



**USER'S MANUAL FOR THE  
APPLICATION FOR TISSUE PAPER**



<b>Content:</b>	<b>Page</b>
<b>General information</b>	<b>3</b>
<b>For which products can applications be made?</b>	Error! Bookmark not defined.
<b>Who can apply for the Ecolabel?</b>	<b>4</b>
Continuous control – the responsibility of the applicant	4
Assessment of the compliance of the criteria	4
Costs	5
Procedure for assessing the application	5
<b>Ecological Criteria</b>	<b>5</b>
Emission into water of COD and AOX	6
Emission into Air of S, NO <sub>x</sub> and CO <sub>2</sub>	8
Emission parameters and analysing methods	10
Energy use	12
Fibres - sustainable forest management	13

Annexes:

**Tables for the emissions and energy calculations**

**Examples for Calculations of the emission and energy points**

**Information on emission data**

**Information on energy and emission data**

**Hazardous chemical substances**

**Declarations and other documentation regarding the chemical requirements**

**Information on production chemicals**

**Cleaning agents, Dispersing agents and Foam inhibitors/Defoamers**

**Surfactants in de-inking chemicals**

**Biocides**

**Dyes**



**General note:** A blank application form can be obtained from any of the Competent Bodies responsible for the European Ecolabel Scheme or downloaded from [http://ec.europa.eu/environment/ecolabel/contacts/competent\\_bodies\\_en.htm](http://ec.europa.eu/environment/ecolabel/contacts/competent_bodies_en.htm).

Two copies of the application form should be provided by the applicant, each bearing original signatures. All documentation on the product/products should refer to the requirements in the criteria document (2009/568/EC).

The applicant shall assemble a dossier containing all relevant data and manufacturers' declarations related to the product to be Ecolabelled. This dossier should be presented as part of the application to verify compliance with the criteria.

If there is more than one candidate product produced at one site, then the information in the application dossier should be separated into that which is product specific and that which is site specific, to avoid duplicating information. If the product is produced in more than one site then an application dossier must be provided for each production site.

## For which products can applications be made?

The following products are eligible for the EU Ecolabel:

Sheets or rolls of tissue paper which are:

- fit for use for personal hygiene;
- used for absorption of liquids and/or cleaning of soiled surfaces.

The candidate tissue product must consist of creped or embossed paper in one or several plies. The fibre content of the product must be at least 90 %.

Three main processes or phases may be isolated in the manufacturing of the paper products. These are pulp manufacturing (including de-inking of waste paper), paper production and converting into rolls or smaller reels.

For each candidate tissue paper product covered by the application, the applicant has to specify the product composition. This must include the following information:

- 1) The pulp grades (i.e. Kraft, sulphite, CTMP, de-inked etc.) and their trade names used in the product, and the origin of the fibre (i.e. virgin or recycled). For bleached pulp grade, the bleaching methods must be declared.
- 2) The share of each pulp grade in the paper.
- 3) The emission and energy use values for:
  - i. each pulp grade individually;
  - ii. the paper production phase;

iii. the overall total values for the paper.

4) The trade names of production and auxiliary chemicals, and the names of their suppliers.

For non-integrated production, the applicant has to state the names and locations of production sites of all pulp suppliers with a reference to the trade names of the pulps.

## **Who can apply for the Ecolabel?**

Manufacturers, importers, services providers, traders and retailers, may submit applications for the Ecolabel. Traders and retailers may submit applications in respect of products placed on the trade market under their own brand names.

If a product is being produced in a single Member State the application shall be presented in this Member State.

If a product is being produced in the same form in several Member States the application may be presented in any of these Member States.

If a product originates from outside the European Union the application may be presented in any of the Member States in which the product is to be, or has been, placed on the market.

### ***Continuous control – the responsibility of the applicant***

The applicant has the responsibility of ensuring that the Ecolabelled product and production sites are in compliance with the ecolabelling criteria at all times.

When the Ecolabel has been granted, the applicant must keep the dossier continuously updated. Where tests or measurements are required, the contract holder or his supplier is responsible for keeping a journal containing the test results and other relevant documentation. This documentation does not need to be sent to the Competent Body, but must be available for inspection at any time, if requested.

If data shows that the product, during the validity period of the license, no longer complies with the criteria, this must be reported to the Competent Body immediately together with a statement of the reasons for the non-compliance. The Competent Body will decide what action is required on a case-by-case basis.

### ***Assessment of the compliance of the criteria***

The Competent Body may undertake any necessary investigations to monitor the ongoing compliance by the holder of the Ecolabel license as regards to both the product group criteria and the terms of use and provisions of the contract. To this end, the

Competent Body may request, and the holder shall provide, any relevant documentation to prove such compliance.

Furthermore, the Competent Body may, at any reasonable time and without notice, request, and the holder must grant, access to the premises.

### ***Costs***

The applicant must pay all expenses for tests and verifications related to the application, holding and use of the Ecolabel. Besides an application fee, an annual fee must be paid.

### ***Procedure for assessing the application***

After receiving an application the Competent Body will go through the dossier including the documentation sent directly from the suppliers. The Competent Body has the possibility to ask for further information, if necessary.

The Competent Body will assess the application and makes a list of missing documentation, which will be communicated to the applicant. The applicant should then make sure that the requirements listed are met and provide the Competent Body with any missing documentation.

When all documentation has been assessed and approved, the Competent Body may carry out an on-site visit to the applicant and/or his suppliers. The Competent Body will decide from case to case whom to visit.

When all requirements have been met, the Competent Body will sign the contract with the applicant and will notify the application in the European Commission's Ecolabel Helpdesk, who will register the contract.

## **Ecological Criteria**

### **1. Emissions to water and air**

#### **Chemical Oxygen demand (COD), Phosphorus (P), Sulphur (S), Nitrogen oxides (NO<sub>x</sub>)**

For each of these parameters, the emissions to air and/or water from the pulp and the paper production shall be expressed in terms of points (P<sub>COD</sub>, P<sub>P</sub>, P<sub>S</sub>, P<sub>NO<sub>x</sub></sub>) as detailed below. EN 29.7.2009 Official Journal of the European Union L 197/89

None of the individual points P<sub>COD</sub>, P<sub>P</sub>, P<sub>S</sub>, or P<sub>NO<sub>x</sub></sub> shall exceed 1,5.

The total number of points (P<sub>total</sub> = P<sub>COD</sub>, P<sub>P</sub>, P<sub>S</sub>, or P<sub>NO<sub>x</sub></sub>) shall not exceed 4,0.

**AOX:** The AOX emissions from the production of each pulp used shall not exceed 0,12 kg/ADT.

### ***Emission into water of COD, P and AOX***

Emissions of COD and Phosphorus to the water from both pulp and paper production must be allocated specified numbers of 'points'. These points are used in the calculation for the total number of emission points. To verify all calculations, the application must include the full results of the tests and the basis for the emission values provided, per tonne of pulp (ADT) or paper. The table 1a in Annex 2 can be used for reporting this information.

In many cases paper produced contains two types of pulp, together with chemicals. A typical tissue paper may include for instance 70% chemical hardwood pulp and 30% chemical softwood pulp. However, there are also cases where different grades of pulps are mixed as in the case where chemical pulp is mixed with deinked or mechanical pulp. When various pulp grades with different reference values are mixed, the real emission values of COD and P, as well as the reference value for the pulp mixture in the denominator of the equation, shall be weighted according to the share of each pulp type in the moist paper. For calculation details see examples 1-3 in Annex 2.

The emission data must be provided for each type of pulp used for the Ecolabelled paper and the paper production. However, in some cases it is not necessary to know the emissions of COD and P separately for pulp and paper production, as in the case of mechanical pulp/DIP production, that is integrated with the paper machine, where only one type of paper is produced. For these cases see the calculated examples 1-3 in Annex 2.

Where the pulp is sold as a market pulp the emissions to water from the pulp production shall always be measured regardless of whether the production is integrated or not.

At an integrated pulp and paper mill there are often several paper machines producing various types of paper. The real emissions should be known from each of the paper machines, but in some cases it is not possible to make proper measurements, for example in cases where the circulating water systems are mixed together. In such cases an average (mean) efficiency for the entire integrated mill can be calculated from the reference values, according to equation 1. The emissions from the various paper machines can then be calculated from the calculated mill efficiency value and the proportions of the contribution from different the paper machines.

Using COD as an example, this means that:

It is assumed that the contribution from each process type makes up just as great a proportion of total emissions as the reference values for each process types make up of the total reference value for the emission.

The mean efficiency for the entire integrated mill:



$$COD_{ecolabelledprocess} = \frac{COD_{refecolabelledprocess, i}}{COD_{refemissiontotal}} * COD_{totalemission} \quad (\text{equation 1})$$

the relevant reference values can be found in table 1

where  $COD_{refemissiontotal}$  are emissions measured as kg COD/year that would be released by the plant if all subprocesses had emissions that equalled the reference values.

For paper machines in which changes in the production are made within short periods of time and where the COD and P emissions of the various types of paper can be regarded to be approximately the same, a mean value for emissions of the paper machine can be used.

If there is a waste water treatment plant on site and all production is to be Ecolabelled then the measurements of COD, P and AOX must be made on unfiltered and unsettled samples after waste water treatment .

All emissions from the different production phases for the Ecolabelled product must be taken into account (i.e. added together) and used in the calculations.

In cases where the waste water or part of it is treated in a treatment plant outside the mill, for example, in a public treatment plant, the measurements of COD, P and AOX must be made before treatment and the values used in the calculation should be multiplied by the efficiency of the site treatment plant.

On sites where different pulps are produced, with only some to be used for Ecolabelled production, the measurements of COD, P and AOX must be made before final site treatment (i.e. on samples from the internal flows) and the values used in the calculation should be multiplied by the efficiency of the site treatment plant.

The period for the measurements must be based on the production during a 12-month period prior to the date of application. If the measurements concern a new or a re-built production plant, the measurements shall be based on a period of at least 45 consecutive days of stable running of the plant.

A sample shall be composed of a representative 24-hr collection sample (daily samples) e.g. flow-proportional sampling or an equivalent procedure. A number of daily samples may be added together and analysed as one. The minimum testing frequency for COD and P is one test per week. The minimum testing frequency for AOX is one test per month. For shorter measuring campaigns than six months, the minimum number of AOX tests performed is at least six.

If the production of Ecolabelled products is runs shorter than 45 days, averages from more than one run carried out during a longer period will be accepted if the total average for several short runs is based on samples from at least 45 days. Such discontinuous measurements shall be explicitly stated in the application documents.

If the ecolabelled product is produced in a single run shorter than 45 days an average for the run will be accepted

The AOX shall only be measured in processes where chlorine compounds are used for the bleaching of the pulp (as in ECF process). It need not be measured in the effluents from non-integrated paper production or in the effluents from pulp production where the bleaching is performed with chlorine-free substances.

Pulps that are bleached with chlorine gas cannot be used for Ecolabelled paper.

The testing of AOX, COD and P should be performed according to the methods given below or to the respective equivalent standards.

The verifier shall recognise in-house testing methods if these methods are commonly used and accepted on a national basis and the equivalence is established by a significance of 95%. The applicant has to report the test methods used.

### **Test methods:**

COD: ISO 6060; DIN 38409 part 41, NFT 90101 ASTM D 125283, Dr Lang LCK 114, Hack or WTW

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

AOX: ISO 9562 (1989)

### ***Emissions into Air of S, NO<sub>x</sub> and CO<sub>2</sub>***

Emissions of S (sulphur) and NO<sub>x</sub> (nitrogen oxides) to the air from both pulp and paper production must be allocated a number of 'points'. These points are then used in the calculation for the total number of emission points. To verify all calculations the application must include the full results of the tests and the basis for the emissions per tonne of pulp (ADT) or paper (air dry) provided. Use table 1b in Annex 2.

Emissions to air are closely related to the energy consumption in the different phases of the production process. It is therefore, necessary to have basic data for the energy production to be able to calculate the total emissions of S, NO<sub>x</sub> and CO<sub>2</sub> for the entire pulp/paper production.

The basic data is the amount of fuel used (both fossil fuels in the form of for example oil, coal or gas as well as renewable resources) in the energy production (steam and electricity) as well as directly in the different production processes. The amount of

heat and electricity produced and the annual emissions of S, NO<sub>x</sub> and CO<sub>2</sub> from the pulp/paper processes and the energy production must also be provided.

The emission of NO<sub>x</sub> must be measured directly. The emissions of S can either be measured directly or calculated from the known levels of S in the fuels used. (apart from emissions from recovery boilers or lime kilns, for which S calculations are impossible). The emissions of CO<sub>2</sub> must be calculated. The emission factors for CO<sub>2</sub> for different fuels are found in the table in Annex 1 while the S content of the fuels should be measured by the fuel supplier or the pulp/paper producer.

**Note:** When the total emission of, for example, S are known for the mill's production, and the total amount of energy (MWh) produced is known, the emissions of S can be expressed as kg S/MWh energy. Therefore, when the amount of the energy (MWh) consumed and the amount of pulp/paper produced is known the emissions of S, can be calculated as kg/tonnes pulp/paper. The same is true for NO<sub>x</sub> and CO<sub>2</sub>. (Sometimes the energy consumption can be measured for each step of the production process and the total emission summed up for the pulp/paper production)

Measurements must include all energy plants at the pulp/paper mill such as recovery boilers, lime kilns, steam boilers and destructor furnaces for strong smelling gases. Diffuse emissions shall be taken into account. The measurements should include energy generated at heat and power plants either on-site or off-site.

The supporting documentation must include an indication of the measurement frequency of the emissions. The applicant should use table 2 in Annex 2 to provide information on the basic data such as the number and type of the energy plants, fuels, produced amount of energy (both heat and electricity) in each boiler and the emissions of S, NO<sub>x</sub> and CO<sub>2</sub> for each plant.

It is the S, NO<sub>x</sub> and CO<sub>2</sub> emissions related to the ecolabelled paper (and the included pulp) production that are to be taken into account. Therefore, the S, NO<sub>x</sub> and CO<sub>2</sub> emissions related to the surplus energy delivered to other enterprises should not be taken into account when the S, NO<sub>x</sub> and CO<sub>2</sub> levels are calculated.

The requirements are only set on the part of the emissions of S, and NO<sub>x</sub> that originate from the heat energy production. The emissions related to the generation of electricity are excluded from the calculations. To be able to separate the emissions from the electricity generation from the heat production in cases where both heat and electricity is generated at the same plant, an allocation of the emissions has to be made to the electricity (the net electricity) and the heat generation (the net heat). The allocation is done as follows:

**The share of the emissions from the electricity generation = electricity (MWh)×2<sup>n</sup>/[electricity (MWh)×2<sup>n</sup> + heat (MWh)]** - Please note that the factor 2 is based on the fact that the 'exergy' of the electricity is approximately twice the exergy of the heat energy. (for further information on exergy see:

<http://en.wikipedia.org/wiki/Exergy>) The electricity in this calculation is the net electricity, not including the part of the working electricity that is used at the power plant to generate the energy i.e. the net electricity is the part that is delivered from the power plant for pulp/paper production.

The heat in this calculation is the net heat, not including the part of the working heat that is used at the power plant to generate the energy i.e. the net heat is the part that is delivered from the power plant for pulp/paper production.

For a calculation example, see example 5 in Annex 2.

When the CO<sub>2</sub> emissions are calculated both heat and electricity consumption of the pulp and paper production have to be taken into account.

### ***Emission parameters and methods of analysis***

#### **Sulphur**

Data on the sulphur emissions must be provided for each quality of pulp used and for the paper production. The sulphur emissions must be expressed as kg of Sulphur per air dry tonne (90% dry) pulp.

If gas-cleaning technology is used, gaseous sulphur levels should be measured after the cleaning process.

The reported emission values for S to air must include both oxidised and reduced S emissions (dimethyl sulphide, methyl mercaptan, hydrogen sulphide and the like).

Determination of the S emissions:

- The applicant may calculate the sulphur emissions from measurements of all individual sources, such as heat generation, recovery boilers, lime kilns, steam boilers and destructor furnaces for strong-smelling gases etc.
- The applicant may calculate the sulphur emissions from the sulphur content of the fuels (usually oil or coal) for the on-site energy generation if all sulphur emissions originate from fuels with known sulphur content.
- If the sulphur emissions originate from different sources, the applicant may calculate the emissions related to the energy generation from oil, coal and other external fuels. The emissions from recovery boilers and lime kilns must be measured.

All emission sources shall then be added up to a total gaseous sulphur emission, expressed as S.

The applicant must report the test methods/standards used when measuring the emissions. The application must include the full results of the tests and/or the basis for

calculations (as the specification of the S content of the oil or gas) to emissions per every certain quantity of pulp or paper.

### **Test methods:**

Sulphur content in oil: ISO 8754:1995

Sulphur content in coal ISO 351

Sulphur emissions measurements:

S(oxid.): EPA no.8

S(red.): EPA no 16A;

S content in oil: ISO 8754

S content in coal: ISO 351.

The period of the measurements must be at least 12-months. However where production of Ecolabelled products is made in shorter 'runs', then the average value from all runs carried out over a 12 month period must be provided. Such discontinuous measurements shall be explicitly stated in the application documents.

### **Nitrogen Oxides, NO<sub>x</sub>**

Data on the NO<sub>x</sub> emissions must be provided for each pulp quality and for the paper production. The NO<sub>x</sub> must be expressed as kg NO<sub>x</sub> per air-dry tonne (90% dry) pulp.

If gas-cleaning technology is used, NO<sub>x</sub> shall be measured after the cleaning process

### **Test methods:**

NO<sub>x</sub>: ISO 11564

The period of the measurements must be at least 12-months. However where production of Ecolabelled products is made in shorter 'runs', then the average value from all runs carried out over a 12 month period must be provided. Such discontinuous measurements shall be explicitly stated in the application documents.

(In the case of production is powered by natural gas, one annual measurement is sufficient.)

### ***Carbon Dioxide, CO<sub>2</sub>***

CO<sub>2</sub>: The emissions of carbon dioxide from non-renewable sources shall not exceed 1500 kg per tonne of paper produced, including emissions from the production of electricity (whether on-site or off-site).

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

The applicant must provide detailed information of all carbon dioxide emissions derived from the production of pulp and paper, i.e. from the production of wood-chips or de-inking, to the mother reel . The information must include all sources of non-renewable fuels as well as the electricity purchased and used for the production of pulp and paper. In case of non-integrated production, the applicant must provide this information for the pulp/pulps used for the respective paper product. The CO<sub>2</sub>-equivalents for various fuels given in table in Annex 1 should be used in the calculation of the emissions.

The emissions should be expressed as kg CO<sub>2</sub> per air-dry tonne (90 % dry) pulp and paper and added up for the whole process of pulp and paper production. If grid electricity is used in any of the phases of manufacturing, the contribution to CO<sub>2</sub> emission due to public electricity generation, must be included. The contribution of the grid electricity is calculated by multiplying the amount electricity required to produce one tonne of candidate product by 400 g CO<sub>2</sub> / kWh (the European average), see table in Annex 1.

The total emission value of 1500 kg CO<sub>2</sub> / tonne of paper must not be exceeded for the pulp and paper production. In calculating the weighed average, each pulp is taken into account regarding to its share in the moist paper.

### ***Energy use***

The total consumption of electricity related to the tissue-paper product shall be calculated as the sum of the electricity used in the pulp and the tissue paper production stages and must not exceed:

2 200 kWh electricity per ADT of paper produced.

Energy used in the transport of raw materials, as well as conversion and packaging, is not included in the energy consumption calculations.

Electricity used for wastewater treatment need not be included.

The pulp and paper producer should specify the total electricity consumption, per tonne ecolabelled product, for both pulp and paper production processes. Electric energy means net imported electricity purchased from the grid and internal generation of electricity measured as electric power where the working power used in and by the power plant for the generation of the electricity is deducted, i.e. the part of the electricity that is purchased by the pulp/paper producer from the power plant is the net electricity.

The electricity calculation is as follows:

$E = \text{Internally produced net electricity} + \text{purchased electricity} - \text{sold electricity}$

For electricity, both purchased electricity and electricity produced on-site must be included.

In exceptional cases where the products can be regarded as being of equal quality as the ecolabelled product and are produced using comparable processes within the same production unit, average values for ecolabelled products and products that are not ecolabelled may be used. This applies to both pulp and paper production.

Any surplus electricity that can be sold off is deducted from the total consumption figure.

### ***Fibres – sustainable forest management***

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

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

**Verification:** The following documents will be required:

- For each pulp used, separately: A copy of the pulp producer's policy for sustainable procurement including a description of what the pulp producer does, in practice, to ensure that the wood and fibres do not come from protected areas or areas in the official process of designation for protection, old growth forests and high conservation value forests defined in national stakeholder processes unless the purchases are clearly in line with the national conservation regulations.
- For each pulp used, separately: An independently third party certified CoC certificate that can be used for the verification of the system to trace and verify the origin of the wood.

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 which have been certified by independent third party schemes fulfilling the criteria listed in

paragraph 15 of the Council Resolution of 15 December 1998 on a Forestry Strategy for the EU and further development thereof.

The applicant shall provide appropriate documentation from the paper supplier indicating the types, quantities and precise origins of fibres used in the pulp and the paper production. Where virgin fibres from forests are used, the applicant shall provide appropriate certificate(s) from the paper/pulp supplier showing that the certification scheme correctly fulfils the requirements as laid down in paragraph 15 of the Council Resolution of 15 December 1998 on a Forestry Strategy for the EU.

**Verification:** The following documents will be required:

- For each pulp used, separately: a list of all fibre suppliers, and the amount of wood and species of wood that is annually delivered to the pulp mill from each, along with declarations (from the fibre suppliers) of the amount of certified fibres delivered to the pulp mill and the copies of the certificates for the certified fibres.

In case the certified fibres are allocated to only a part of the pulp production a description of the system for tracing that part must be provided.



## Annex 1

### Tables for emission and energy calculations

**Table** of 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> <sub>reference</sub>
Chemical pulp (others except 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	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

**Table**, CO<sub>2</sub> of different fossil fuels and grid electricity

Fuel	CO <sub>2, fossil</sub> emission	Unit
Coal	95	g CO <sub>2, fossil</sub> / MJ
Crude oil	73	g CO <sub>2, fossil</sub> / MJ
Fuel oil 1	74	g CO <sub>2, fossil</sub> / MJ
Fuel oil 2 – 5	77	g CO <sub>2, fossil</sub> / MJ
LPG	62,40	g CO <sub>2, fossil</sub> / MJ
Natural gas	56	g CO <sub>2, fossil</sub> / MJ
Grid electricity	400	g CO <sub>2, fossil</sub> / kWh

## Annex 2

### Examples of Calculations of emission and energy points

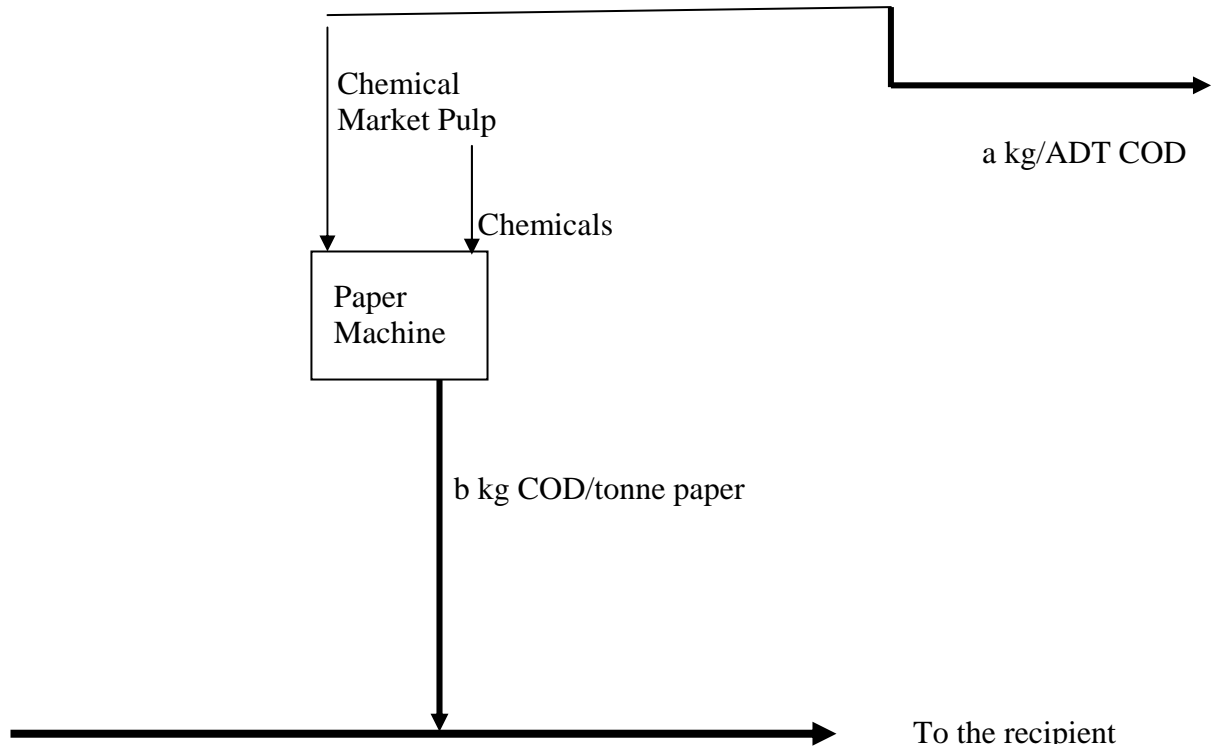
**Example 1:** Calculation of emission points for a non-integrated paper mill.

**Example 2:** Calculation of emission points for a paper mill integrated with a mechanical pulp production plant and non-integrated chemical pulp.

**Example 3:** Calculation of the allocation of S and NO<sub>x</sub> emissions between heat and electricity

## Annex 2

*Figure 1*



a = COD emission for the purchased market pulp kg/ADT  
b = COD emission from the paper production kg/tonne paper

## Annex 2

### Example 1

A tissue paper product that will be ecolabelled is produced at a non-integrated paper mill. The used pulp is purchased Kraft market pulp. See figure 1.

The amount of Kraft pulp (90% dry matter content) needed to produce one tonne tissue paper (95% dry matter content) is 1056 Kg

The measured and therefore known emissions of COD from the productions of the Kraft pulp and the tissue paper are:

Kraft Pulp: 24 kg COD/ADT

Tissue paper production: 1.2 kg COD/tonne paper

**Then, the total emission of COD is calculated**

$$\text{COD}_{\text{pulp}} = 1,056 \times 24 = 25,3 \text{ kg COD/ADT paper (95\%)}$$

$$\text{COD}_{\text{paper}} = 1.2 \text{ kg COD/ADT paper (95\%)}$$

**The reference value for the pulp is:**

$$95/90 \times \text{COD}_{\text{refKraft}}$$

$$95/90 \times 18.0 = 19$$

The COD reference value for the tissue paper is 2.

Then the overall COD point is calculated as follows:

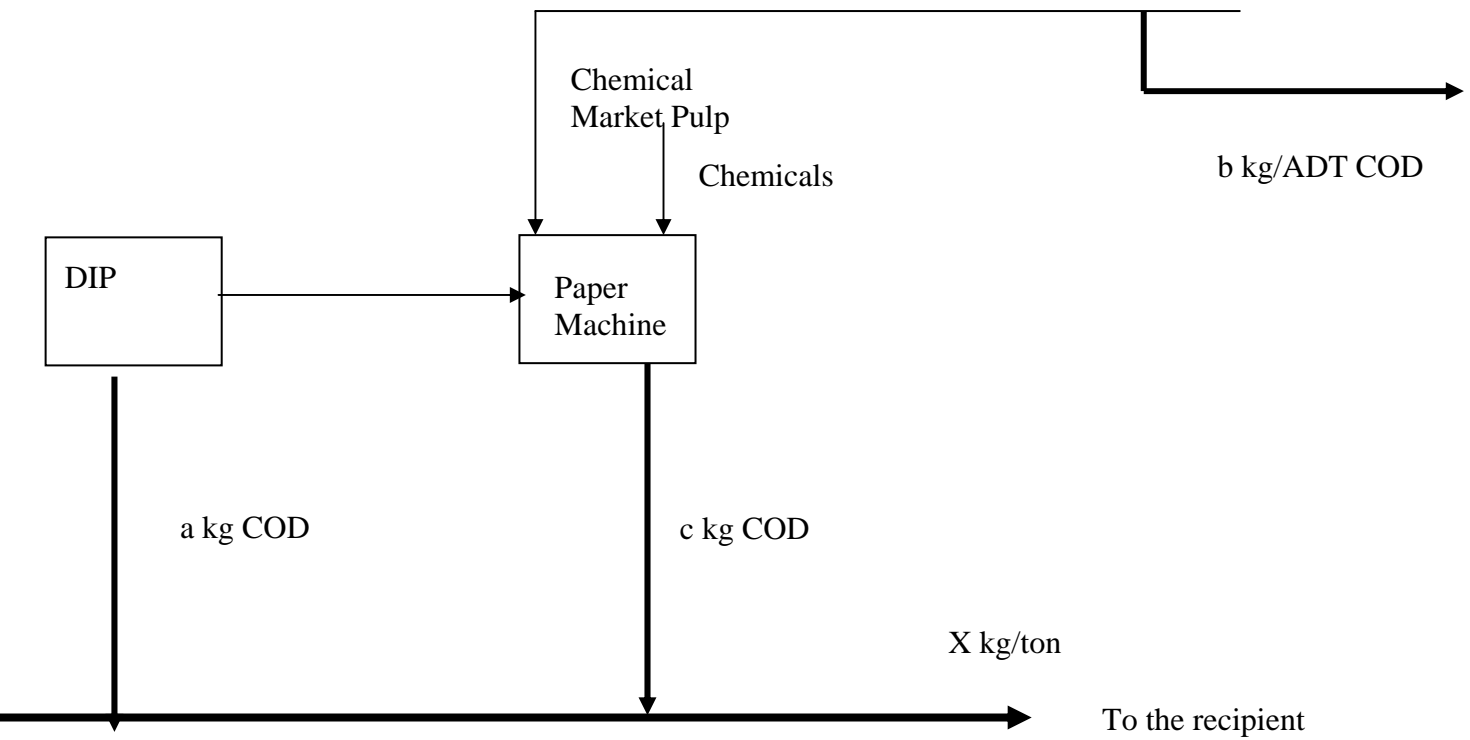
$$\text{COD}_{\text{pulp}} + \text{COD}_{\text{paper}} / (\text{COD}_{\text{refKraft pulp}} + \text{COD}_{\text{refpaper}}) = (25,3 + 1.2) / (19 + 2) = 1.26$$

$1.26 < 1.5$  The requirement for COD is met

The calculation method of the emission point for P is the same.

## Annex 2

Figure 2



$a$  = COD emission from the deinked pulp production, kg/year

$b$  = COD emission for the purchased market pulp kg/ADT

$c$  = COD emission from the paper production kg/year

$X = (a+c) / \text{amount paper produced (kg/tonne paper)}$

## Annex 2

### Example 2

A tissue paper product that will be ecolabelled is produced at a paper mill integrated with a deinked pulp production plant. The paper product contains also 40% purchased market pulp, see figure 2.

One tonne of the tissue paper product is made of:

800 kg DIP (95% dry matter content)

211 Market Kraft Pulp, ADT (90% dry matter content)

The dry matter content of the paper is 95%

The measured and therefore known emissions of COD for the various productions are:

Market Kraft Pulp:  $b = 24$  kg/ADT

The total emission after the treatment plant of the integrated mill:

$X = (a+c) = 4.0$  kg/ tonne paper

The values of  $a$  and  $c$  are not known separately in this case.

Then, the **total emission of COD from the paper production:**

$COD_{\text{pulps and paper}} = X + 0.211 \times 95/90 \times b$

$COD_{\text{pulps and paper}} = 4,0 + 0.211 \times 95/90 \times 24 = 9.3$  kg COD/ADT paper (95%)

The **weighted reference value for the pulps is:**

$0.8 \times COD_{\text{ref,DIP}} + 0.211 \times 95/90 \times COD_{\text{refKraft}}$

$0.8 \times 3.0 + 0.211 \times 95/90 \times 18.0 = 6.4$

The COD reference value for the tissue paper is 2.

$COD_{\text{pulp}} + COD_{\text{paper}} / (COD_{\text{refKraft pulp}} + COD_{\text{refpaper}}) = 9.3 / (6.4 + 2) = \mathbf{1.1} < \mathbf{1.5}$

The requirement for COD is met

The emission point for the P is calculated in the same way

## Annex 2

### Example 3

At a non-integrated Kraft pulp mill is produced 250 000 ADT/year.

The production of steam in the recovery boiler is 3 000 000 GJ/year

The measured S emission from recovery boiler is 130 tonne /year

The measured NOx emission from the recovery boiler is 400 tonne/year

The production of steam in auxiliary boilers is 650 000 GJ/year

The emission of S from the auxiliary boilers is 150 GJ/year

The emission of NOx from the auxiliary boilers is 180 GJ/year

The amount of produced electricity is 150 GWh/year

80 000 GJ heat/year is sold out to other enterprises

Total production of the steam is 3 650 000 GJ/year = 1014 GWh/year (net heat)

The total emission of S is 280 tonnes/year

The total emission of NOx is 580 tonnes/year

The share of the emissions of the electricity is:

$$2 \times 150 / (2 \times 150 + 1014) = 0.23 = \mathbf{23\%}$$

Then S emissions related to the electricity production are  $0.23 \times 280 = 64.4$  tonne

$$S_{\text{electricity}} = 64.4 / 150 = 0.43 \text{ tonne/GWh}$$

$$S_{\text{heat}} = (280 - 64.4) / 1014 = 0.21 \text{ tonne/GWh}$$

The amount of heat used for the pulp production:

$$3\,650\,000 - 80\,000 = 3\,570\,000 \text{ GJ/year} = 992 \text{ GWh/year}$$

$$0.21 \times 992 = 208 \text{ tonne S/year} = 208 / 250\,000 = \mathbf{0.83 \text{ kg S/tonne pulp}}$$

The NOx emissions related to the electricity production are  $0.23 \times 580 = 133$  tonne

$$\text{NOx}_{\text{electricity}} = 0.87 \text{ tonne/GWh}$$

$$\text{NOx}_{\text{heat}} = 0.44 \text{ tonne/GWh}$$

$$0.44 \times 992 = 438 \text{ tonne NOx/year} = \mathbf{1.8 \text{ kg NOx/tonne pulp}}$$

When the steam consumption and the related emissions of S and NOx in the pulp and paper production are known the emission points for S and NOx can be calculated. For the calculation principles see the calculation of COD points in the examples 1-2.



## Annex 2

### *Information on emission data*

Table 1 a.

PRODUCER \_\_\_\_\_ DATE \_\_\_\_\_

Pulp/Paper	COD Kg/ADT o kg/tonne paper	Sampling frequency	Test method	P Kg/ADT o kg/tonne paper	Sampling frequency	Test method	AOX Kg/ADT or kg/tonne paper	Sampling frequency	Test method
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									

## Annex 2

### *Information on emission data*

Table 1 b.

PRODUCER \_\_\_\_\_ DATE \_\_\_\_\_

Pulp/Paper	S Kg/ADT or kg/tonne paper	Sampling frequency	Test method and frequency	Nox Kg/ADT or kg/tonne paper	Sampling frequency	Test method and frequency
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

## Annex 2

### Information on energy and emission data

Table 2, list energy production plants at the mill

PRODUCER \_\_\_\_\_ DATE \_\_\_\_\_

Heat/power plant	Type of fuel	The annual amount of fuel used, MJ/year	The annual amount of heat produced per year, MJ/year	The annual amount net electricity produced per year, MWh/year
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

## Annex 3

### Hazardous chemical substances

**a) 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 producer(s) that chlorine gas has not been used as a bleaching agent. Please note that while this requirement also applies to the bleaching of recycled fibres, it is accepted that the fibres in their previous life-cycle may have been bleached with chlorine gas.

**b) APEOs:** Alkylphenol ethoxylates or other alkylphenol derivatives must not be added to cleaning chemicals, de-inking chemicals, foam inhibitors, dispersants or coatings. Alkylphenol derivatives are defined as substances that upon degradation produce alkyl phenols.

**Assessment and verification:** The applicant or the chemical supplier/s shall provide the declaration(s) 1 in the Annex 3 of this document that shows that alkylphenol ethoxylates or other alkylphenol derivatives have not been added to these products.

**c) Surfactants in de-inking formulations for return fibres:** Where surfactants are used in quantities of at least 100 g/ADT (summed over all the surfactants used in the 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 be either readily biodegradable or ultimately biodegradable (see test methods and pass levels below).

**Assessment and verification:** The applicant or the chemical supplier/s shall provide a declaration(s) 2 in Annex 3 of this document together with the relevant safety data sheets or test reports for each surfactant

**d) 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 shall provide the declaration 3 in the Annex 2 of this document together with the relevant material safety data sheet or test report which shall indicate the test method, threshold and conclusion stated, using the following test methods: OECD 107,117 or 305 A-E.

**e) Wet strength agents:** Wet strength aids must not contain more than 0.7% of the chloro-organic substances epichlorohydrin (ECH), 1,3-dichloro-2-propanol (DCP) and 3-monochloro-1,2-propanediol (MCPD), calculated as the sum of the three components and related to the dry content of the wet strength agent.

Wet strength agents that contain glyoxal must not be used in the production of the ecolabelled tissue paper.

**Assessment and verification:** The applicant or the chemical supplier/s shall provide a declaration(s) that the content of the epichlorohydrin (ECH), 1,3-dichloro-2-propanol (DCP) and 3-monochloro-1,2-propanediol (MCPD), calculated as the sum of the three components and related to the dry content of the wet strength agent is not higher than 0.7%.

The applicant or the chemical supplier/s shall provide a declaration(s) that the wet strength agents used in the production of the ecolabelled tissue paper don't contain glyoxal.

**f) Softeners, lotions, fragrances and additives of natural origin:** None of the constituent substances in the softeners, lotions and additives of natural origin must be classified as allergenic, carcinogenic or mutagenic with risk phrases R42 R43, R45 or/and R46 in accordance with Directive 1999/45/EC and its amendments:

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.

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

A declaration of compliance with each part of this criterion shall be provided to the Competent Body by the fragrance manufacturer.

## Product safety

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

The tissue paper shall not contain more than:

Formaldehyde: 1 mg/dm<sup>2</sup> according to test method EN 1541

Glyoxal: 1,5 mg/dm<sup>2</sup> according to test DIN 54603

PCP 2 mg/kg according to test method EN ISO 15320

Dyes and optical brighteners: No bleeding according to test method EN 646/648 (level 4 is required)

Dyes and inks: Dyes and inks used in the production of tissue paper shall not contain azo-substances that may cleave to any of the amines listed in the table 3.

Dyes and inks used in the production of tissue paper shall not be based on Cd or Mn.

**Table 3** Dyestuffs shall not shed the following amines according to the directive 2002/61/EEC

Amine	CAS-number
4-amino-biphenyl	92-67-1
Benzidine	92-87-5
4-chloro-toluidine	95-69-2
2-naphtylamine	91-59-8
o-aminoazo-toluene	97-56-3
2-amino-4-nitro-toluene	99-55-8
p-chloroaniline	106-47-8
2,4-diamino-anisol	615-05-4
2,4'-diamino-diphenylmethane	101-77-9
3,3'-dichlorobenzidine	91-94-1
3,3'-dimethoxybenzidine	119-90-4
3,3'-dimethylbenzidine	119-93-7

Amine	CAS-number
3,3'-dimethyl-4,4'-diamino-diphenylmethane	838-88-0
p-cresidine	120-71-8
4,4'-methylenebis(2-chloroaniline)	101-14-4
4,4'-oxydianiline	101-80-4
4,4'-thiodianiline	139-65-1
o-toluidine	95-53-4
2,4-toluidenediamine	95-80-7
2,4,5-trimethylaniline	137-17-7
0-anisidinedimethoxyaniline	90-04-0
2,4-xylydine	95-68-1
4,6-xylydine	87-62-7
4-aminoazobenzene	60-09-3

**Assessment and verification:** The applicant or the chemical supplier/s shall provide the relevant test results and/or the declaration 4 in the Annex 3 of this document.





## Annex 3

### Declarations and other documentation regarding the chemical requirements

Information on the chemicals used in the production of pulp and paper products should be provided to the Competent Body in the following forms and declarations. The pulp and paper manufacturer fill in Form 1, while information from the chemical suppliers can be given in declarations 1-6. The chemical suppliers may send the information directly to the Competent Body. The requirements concern production chemicals in the pulp and paper production. They neither apply to chemicals used in energy production or maintenance or in the treatment of the freshwater.

A pulp mill is a mill that manufactures de-inking pulp, mechanical pulp, CTMP or chemical pulp. The chemical requirements do not depend on the manufacturing combination; i.e. whether the pulp is manufactured at a non-integrated or at an integrated paper mill.

#### **1 INFORMATION FROM PULP AND PAPER MILLS**

Paper and pulp producers are requested to provide the following information:

- a) A list of production chemicals, containing:
  - Name (trade name and functional name)
  - The function of the chemical
  - Name of the supplier/importer
  - The amount of chemicals used (kg/tonne)

See Form 1.

- b) Material and Safety Data Sheets for all chemicals used
- c) A declaration from the pulp(s) producer(s) that chlorine gas has not been used as a bleaching agent

#### **2 INFORMATION FROM CHEMICAL SUPPLIERS**

Information on following groups of chemicals shall be provided by the chemical suppliers on the manufacturer's behalf to the Competent Body. It may be sent direct to the Competent Body; one declaration for each chemical product used:

Cleaning and dispersing agents, foam inhibitors/defoamers, (Declaration 1)

Surfactants in de-inking chemicals, (Declaration 2)

Biocides, (Declaration 3)

Dyes, (Declaration 4)



# Annex 3

## Declaration 1

### Cleaning agents, Disperging agents and Foam inhibitors/Defoamers

Product name:
Area of application:
Producer/Supplier:

Have alkyl phenol ethoxylates or other alkyl phenol derivatives been actively added to the product?  Yes

No

Alkyl phenol derivatives are defined as agents that release alkyl phenol during degradation.

Signature of supplier/manufacturer

\_\_\_\_\_

Date

\_\_\_\_\_

Company name (stamp)

\_\_\_\_\_

Tel/Fax

\_\_\_\_\_

Signature

## Annex 3

### Declaration 2

#### Surfactants in de-inking chemicals

Product name:
Area of application:
Producer/Supplier:

List the names and the amounts of the surfactants present in the de-inking chemical:

\_\_\_\_\_ g/tonne de-inked pulp

\_\_\_\_\_ g/tonne de-inked pulp

\_\_\_\_\_ g/tonne de-inked pulp

The total amount of surfactants in the de-inking chemical: \_\_\_\_\_ g/tonne de-inked pulp

Are all the surfactants present in de-inking chemicals: readily biodegradable according to the OECD test 301 A – F?  **Yes**  **No**

The percentage degradation within 28 days shall be at least 70% for 301 A and E and of at least 60% for 301 B, C, D and F

If no, which surfactant (s) is/are not

\_\_\_\_\_ g/tonne

\_\_\_\_\_ g/tonne

Is this/are these:

ultimately bio-degradable according to the OECD test 302 A – C?

**Yes**  **No**

The percentage degradation within 28 days shall be at least 70% for 302 A and B and of at least 60% for 302 C

The test results shall be provided in a datasheet or by the supplier. Have alkyl phenol ethoxylates or other alkyl phenol derivatives been actively added to the product?  **Yes**  **No**

Signature of supplier/manufacturer

---

Date Company name (stamp)

---

Tel/Fax Signature

Annex 3

## Declaration 3

### Biocides

Product name:
Area of application:
Producer/Supplier:

Are the biocides potentially bio-accumulative?  **Yes**  **No**

Biocides are the active ingredients in slimicides (not bio-accumulative, if BCF<100 or log K<sub>O/W</sub> <3, OECD test 107, 117 or 305 A-E).

The test results should be given in a datasheet or by the supplier.

Signature of supplier/manufacturer

_____	_____
Date	Company name (stamp)
_____	_____
Tel/Fax	Signature

## Annex 3

### Declaration 4

### Dyes

Product name:
Area of application:
Producer/Supplier:

Can any of the dyes used in production decompose to form any of the amines listed in Criteria Document, point 4f?  **Yes**  **No**

Are the used dyes or pigments based on Mn or Cd?  **Yes**  **No**

Signature of supplier/manufacturer

_____	_____
Date	Company name (stamp)
_____	_____
Tel/Fax	Signature