energy sources within the scope of the related articles and legislation of Law numbered 6446 and 5346, the applicant may exclude the renewable electricity from the calculation. Apart from this, for all grid electricity, the value given in the table above (the European average) shall be used.

**Criterion 2 Energy use**

The total electricity consumption of the tissue paper product shall be calculated as the sum of the electricity used in the pulp and the tissue paper production stages and shall not exceed 2200 kWh electricity per ADt paper produced.

The applicant shall calculate all the electrical inputs used during the production of pulp and tissue paper, including the electricity used in the de-inking of waste paper for the production of recycled paper.

The electricity calculation does not include energy consumed in transporting raw materials or in converting and packaging.

Electricity means net imported electricity coming from the grid and internally generated electricity measured as electric power. Electricity used for wastewater treatment and internal ventilation of the plant need not be included.

*Assessment and verification:* The applicant shall provide detailed calculations showing compliance with this criterion, together with all related supporting documentation. Reported details should therefore include the total electricity consumption.

### **Criterion 3 Fibres – Sustainable Forest Management**

- a) The pulp and paper producer(s) shall have a policy of sustainable wood and fibre procurement and a system to trace and verify the origin of wood and track it from the forest to the first reception point.

The origin of all virgin fibres shall be documented. The pulp and paper producer shall ensure that all the wood and fibre originate from legal sources. The wood and fibre shall not be supplied from the protected areas or areas in the official process of designation for protection, old-growth forests, and high conservation value forest defined in national stakeholder processes unless purchases are clearly in line with the national conservation regulations.

- b) The fibre raw material in the paper may be recycled or virgin fibre. 50% of any virgin fibre must, however, originate from sustainably managed forests.

*Assessment and verification:* The applicant shall provide appropriate documentation from the paper supplier indicating the types, quantities and precise origins of fibres used in pulp and paper production. Where virgin fibres from forests are used, the applicant shall provide the appropriate certificate(s) from the paper/pulp supplier.

### **Criterion 4 Hazardous chemical substances**

#### **Criterion 4.1. Chlorine**

Chlorine gas shall not be used as a bleaching agent. This requirement does not apply to chlorine gas related to the production and use of chlorine dioxide.

*Assessment and verification:* The applicant shall provide a declaration from the pulp suppliers that chlorine gas has not been used as a bleaching agent. Note: While this requirement also applies to the bleaching of recycled fibres, it is accepted that fibres in their previous life cycle may have been bleached with chlorine gas.

#### **Criterion 4.2. APEO**

Alkylphenol ethoxylates or other alkylphenol derivatives shall not be added to cleaning chemicals, de-inking chemicals, foam inhibitors, dispersants or coatings. Alkylphenol derivatives are defined as substances that, upon degradation, produce alkylphenols.

*Assessment and verification:* The applicant or chemical supplier(s) shall provide a relevant declaration(s) that alkylphenol ethoxylates or other alkylphenol derivatives have not been

added to these products.

### **Criterion 4.3. Surfactants Used in De-inking**

Where surfactants are used in quantities of at least 100 g/ADt (the sum of all surfactants used in all the different formulations used in de-inking return fibres), each surfactant shall be readily biodegradable. Where such surfactants are used in quantities of less than 100 g/ADt, each surfactant shall demonstrate ready biodegradable or inherent ultimately biodegradable (see test methods and pass levels below).

*Assessment and verification:* The applicant or the chemical supplier(s) shall provide a declaration of compliance with this criterion together with the relevant safety data sheets (SDS) or test reports for each surfactant. These shall indicate the test method (one of the test methods below), threshold and conclusion reached and pass levels:

SDSs are prepared in accordance with Annex 2 of the Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals. It can also be prepared in accordance with the Regulation on Safety Data Sheets Concerning Harmful Substances and Mixtures, published in the Official Gazette dated 13.12.2014 and numbered 29204.

For ready biodegradability: OECD No 301 A-F (or equivalent ISO standards) with a percentage degradation (including absorption) within 28 days of at least 70 % for 301 A and E, and of at least 60 % for 301 B, C, D and F. For inherent ultimate biodegradability: OECD 302 A-C (or equivalent ISO standards), with a percentage degradation (including adsorption) within 28 days of at least 70 % for 302 A and B, and of at least 60 % for 302 C.

### **Criterion 4.4. Biocides**

The active components in biocides or biostatic agents used to counter slime-forming organisms in circulation water systems containing fibres shall not be potentially bio-accumulative.

*Assessment and verification:* The applicant or chemical supplier(s) shall provide a declaration of compliance with this criterion together with the relevant material safety data sheet or test report. This shall indicate the test method, threshold and conclusion stated, using one of the following test methods: OECD 107, 117 or 305 A-E.

### **Criterion 4.5. Wet Strength Agents**

In wet strength enhancers, the sum of chloro-organic substance, epichlorohydrin (ECH), 1,3-dichloro-2-propanol (DCP) and 3-monochloro-1,2-propanediol (MCPD) substances is calculated according to the dry content of the wet strength enhancer can be found at a maximum of 0.7%. Wet strength agents that contain glyoxal must not be used in the production of environmental labelled tissue papers.

*Assessment and verification:* The applicant or chemical supplier/suppliers shall provide a declaration that sum of chloro-organic substance, epichlorohydrin (ECH), 1,3-dichloro-2-propanol (DCP) and 3-monochloro-1,2-propanediol (MCPD) substances is not more 0.7% in



total. The sum of these three substances shall be below 0.7% according to the calculation to be made within the framework of the dry content of wet strength enhancers.

#### **Criterion 4.6. Softeners, Lotions, Fragrances, Additives of Natural Origin**

According to the provisions of the Regulation on Classification, Labelling and Packaging of Substances and Mixtures, which entered into force by being published in the Official Gazette dated 11/12/2013 and numbered 28848, sensitising (H334 or H317), carcinogenic (H350), mutagen (H340) or harmful to the environment (H400, H410, H411, H412, H413) ingredients or mixtures included in softeners, lotions, fragrances and additives of natural origin cannot be used in the production of tissue paper products.

Any substance or fragrances that are required to be labelled on a product or packaging in accordance with the Cosmetic Regulation, which entered into force by being published in the Official Gazette dated 23/05/2005 and numbered 25823, shall not be used in the Environmental Labelled product more than 0.01% by weight as concentration limit.

Any ingredient added to the product as a fragrance must have been manufactured, handled and applied in accordance with the code of practice of the International Fragrance Association (IFRA).

*Assessment and verification:* The applicant shall provide a list of softeners, lotions, fragrances and additives of natural origin that have been added to the tissue paper product with a declaration for each added preparation that the criterion is met.

A declaration of conformity with each part of this criterion shall be provided to the Ministry by the fragrance manufacturer.

#### **Criterion 5 Product Safety**

Products made from recycled paper or mixtures of recycled paper and virgin fibres shall fulfil requirements on hygiene as follows.

The tissue product shall not contain any of the following substances above the specified limits:

- a) Formaldehyde: 1 mg/dm<sup>2</sup> according to test method TS EN 1541,
- b) Glyoxal: 1.5 mg/dm<sup>2</sup> according to test method DIN 54603,
- c) Pentachlorophenol (PCP): 2 mg/kg according to test method TS EN ISO 15320.

All tissue products shall fulfil the following requirements:

- a) **Slimicides and antimicrobial substances:** No growth retardance of micro-organisms according to test method TS EN 1104.
- b) **Dyes and optical brighteners:** No bleeding according to test method TS EN 646/648 (level 4 is required)
- c) **Dyes and inks:**

- The dyes and inks used in the production of tissue paper shall not contain azo substances that may cleave to any amines listed in the VIII of Annex-17 of the Regulation 8/8 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) published in the Official Gazette dated 23/06/2017 and numbered 30105.

- The dyes and inks to be used in the production of tissue paper shall not be Cd or Mn based.

Dye substances shall not contain amine groups listed in Annex VIII of the Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), which was published in the Official Gazette dated 23/06/2017 and numbered 30105.

*Assessment and verification:* The applicant or chemical supplier(s) shall provide a declaration of compliance with this criterion.

### **Criterion 6 Waste Management**

A system shall be implemented for the handling of waste and waste generated in all pulp, paper and integrated production facilities. The system shall be documented or explained in the application file and shall include the points below:

- a) Procedures for separating and recycling materials from the waste stream
- b) Procedures for recovering materials, such as the use of operating steam in the incineration plant or its use as compost.
- c) Procedures for the handling of hazardous waste

*Assessment and verification:* The applicant shall provide the Waste Management Plan for the related sites prepared under the Waste Management Regulation published in the Official Gazette dated 02/04/2015 and numbered 29314.

### **Criterion 7 Fitness for use**

The product shall be fit for use. This conformity can be demonstrated by data from appropriate ISO, CEN or equivalent test methods, such as national or in-house test procedures. The indication of the type of use for which the product is suitable should be clearly indicated.

### **Criterion 8 User Information/Information Appearing on the Environmental Label**

The following information shall be placed on the product along with the environmental label:

The Environmental Label with the dimensions of 3x3 cm shall be placed on the product packaging. Below the label, 6-point the document number and "The use of Environmental Label in this product has been approved by the Ministry of Environment, Urbanisation and Climate Change in accordance with the Environmental Label Regulation published in the Official Gazette dated 19.10.2018 and numbered 30570 due to its environmental performance." statement must be included.

If the product is approved during the application process, it may contain the following statements.

- a) Reduced energy consumption in production processes,
- b) Reduced air and water emissions (carbon footprint and water footprint),
- c) Improved consumer information and waste management.
- d) A statement stating the minimum percentage of recycled paper use and/or a percentage stating the percentage of certified pulps,