



## EU ECOLABEL



### USER MANUAL FOR THE APPLICATION FOR COPYING AND GRAPHIC PAPER



**Attention!**

This manual serves only as a guiding document. In any case the legal basis for being awarded the ecolabel is 'Council Regulation (EC) no. 66/2010 of November 25<sup>th</sup> 2009 on a Community eco-label award scheme' and the 'Commissions Decision of 7 June 2011 of establishing the ecological criteria for the award of the Community eco-label to copying and graphic paper (2011/332/EC).

**REFERENCES**

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For further information:

1) each of the Competent Bodies

[http://ec.europa.eu/environment/ecolabel/contacts/competent\\_bodies\\_en.htm](http://ec.europa.eu/environment/ecolabel/contacts/competent_bodies_en.htm)

2) the Ecolabel Helpdesk

[http://ec.europa.eu/environment/ecolabel/contacts/helpdesk\\_en.htm](http://ec.europa.eu/environment/ecolabel/contacts/helpdesk_en.htm)



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## General Information

The purpose of this User's Manual is to describe the requirements in form of data and documentation that the applicant has to compile in order to apply for the EU Ecolabel for copying and graphic paper. In addition, this manual describes the requirements for demonstrating continued compliance once the label has been granted.

The basis for the manual is Commissions Decision of 7 June 2011 of establishing the ecological criteria for the award of the Community eco-label to copying and graphic paper (2011/332/EC).

Application forms for the European Ecolabel shall be provided in two copies bearing original signatures. The application form will be provided by any of the Competent Bodies responsible for the European Scheme. For any information, please get in contact with the Ecolabel Helpdesk ([Ecolabel@biois.com](mailto:Ecolabel@biois.com)).

### ***For which products can applications be made?***

#### **Certifiable products**

Only sheets or reels of not converted, unprinted blank paper and not converted boards up to basis weight of 400 g/m<sup>2</sup> can bear the logo.

#### **Non certifiable products**

Finished paper products, such as writing pads, drawing books, calendars, manuals, sacks and bags, newsprint paper, thermally sensitive paper, photographic and carbonless paper, packaging and wrapping papers as well as fragranced paper are not included in the copying and graphic paper product group.

All the paper grades that are not explicitly included in the definition provided in the criteria cannot be awarded with the EU Ecolabel for Copying and Graphic paper.

#### **Compiling documentation**

The applicant must compile documentation for all relevant criteria for the product. For this purpose the User manual contains pre-made forms of declarations and test reports stating the information needed for the application. Two different levels for declarations are often used: declarations from the applicant/producer and declarations from the supplier. In case where the supplier must provide information which he wants to be held confidential to the applicant it can be sent directly to the Competent Body, which is assigned to treat information confidential.

All relevant documentation has to be sent to the Competent Body together with the application. A copy of all material must be kept at the applicant.



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.

In the following notes, the levels of data collection (registrations) are specified for each of the criteria and for the three phases of the production process. These specifications are given with the aim of being as product specific as possible, without causing unacceptable costs for the data collection. This means that the level of specificity generally is lower for those parts of the production process that usually are part of a complex production facility where a number of different products are processed at the same time.

All information on the ecolabelled product/products should refer to the requirements in the criteria document.

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

If there is more than one candidate product, the information in the application dossier might be separated into one product specific part and one site specific part, in order to avoid duplicates that are common to several candidate parts. If the product is produced in more than one site a site-specific dossier must be provided for each site.

For each ecolabelled product covered by the application, the applicant has to specify the product composition. A declaration must be done of pulp qualities, chemical products and emissions into water and air during the production according to their percentages of the content in the paper products that the Ecolabel is applied for.

If several pulp qualities are used, the used amount, the trade name, type of fibre (wood species or waste paper grade) and production method (Kraft, sulphite, CTMP, deinked etc.) shall be declared. For bleached pulp qualities, the bleaching sequences shall be declared.

In case of 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 sold in a single Member State the application shall be presented in this Member State.



If a product is being sold 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 Community 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.

### ***What does an application/contract cover***

At application the applicant must report the trade names and identification or reference numbers of the products in question. All chemicals used for the ecolabelled product must be reported in the application, as well. When the application has been processed by the Competent Body and when the results of the process is positive, a certificate is sending to the company referring to the company, to the range of products and to the different trade names of the products certified. In the case when there are other demands and other products certified in the same product group an extra certificate is sent. With the certificate a contract specifying the reference of the decision for product group must be signed by the company and by the competent body. In case the contract holder wants to extend his range of products the following conditions apply:

- Extension with new identification/reference commercial names, which do not affect the criteria, can be done by sending specific information to the Competent Body. In this case a letter of prolongation is sent to the competent body with the new trademark and the name of the product which has been certified before with the same characteristics. After validation of the new environmental labelling, a certificate with the new commercial reference is sent.
- Extension with new technical characteristics (for example new fibers, new chemicals, etc) or for a new type of product (as clothes, bed linen, etc), as far as these are affected by the criteria, must be approved by the Competent Body prior to use. This must be done by informing the Competent Body with an extension letter and the necessary documentation for these (including an updated 'List of Chemicals').
- Extension with new suppliers can be done by providing the Competent Body with documentation for the suppliers' compliance with the criteria. Besides an updated list of suppliers must be provided.

### ***Choice of analytical laboratory***

In the criteria document, the Assessment and verification requirements, paragraph 4 says: "Where possible, the testing should be performed by laboratories that meet the general requirements of EN ISO 17025 or equivalent". There is a need for a common practice on how this shall be interpreted, and this document describes a hierarchy of situations and conditions for acceptance of a laboratory.

The situation in paragraph 1 is preferred, if this is not possible, paragraph 2 comes into force, etc. The national competent body or eco-labelling board will consider the applications individually taking into account the following approach and making a decision according to the concrete situation without prejudice to the credibility of the European eco-labelling scheme.

- (1) Laboratory tests shall be performed by laboratories that are accredited for the specified test method according to ISO 17025 or GLP, where possible. The Competent Bodies accept



accredited laboratories in all Member States in the EU/EEA and in countries that have signed the mutual recognition agreement according to ILAC, the international accreditation organisation. If in the Member State where the applicant submits its dossier or where the company or the concerned production plant or service is based, one or more laboratories are accredited according to ISO 17025 or GLP, applicants shall use such a laboratory, either in that Member State or another.

- (2) Laboratories with an accreditation for other tests than those required by the criteria can be accepted if they submit a declaration that the tests are done following the same quality management procedures as the tests for which they obtained an accreditation. In case of doubt, the competent body or national board shall inspect the lab that carries out the tests or shall select an accredited auditor who will be charged to do so.
- (3) If neither point 1 or 2 is possible, applicants should call on a non-accredited independent laboratory certified or approved by a Government Department or other public body in a Member State. In case of doubt, the competent body or national board shall inspect the lab that carries out the tests or shall select an accredited auditor who will be charged to do so.
- (4) If none of points 1 - 3 are possible, applicants may have the tests performed by an independent laboratory that is neither accredited nor approved by authorities according to point 3. Laboratories with a quality management system shall be preferred. A laboratory situated in an organisation holding an ISO 9001- certificate, may be accepted if the scope of the certification includes the laboratory. The competent body or national board shall verify the competence of the laboratory that carries out the tests or shall select an accredited auditor who will be charged to do so.
- (5) If none of the above mentioned points can be fulfilled, the applicant may have the tests carried out in a company laboratory (that is not accredited ISO 17025 or GLP, as this would be covered by point (1)). The competent body or national board shall ensure that the tests are properly carried out or shall select an accredited auditor who will be charged to do so. In this case, the laboratory shall have a quality management system. A laboratory within an organisation holding an ISO 9001- certificate, is accepted as being under appropriate quality management, if the scope of the certification includes the laboratory. This option may also be used for continuous monitoring of the production, including discharges and emissions, and for testing fitness for use when no standard test method exists.

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

The applicant has the responsibility to keep the product performance in continued compliance with the ecolabelling criteria.

After an Ecolabel has been granted, the applicant must keep the dossier continuously up to date. In the case where continued 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 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 in each individual case decide the



consequences of the non-compliance, e.g. a demand for additional measurements, suspension of the label etc.

### ***Assessment of the compliance to 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.

Further, the Competent Body may, at any reasonable time and without notice, request, and the holder shall 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. The Competent Body can require reasonable costs to cover the assessment procedure.

### ***The application process***

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 case officer at the Competent Body assessing the application makes a list of missing documentation, which is communicated to the applicant. The applicant makes sure that the listed requirements are met and provides the Competent Body the missing documentation. In most cases it may be necessary to send more than one list of 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 notifies the application in the European Commission who registers the contract and the Competent Body will sign the contract with the applicant.

## **General about Ecological Criteria**

The ecological criteria cover the production of pulp including all constituent sub-processes from the point at which the virgin fibre/ recycled raw-material passes the plant gates, to the point at which the pulp leaves the pulp mill. For the paper production processes all sub-processes from the beating



of the pulp (disintegration of the recycled paper) to winding the paper onto rolls. Transport, packaging of the pulp, paper or raw materials, and converting of the paper are not included.

Recycled fibres means fibres diverted from the waste stream during a manufacturing process or generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for their intended purpose. The reutilisation of materials generated in a process and capable of being reclaimed within the same process that generated it (mill broke - own produced or purchased) are not covered by this definition.

## Criterion 1 - Emissions to water and air

### a) COD, Sulphur (S), NOx, Phosphorous (P) Emissions

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 ( $P_{COD}$ ,  $P_S$ ,  $P_{NOx}$ ,  $P_P$ ) as detailed below.

None of the individual points  $P_{COD}$ ,  $P_S$ ,  $P_{NOx}$ ,  $P_P$  shall exceed 1,5.

The total number of points ( $P_{total} = P_{COD} + P_S + P_{NOx} + P_P$ ) shall not exceed 4,0.

The calculation of  $P_{COD}$  shall be made as follows (the calculations of  $P_S$ ,  $P_{NOx}$ ,  $P_P$  shall be made in exactly the same manner).

For each pulp "i" used, the related measured COD emissions ( $COD_{pulp,i}$  expressed in kg/air dried tonne —ADT), shall be weighted according to the proportion of each pulp used (pulp "i" with respect to air dried tonne of pulp), and summed together. The weighted COD emission for the pulps is then added to the measured COD emission from the paper production to give a total COD emission,  $COD_{total}$ .

The weighted COD reference value for the pulp production shall be calculated in the same manner, as the sum of the weighted reference values 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 production are given in the table 1.

Finally, the total COD emission shall be divided by the total COD reference value as follows:

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

Where:

$COD_{total}$	Total emissions from the production of Nordic Ecolabelled paper.
$COD_{ref, total}$	Total of weighted totals of reference values for pulps and reference value for paper machine.
$COD_{pulp, i}$	COD emissions from pulp i.
$COD_{papermachine}$	COD emissions from paper machine i.



$COD_{ref\ pulp, i}$	Reference value for pulp i (see table below).
$COD_{ref\ papermachine}$	Reference value for the paper machine and paper type (see table below). Select coated or uncoated.
$pulp_i$	Proportion of the pulp type expressed as “tonne 90% pulp per tonne total pulp mix”.
n	Number of constituent pulps.
i	Index of each individual pulp and runs from 1 to n.

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

Pulp Grade/Paper	Emissions (kg/ADT)*			
	$COD_{reference}$	$S_{reference}$	$NO_{x, reference}$	$P_{reference}$
Bleached Chemical pulp (others than sulphite)	18,0	0,6	1,6	<b>0,045</b> *  * exemption from this level, up to a level of <b>0.1</b> shall be given where it can be demonstrated that the higher level of P is due to P naturally occurring in the wood pulp
Bleached Chemical pulp (sulphite)	25,0	0,6	1,6	<b>0,045</b>
Unbleached chemical pulp	10,0	0,6	1,6	<b>0,04</b>
CTMP	15,0	0,2	0,3	<b>0,01</b>
TMP/groundwood pulp	3,0	0,2	0,3	<b>0,01</b>
Recycled fibre pulp	2,0	0,2	0,3	<b>0,01</b>
Paper (non-integrated mills where all pulps used are purchased market pulps)	1	0,3	0,8	<b>0,01</b>

In case of integrated mills, due to the difficulties in getting separate emission figures for pulp and paper, if only a combined figure for pulp and paper production is available, the emission values for pulp(s) shall be set to zero and the figure for the paper mill shall include both pulp and paper production.

In many cases the produced paper contains only one type of pulp together with fillers and coating. A typical copying paper may include for instance 70% chemical pulp and 30% fillers. However, there are also cases where different types of pulps are mixed as in case of LWC paper in which chemical pulp is mixed with mechanical pulp. Annex 1 shows the calculation of COD emissions (the calculations of  $P_S$ ,  $P_{NO_x}$ ,  $P_P$  shall be made in exactly the same manner).

- 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 emission points for a paper mill integrated with a mechanical pulp production plant and a de-inked pulp production plant.
- Example 4: Calculation of emission points for a paper mill with two paper machines integrated with a mechanical pulp production plant and a de-inked pulp production plant. The water systems of the pulp and paper machines are mixed.
- Example 5: Calculation of the allocation of S and NO<sub>x</sub> emissions between heat and electricity production.

### **More about COD and P**

When various types of pulps with different reference values are mixed, the real emission values of COD as well as the reference value for the pulp mixture in the denominator in the equation shall be the weighted share of each pulp type in the moist paper. For calculation details see examples 1-4 in Annex 1.

The emission data shall in the first place 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 separately for pulp and paper production as in case of mechanical pulp/DIP production that is integrated with the paper machine where only one type of paper is produced. Where the pulp is sold as a market pulp, the emissions to water from the pulp production shall always be measured regardless if 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 a mean efficiency for the entire integrated mill can be calculated from the reference values, for details see example 4 in Annex 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 the paper machines. For paper machines in which changes in the production are done 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.

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 and P must be made before treatment and the values used in the calculation should be multiplied by the efficiency of the site treatment plant. 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, it is important that also this effluent is taken into account when the total emission to the water are reported. In some cases it is necessary to take samples from the internal flows prior to the treatment plant to make it possible to make the necessary allocations. In those cases the efficiency of the treatment plant shall be used to calculate the reduction of the COD and P values before use in the calculations.

On sites where different pulps are produced, with only some to be used for Ecolabelled production, the measurements of COD and P 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.

Measurements of emissions to water shall be taken on unfiltered and unsettled samples either after treatment at the plant or after treatment by a public treatment plant. The period for the measurements shall be based on the production during 12 months. In case of a new or a rebuilt production plant, the measurements shall be based on at least 45 subsequent days of stable running of the plant. If the production of ecolabelled products is running in campaigns shorter than 45 days, averages from more than one campaign during a longer period will be accepted if the total average for several short campaigns is based on samples from at least 45 days. Such discontinuous measurements shall be explicitly stated in the application documents. The measurement shall be representative of the respective campaign. If the ecolabelled product is produced in a single run shorter than 45 days an average for the run will be accepted. The minimum testing frequency for COD is one test per week.

The applicant shall present supporting documentation including test reports using the following test methods:

<b>Parameter</b>	<b>Test method</b>
COD	ISO 6060
P	EN ISO 6878
	APAT IRSA CNR 4110
	Dr Lange LCK 349

### **More about S and NO<sub>x</sub>**

The emissions to the 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 and NO<sub>x</sub> for the entire pulp/paper production.

The basic data is the amount of fuels 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 and NO<sub>x</sub> from the pulp/paper processes and the energy production shall also be provided. In some cases the emissions can be calculated from the fuels.

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 done to the electricity (the net electricity) and the heat generation (the net heat).

In case of a co-generation of heat and electricity at the same plant the emissions of S and NO<sub>x</sub> from electricity generation can be subtracted from the total amount. Following equation can be used to calculate the share of the emissions from the 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 produced electricity at the pulp/paper production at the cogeneration plant. The heat in this calculation is the produced steam at the pulp/paper production cogeneration plant.

The period for the calculations or mass balances shall be based on the production during 12 months. In case of a new or a rebuilt production plant, the calculations shall be based on at least 45 subsequent days of stable running of the plant. The calculations shall be representative of the respective campaign.

Determination of Sulphur (S) emissions:

- 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 S per air dry tonne (90% dry) pulp.
- If gas-cleaning technology is used, gaseous sulphur shall be measured after the cleaning process.
- The reported emission values for S to air shall include both oxidised and reduced S emissions (dimethyl sulphide, methyl mercaptan, hydrogen sulphide and the like)
- Measurements shall 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 shall include energy generated at heat and power plants either in-site or off-site, except those emissions related to the production of electricity. Reported emission values for S to air shall include both oxidised and reduced S emissions (dimethyl sulphide, methyl mercaptan, hydrogen sulphide and the like).
- The S emissions related to the heat energy generation from oil, coal and other external fuels with known S content may be calculated instead of measured, and shall be taken into account.
- 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.
- 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. The test methods to be used are:

<b>Parameter</b>	<b>Test method</b>
S(oxid.)	EPA no.8
S(red.)	EPA no 16A
S content in oil	ISO 8754
S content in coal	ISO 351

Determination of Nitrogen Oxides (NO<sub>x</sub>) emissions:

- 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.
- It shall include all emissions of NO<sub>x</sub> which occur during the production of pulp and paper, including steam generated outside the production site, except those emissions related to the production of electricity. Measurements shall 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 shall include energy generated at heat and power plants either in-site or off-site.
- If gas-cleaning technology is used, NO<sub>x</sub> shall be measured after the cleaning process.
- The test methods to be used are:

<b>Parameter</b>	<b>Test method</b>
NO <sub>x</sub>	ISO 11564

### ***Required Documentation for Assessment and Verification***

The supporting documentation shall include an indication of the measurement frequency and the calculation of the points for COD, P, S and NO<sub>x</sub>. 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 to emissions per every certain quantity of pulp or paper. The applicant should use tables given in Annex 3 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 and NO<sub>x</sub> for each plant.

### ***b) AOX Emissions***

*The emission of AOX will be progressively decrease in a step-wise approach.*



- *Until 31 March 2013 the AOX emissions from the production of each pulp used shall not exceed 0, 20 kg/ADT.*
- *From 1 April 2013 until the lapse of criteria validity of this Decision the AOX emissions from the production of each pulp used shall not exceed 0, 17 kg/ADT.*

The AOX shall only be measured in processes where chlorine compounds are used for the bleaching of the pulp. 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.

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 AOX must be made before treatment and the values used in the calculation should be multiplied by the efficiency of the site treatment plant. 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, it is important that also this effluent is taken into account when the total emission to the water are reported. In some cases it is necessary to take samples from the internal flows prior to the treatment plant to make it possible to make the necessary allocations. In those cases the efficiency of the treatment plant shall be used to calculate the reduction of the AOX value before use in the calculations.

On sites where different pulps are produced, with only some to be used for Ecolabelled production, the measurements of 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.

Measurements of emissions to water shall be taken on unfiltered and unsettled samples either after treatment at the plant or after treatment by a public treatment plant. The period for the measurements shall be based on the production during 12 months. In case of a new or a rebuilt production plant, the measurements shall be based on at least 45 subsequent days of stable running of the plant. The measurement shall be representative of the respective campaign. If the production of ecolabelled products is running in campaigns shorter than 45 days, averages from more than one campaign during a longer period will be accepted if the total average for several short campaigns is based on samples from at least 45 days. Such discontinuous measurements shall be explicitly stated in the application documents. The measurement shall be representative of the respective campaign. If the ecolabelled product is produced in a single run shorter than 45 days an average for the run will be accepted.

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.

The test methods to be used are:

<b>Parameter</b>	<b>Test method</b>
AOX	ISO 9562



## **Required Documentation for Assessment and Verification**

The applicant shall provide test reports using the ISO 9562 test method accompanied by detailed calculations showing compliance with this criterion, together with related supporting documentation. The supporting documentation shall include an indication of the measurement frequency.

### **c) Carbon dioxide emissions**

*The emissions of carbon dioxide from non-renewable sources shall not exceed 1000 kg per tonne of paper produced, including emissions from the production of electricity (whether on-site or off-site). For non-integrated mills (where all pulps used are purchased market pulps) the emissions shall not exceed 1100 kg per tonne. Carbon dioxide emissions shall be calculated as the sum of the emissions from the pulp and paper production.*

The emissions shall 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. The applicant shall 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 final product. The information shall include all sources of non-renewable fuels as well as the purchased electricity 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. In calculating the weighted average, each pulp is taken into account regarding to its share in the moist paper.

The amount of energy from renewable sources (all the forms of energy obtained from renewable sources, such as biofuels, solar power, wind power, wave power, geothermal power and tidal power) purchased and used for the production processes will not be considered in the calculation of the CO<sub>2</sub> emissions: appropriate documentation that these kind of energy are actually used at the mill or are externally purchased shall be provided by the applicant.

The period for the calculations or mass balances shall be based on the production during 12 months. In case of a new or a rebuilt production plant, the calculations shall be based on at least 45 subsequent days of stable running of the plant. The calculations shall be representative of the respective campaign.

Table 2 gives the emission factors to be used in the calculation of the CO<sub>2</sub> emissions from fuels are reported. 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).

Table 2. Emission factor to be used in the calculation of the CO<sub>2</sub> emissions from fuels



Fuel	CO <sub>2</sub> fossil emissions	Unit
Coal	95	g CO <sub>2</sub> fossil/MJ
Crude oil	73	g CO <sub>2</sub> fossil/MJ
Fuel oil 1	74	g CO <sub>2</sub> fossil/MJ
Fuel oil 2-5	77	g CO <sub>2</sub> fossil/MJ
LPG	69	g CO <sub>2</sub> fossil/MJ
Natural Gas	56	g CO <sub>2</sub> fossil/MJ
Grid Electricity	400	g CO <sub>2</sub> fossil/kWh

### ***Required Documentation for Assessment and Verification***

The applicant shall 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 final product. The information shall include all sources of nonrenewable fuels as well as the purchased electricity 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 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 CO<sub>2</sub> for each plant.

## **Criterion 2 - Energy use**

The applicant shall calculate all energy inputs, divided into heat/fuels and electricity used during the production of pulp and paper, including the energy used in the de-inking of waste papers for the production of recycled paper. Energy used in the transport of raw materials, as well as conversion and packaging, is not included in the energy consumption calculations. The value for energy use shall be allocated to the ecolabelled product. In exceptional cases where the products can be regarded as being of equal quality 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.

The requirements on energy use are imposed both on the pulp and the paper producer. The requirements encompass restrictions on the use of energy in the form of fuel and electricity. The basis used is information on actual energy consumption in production, in relation to specific reference values stipulated in the criteria document. The specific reference values are given in Table 3 (see below). The quotient between these values determines the energy points rating. The quotient shall be less than or equal to 1,5. For example, the calculation of fuel points ( $P_F$ ) for pulp and paper production shall be done as follows:



$$P_F = \frac{\sum_{i=1}^n [pulp, i \times F_{pulp, i}] + F_{paper}}{\sum_{i=1}^n [pulp, i \times F_{ref\ pulp, i}] + F_{ref\ paper}}$$

In case of integrated mills, due to the difficulties in getting separate electricity figures for pulp and paper, if only a combined figure for pulp and paper production is available, the electricity values for pulp(s) shall be set to zero and the figure for the paper mill shall include both respective pulp and paper production

The calculation principles are the same than in the calculations of the COD points. The calculation principles are shown in Annex 1.

- Example 1 shows the calculation of COD emissions when only one type of pulp is used.
- Examples 2-3 shows the calculation of COD emissions when various types of pulps with various reference values are mixed, the real energy values as well as the reference value for the pulp mixture in the denominator of the equation shall be the weighted share of the each pulp type in the moist paper.

Table 3. Reference values for electricity and fuel:

<b>Pulp grade</b>	<b>Fuel kWh/ADT</b> <b>F<sub>reference</sub></b>	<b>Electricity kWh/ADT</b> <b>E<sub>reference</sub></b>
Chemical pulp	4000 (Note: for air dry market pulp containing at least 90% dry mater (admp), this value may be upgraded by 25 % for the drying energy)	800
Mechanical pulp (including CTMP)	900 (Note: this value is only applicable for admp)	2 500
Recycled fibre pulp	1800 (Note: for admp, this value may be upgraded by 25 % for the drying energy)	800
<b>Paper grade</b>	<b>Fuel kWh/tonne</b>	<b>Electricity kWh/tonne</b>
Uncoated woodfree fine paper Magazine paper (SC)	1 800	600
Coated woodfree fine paper Coated magazine paper (LWC, MWC)	1 800	800

### **a) Electricity**

*The electricity consumption related to the pulp and the paper production shall be expressed in terms of points (PE) as detailed below. The number of points, PE, shall be less than or equal to 1,5. The calculation of PE shall be made as follows.*



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. Electricity used for wastewater treatment need not be included. For electricity, both purchased electricity and electricity produced in-site must be included.

**Calculation for pulp production:** for each pulp  $i$  used, the related electricity consumption ( $E_{\text{pulp}, i}$  expressed in kWh/ADT) shall be calculated as follows:

$$E_{\text{pulp}, i} = \text{internally produced electricity} + \text{purchased electricity} - \text{sold electricity}$$

**Calculation for paper production:** the electricity consumption related to the paper production ( $E_{\text{paper}}$ ) shall be calculated as follows:

$$E_{\text{paper}} = \text{internally produced electricity} + \text{purchased electricity} - \text{sold electricity}$$

**Calculation for total electricity use:** The points for pulp and paper production shall be combined to give the overall number of points ( $P_E$ ) as follows:

$$P_E = \frac{\sum_{i=1}^n [\text{pulp}, i \times E_{\text{pulp}, i}] + E_{\text{paper}}}{\sum_{i=1}^n [\text{pulp}, i \times E_{\text{ref pulp}, i}] + E_{\text{ref paper}}}$$

## b) Fuel (heat)

*The fuel consumption related to the pulp and the paper production shall be expressed in terms of points (PF) as detailed below. The number of points, PF, shall be less than or equal to 1,5.*

The reference value for fuel encompasses fuel used in heat production. Total heat energy includes all purchased fuels. It also includes heat energy recovered by incinerating liquors and wastes from on-site processes (e.g. wood waste, sawdust, liquors, waste paper, paper broke), as well as heat recovered from the internal generation of electricity. When the bio-fuels from on-site processes (e.g. wood waste, sawdust, liquors, waste paper, paper broke) is used as fuels, the applicant need only count 80% of the fuel energy from such sources when calculating the total fuel energy.

As fuel may also be used for generation of electricity internally, the corresponding amount of fuel is deducted from the actual consumption ( $=1,25 \times$  internally generated net electricity). This prevents energy figures for fuel used in internal electricity generation being counted twice.



Any surplus energy that can be sold off as electricity, steam or heating is deducted from the total consumption figure. When steam is generated using electricity as the heat source, the heat value of the steam shall be calculated, then divided by 0.8 and added to the total fuel consumption.

For fuel, both purchased fuel and residual products such as e.g. black liquor, bark and chips must be specified. The fuel used for both heat production and internal electricity generation must be specified. Fuel consumption is calculated based on the effective heat value of the dry substance. Calculations can either be based on heat values measured in-site, or the values shown in the table 4.

Table 4. Effective (lower) values

<b>Fuel</b>	<b>Heat Value (Lower)</b>	<b>Unit</b>
Wood briquettes	10,00	GJ/m <sup>3</sup> loose
Wood pellets	10,00	GJ/m <sup>3</sup> loose
Wood powder	3,80	GJ/m <sup>3</sup> loose
Wood chips	3,55	GJ/m <sup>3</sup> loose
Sawdust	2,90	GJ/m <sup>3</sup> loose
Bark	2,22	GJ/m <sup>3</sup> loose
Piece peat	4,50	GJ/m <sup>3</sup> loose
Milled peat	3,75	GJ/m <sup>3</sup> loose
Sulphate black liquor	12,70	GJ/kg DS
Sulphite black liquor	14,70	GJ/kg DS
Tall pitch oil	36,80	GJ/m <sup>3</sup>
Natural gas	38,90	MJ/m <sup>4</sup>
Light fuel oil	36,00	GJ/m <sup>5</sup>
Heavy fuel oil	38,70	GJ/m <sup>6</sup>
LPG	46,10	MJ/kg
Coal	26,50	MJ/kg

**Calculation for pulp production:** For each pulp  $i$  used, the related fuel consumption ( $F_{pulp, i}$  expressed in kWh/ADT) shall be calculated as follows:

$F_{pulp, i} =$  Internally produced fuel + purchased fuel - sold fuel -  $1,25 \times$  internally produced electricity

Note:

- $F_{pulp, i}$  (and its contribution to PF, pulp) need not be calculated for mechanical pulp unless it is market air dried mechanical pulp containing at least 90% dry matter.



- The amount of fuel used to produce the sold heat shall be added to the term "sold fuel" in the equation above.

**Calculation for paper production:** the fuel consumption related to the paper production ( $F_{\text{paper}}$ , expressed in kWh/ADT), shall be calculated as follows:

$F_{\text{paper}} = \text{Internally produced fuel} + \text{purchased fuel} - \text{sold fuel} - 1,25 \times \text{internally produced electricity}$

**Calculation for total fuel use:** The points for pulp and paper production shall be combined to give the overall number of points ( $P_F$ ) as follows:

$$P_F = \frac{\sum_{i=1}^n [\text{pulp}, i \times F_{\text{pulp}, i}] + F_{\text{paper}}}{\sum_{i=1}^n [\text{pulp}, i \times F_{\text{ref pulp}, i}] + F_{\text{ref paper}}}$$

In case of integrated mills, due to the difficulties in getting separate fuel (heat) figures for pulp and paper, if only a combined figure for pulp and paper production is available, the fuel (heat) values for pulp(s) shall be set to zero and the figure for the paper mill shall include both respective pulp and paper production.

### **Required Documentation for Assessment and Verification**

The applicant shall provide detailed calculations showing compliance with this criterion, together with all related supporting documentation. The calculation includes energy scores for all pulps used and energy scores for the paper production.

The consumption of electricity and fuel shall be based on bills and electricity meter readings. Internally produced electricity can be documented on the basis of readings of the mill's own electricity meters. In the case of purchased fuel the purchased quantity must be reconciled in relation to the quantity at the start and end of the year in question. Internal consumption of residual products such as liquor, bark, chippings etc. is calculated on the basis of the estimated thermal value of the fuel used (see Table 4). Accordingly reporting encompasses the total (purchased) electricity consumption and consumption of fuel.

## **Criterion 3 – Fibres: sustainable forest management**

*The fibre raw material in the paper may be recycled or virgin fibre.*

*Virgin fibres shall be covered by valid sustainable forest management and chain of custody certificates issued by an independent third party certification scheme such as FSC, PEFC or equivalent.*

*However, where certification schemes allow mixing of certified material and uncertified material in a product or product line, the proportion of uncertified material shall not exceed 50%. Such*



*uncertified material shall be covered by a verification system which ensures that it is legally sourced and meets any other requirement of the certification scheme with respect to uncertified material.*

*The certification bodies issuing forest and/or chain of custody certificates shall be accredited/ recognised by that certification scheme.*

### **Recycled Fibres**

Fibres from paper mill broke shall not be considered as recycled fibres. "Recycled fibres" means fibres diverted from the waste stream during a manufacturing process or generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for their intended purpose. Excluded is reutilisation of materials generated in a process and capable of being reclaimed within the same process that generated it (mill broke - own produced or purchased).

Where recycled fibres are used, the applicant shall provide a declaration stating the average amount of grades of recovered paper used for the product in accordance with the standard EN 643 or an equivalent standard. The applicant shall provide a declaration that no mill broke (own or purchased) was used.

### **Requirements on Sustainable Forest Management Certificates**

Virgin fibres shall be covered by valid sustainable forest management and chain of custody certificates issued by an independent third party certification scheme such as FSC, PEFC or equivalent. A forest certification scheme needs to meet the following requirements:

- **SUSTAINABLE FORESTRY:** It must balance economic, ecological and social interests and comply with sustainability based on internationally agreed criteria;
- **MEASURABLE:** It must set absolute requirements that must be fulfilled for the certification of the forestry;
- **CONTINUES IMPROVEMENTS:** It must be assessed and revised regularly to initiate process improvement and successively reduce environmental impact; and
- **TRANSPARENCY:** It must be available to the general public. The standard must have been developed in an open process in which stakeholders with ecological, economic and social interests have been invited to participate.
- **NEUTRALITY:** The sustainable forest management and chain of custody certificates must be issued by an independent third party certification scheme. The certification bodies issuing forest and/or chain of custody certificates shall be accredited/ recognised by that certification scheme.

A valid FSC or PEFC certificate (see Annex 2 for more details about different certification options) can be used without any further declaration as a proof of fulfilling the requirement. If an applicant holds a certification not issued by FSC or PEFC, then the applicant will have to provide to the



European Ecolabel Board (EUEB) – through the Competent Body to which (s)he intends to apply for the Ecolabel - all supporting information related to the certification scheme itself. All the documentation will then be evaluated by the EUEB to determine if equivalence of the certification scheme compared to the FSC and PEFC.

### ***Requirements on Chain of Custody Certificates***

Virgin fibres shall be covered by valid sustainable forest management and chain of custody certificates issued by an independent third party certification scheme such as FSC, PEFC or equivalent. A chain of custody certification system needs to meet the following requirements:

- It must be issued by an accredited, competent third party;
- It must assure traceability, documentation and controls throughout the production chain.

A valid FSC or PEFC certificate (see Annex 2 for more details about different certification options) can be used without any further declaration as a proof of fulfilling the requirement. If an applicant holds a certification not issued by FSC or PEFC, then the applicant will have to provide to the European Ecolabel Board (EUEB) – through the Competent Body to which (s)he intends to apply for the Ecolabel - all supporting information related to the certification scheme itself. All the documentation will then be evaluated by the EUEB to determine if equivalence of the certification scheme compared to the FSC and PEFC.

### ***Requirements on Non-Certified Fibres***

The uncertified material (maximum 50% of the total) must be independently verified before it is mixed with certified material. The verification system of non-certified wood shall fulfil the following requirements<sup>1</sup>:

- Legality of wood:
  - rights to harvest timber within legally gazetted boundaries;
  - payments for harvest rights and timber including duties related to timber harvesting;
  - timber harvesting, including environmental and forest legislation including forest management and biodiversity conservation, where directly related to timber harvesting;
  - third parties' legal rights concerning use and tenure that is affected by timber harvesting;
  - trade and customs legislation, in so far as the forest sector is concerned.
- Traceability:

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<sup>1</sup> The requirements are the same than the 'applicable legislation' definition in the REGULATION (EU) No 995/2010 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 October 2010 laying down the obligations of operators who place timber and timber products on the market (Text with EEA relevance).



- The applicant shall give a description of the system for tracing of fibres throughout the whole production chain from the forest/recycling site to the product.

A valid FSC or PEFC certificate (see Annex 2 for more details about different certification options) can be used without any further declaration as a proof of fulfilling the requirement. If an applicant holds a certification not issued by FSC or PEFC, then the applicant will have to provide to the European Ecolabel Board (EUEB) – through the Competent Body to which (s)he intends to apply for the Ecolabel - all supporting information related to the certification scheme itself. All the documentation will then be evaluated by the EUEB to determine if equivalence of the certification scheme compared to the FSC and PEFC.

### ***Required Documentation for Assessment and Verification***

The applicant shall provide detailed calculations showing compliance with this criterion, together with all related supporting documentation. The applicant shall provide the following documentation for each pulp used separately:

All pulps:

- A declaration indicating the fibre suppliers, types, quantities and origins of fibres used annually in the pulp and the paper production;
- A description of the system for tracing of fibres throughout the whole production chain from the forest/recycling site to the product. A Chain of Custody certificate may be used to document the traceability (the Chain of Custody Certificate used must meet the requirements for sustainable forest management certificates given in this document).

Recycled pulps:

- A declaration indicating the average amount of grades of recovered paper used annually for the product in accordance with the standard EN 643 or an equivalent standard.

Certified virgin pulps:

- A declaration (from the fibre suppliers) of the amount of certified fibres delivered to the pulp mill and the copies of the valid certificates for the certified fibres (the forest certification scheme used must meet the requirements for sustainable forest management certificates given in this document);
- A Copy of Chain of Custody Certificate (the Chain of Custody Certificate used must meet the requirements given in this document).

Non-certified virgin pulps:

- A declaration indicating that the uncertified material is less than 50 percent;
- A description of the traceability system for all wood and fibre raw materials;
- A documented procedure from the pulp/paper manufacturer that describes how the requirement is fulfilled.

## **Criterion 4 –Excluded or limited substances and mixtures**



## a) Hazardous substances and mixtures

In accordance with Article 6(6) of Regulation (EC) No 66/2010 the product shall not contain substances referred to in Article 57 of Regulation (EC) No 1907/2006 of the European Parliament and of the Council nor substances or mixtures meeting the criteria for classification with the hazard classes or categories specified below. List of hazard statements and risk phrases:

<b>GHS Hazard Statement<sup>1</sup></b>	<b>EU Risk Phrase<sup>2</sup></b>
<i>H300 Fatal if swallowed</i>	R28
<i>H301 Toxic if swallowed</i>	R25
<i>H304 May be fatal if swallowed and enters airways</i>	R65
<i>H310 Fatal in contact with skin</i>	R27
<i>H311 Toxic in contact with skin</i>	R24
<i>H330 Fatal if inhaled</i>	R23/26
<i>H331 Toxic if inhaled</i>	R23
<i>H340 May cause genetic defects</i>	R46
<i>H341 Suspected of causing genetic defects</i>	R68
<i>H350 May cause cancer</i>	R45
<i>H350i May cause cancer by inhalation</i>	R49
<i>H351 Suspected of causing cancer</i>	R40
<i>H360F May damage fertility</i>	R60
<i>H360D May damage the unborn child</i>	R61
<i>H360FD May damage fertility. May damage the unborn child</i>	R60/61/60-61
<i>H360Fd May damage fertility. Suspected of damaging the unborn child</i>	R60/63
<i>H360Df May damage the unborn child. Suspected of damaging fertility</i>	R61/62
<i>H361f Suspected of damaging fertility</i>	R62
<i>H361d Suspected of damaging the unborn child</i>	R63
<i>H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.</i>	R62-63
<i>H362 May cause harm to breast fed children</i>	R64
<i>H370 Causes damage to organs</i>	R39/23/24/25/26/27/28
<i>H371 May cause damage to organs</i>	R68/20/21/22



<i>H372 Causes damage to organs through prolonged or repeated exposure</i>	<i>R48/25/24/23</i>
<i>H373 May cause damage to organs through prolonged or repeated exposure</i>	<i>R48/20/21/22</i>
<i>H400 Very toxic to aquatic life</i>	<i>R50</i>
<i>H410 Very toxic to aquatic life with long-lasting effects</i>	<i>R50-53</i>
<i>H411 Toxic to aquatic life with long-lasting effects</i>	<i>R51-53</i>
<i>H412 Harmful to aquatic life with long-lasting effects</i>	<i>R52-53</i>
<i>H413 May cause long-lasting effects to aquatic life</i>	<i>R53</i>
<i>EUH059 Hazardous to the ozone layer</i>	<i>R59</i>
<i>EUH029 Contact with water liberates toxic gas</i>	<i>R29</i>
<i>EUH031 Contact with acids liberates toxic gas</i>	<i>R31</i>
<i>EUH032 Contact with acids liberates very toxic gas</i>	<i>R32</i>
<i>EUH070 Toxic by eye contact</i>	<i>R39-41</i>
<i>No commercial dye formulation, colorants, surface-finishing agents, auxiliaries and coating materials shall be used on either pulp or paper that has been assigned or may be assigned at the time of application the hazard statement H317: May cause allergic skin reaction.</i>	<i>R43</i>

<sup>1</sup> As provided for in Regulation (EC) No 1272/2008 of the European Parliament and of the Council

<sup>2</sup> As provided for in Council Directive 67/548/EEC

*The use of substances or mixtures which change their properties upon processing (e.g., become no longer bioavailable, undergo chemical modification) so that the identified hazard no longer applies are exempted from the above requirement.*

*Concentration limits for substances or mixtures which may be or have been assigned the hazard statements or risk phrase listed above, meeting the criteria for classification in the hazard classes or categories, and for substances meeting the criteria of Article 57 (a), (b) or (c) of Regulation (EC) No 1907/2006, shall not exceed the generic or specific concentration limits determined in accordance with the Article 10 of Regulation (EC) No 1272/2008. Where specific concentration limits are determined they shall prevail over the generic ones.*

*Concentration limits for substances meeting criteria of Article 57 (d), (e) or (f) of Regulation (EC) No 1907/2006 shall not exceed 0,1% weight by weight.*

As an assessment and verification, the applicant shall prove compliance with the criterion providing data on the amount (kg/ADT paper produced) of substances used in the process and that the substances referred to in this criterion are not retained in the final product above concentration limits specified. The concentration for substances and mixtures shall be specified in the Safety Data Sheets in accordance with Article 31 of Regulation (EC) No 1907/2006.



**b) Substances listed in accordance with article 59(1) of Regulation (EC) No 1907/2006**

*No derogation from the prohibition set out in point (a) Article 6(6) of Regulation (EC) No 66/2010 shall be granted concerning substances identified as substances of very high concern and included in the list provided for Article 59 of Regulation (EC) No 1907/2006, present in mixtures, in an article or in any homogenous part of a complex article in concentrations higher than 0,1%. Specific concentration limits determined in accordance with Article 10 of Regulation (EC) No 1272/2008 shall apply in case it is lower than 0,1%.*

*As an assessment and verification, the applicant shall provide the list of substances identified as substances of very high concern and included in the candidate list in accordance with Article 59 of Regulation (EC) No 1907/2006 can be found here:*

[http://echa.europa.eu/chem\\_data/authorisation\\_process/candidate\\_list\\_table\\_en.asp](http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp)

*Reference to the list shall be made on the date of application.*

The applicant shall prove compliance with the criterion providing data on the amount (kg/ADT paper produced) of substances used in the process and that the substances referred to in this criterion are not retained in the final product above concentration limits specified. The concentration shall be specified in the safety data sheets in accordance with Article 31 of Regulation (EC) No 1907/2006.

**c) 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.*

As an 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. Note: 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.

**d) APEOs**

*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 alkyl phenols.*



As an assessment and verification, the applicant shall provide a declaration(s) from their chemical supplier(s) that alkylphenol ethoxylates or other alkylphenol derivatives have not been added to these products.

### e) Residual monomers

*The total quantity of residual monomers (excluding acrylamide) that may be or have been assigned any of the following risk phrases (or combinations thereof) and are present in coatings, retention aids, strengtheners, water repellents or chemicals used in internal and external water treatment shall not exceed 100 ppm (calculated on the basis of their solid content).:*

<b><i>Hazard Statement<sup>1</sup></i></b>	<b><i>Risk Phrase<sup>2</sup></i></b>
<i>H340 May cause genetic defects</i>	<i>R46</i>
<i>H350 May cause cancer</i>	<i>R45</i>
<i>H350i May cause cancer by inhalation</i>	<i>R49</i>
<i>H351 Suspected of causing cancer</i>	<i>R40</i>
<i>H360F May damage fertility</i>	<i>R60</i>
<i>H360D May damage the unborn child</i>	<i>R61</i>
<i>H360FD May damage fertility. May damage the unborn child</i>	<i>R60/61/60-61</i>
<i>H360Fd May damage fertility. Suspected of damaging the unborn child</i>	<i>R60/63</i>
<i>H360Df May damage the unborn child. Suspected of damaging fertility</i>	<i>R61/62</i>
<i>H400 Very toxic to aquatic life</i>	<i>R50/50-53</i>
<i>H410 Very toxic to aquatic life with long-lasting effects</i>	<i>R50-53</i>
<i>H411 Toxic to aquatic life with long-lasting effects</i>	<i>R51-53</i>
<i>H412 Harmful to aquatic life with long-lasting effects</i>	<i>R52-53</i>
<i>H413 May cause long-lasting effects to aquatic life</i>	<i>R53</i>

<sup>1</sup> As provided for in Regulation (EC) No 1272/2008 of the European Parliament and of the Council

<sup>2</sup> As provided for in Council Directive 67/548/EEC



*Acrylamide shall not be present in coatings, retention aids, strengtheners, water repellents or chemicals used in internal and external water treatment in concentrations higher than 700 ppm (calculated on the basis of their solid content).*

*The competent body may exempt the applicant from these requirements in relation to chemicals used in external water treatment.*

As an assessment and verification, the applicant shall provide provide a declaration of compliance with this criterion, together with appropriate documentation (such as Safety Data Sheets).

#### **f) Surfactants in de-inking**

*All surfactants used in de-inking shall be ultimately biodegradable (see test methods and pass levels below).*

As an assessment and verification, the applicant shall provide a declaration of compliance with this criterion together with the relevant safety data sheets or test reports for each surfactant which shall indicate the test method, threshold and conclusion stated, using one of the following test method and pass levels: 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.

#### **g) 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. Biocides' bioaccumulation potentials are characterised by log Pow (log octanol/water partition coefficient) <3,0 or an experimentally determined bioconcentration factor (BCF) ≤ 100.*

As an assessment and verification, the applicant shall provide a declaration of compliance with this criterion 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.

#### **h) Azo dyes**

*Azo dyes that may cleave to any of the following aromatic amines shall not be used, in accordance with Annex XVII to Regulation (EC) No 1907/2006:*

1. 4-aminobiphenyl (92-67-1),
2. benzidine (92-87-5),



3.	<i>4-chloro-o-toluidine</i>	(95-69-2),
4.	<i>2-naphthylamine</i>	(91-59-8),
5.	<i>o-aminoazotoluene</i>	(97-56-3),
6.	<i>2-amino-4-nitrotoluene</i>	(99-55-8),
7.	<i>p-chloroaniline</i>	(106-47-8),
8.	<i>2,4-diaminoanisole</i>	(615-05-4),
9.	<i>4,4'-diaminodiphenylmethane</i>	(101-77-9),
10.	<i>3,3'-dichlorobenzidine</i>	(91-94-1),
11.	<i>3,3'-dimethoxybenzidine</i>	(119-90-4),
12.	<i>3,3'-dimethylbenzidine</i>	(119-93-7),
13.	<i>3,3'-dimethyl-4,4'-diaminodiphenylmethane</i>	(838-88-0),
14.	<i>p-cresidine</i>	(120-71-8),
15.	<i>4,4'-methylene-bis-(2-chloroaniline)</i>	(101-14-4),
16.	<i>4,4'-oxydianiline</i>	(101-80-4),
17.	<i>4,4'-thiodianiline</i>	(139-65-1),
18.	<i>o-toluidine</i>	(95-53-4),
19.	<i>2,4-diaminotoluene</i>	(95-80-7),
20.	<i>2,4,5-trimethylaniline</i>	(137-17-7),
21.	<i>4-aminoazobenzene</i>	(60-09-3),
22.	<i>o-anisidine</i>	(90-04-0).

As an assessment and verification, the applicant shall provide a declaration of compliance with this criterion.

#### ***i) Metal complex dye stuffs or pigments***

*Dyes or pigments based on lead, copper, chromium, nickel or aluminium shall not be used. Copper phthalocyanine dyes or pigments may, however, be used.*

As an assessment and verification, the applicant shall provide a declaration of compliance with this criterion.

#### ***j) Ionic impurities in dye stuffs***



*The levels of ionic impurities in the dye stuffs used shall not exceed the following: Ag 100 ppm; As 50 ppm; Ba 100 ppm; Cd 20 ppm; Co 500 ppm; Cr 100 ppm; Cu 250 ppm; Fe 2500 ppm; Hg 4 ppm; Mn 1000 ppm; Ni 200 ppm; Pb 100 ppm; Se 20 ppm; Sb 50 ppm; Sn 250 ppm; Zn 1500 ppm.*

As an assessment and verification, the applicant shall provide a declaration of compliance with this criterion.

### **Required Documentation for Assessment and Verification**

The applicant shall provide a declaration of compliance and if required (s)he provides also a safety data sheet or test report which shall indicate the test method, threshold and conclusion stated, using the test methods mentioned in the sub-criteria. See specific requirements on the assessment and verification in the a)-j)-sub-criterion of the criteria 4.

Paper and pulp producers are requested to provide a list of production chemicals, along with their SDS (safety data sheets), containing:

1. Name (trade name and functional name)
2. The function of the chemical
3. Name of supplier/importer
4. The amount of chemical used (kg/ton)

## **Criterion 5 - Waste management**

*All pulp and paper production sites shall have a system for handling waste (as defined by the relevant regulatory authorities of the pulp and paper production sites in question) and residual products arising from the production of the eco-labelled product. The system shall be documented or explained in the application and include information on at least the following points:*

- *procedures for separating and using recyclable materials from the waste stream,*
- *procedures for recovering materials for other uses, such as incineration for raising process steam or heating, or agricultural use,*
- *procedures for handling hazardous waste (as defined by the relevant regulatory authorities of the pulp and paper production sites in question).*

### **Required Documentation for Assessment and Verification**

The applicant shall provide a detailed description of the procedures adopted for the waste management of each of the sites concerned and a declaration of compliance with the criterion.



## **Criterion 6 - Fitness for use**

*The product shall be suitable for its purpose.*

### **Required Documentation for Assessment and Verification**

The applicant shall provide appropriate documentation demonstrating compliance with the scope of the criteria. The test methods shall comply with one of the following standards:

- Copying Papers: EN 12281 – “Printing and business paper - Requirements for copy paper for dry toner imaging processes”
- Continuous papers: EN 12858 – “Paper - Printing and business paper - Requirements for continuous stationery”

The product shall fulfil requirements for permanence in accordance to applicable standards. The user manual will provide the list of norms and standards which shall be used for the permanence assessment. As alternative to the use of the above methods, the producers shall guarantee the fitness for use of their products providing appropriate documentation demonstrating the paper quality, in accordance with the standard EN ISO/IEC 17050-1:2004, which provides general criteria for suppliers' declaration of conformity with normative documents.

## **Criterion 7 - Information on the packaging**

*The following information shall appear on the product packaging:*

*"Please collect used paper for recycling".*

*In addition, if recycled fibres are used, the manufacturer shall provide a statement indicating the minimum percentage of recycled fibres next to the EU Ecolabel logo.*

### **Required Documentation for Assessment and Verification**

The applicant shall provide a sample of the product packaging bearing the information required.

## **Criterion 8 - Information appearing on the EU Ecolabel**

*The optional label with text box shall contain the following text:*

- *"low air and water pollution*
- *use of certified fibres AND/OR use of recycled fibres [case-by-case]*
- *hazardous substances restricted"*

*The guidelines for the use of the optional label with the text box can be found in the "Guidelines for use of the Ecolabel logo" on the website:*

<http://ec.europa.eu/environment/ecolabel/promo/pdf/logo%20guidelines.pdf>



### ***Required Documentation for Assessment and Verification***

The applicant shall provide a sample of the product packaging showing the label, together with a declaration of compliance with this criterion.

## **ANNEX 1**

**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.

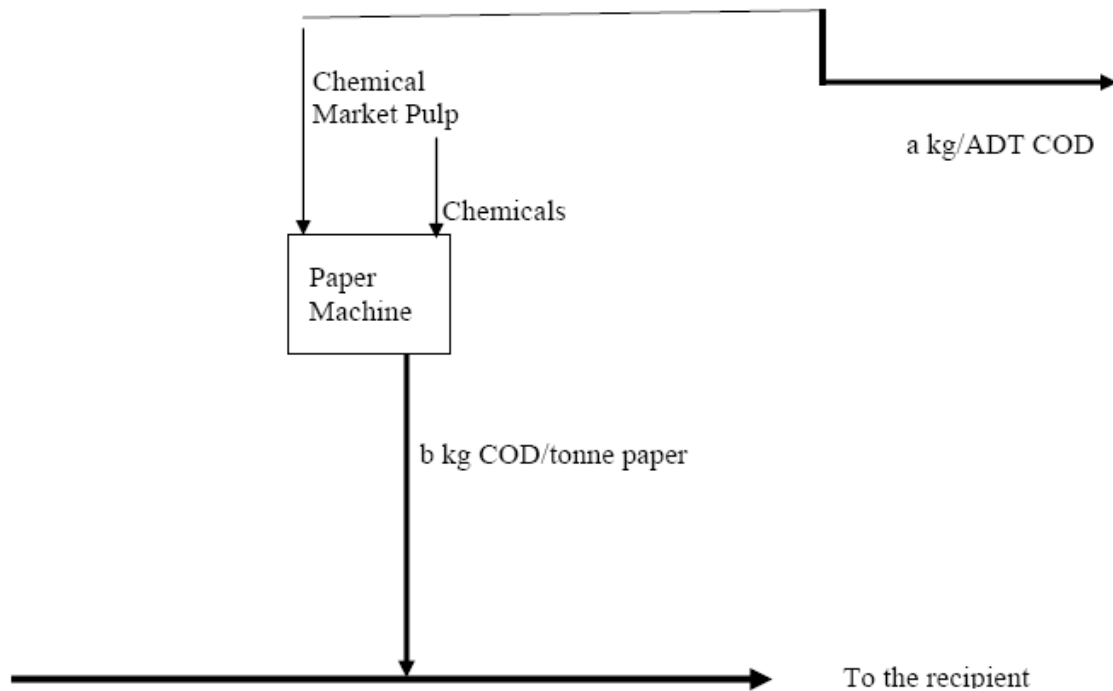
**Example 3:** Calculation of emission points for a paper mill integrated with a mechanical pulp production plant and a de-inked pulp production plant.

**Example 4:** Calculation of emission points for a paper mill with two paper machines integrated with a mechanical pulp production plant and a de-inked pulp production plant. The water systems of the pulp and paper machines are mixed.

**Example 5:** Calculation of the allocation of S and NO<sub>x</sub> emissions between heat and electricity production.



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



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

**Figure 1.** Rowchart of the productive process considered for the calculation

A coated 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 paper product contains:**

- 10.3% filler and coatings
- 85% Kraft Pulp, ADT (90% dry matter content)
- The moisture content of the paper is 5%

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

- Kraft Pulp: 24 kg COD/ADT
- Paper production: 1.2 kg COD/tonne paper



**COD emission point is calculated with the following formula:**

$$P_{COD} = \frac{COD_{total}}{COD_{ref,total}} = \frac{\sum_{i=1}^n [pulp_i \times (COD_{gulp_i})] + COD_{papermachine}}{\sum_{i=1}^n [pulp_i \times (COD_{refgulp_i})] + COD_{refpapermachine}}$$

$$\begin{aligned} COD_{total} &= (pulp_i * COD_{pulp,i}) + COD_{papermachine} \\ &= (pulp_i * 24 \text{ COD kg/t kraft pulp, 90\% drymatter}) + 1.2 \text{ kg COD/tonne paper} \\ &= (a * 95/90 * 24) + b \\ &= (0,85 * 95/90 * 24) + 1.2 \\ &= 22.7 \text{ kg COD/moist paper} \end{aligned}$$

$$\begin{aligned} COD_{ref,total} &= (COD_{ref, craft pulp} * pulp_i) + COD_{ref papermachine} \\ &= (pulp_i * 18 \text{ kg/t kraft pulp, 90\% drymatter}) + 1 \text{ kg/t paper} \\ &= (0,4 * 95/90 * 18) + 1 \\ &= 16.2 \text{ kg COD}_{ref}/\text{moist paper} \end{aligned}$$

Using the following reference values from Table 1:

$$COD_{ref \text{ cellulose pulp}} = 18 \text{ kg/tonne 90 \% pulp}$$

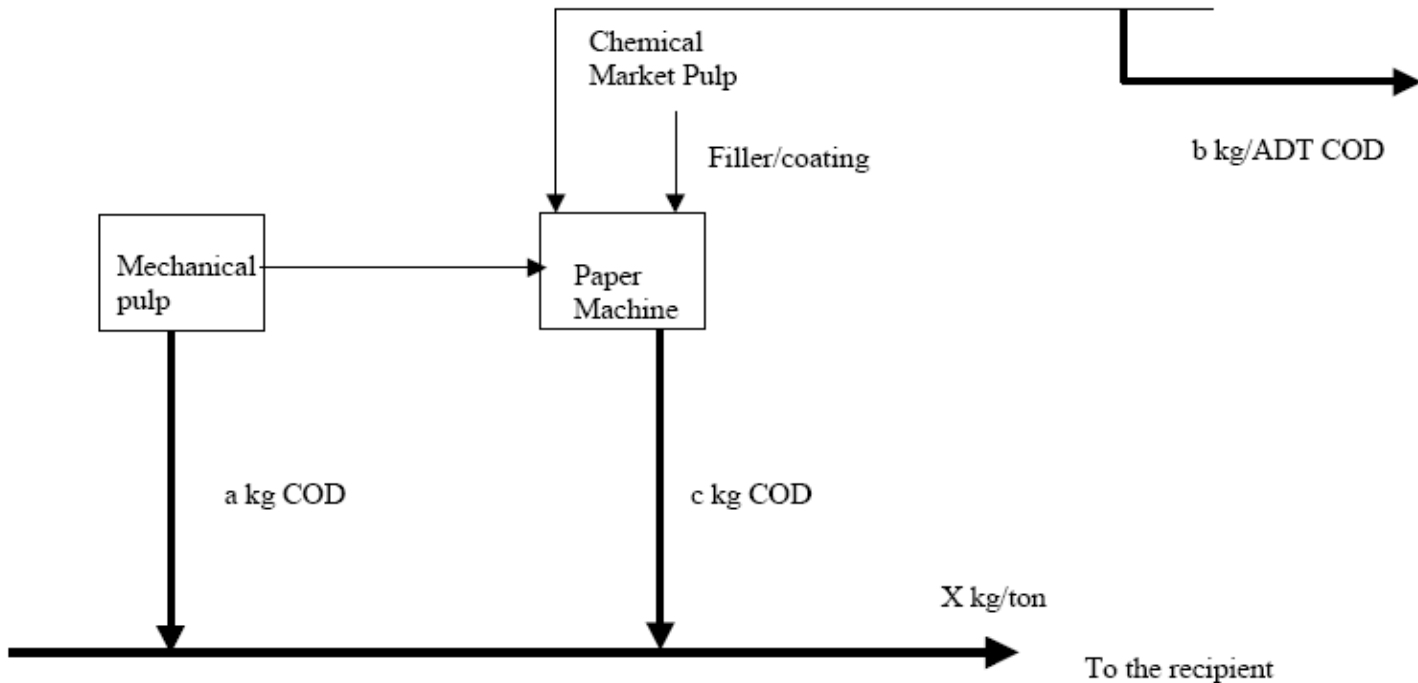
$$COD_{ref \text{ papermachine}} = 1 \text{ kg/tonne paper}$$

$$\begin{aligned} P_{COD} &= COD_{ref, total} / COD_{total} \\ &= 22.7 / 16.2 \\ &= 1.3 < 1.5 \end{aligned}$$

**The requirement for COD is met**



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



a = COD emission from the Mechanical pulp production, kg/year  
b = COD emission for the purchased market pulp kg/ADT  
c = COD emission from the paper production kg/year  
 $X = (a+c) / \text{amount paper produced (kg/tonne paper)}$

**Figure 2.** Rowchart of the productive process considered for the calculation

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

**The paper product contains:**

- 15.5% filler and coatings
- 40% TMP, ADT (90% dry matter content)
- 40% Market Kraft Pulp, ADT (90% dry matter content)
- The moisture content of the paper is 5%

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

- Market Kraft Pulp (*b*): 24 kg/ADT
- The values of *a* and *c* are not known separately in this case; hence the emission values for pulp(s) are set to zero and the figure for the paper mill shall include both respective pulp and paper production. The total emission after the treatment plant of the integrated mill is:  $X = a + c = 4.0$  kg/ tonne paper.
- $pulp_i =$  Proportion of the pulp type expressed as “tonne 90% pulp per tonne total pulp mix”

**COD emission point is calculated with the following formula:**

$$F_{COD} = \frac{COD_{total}}{COD_{ref,total}} = \frac{\sum_{i=1}^n [pulp_i \times (COD_{out,i})] + COD_{papermachine}}{\sum_{i=1}^n [pulp_i \times (COD_{ref,pulp,i})] + COD_{ref,papermachine}}$$

$$\begin{aligned} COD_{total} &= (pulp_i * COD_{pulp,i}) + COD_{papermachine} \\ &= (pulp_i * 24 \text{ kg/t kraft pulp, 90\% drymatter}) + x \text{ kg/t paper} \\ &= (b * 95/90 * 24) + x \\ &= (0,4 * 95/90 * 24) + 4 \\ &= 14.1 \text{ kg COD/moist paper} \end{aligned}$$

$$\begin{aligned} COD_{ref,total} &= [(pulp_i * COD_{ref,craft pulp}) + (pulp_i * COD_{ref,TMP pulp})] + COD_{ref,papermachine} \\ &= [(pulp_i * 18 \text{ kg/t kraft pulp, 90\% drymatter}) + (pulp_i * 3 \text{ kg/t refTMP pulp, 90\% drymatter})] + 1 \text{ kg/t paper} \\ &= [(0,4 * 95/90 * 18) + (0,4 * 95/90 * 3)] + 1 \\ &= 9.9 \text{ kg COD}_{ref}/\text{moist paper} \end{aligned}$$

Using the following reference values from Table 1:

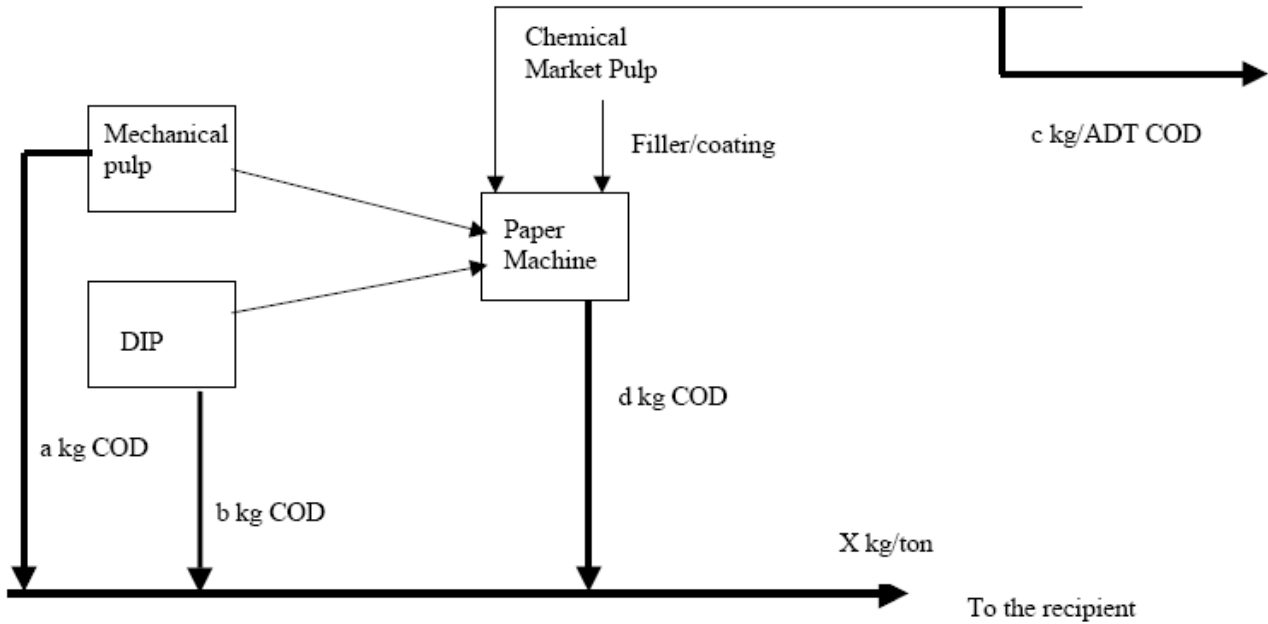
$$\begin{aligned} COD_{ref,cellulose pulp} &= 18 \text{ kg/tonne 90 \% pulp} \\ COD_{ref,TMP} &= 3 \text{ kg/tonne 90\% pulp} \\ COD_{ref,papermachine} &= 1 \text{ kg/tonne paper} \end{aligned}$$

$$\begin{aligned} P_{COD} &= COD_{ref,total} / COD_{total} \\ &= 14,1 / 9,9 \\ &= 1.42 < 1.5 \end{aligned}$$

**The requirement for COD is met**



**Example 3: Calculation of emission points for a paper mill integrated with a mechanical pulp production plant and a de-inked pulp production plant.**



a = COD emission from the Mechanical pulp production, kg/year  
b = COD emission from the De-inked pulp production kg/year  
c = COD emission for the purchased market pulp kg/ADT  
d = COD emission from the paper production kg/year  
 $X = (a+b+d)/\text{amount paper produced (kg/tonne paper)}$

**Figure 3.** Rowchart of the productive process considered for the calculation

A coated paper product that will be ecolabelled is produced at a paper mill integrated with a mechanical pulp production plant and a de-inked pulp production plant, see figure 3.

**The paper product contains:**

- 15.5% filler and coatings
- 30% DIP, ADT
- 40% TMP, ADT
- 10% Market Kraft Pulp, ADT (90% dry matter content)
- The moisture content of the paper is 5%

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



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- Market Kraft Pulp: 24 kg/ADT
- The values of  $a$ ,  $b$  and  $c$  are not known separately in this case; hence the emission values for pulp(s) are set to zero and the figure for the paper mill shall include both respective pulp and paper production. The total emission after the treatment plant of the integrated mill is:  $X = a+b+c = 4.0$  kg/ tonne paper.

**COD emission point is calculated with the following formula:**

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

$$\begin{aligned} COD_{total} &= (pulp_i * COD_{pulp,i}) + COD_{papermachine} \\ &= (pulp_i * 24 \text{ kg/t kraft pulp, 90\% drymatter}) + x \text{ kg/t paper} \\ &= (d * 95/90 * 24) + x \\ &= (0.1 * 95/90 * 24) + 4 \\ &= 6.5 \text{ kg COD/moist paper} \end{aligned}$$

$$\begin{aligned} COD_{ref,total} &= [(pulp_i * COD_{ref,TMP pulp}) + (pulp_i * COD_{ref,DIP pulp}) + (pulp_i * COD_{ref,kraft pulp})] + \\ &COD_{ref,papermachine} \\ &= [(pulp_i * 3 \text{ kg/tonne 90\% pulp}) + (pulp_i * 2 \text{ kg/tonne 90\% pulp}) + (pulp_i * 18 \\ &\text{kg/tonne 90\% pulp})] + 1 \text{ kg/t paper} \\ &= [(0,4 * 95/90 * 3) + (0,3 * 95/90 * 2) + (0,1 * 95/90 * 18)] + 1 \\ &= 4.8 \text{ kg COD}_{ref}/\text{moist paper} \end{aligned}$$

Using the following reference values from Table 1:

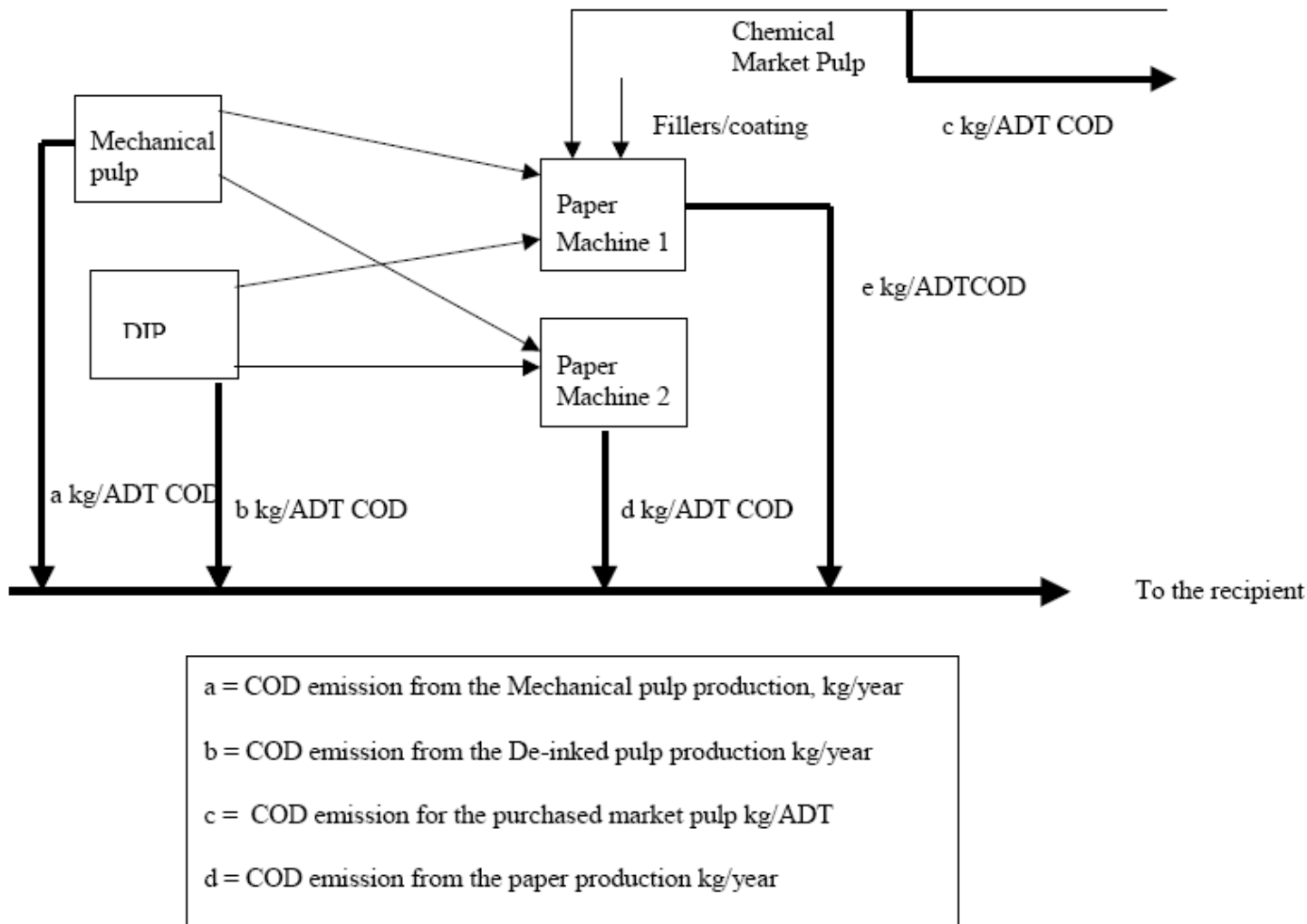
$$\begin{aligned} COD_{ref,cellulose pulp} &= 18 \text{ kg/tonne 90 \% pulp} \\ COD_{ref,TMP} &= 3 \text{ kg/tonne 90\% pulp} \\ COD_{ref,DIP} &= 2 \text{ kg/tonne 90\% pulp} \\ COD_{ref,papermachine} &= 1 \text{ kg/tonne paper} \end{aligned}$$

$$\begin{aligned} P_{COD} &= COD_{ref,total} / COD_{total} \\ &= 6.5 / 4.8 \\ &= 1.35 < 1.5 \end{aligned}$$

***The requirement for COD is met***



**Example 4: Calculation of emission points for a paper mill with two paper machines integrated with a mechanical pulp production plant and a de-inked pulp production plant. The water systems of the pulp and paper machines are mixed.**



**Figure 4.** Rowchart of the productive process considered for the calculation

Two different types of paper qualities are produced at an integrated pulp and paper mill, one coated with 15.5% coating and the other one uncoated.

The paper mill is integrated with a mechanical pulp production plant and a de-inked pulp production plant, see figure 4.

The water systems of the production of paper, TMP and DIP are mixed and the contribution of the production of the pulps and paper to the emissions of COD can not be measured.

**The coated paper production at the mill contains:**

- 15.5% filler and coatings



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- 30% DIP, ADT
- 40% TMP, ADT
- 10% Market Kraft Pulp, ADT (90% dry matter content)
- The moisture content of the paper is 5%
- The annual paper production is 100 000 tonnes

### **The uncoated paper production at the mill contains:**

- 25% Filler and other chemical additives
- 30% DIP, ADT
- 20% TMP, ADT
- 21% Market Kraft Pulp, ADT (90% dry matter content)
- The moisture content of the paper is 5%
- The annual paper production is 150 000 tonnes
- The annual production of DIP is 80 000 tonnes
- The annual production of Mechanical pulp is 122 000 tonnes
- The measured emission of COD from the integrated mill is 3 kg/tonne paper

To be able to separate the emission values for the two paper machines a mean efficiency is calculated for the COD emission. That means that the level of the real emissions from the entire mill is compared with the level of the reference emissions calculated from the reference values of the different pulp types and paper.

### **Calculation of a COD emission from the entire production at the mill as if all the pulp and paper processes had COD emissions equal to the reference values**

**H** = the annual production of DIP\*RefDIP + the annual production of TMP\*RefTMP + the annual production of uncoated paper \*Refpaper + the annual production of coated paper \*Refpaper

The total real emission of COD from the production at the mill is:

$$Z = (a+b+c+e) = 3 \text{ kg/tonne paper}$$

The mean efficiency for the mill is:

$$Z/H = (250\,000 \cdot 3) / (80\,000 \cdot 2 + 122\,000 \cdot 3 + 150\,000 \cdot 1 + 100\,000 \cdot 1) = 0,97$$

The emission from the uncoated paper production can then be estimated to be:

- The mean efficiency  $\times$  Refpaper =  $0.97 \cdot 1 = 0.97$  kg/tonne paper
- The mean efficiency  $\times$  RefTMP =  $0.97 \cdot 3.0 = 2.9$  kg/ADT TMP
- The mean efficiency  $\times$  RefDIP =  $0.97 \cdot 2.0 = 1.9$  kg/ADT DIP

Using the following reference values from Table 1:

$$\text{COD}_{\text{ref cellulose pulp}} = 18 \text{ kg/tonne } 90\% \text{ pulp}$$

$$\text{COD}_{\text{ref TMP}} = 3 \text{ kg/tonne } 90\% \text{ pulp}$$

$$\text{COD}_{\text{ref DIP}} = 2 \text{ kg/tonne } 90\% \text{ pulp}$$



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$$\text{COD}_{\text{ref papermachine}} = 1 \text{ kg/tonne paper}$$

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

- Market Kraft Pulp: 24 kg/ADT
- The total emission related to the coated paper production at the integrated mill (the values of the integrated mill (a, b, d and e) are not known separately in this case):  
 $0.3 * 95/90 * 100\ 000 * 1.9 + 0.4 * 95/90 * 100\ 000 * 2.9 + 100\ 000 * 0.97 = 279611 \text{ kg}$   
 $\text{COD}_{\text{pulps and paper}} = 279611 / 100\ 000 = 2.8 \text{ kg COD/tonne paper}$

**COD emission point is calculated with the following formula:**

$$P_{\text{COD}} = \frac{\text{COD}_{\text{total}}}{\text{COD}_{\text{ref, total}}} = \frac{\sum_{i=1}^n [\text{pulp}_i \times (\text{COD}_{\text{pulp}_i})] + \text{COD}_{\text{papermachine}}}{\sum_{i=1}^n [\text{pulp}_i \times (\text{COD}_{\text{ref pulp}_i})] + \text{COD}_{\text{ref papermachine}}}$$

$$\begin{aligned} \text{COD}_{\text{total}} &= (\text{pulp}_i * \text{COD}_{\text{pulp}_i}) + \text{COD}_{\text{papermachine}} \\ &= (\text{pulp}_i * 24 \text{ kg/t kraft pulp, 90\% drymatter}) + x \text{ kg/t paper} \\ &= (d * 95/90 * 24) + x \\ &= (0.1 * 95/90 * 24) + 2.8 \\ &= 5.3 \text{ kg COD/moist paper from the paper production:} \end{aligned}$$

$$\begin{aligned} \text{COD}_{\text{ref, total}} &= [(\text{pulp}_i * \text{COD}_{\text{ref, TMP pulp}}) + (\text{pulp}_i * \text{COD}_{\text{ref, DIP pulp}}) + (\text{pulp}_i * \text{COD}_{\text{ref, kraft pulp}})] + \text{COD}_{\text{ref papermachine}} \\ &= [(\text{pulp}_i * 3 \text{ kg/tonne 90\% pulp}) + (\text{pulp}_i * 2 \text{ kg/tonne 90\% pulp}) + (\text{pulp}_i * 18 \text{ kg/tonne 90\% pulp})] + 1 \text{ kg/t paper} \\ &= [(0.4 * 95/90 * 3) + (0.3 * 95/90 * 2) + (0.1 * 95/90 * 18)] + 1 \\ &= 4.8 \text{ kg COD}_{\text{ref}}/\text{moist paper} \end{aligned}$$

$$\begin{aligned} P_{\text{COD}} &= \text{COD}_{\text{ref, total}} / \text{COD}_{\text{total}} \\ &= 5.3 / 4.8 \\ &= 1.1 < 1.5 \end{aligned}$$

**The requirement for COD is met**

The calculation of the COD points for the uncoated paper is done in the same way.



**Example 5: Calculation of the allocation of S and NOx emissions between heat and electricity production.**

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 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 (net heat)

The total emission of S is 280 tonnes/year

The total emission of NOx is 580 tonnes/year

The share of the electricity is:

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

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

Selectricity = 0.43 tonne/GWh

Sheat = 0,21 tonne/GWh

The amount of heat used for the pulp production:

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

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

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

NOxelectricity = 0.87 tonne/GWh

NOxheat = 0.44 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**

### ***Types of FSC certificates – Forest Management certification***

This certificate covers each individual forest management operation. If forest management is in full compliance with FSC requirements, the FSC certificate is awarded. If minor non-compliances are noted, the certificate can be issued with conditions that have to be met within a clearly determined time frame. If the forest management is not fully compliant with FSC requirements, preconditions are noted which have to be fulfilled before the FSC certificate can be awarded. The EU Ecolabel can be granted only in case the FSC certificate is fully valid, meaning that there should be proofs that the conditions to solve the minor non-compliances (if any) have been met.

FSC accredited certification bodies audit each FSC certificate at least once a year. If during these audits the certification body finds that a company has non-compliances with FSC requirements, Corrective Action Requests (CARs) are issued and the company is required to make the prescribed changes within a given time frame or else it will lose its FSC certificate. When this happens, the applicant shall immediately inform the Competent Body about the opening of the non-compliances procedure and as well inform the Competent Body when the non-compliances are closed.

To trade the forest products with the FSC logo and claim, the forest manager or owner must also obtain FSC **chain of custody certification**. It offers a guarantee that the product comes from a well-managed forest and enabling you to pass on the benefits of certification to your customers.

### ***Types of FSC certificates – Chain of Custody (CoC) certification***

FSC chain of custody (CoC) tracks FSC certified material through the production process - from the forest to the consumer, including all successive stages of processing, transformation, manufacturing and distribution.

CoC certification requires operations to identify the origin of raw materials used in FSC certified products and to keep FSC certified products separate from other products throughout the production process.

### ***Types of FSC certificates – Controlled Wood***

The non-certified material must comply with FSC Controlled Wood standards and be independently verified before it is mixed with certified material. This certificate makes sure that the wood has not been:

1. Illegally harvested
2. Harvested in violation of traditional and civil rights
3. Harvested in forests that have been identified to be of particular biological and/or cultural value



4. Harvested from conversion of natural forest (or other natural habitat)
5. Harvested from genetically modified trees.

### ***Types of PEFC certificates – Sustainable Forest Management certification***

Obtaining PEFC Sustainable Forest Management certification demonstrates that management practices meet requirements for best practice in sustainable forest management, including:

- Biodiversity of forest ecosystems is maintained or enhanced
- The range of ecosystem services that forests provide is sustained
  - they provide food, fibre, biomass and wood
  - they are a key part of the water cycle, act as sinks capturing and storing carbon, and prevent soil erosion
  - they provide habitats and shelter for people and wildlife; and
  - they offer spiritual and recreational benefits
- Chemicals are substituted by natural alternatives or their use is minimized
- Workers' rights and welfare are protected
- Local employment is encouraged
- Indigenous peoples' rights are respected
- Operations are undertaken within the legal framework and following best practices.

### ***Types of PEFC certificates – Chain of Custody (CoC) certification***

PEFC's Chain of Custody certification is a mechanism for tracking certified material from the forest to the final product to ensure that the wood, wood fibre or non-wood forest produce contained in the product or product line can be traced back to certified forests. It ensures that claims about products originating in sustainably managed forests are credible and verifiable throughout the whole supply chain.

Chain of Custody certification is carried out by accredited certification bodies that verify compliance of the wood flow accounting system applied by an enterprise complies with PEFC's International Chain of Custody Standard.

There are two mechanisms for tracing the origins of forest-based products, tailored to the situation and needs of certified companies. These include:

- The **percentage based method** – this mechanism allows mixing certified and non-certified raw material during the production or trading process. However the percentage of the certified raw material must be known and communicated to the company's customers



## Annex 2

(average percentage). Alternatively, the company can sell as certified the proportion of its production which equals the percentage of certified raw material used (volume credit).

- The **physical separation method** – this mechanism requires separating certified and non-certified raw material during all phases of the company's production/trading process to ensure that certified raw material is not mixed with non-certified raw material.

When the physical separation method is used for products with percentage-based claims, every delivery must be processed or traded separately.

To prevent wood from **controversial sources (illegal logging)** finding its way into products, PEFC has put in place a stringent safeguard mechanism for the avoidance of raw material from controversial sources. The mechanism is a compulsory part of PEFC's Chain of Custody standard and puts in place safety checks such as risk analyses, external assessments and onsite inspections to ensure the legality of the uncertified wood. These safeguard checks are scrutinized by the independent certifiers during their annual audits and provide companies with a "double safeguard measure" for their procurement.

PEFC Chain of Custody standard specifies as controversial sources those activities that do not comply with local, national, or international legislation, in particular relating to the following areas:

- forestry operations and harvesting, including conversion of forest to other uses;
- management of areas with high environmental and cultural values designed and covered by the legislation;
- protected and endangered species;
- health and labour issues relating to forest workers;
- property, tenure and use rights of indigenous peoples;
- payment of taxes and royalties; and
- areas utilizing genetically modified organisms.





**Formula 2: Information on emission data (2)**

**Information on emission data**

**Table 1 b.**

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

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

**Formula 3: Information on energy and emission data****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 4

### ***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.

### ***Information from Pulp And Paper Mills***

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

**a) A list of production chemicals, containing:**

1. Name (trade name and functional name)
2. The function of the chemical
3. Name of the supplier/importer
4. The amount of chemicals used (kg/tonne)
5. Site/place of use in the factory (e.g. wood handling plant, grinding room, drying machine, paper machine x, coating machine y, chemical department, refinery mill or waste water treatment plant). 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**



### ***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)
- Coating chemicals, (Declaration 2)
- Retention agents and other polymer containing chemicals, (Declaration 3)
- Surfactants in de-inking chemicals, (Declaration 4)
- Biocides, (Declaration 5)
- Dyes, (Declaration 6)



**Information on production chemicals**

**Form 1, list of production chemicals**

PRODUCER \_\_\_\_\_

DATE \_\_\_\_\_

Name of the chemical	Function	Supplier/Importer	Amount used (kg/tonne)	Site/place in the mill	Safety data sheet (X)

## Declaration 1

### Cleaning agents, Dispersing 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

\_\_\_\_\_

Tel/Fax

\_\_\_\_\_

Company name (stamp)

\_\_\_\_\_

Signature

## Declaration 2

### Coating chemicals

Product name:
Area of application:
Producer/Supplier:

Does the product contain polymers?  Yes  No

If the answer is yes, what kind of residual monomers does the product contain (unambiguous chemical name and CAS-number) and in what concentrations?

a) \_\_\_\_\_ ppm based on solid content

b) \_\_\_\_\_ ppm based on solid content

c) \_\_\_\_\_ ppm based on solid content

Is this/are these residual monomer(s) classified as:

1) environmentally harmful in accordance with the Council Directive 67/548/ and assigned or may be assigned any of the following risk phrases R50/50-53, R50-53, R51-53, R52-53, R53?  Yes  No

If yes, which agents: \_\_\_\_\_

2) harmful to health in accordance with the Council Directive 67/548/EEC and assigned or may be assigned any of the following risk phrases R46, R45, R49, R40, R60, R61, R60/61/60-61, R60/63, R61/62, R60/63, R61/62?  Yes  No

If yes, which agents: \_\_\_\_\_

Please note that the upper limit for the total concentration of harmful monomers in the product is 100 ppm, excluding acrylamide which has an upper limit of 700 ppm.

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

### Declaration 3

**Retention agents and other polymer containing chemicals** (e.g. water repellents and chemicals for water treatment)

Product name:
Area of application:
Producer/Supplier:

Does the product contain polymers?  Yes  No

If the answer is yes, what kind of residual monomers does the product contain (unambiguous chemical name and CAS-number) and in what concentrations?

a) \_\_\_\_\_ ppm based on solid content

b) \_\_\_\_\_ ppm based on solid content

c) \_\_\_\_\_ ppm based on solid content

Is this/are these residual monomer(s) classified as:

1) environmentally harmful in accordance with Council Directive 67/548/EEC and assigned or may be assigned any of the following risk phrases R50/50-53, R50-53, R51-53, R52-53, R53?  Yes  No

If yes, which agents: \_\_\_\_\_

2) harmful to health in accordance with Council Directive 67/548/EEC and assigned or may be assigned any of the following risk phrases R46, R45, R49, R40, R60, R61, R60/61/60-61, R60/63, R61/62, R60/63, R61/62?  Yes  No

If yes, which agents: \_\_\_\_\_

Please note that the upper limit for the total concentration of harmful monomers in the product is 100 ppm, except acrylamide which has an upper limit of 700 ppm.

Signature of supplier/manufacturer

\_\_\_\_\_

Date

\_\_\_\_\_

Company name (stamp)

\_\_\_\_\_

Tel/Fax

\_\_\_\_\_

Signature

## Declaration 4

### 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 OECD 302 A-C (or equivalent ISO stand.)?  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.

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

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

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

Please give a description of the test methods used.

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

---

Tel/Fax

---

Company name (stamp)

---

Signature

## Declaration 5

### 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  $\log K_{ow} < 3$ , 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

\_\_\_\_\_

Tel/Fax

\_\_\_\_\_

Company name (stamp)

\_\_\_\_\_

Signature

**Declaration 6**

**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

**Does the dye contain any substances classified as environmentally hazardous according to Council Directive 67/548 (EEC) assigned or may be assigned any of the following risk phrases**

R46, R45, R49, R40, R60, R61, R60/61/60-61, R60/63,  Yes  No  
R61/62, R50/50-53, R50-53, R51-53, R52-53, R53?

If yes, please specify (unambiguous chemical name and CAS no.), inc. quantity:

a) \_\_\_\_\_ %

b) \_\_\_\_\_ %

c) \_\_\_\_\_ %

**Are the used dyes or pigments based on lead, copper, chromium, nickel or aluminium?**

Yes  No

We hereby also certify that the Ag content does not exceed 100 ppm, As 50 ppm, Ba 100 ppm, Co 500 ppm, Cr 100 ppm, Cu 250 ppm, Fe 2 500 ppm, Hg 4 ppm, Mn 1 000 ppm, Ni 200 ppm, Pb 100 ppm, Se 20 ppm, Sb 50 ppm, Sn 250 ppm, Zn 1500 ppm and Cd 20 ppm.

Signature of supplier/manufacturer

\_\_\_\_\_

Date

\_\_\_\_\_

Tel/Fax

\_\_\_\_\_

Company name (stamp)

\_\_\_\_\_

Signature