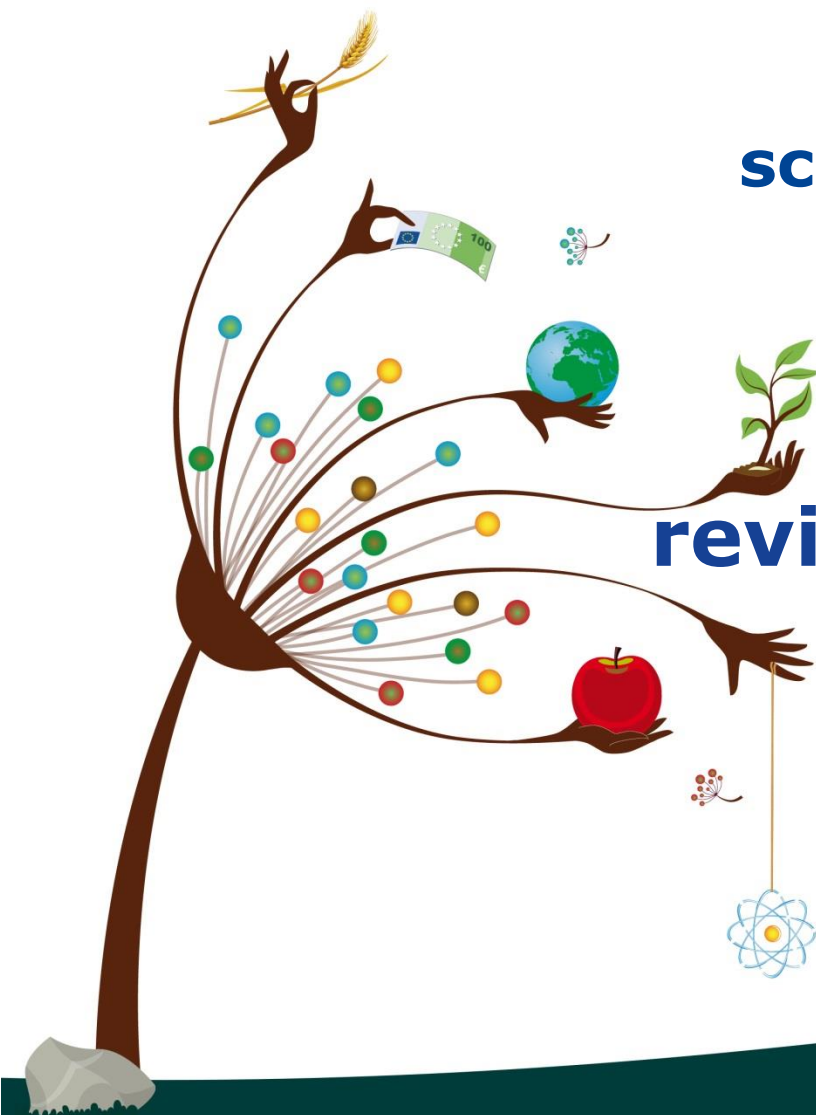


The European Commission's science and knowledge service

Joint Research Centre

EU Ecolabel criteria revision for Paper products

Brussels, 5th of October, 2017





The European Commission's science and knowledge service

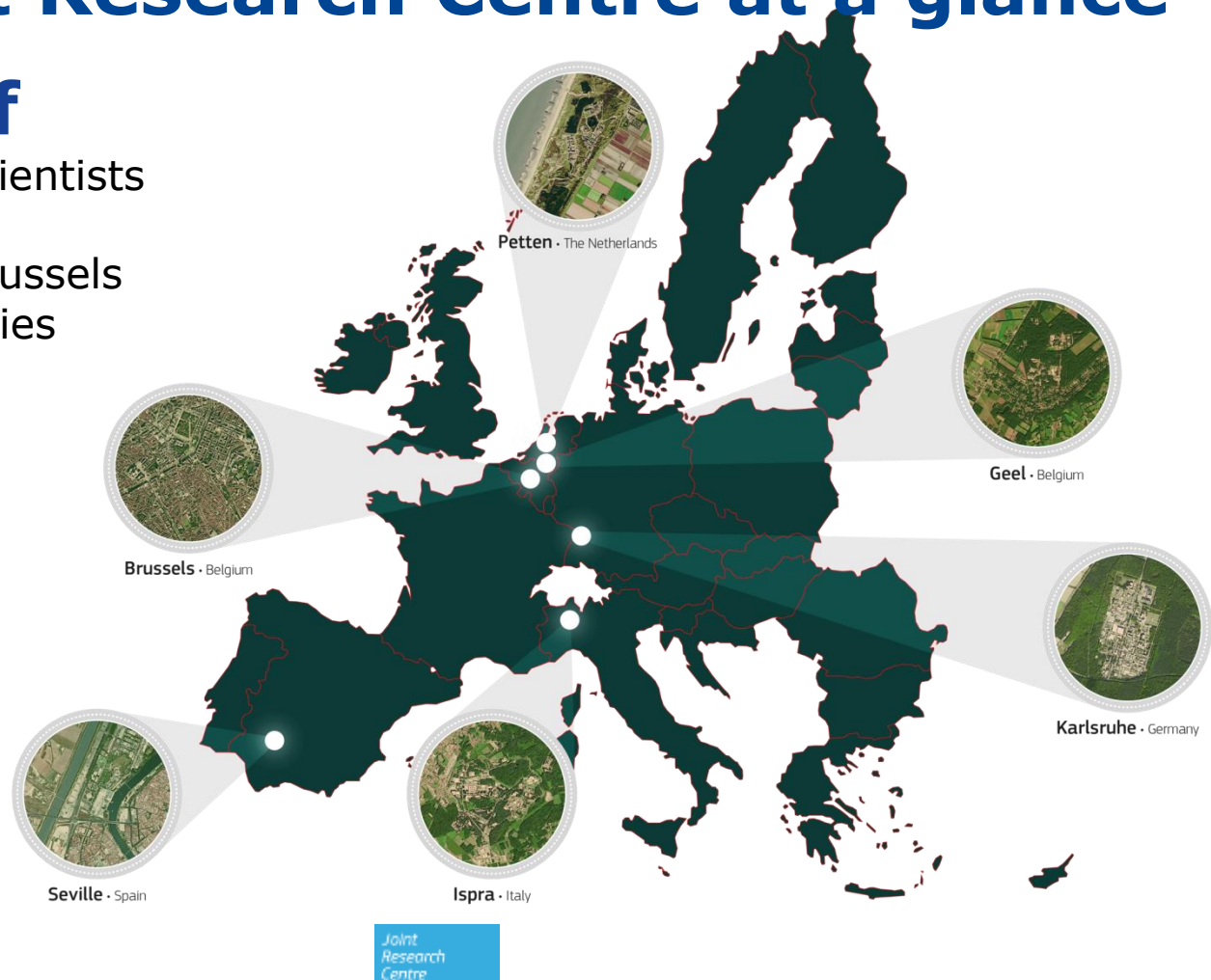
Joint Research Centre

**Shane Donatello,
Malgorzata Kowalska,
Galyna Medyna**

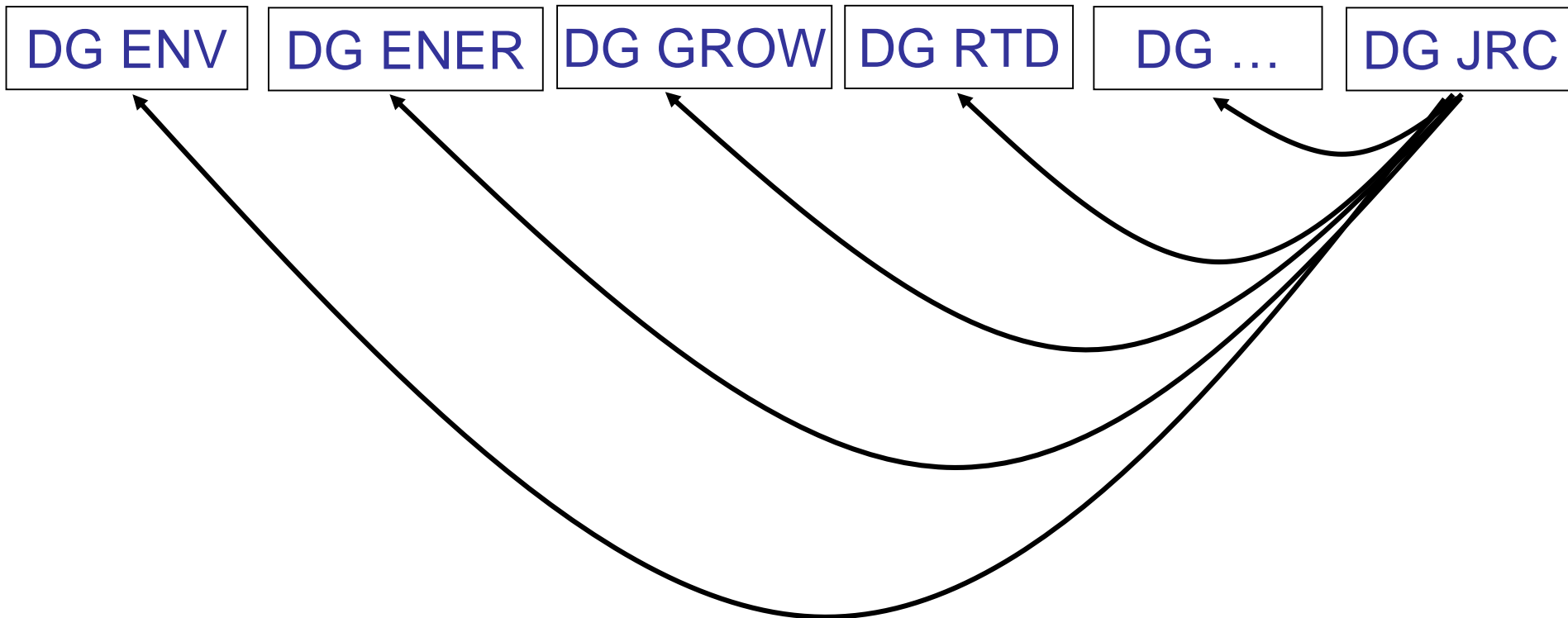
The Joint Research Centre at a glance

3000 staff

Almost 75% are scientists and researchers.
Headquarters in Brussels and research facilities located in 5 Member States.



Joint Research Centre in the context of the European Commission:

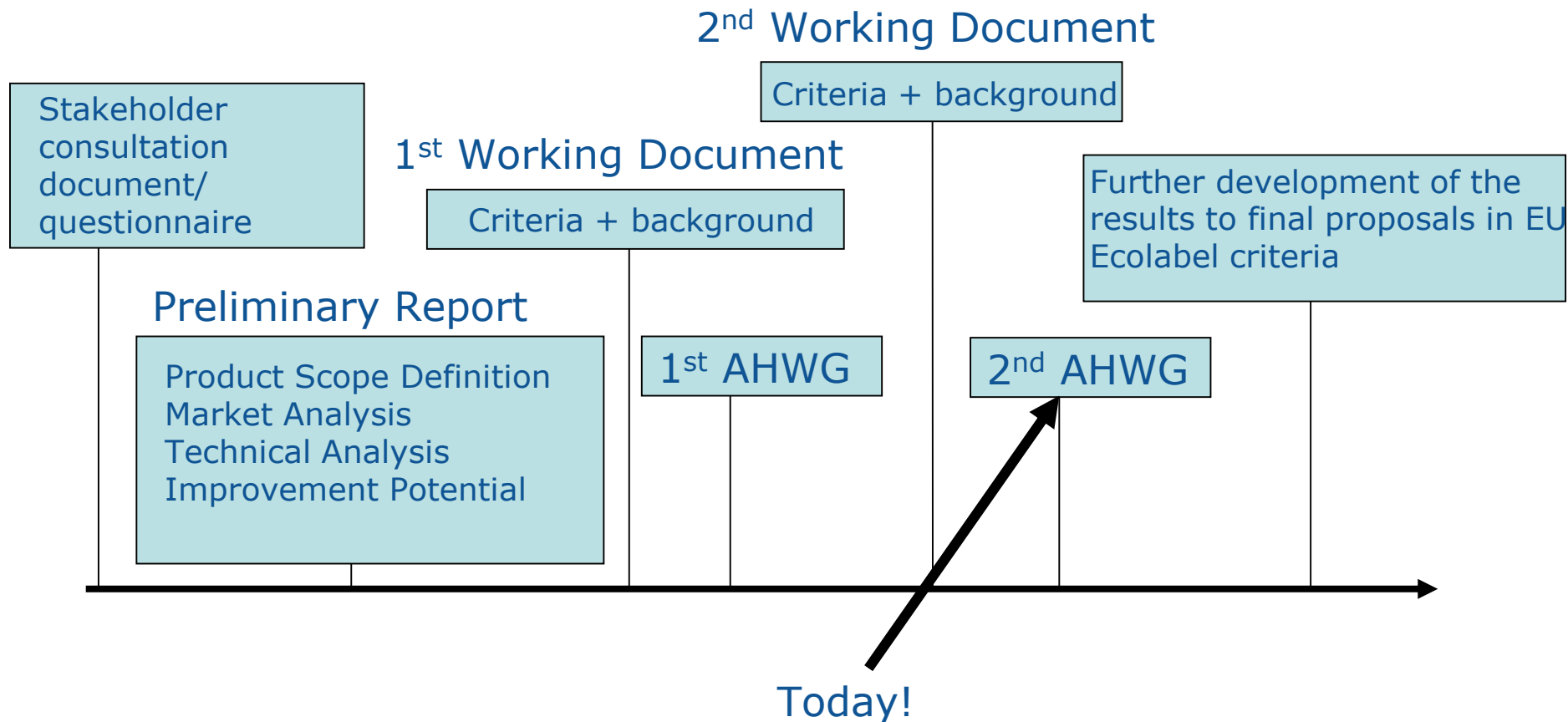


Activities in support of Product Policy

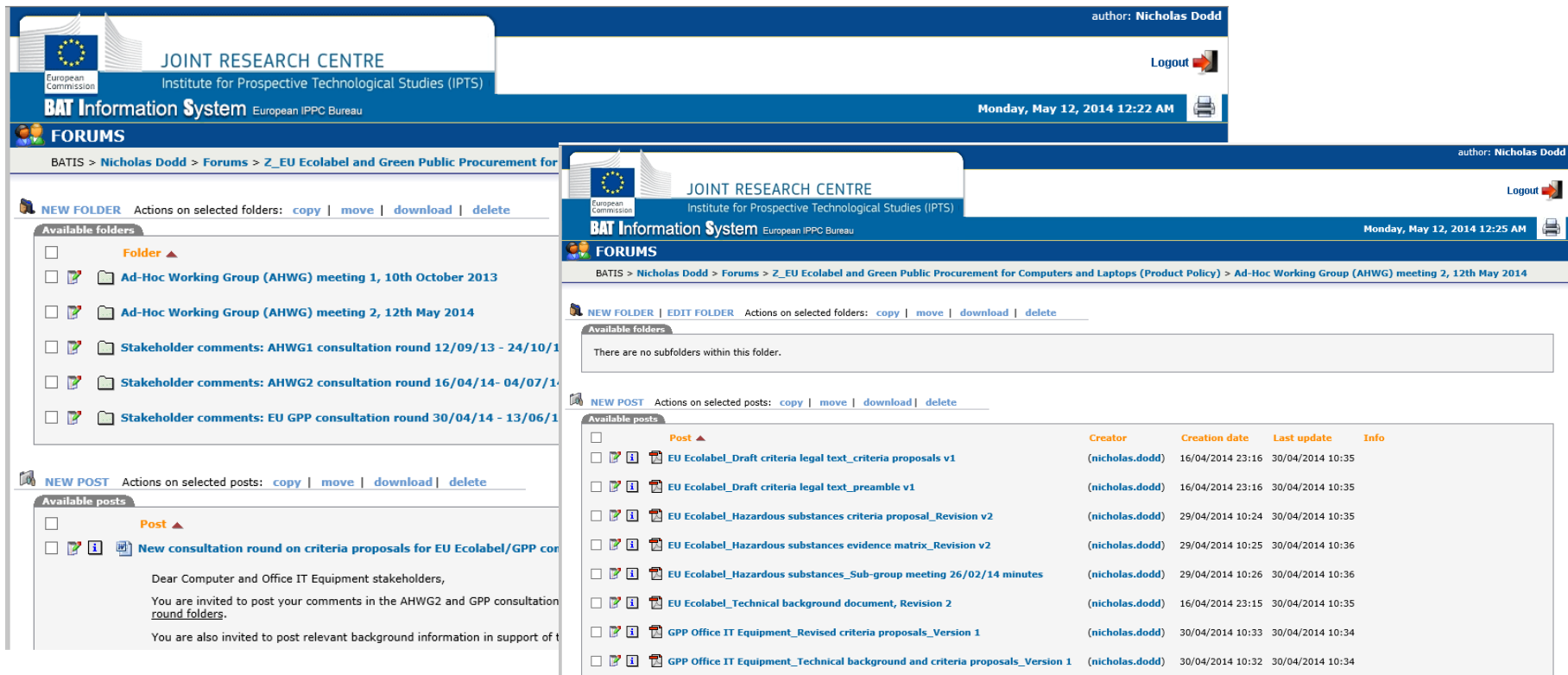
IPTS supports the development and implementation of Sustainable Product Policies, amongst them the EU Ecolabel Regulation, the Green Public Procurement Communication, the Ecodesign for Energy Related Products Directive and the Energy Labelling Directive.

The Product Bureau carries out the analysis of a broad range of product groups and development of environmental criteria with focus on techno-economic as well as environmental aspects.

Criteria revision process



Using the BATIS system



The screenshot displays the BATIS system interface, which is part of the Joint Research Centre's European IPPC Bureau. The interface is divided into several sections:

- Header:** Includes the European Commission logo, the text "JOINT RESEARCH CENTRE Institute for Prospective Technological Studies (IPTS)", the "BAT Information System" title, and the user's name "author: Nicholas Dodd" with a "Logout" button.
- Navigation:** Shows the current path: "BATIS > Nicholas Dodd > Forums > Z_EU Ecolabel and Green Public Procurement for Computers and Laptops (Product Policy) > Ad-Hoc Working Group (AHWG) meeting 2, 12th May 2014".
- Available folders:** Lists several folders related to the Ad-Hoc Working Group (AHWG) meetings and stakeholder consultations, including dates like "10th October 2013" and "12th May 2014".
- Available posts:** A table listing various posts with their titles, creators, creation dates, and last update times. The posts include criteria proposals, preambles, and evidence matrices for EU Ecolabel and hazardous substances.

Available posts table:

Post	Creator	Creation date	Last update	Info
EU Ecolabel_Draft criteria legal text_criteria proposals v1	(nicholas.dodd)	16/04/2014 23:16	30/04/2014 10:35	
EU Ecolabel_Draft criteria legal text_preamble v1	(nicholas.dodd)	16/04/2014 23:16	30/04/2014 10:35	
EU Ecolabel_Hazardous substances criteria proposal_Revision v2	(nicholas.dodd)	29/04/2014 10:24	30/04/2014 10:35	
EU Ecolabel_Hazardous substances evidence matrix_Revision v2	(nicholas.dodd)	29/04/2014 10:25	30/04/2014 10:36	
EU Ecolabel_Hazardous substances_Sub-group meeting 26/02/14 minutes	(nicholas.dodd)	29/04/2014 10:26	30/04/2014 10:36	
EU Ecolabel_Technical background document, Revision 2	(nicholas.dodd)	16/04/2014 23:15	30/04/2014 10:35	
GPP Office IT Equipment_Revised criteria proposals_Version 1	(nicholas.dodd)	30/04/2014 10:33	30/04/2014 10:34	
GPP Office IT Equipment_Technical background and criteria proposals_Version 1	(nicholas.dodd)	30/04/2014 10:32	30/04/2014 10:34	

AGENDA



SCHEDULE

1.	Welcome and introduction Work programme and timeline	09:30–09:45
2.	Paper product groups scope and definitions	09:45–10:30
3.	Criterion 1a) Chemical Oxygen demand (COD), Phosphorus (P), Sulphur (S), Nitrogen oxides (NOx)	10:30–11:15
	Coffee break	11:15–11:30
4.	Criterion 1b) AOX	11:30–12:15
5.	Criterion 1c) CO ₂	12:15–13:00
	Lunch break	13:00–14:00
6.	Criterion 2: Energy use	14:00–15:00
7.	Criterion 3: Fibres – conserving resources, sustainable forest management	15:00–15:30
	Coffee break	15:30–15:45
8.	Criterion 4: Restricted hazardous substances and mixtures	15:45–16:30
9.	Criterion 5: Waste Management	16:30–16:45
10.	Criterion 6: Fitness for use	16:45–17:00
11.	Criterion 7: Information on the packaging	17:00–17:15
12.	Criterion 8: Information appearing on the EU Ecolabel	17:15–17:30
13.	Further aspects, summary and closure of the meeting	17:30–18:00

Paper product group scope and definitions

New Structure



2011/333/EU



2012/448/EU



2009/568/EC



Annex I



Annex II



Article 3 of the Draft Act proposal

Paper Products

Articles made of cellulose pulp in the form of a coherent sheet or web, excluding sheets or laps of pulp as commonly understood for paper making or dissolving purposes, and non-woven products

Copying and Graphic Paper (2011/333/EU)

Comprise sheets or reels of not converted, unprinted blank paper and not converted boards up to basis weight of 400 g/m².

It shall not include newsprint paper, thermally sensitive paper, photographic and carbonless paper, packaging and wrapping paper as well as fragranced paper.

Newsprint Paper (2012/448/EU)

Comprise paper made from pulp and used for printing newspapers and other printed products.

It shall not include copying and graphic paper, thermally sensitive paper, photographic and carbonless paper, packaging and wrapping paper as well as fragranced paper.

I. Copying, graphic and newsprint paper products shall comprise sheets or reels of not converted, unprinted blank or coloured paper. It includes paper made from pulp and used **for writing, printing , or conversion purposes.**

It shall not include:

- paper and board intended for packaging conversion;
- packaging and wrapping paper;
- thermally sensitive paper;
- photographic and carbonless copy paper;
- fragranced paper.

Comprise sheets or rolls of tissue paper fit for use for personal hygiene, absorption of liquids and/or cleaning of soiled surfaces. The tissue product consists of creped or embossed paper in one or several plies. The fibre content of the product shall be at least 90 %.

The product group does not comprise any of the following:

- (a) wet wipes **and sanitary products**;
- (b) tissue products laminated with other materials than tissue paper;
- (c) products as referred to in Directive 76/768/EEC.

Tissue paper and tissue paper products shall comprise sheets or rolls of tissue paper and tissue paper product fit for use for personal hygiene, absorption of liquids and/or cleaning of soiled surfaces used in substitution of textiles. Tissue paper is not converted paper while "tissue paper product" is "tissue paper that has been converted into a finished article for end-user purposes. It includes but is not limited to handkerchiefs, toilet tissue, facial tissue, kitchen/household towel, hand towels, table napkins, mats. It includes coloured, printed or **fragranced or lotion** treated tissue paper products.

It shall not include:

- absorbent hygiene products as defined in Commission Decision 2014/763/EU including absorbent undergarments such as disposable diapers;
- **wet wipes**; (*which is the exact definition?*)
- tissue paper products containing cleaning agents designed for the cleaning of surfaces;
- coated tissue paper products or tissue paper products laminated with other materials than tissue paper;
- products as referred to in Cosmetic Regulation N° 1223/2009 .

ACT: Article 2 - Definitions



- 1 'pulp^{ing}' means the act of processing wood, other plant matter or waste paper to obtain pulp;
- 2 'pulp' means fibrous material in papermaking produced in a pulp mill, either mechanically, chemically, or by the combination of both;
- 3 'recycled fibre' 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);
- 4 'mechanical woodpulp paper or board' means paper, board paper or board containing mechanical woodpulp as an essential constituent of its fibre composition;
- 5 'chemical pulp' means fibrous material obtained by removal from the raw material of a considerable part of non-cellulosic compounds that can be removed by chemical treatment (cooking, delignification, bleaching);
- 6 'CTMP' means chemithermomechanical pulp;
- 7 'ECF pulp' means elementary chlorine free bleached pulp;
- 8 'TCF pulp' means totally chlorine free bleached pulp.;
- 9 'non-integrated production' means production of market pulp (for sale) in mills that do not operate paper machines, or production of paper/board using only pulp produced in other plants (market pulp);
- 10 'integrated production' means pulp and paper is produced at the same site. The pulp is not dried before paper manufacture. The production of paper/board is directly connected with the production of pulp;
- 11 'deinked pulps' means pulp made from paper for recycling from which inks and other contaminants have been removed
- 12 'Air dry tonne' of pulp (ADt) meaning dry solids content of 90 %; in case of paper, air dry means paper with 6 % moisture content

Article 3

In order to be awarded the EU Ecolabel under Regulation (EC) No 66/2010, a paper product shall fall within the product group as defined in Article 1 of this Decision.

1. The product group as specified in Article 1(1) shall comply with the criteria as well as the related assessment and verification requirements set out in the **Annex I for the product group 'Copying, graphic and newsprint paper products'**.
2. The product group as specified in Article 1(2) shall comply with the criteria as well as the related assessment and verification requirements set out in the and **Annex II for the product group 'Tissue paper and tissue paper products'**

Article 5

For administrative purposes the code number assigned to **'paper products shall falling under the scope of Article 1(1) shall be 011.**

2. For administrative purposes the code number assigned to **'paper products shall falling under the scope of Article 1(2) shall be 004.**



- Competent bodies commented on the importance of getting access to the lists of pulps and chemicals that have been approved by other competent bodies;
- Stakeholders were in favour of having a central database for 'Approved Pulps', that enables to calculate emission values simply using the available data in the 'Approved Pulps' database;
- It was suggested that the pulp approval/certification process should include both evaluation of suppliers' documentation and site audits, and there should be a separate charge for the auditing process;
- It was noted that in a list of Approved Pulps it must be clearly explained that it is a paper producer who is expected to make the calculations to show if paper meets the Ecolabel criteria;
- Some stakeholders expressed concern that certification of pulp poses a risk for limiting pulp supplies for paper mills

Proposal: To accommodate market pulp approval under User manual;

Guidance document with a reporting sheet in the User Manual for CBs to check pulp producers in their country, informing the CB contact point that validates and adds it to the list (DID list alike).

- 1. Does the proposed scope and definitions for each paper product type reflect the specific nature of the paper product groups addressed?*
- 2. Should the list of complementary definitions be extended?*
- 3. Do you agree to modify the exclusion for tissue paper product that refers to: "wet wipes and sanitary products, including absorbent undergarments such as disposable diapers"?*
- 4. Should the methodology for market pulp approval be accommodated under User manual, if applicable?*

EU Ecolabel criteria for 'paper products'



Annex I :

Copying, graphic and newsprint paper

Copying, graphic and newsprint paper

Criterion 1: Emissions to water and air

Criterion 2: Energy use

Criterion 3: Fibres: sustainable forest management

Criterion 4: Excluded or limited substances and mixtures

Criterion 5: Waste Management

Criterion 6: Fitness for use

Criterion 7: Information on the packaging

Criterion 8: Information appearing on the EU Ecolabel

Criterion 1. Emission to water and air



The requirement is based on information on emissions in relation to a specified reference value. The ratio between actual emissions and the reference value translates to an emissions score.

- The score is calculated on the base of reference values;
- Scores for each parameters should be lower than **1,25**; and the total number of points shall not exceed 4,0;
- When various pulps are mixed, the individual contribution from each pulp should be expressed as weighted share;
- For integrated mills if combined figures are available the emission shall be allocated to the paper mill (including pulp and paper production).

Criterion 1(a)



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

Where:

- COD_{total} Total emissions from the production of 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
- $COD_{ref papermachine}$ Reference value for the paper machine and paper type

In cases where co-generation of heat and electricity occur at the same plant, the emissions of S and NO_x resulting from onsite electricity generation can be subtracted from the total amount.

The following equation can be used to calculate the proportion of the emissions resulting from electricity generation:

$$2 \times (MWh(\text{electricity})) / [2 \times MWh(\text{electricity}) + MWh(\text{heat})]$$

The electricity in this calculation is the electricity produced at the co-generation plant. The heat in this calculation is the net heat delivered from the power plant to the pulp/paper production.

Multiplying onsite generated electricity by a factor of 2 in the equation is related to the concept of Primary Energy Saving (PES) that can be achieved when using cogeneration technology and when there is a use for the heat generated.

I. Test reports using the following monitoring standard test methods (or equivalent):

- COD: ISO 15075 or ISO 6060 (daily monitoring);
 - *ISO 6060 method uses significant quantities of hazardous chemicals such as potassium dichromate, mercury sulfate and silver sulfate. By changing the ISO 6060 reaction system from an open reflux to a closed reflux (ISO 15705) , the consumption of the aforementioned hazardous chemicals can be reduced by a factor of 10.*
- NO_x: EN 14972 or ISO 11564;
- S(oxid.): EN 14971 or EPA no.8; S(red.): EPA no 15A,16A or 16B; S content in oil: ISO 8754; S content in coal: ISO 19579; **S content in biomass: EN 15289**; Total P: EN ISO 6878 (weekly monitoring).

Rapid tests can also be used if they are checked regularly (e.g. monthly) against the relevant aforementioned standards or suitable equivalents.

II. For COD emissions, continuous monitoring by the analysis of TOC (Total Organic Carbon) shall be accepted so long as a correlation between TOC and COD results has been established (BAT 10).

- *Intermittent analysis for COD will be required to establish a correlation factor between COD and TOC (typically around 3-4 units of COD for every unit of TOC).*

III. Emissions of S and NO_x shall be taken on a continuous or periodic basis (BAT 9).

Are the following test method relevant to be additionally indicated?:

EN 14791 – Determination of mass concentration of sulphur oxide / **EN 17792** Determination of mass concentration of nitrogen oxides

IV. Data shall be averaged across a 12 month reporting period except in cases where:

- the production campaign is for a limited time period only,
- the production plant is new or has been rebuilt, in which case the measurements shall be based on at least 45 days subsequent days of stable running of the plant.

In either case, data may only be accepted if it is representative of the respective campaign and that a sufficient number of measurements for each emission parameter have been made.

Questions:

1. Is the wording of the proposed criterion adequate?
2. Is the proposed assessment and verification adequate?
3. Are the proposed test methods adequate and up to date?
4. Should test methods: *EN 14791 – Determination of mass concentration of sulphur oxide / EN 17792 Determination of mass concentration of nitrogen oxides* be added to the A&V?
5. Is the proposed monitoring methodology and frequency adequate?

Criterion 1(a): Reference values



METHODOLOGY:

1. To establish the basic threshold for EU Ecolabel reference values at a level corresponding to 80% of the upper BAT-AELs values; in some cases this results in values that are already close to the existing EU Ecolabel reference values.
2. To maintain the scoring system and the current equation, but to reduce the maximum permitted score from 1.5 to 1.25, in order to prevent allowing emissions that would effectively exceed minimum legal requirements in the EU.
3. To perform individual analysis of each emission parameters contrasting information contained in BREF with the questionnaire feedback, and to analyse if there is a possible space for further improvement.
4. On-going consultation process with the dedicated emission sub-group.

1 (a) Reference values



Pulp Grade/Paper	Emissions (kg/ADT)							
	COD		P		S		NOx	
	<i>P</i>	<i>C</i>	<i>P</i>	<i>C</i>	<i>P</i>	<i>C</i>	<i>P</i>	<i>C</i>
Bleached Chemical pulp (others than sulphite)	16	18	0,025 0,09⁽¹⁾	0.045 0.1⁽¹⁾	0,35	0.6	1,6	1.6
Bleached Chemical pulp (sulphite)	24	25	0.025	0.045	0,35	0.6	1,6	1.6
Unbleached chemical pulp	6,5	10	0.016	0.04	0,35	0.6	1,6	1.6
CTMP /CMP	16	15	0.008	0.01	0.2	0.2	0,25 / 0.7⁽²⁾	0.3
TMP/groundwood pulp	3	3	0.008	0.01	0.2	0.2	0.25	0.3
Recycled fibre pulp without de-inking	1.1	x	0.004	x	0.2	x	0.25	x
Recycled fibre pulp with de-inking	2.4	2	0.008	0.01	0.2	0.2	0.25	0.3
Paper (non-integrated...)	1	1	0.008	0.01	0.3	0.3	0.7	0.8
Paper (Other mills)	1	1	0.008		0.3	0.3	0.7	0.7

Criterion 1(a): Ambition level



The twofold increase in the ambition level:

1. Increase stringency in the emission reference values;
2. Reduction of the maximum allowed score for individual emissions parameter (from 1.5 to 1.25)

Even moderate reductions in the EUEL reference values will be more challenging than they may first appear.

PROPOSAL:

To discuss the possibility to allow one of the parameters to reach the score 1.5 as long as the final score does not exceed 4.

The possible exemption should be granted on the case by case analysis at the level of application, and could include case such as i.e. nature of the raw material used.

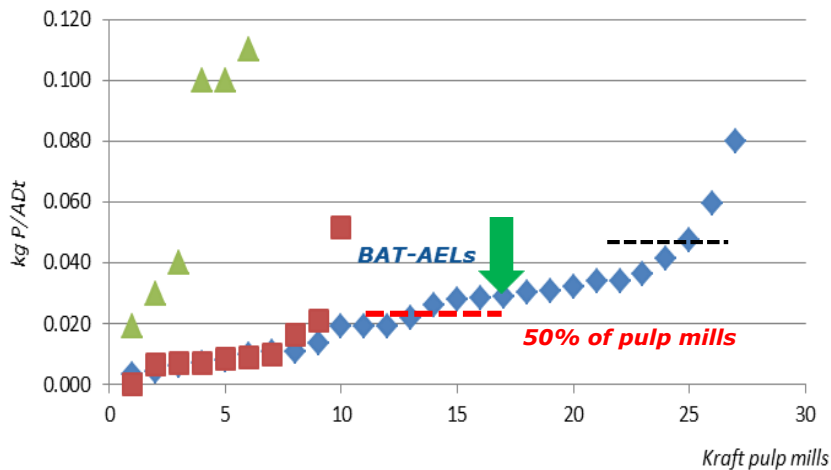
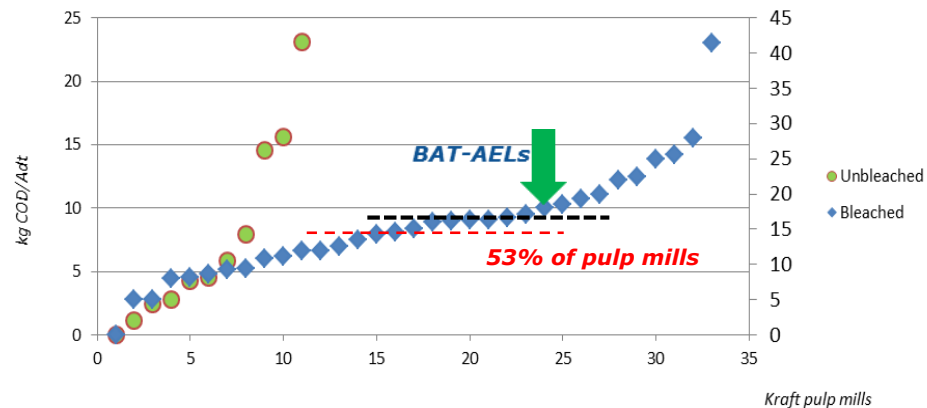
Ambition level – kraft pulp



100% purchased virgin pulp for non-integrated mill

Calculation base 20 COD/ADt (8 COD/ADt) : BAT19

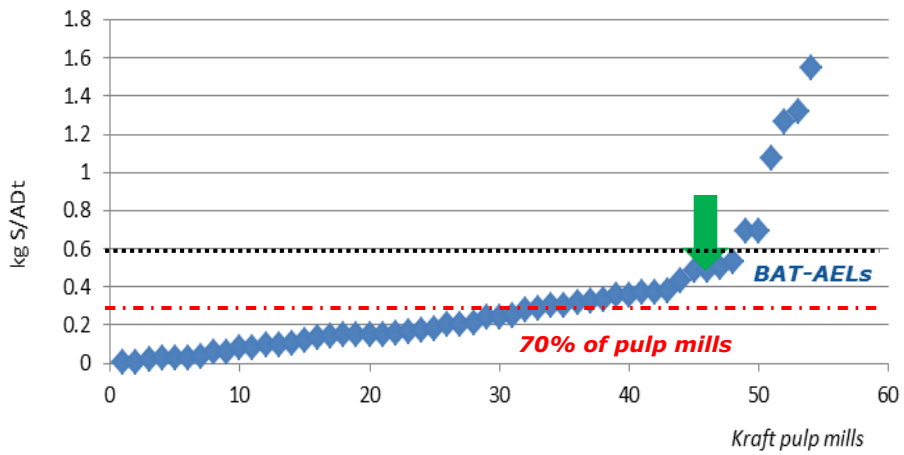
COD	Current	Proposed Criteria
Purchased Pulp	18.0	16
Paper	1.0	1
Sum	19.0	17
Maximum	1.5	28.5
Reduction		10.5%
Maximum	1.25	28.5
Reduction		25.40%



100% purchased virgin pulp for non-integrated mill Calculation base 0,03 P/Adt (0,02 P/Adt) Eucalyptus:0.11 kg/ADt:BAT19

Phosphorus	Current	Proposed Criteria
Purchased Pulp	0.045	0.025
Paper	0.010	0.008
Sum	0.055	0.033
Maximum	1.5	0.083
Reduction		40.0%
Maximum	1.25	0.041
Reduction		50.0%

Ambition level – kraft pulp



100% purchased virgin pulp for non-integrated mill

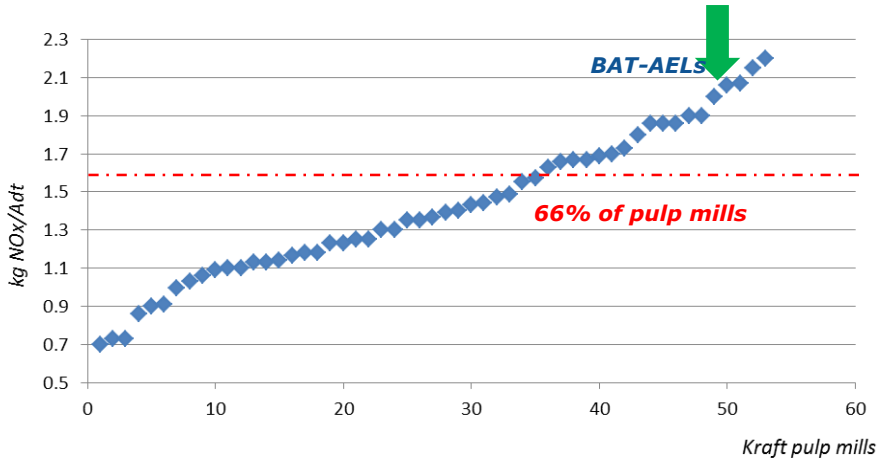
Calculation base (0,495 S/ADt) : BAT 20, BAT 21, BAT 24, BAT 28

Sulphur		Current	Proposed Criteria
Purchased Pulp		0.60	0.35
Paper		0.30	0.30
Sum		0.90	0.65
Maximum	1.5	1.35	0.98
Reduction			27.8%
Maximum	1.25	1.35	0.81
Reduction			39.8%

100% purchased virgin pulp for non-integrated mill

Calculation base 2.1 NOx/ADt: BAT 22, BAT 26, BAT 28

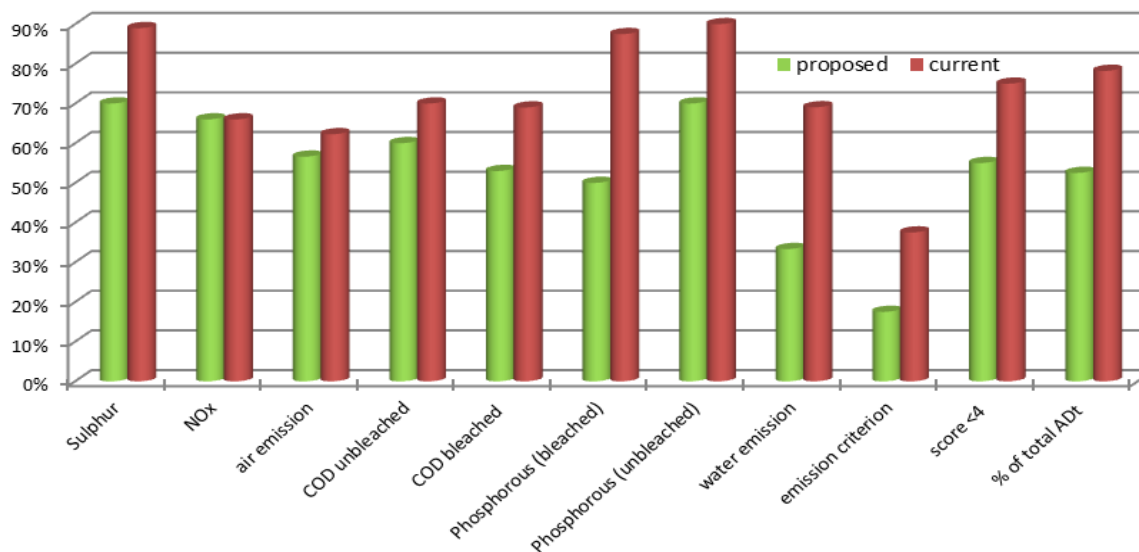
NOx		Current	Proposed Criteria
Purchased Pulp		1.60	1.60
Paper		0.80	0.70
Sum		2.40	2.30
Maximum	1.5	3.60	3.45
Reduction			4.2%
Maximum	1.25	3.60	2.88
Reduction			20.1%



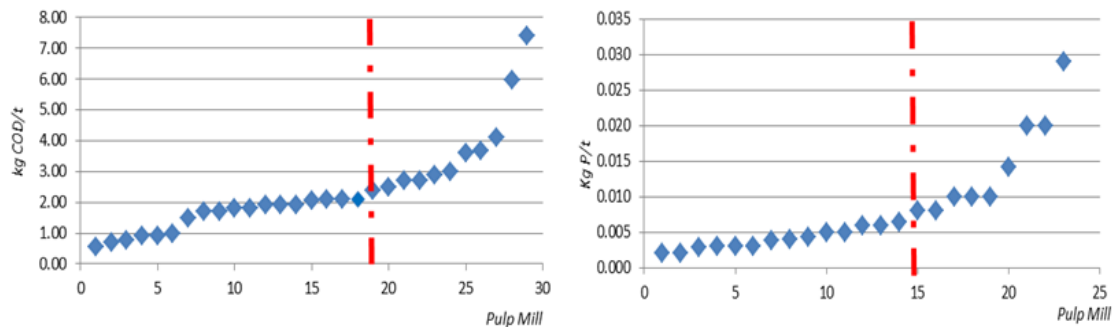
Ambition level – kraft pulp



	Current threshold	Proposed threshold	Number of mills	Comply with the current threshold	Comply with the proposed threshold (% of mills)	Change (%)*
<i>Sulphur</i>	0.6	0.35	54	48	38 (70%)	-21%
<i>NOx</i>	1.6	1.6	53	35	35 (66%)	0%
<i>COD (bleached)</i>	18	16	32	22	17 (53%)	-23%
<i>COD (unbleached)</i>	10	6.5	10	7	6 (60%)	-14%
<i>P (bleached)</i>	0.045 (0.1)**	0.025 (0.09)**	32	28	16 (50%)	-43 %
<i>P (unbleached)</i>	0.04	0.016	10	9	7 (70%)	-22%
<i>Criterion 1(a)</i>	x	x	40	15	7 (17.5%)	-53%
<i>Criterion 1(a) score<4</i>	x	x	40	30	22 (55%)	-27%
<i>Total production</i>		18.095.765		14.424.634	7.553.776	-33%



COD and phosphorous emissions from RCF mills with deinking



	Current threshold	Proposed threshold	Number of mills	Comply with the current threshold	Comply with the proposed threshold	Change (%)*	Ambition level*
Emission from RCF mills with deinking							
COD	2.0	2.4	29	14	19	+36%	65,5%
Phosphorus	0.01	0.008	23	19	16	-16%	69,6%
Emission from RCF mills without deinking							
COD	2.0	1.1	43	36	30		69.8%
Phosphorus	0.01	0.006	37	30	20		54.1%

RCF, Mechanical pulp – energy generation related emission

Estimation of a possible benchmark for SO₂ and NO_x emission per product type

NO_x

- EKONO study (mechanical pulp)- median NO_x emissions 0.17 and 0.35 kg NO_x/t in Sweden and Finland, respectively.
- EKONO study (RCF pulp)- NO_x emission from Swedish and Finnish mills ranged from 0.07 to 0.8 kg/t.
- Estimated benchmark at the level of **0,03-0,24** NO_x kg/ADt (based on ETS fuel benchmark)

Reference emission value for NO_x is proposed to be harmonised with the Nordic Swan requirement for pulp and paper basic module **0,25 kg NO_x/ADt**.

Sulphur:

- EKONO study - Swedish and Finnish mills reported total sulphur emission below 0.18 kg S/t.
- Nordic Swan is 0.2 kg S/t.
- Estimated benchmark at the level of **0,003-0,18 S kg/ADt** (based on ETS fuel benchmark).

*The possibility to lower the value to **0.18 kg S/ADt** should be further cross checked*

Questions:

1. Are the **proposed** revised emission reference values and ambition level **adequate**?
2. Should the reference value for sulphur be lowered from 0,2 to 0,18 kg S/ADt as suggested by information contained in Econo study? Applicable to mechanical, semi-mechanical and recycled pulp mills.
3. Do you find adequate to change the scoring system as proposed: **none of the individual** points PCOD, PS, PNOx, PP **shall exceed 1.25**?
4. Do you agree to introduce more flexible approach and grant additional flexibility to one of the emission parameters, as follows: **The score for any individual emission parameter shall not exceed 1.25 unless exceptional circumstances justify an individual score being up to 1.5**. However, even in these exceptional cases, the sum of the 4 emission parameter scores must still not exceed 4.0?
5. **If you are positive** with granting additional flexibility to one of the parameters, do you find the proposed assessment and verification that **relies on Competent Body evaluation adequate**?: For any individual emission score that exceeds 1.25 (but is less than 1.5), the Competent Body shall request, at its discretion, a satisfactory technical justification for this higher individual emission parameter.

Criterion 1(b) - AOX



Proposal 1

This criterion refers to ECF pulp
Unless separately specified, the AOX emissions from the production of each (?) pulp used shall not exceed 0,16 kg/ADT.

*The AOX emissions shall not exceed **0.17 kg/ADT** in case the total wood mix at the integrated mill contains at least 40% of wood species with high tannin content (i.e. chestnut, oak).*

Proposal 2

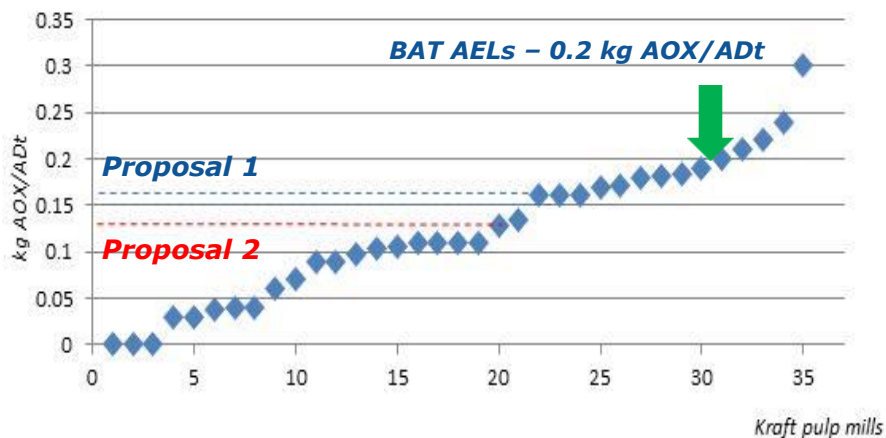
To incorporate AOX emission into the emission equation following the rules specified under Criterion 1 (a)

The criterion is not applicable to plants that provide evidence that no AOX is generated or added via chemical additives and raw materials.

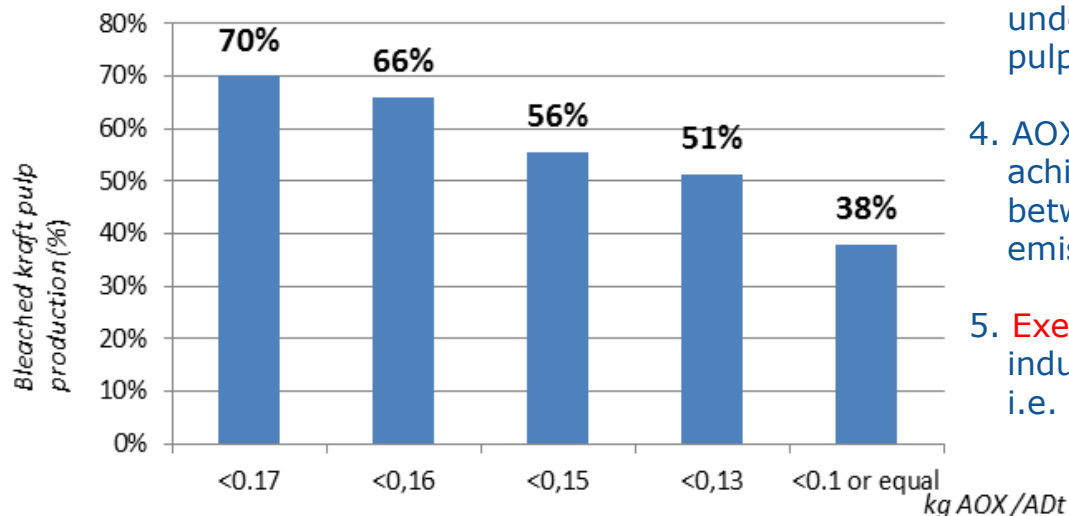
The total number of points ($P_{total} = P_{COD} + P_S + P_{NOx} + P_P + P_{AOX}$) shall not exceed 5,0.

	Reference values	kg
Pulp types	AOX/ADt	
Bleached sulphate pulp		0,14
Bleached sulphite pulp		0,14

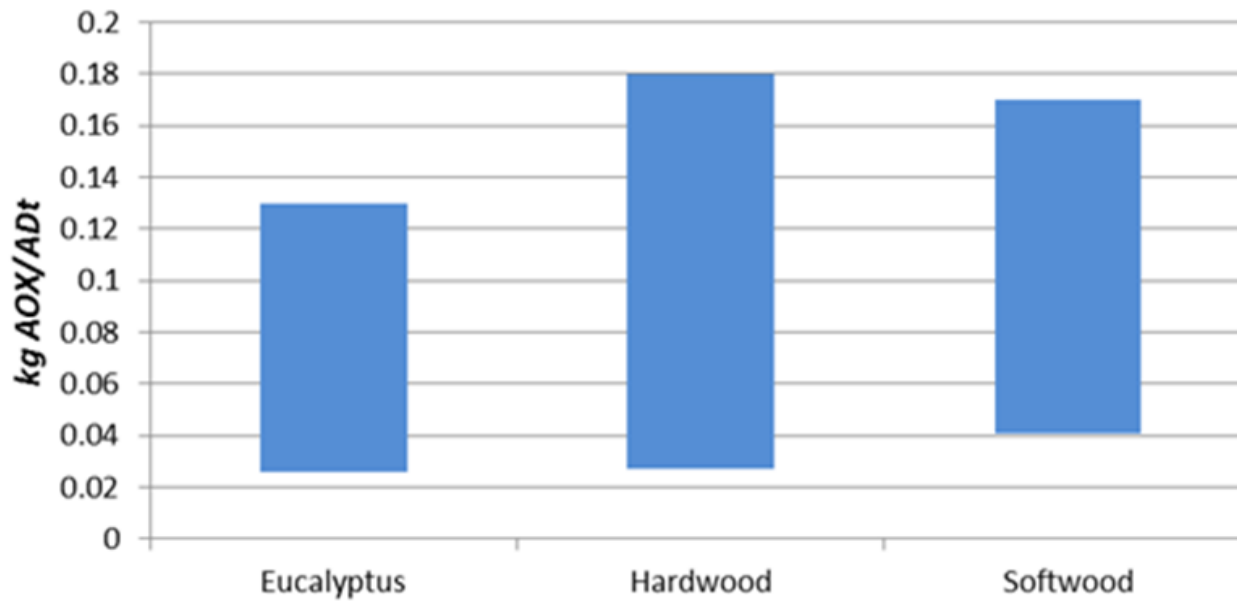
Criterion 1(b) - AOX



1. 1st AHWG: JRC proposed emission value at the level of 0,16 kg AOX/ADt and called to consider the possible inclusion of the parameter under the common scoring system.
2. AOX value at the level of 0.1 kg AOX/ADt was proposed during the meeting.
3. The yearly average, specific AOX emissions of bleached kraft pulp mills at the point of discharge, i.e. after waste water treatment vary between undetectable and 0.3 kg AOX/ADt of bleached pulp.
4. AOX emission depends on the kappa number achieved before pulp bleaching (correlation between wood type, AOX emission and COD emission).
5. **Exemption - 0.17 kg AOX/ADt** requested by industry for wood species with high tannin content, i.e. chestnut.



Criterion 1(b) - AOX





The BAT –AELS into water for AOX address ECF bleached pulps and are established as follows:

- Bleached **kraft pulp** mill **0,0- 0,2** yearly average kg/ADt;
- Bleached **sulphite and magnefite** grade paper **0,5-1,5** yearly average kg/ADt;
- **RCF 0,05** for wet strength paper yearly average kg/ADt;
- **Integrated kraft**, sulphite, CTMP and CMP pulp and paper mills, Non-integrated paper and board mill (excluding speciality paper), for decor and wet strength paper yearly average kg AOX/ADt **0,05**;
- **Nordic Swan** threshold for the weighted average of AOX at **0.17** kg/tonne paper, and for each individual **0.25** kg/tonne.

- AOX need to be measured in processes where chlorine compounds are used for the bleaching of the pulp;
- AOX need not be measured in the effluent from non-integrated paper production or in the effluents from pulp production without bleaching or where the bleaching is performed with chlorine-free substances;
- Test method AOX ISO 9562;
- Measurements 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, reported as a monthly average;
- In case of a new or a re-built 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.

Questions:

1. *Should the current formulation of the criterion be maintained (Proposal 1), or should AOX parameter be incorporated into Criterion 1(a) (Proposal 2)?*
2. *For Proposal 1: Is the revised AOX/emission value adequate?*
3. *For Proposal 1: Should the proposed reference value 0,16 kg AOX/ADt refer to the final value of the weighted average of pulp mix, or should reflect the threshold for each individual pulp?*
4. *For Proposal 1: Should the AOX limit be absolute for any individual ECF pulp used, or should it apply to a weighted average ECF pulp emission in cases where more than one ECF pulp is used.*
5. *For Proposal 1: Do you agree with the proposed derogation for wood with high tannin content i.e. chestnut (0.17 kg AOX/ADt)?*
6. *For Proposal 2: Are the proposed reference values adequate?*

Criterion 1(c) –CO2



Proposal 1

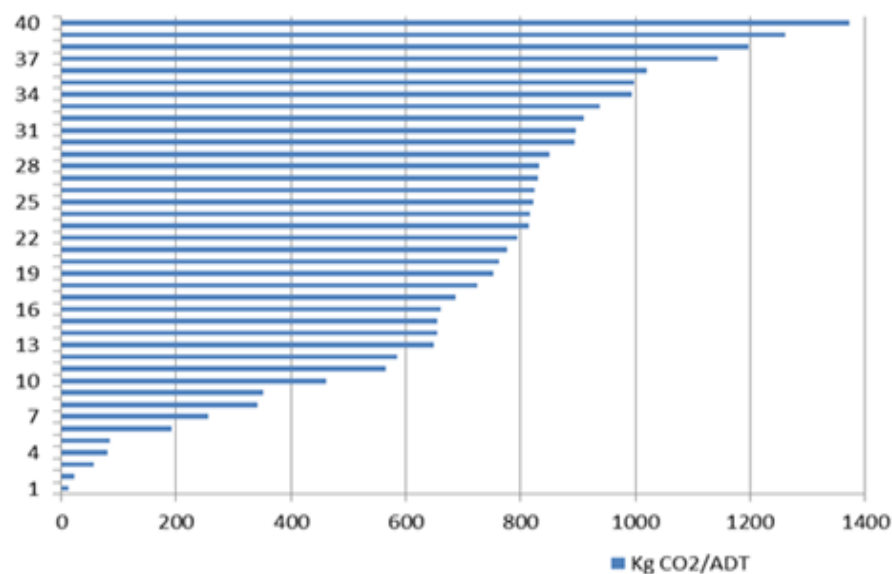
To withdraw the criterion

Proposal 2

The emission of CO₂ from purchased electricity* and fossil fuel used for heating and production of electricity must not exceed the following limit values:

- *1,000 kg CO₂ /tonne paper for paper made from 100 % DIP/recycled pulp;*
 - *900 kg CO₂ /tonne paper for paper made from 100 % chemical pulp;*
 - *1,600 kg CO₂ /tonne paper for paper made from 100 % mechanical pulp;*
1. For paper comprising of a mixture of cellulose- a weighted limit value is calculated, based on the proportion of each pulp type;
 2. The emissions is calculated as the sum of the emissions from the pulp and paper production;
 3. For paper mill, the CO₂ emission of individual pulps shall be gathered from the pulp manufacturer.

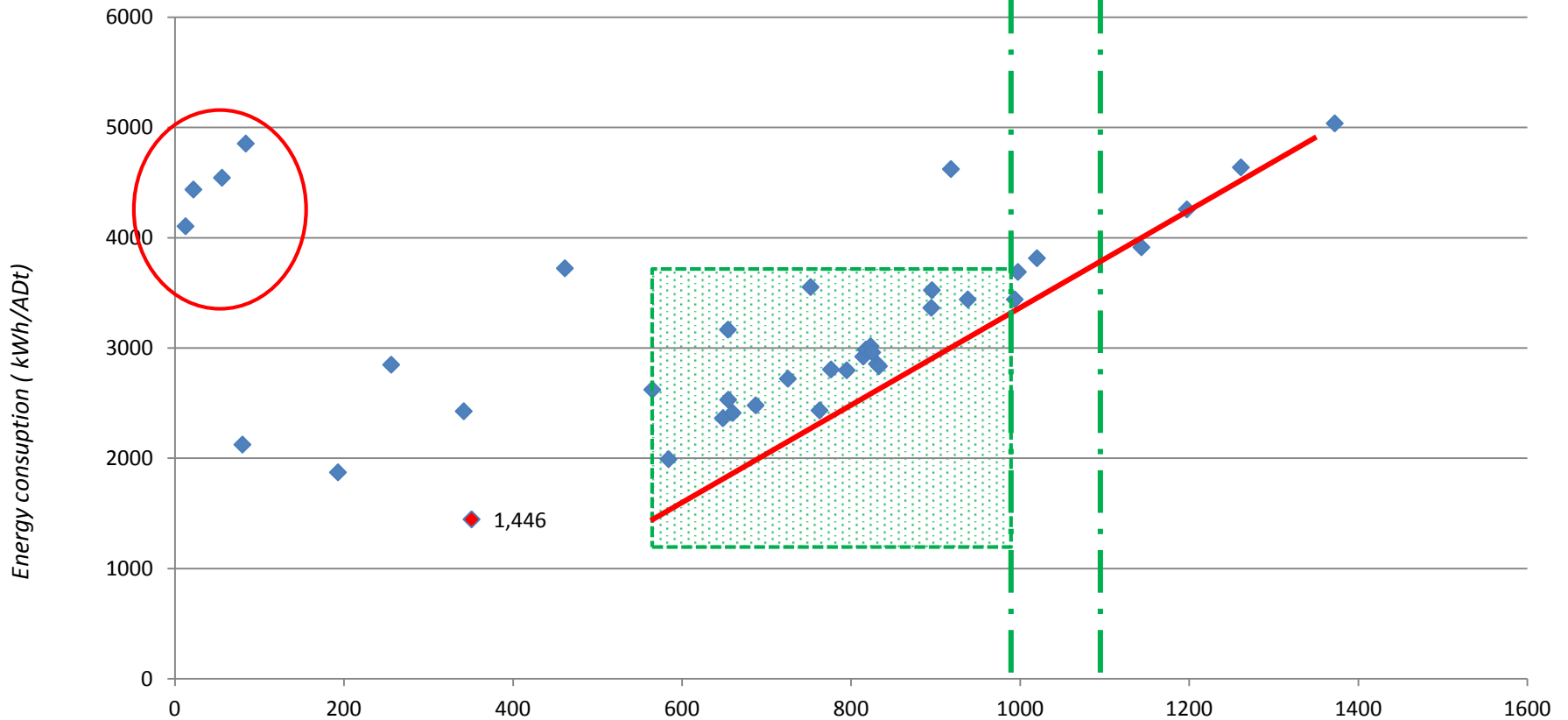
CO2 emission



- The data collected within the 2nd questionnaire shows that reported CO2 emission varies between 13 and 1372 kg CO2/ADt;
- Most data is based on kraft pulp production;
- Very little data was provided for papers based on >50% DIP (273–936 kg CO2/ADt);
- The carbon intensity of CTMP pulp was 552–886 kg CO2/ADt.

Note: Data presented does not distinguish between specific types of pulps used, and allocate the CO2 intensity of the process to the final product. This reflects the approach of the current criterion that sets a specific value for integrated or non-integrated production).

Energy consumption vs CO2 emission



Any reduction in energy usage will reduce CO2 emissions, by contrary reducing CO2 emissions (by calculation) will not automatically reduce energy usage



PROPOSAL 1 : Rationales

To withdraw the criterion as not bringing additional environmental saving but rather reflecting national fuel policy:

- The criterion on CO2 emissions and the criterion on energy have some degree of overlap - The optimisation of CO2 emissions is achieved by the optimisation of energy use
- In the pulp and paper industry, CO2 emissions are generated in steam and electricity production, so they are strongly related to the energy intensity of the processes that is easier to quantify;
- Energy use can be controlled to some extent by the applicant, CO2 criteria is heavily influenced by geographical location when grid electricity is involved. The optimisation of national grid characteristic remains out of control of the potential applicant;
- Most of the paper industry operates under EUETs, with the emissions being annually externally verified;
- Due to the lack of influence of the pulp and paper industry on the electricity supply market, the CO2 criterion can unintentionally make the EUEL criteria much more complex than they should be.
- Ecolabel might not be an appropriate tool to manage the complexity of CO2 emissions from biofuels, nuclear, fossil, solar, wind, etc.,

Criterion 1 (c) CO2



It is proposed to align the emission reference values with the Nordic Swan requirement. This, will allow linking the CO2 emission with the irregular energy intensity of different pulping processes.

Nordic Swan (considers differences in energy intensity of pulping processes):

- 1,000 kg CO2 /tonne paper for paper made from 100 % DIP/recycled pulp
- 900 kg CO2 /tonne paper for paper made from 100 % chemical pulp
- 1,600 kg CO2 /tonne paper for paper made from 100 % mechanical pulp

For paper comprising of a mixture of cellulose pulp , a weighted limit value is calculated, based on the proportion of each pulp type.

The comparison between Nordic Swan and current EU Ecolabel requirements for CO2 emission

	Ecolabel	Nordic Swan
	NP, CGP	CGP
Pulp type	<i>weighted average (kg CO2 / ADt)</i>	
Non-integrated mills, all pulps purchased	1100	
a) recycled fibre		1000
b) cellulose, chemical pulp		900
c) mechanical pulp		1600
Other mills	1000	
a) recycled fibre		1000
b) cellulose, chemical pulp		900
c) mechanical pulp		1600

The methodology proposed to estimate CO₂ emission from fuel combustion follows the one used by IEA that is based on 2006 IPCC Guidelines for National Greenhouse Gas Inventories (IPCC default values).

The estimation of CO₂ emissions from fuel combustion for a given fuel can be summarised as follows:

$$\text{CO}_2 \text{ emissions from fuel combustion} = \text{Fuel consumption} * \text{Emission factor}$$

The reference values in the proposed criterion (Proposal 2) have been updated accordingly to the IPCC default emission factors for stationary combustion in the energy industries.

Fuel	CO ₂ ^{fossil} emission	Unit
Coal	96	g CO ₂ fossil/MJ
Crude oil	73	g CO ₂ fossil/MJ
Fuel oil 1	74	g CO ₂ fossil/MJ
Fuel oil 2-5	77	g CO ₂ fossil/MJ
LPG	63	g CO ₂ fossil/MJ
Natural Gas	56	g CO ₂ fossil/MJ
Grid Electricity	384	g CO ₂ fossil/kWh

Criterion 1 (c) A&V



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.

For grid electricity, the value quoted in the table above (the European average) shall be used **unless the applicant presents documentation establishing the average value for their suppliers** of electricity (contracting supplier or national average), in which case the applicant **may use this value instead** of the value quoted in the table.

The amount of energy from renewable sources purchased and used for the production processes will not be considered in the calculation of the CO₂ emissions. Appropriate documentation that this kind of energy is actually used at the mill or is externally purchased shall be provided by the applicant.

Criterion 1 (c) CO2



EU-28 fuel-based Electricity/Heat Emission Factors for CO2

Country	IEA composite electricity/heat factors (gCO2/kWh)	Country	IEA composite electricity/heat factors (gCO2/kWh)
Austria	182.756	Italy	398.464
Belgium	248.975	Latvia	162.2356
Bulgaria	488.8623	Lithuania	114.4369
Croatia	341.4155	Luxemburg	314.782
Cyprus	758.6603	Malta	848.708
Czech Republic	543.894	Netherlands	392.079
Denmark	307.755	Poland	653.44
Estonia	751.8614	Portugal	383.544
Finland	187.118	Romania	416.6456
France	82.717	Slovakia	217.154
Germany	441.181	Spain	325.878
Greece	731.218	Sweden	39.939
Hungary	330.842	UK	486.949
Ireland	486.205	EU-28	379.9

- *The EU average carbon intensity of the electricity grid, according to MEErP methodology- **0.384 tCO2/MWhe** = 0.107 tCO2/GJe (MEErP).*
- *Proposed update: 384 g CO2 fossil/kWh*



A voluntary certificate giving evidence of electricity generation from renewables and issued on demand to producers (defined under Directive 2009/28 EC)

1. The European Energy Certificate System (EECS) is the system which allows the electronic transfer of certificates - enables Member States to import and export certificates.
2. 50% of the Member States are members of EECS. Member State may host their own electronic registry system. For the transfer of GOs, the majority of Member States can use their current systems via import and export mechanisms.

Approximate coverage of GOs across Members States

Member States	Coverage
Bulgaria; Croatia; Czech Republic; Estonia; Hungary; Latvia; Lithuania; Poland; Romania; Slovakia; and Slovenia	55% of the Member States in this region include electricity and CHP (or electricity and heating and cooling), with the remaining 45% including just electricity in their GOs.
Austria; Belgium (Wallonia); Belgium (Flanders); Belgium (Brussels); Denmark; Finland; France; Germany; Ireland; Luxemburg; Netherlands; Sweden; and UK	In terms of coverage 77% of the countries in this region include electricity and CHP, with the remaining 23% including just electricity in their GOs.
Cyprus; Greece; Italy; Malta; Portugal; and Spain.	All Member States within this region have GOs in place, however only 50% have a system in place for electricity disclosure. As a result, exporting GOs becomes less likely from this region, as many Member States require similar levels of disclosure in order to accept foreign GOs.

- *No specific information that relate pulp and paper industry with issuing GOs was found. It was not possible to assess the level of availability of GOs in terms of MWs being consumed and the amount of GOs available in terms of megawatts.*
- *The possibility to use GOs as the part of assessment and verification scheme will depend on whether the GO being imported is accepted by the competent body.*

Questions:

1. Should the criterion on CO₂ be withdraw (Proposal 1), or maintained (Proposal 2)?
2. Do you agree to harmonise the CO₂ requirement with the Nordic Swan reference values?
3. Do you agree to use the EU average carbon intensity of the electricity grid, according to MEERp methodology- $0.384 \text{ tCO}_2/\text{MWh} = 0.107 \text{ tCO}_2/\text{GJ}_e$ (MEERp)?
4. Should the GOs scheme be specifically used as the assessment and verification of "Appropriate documentation that this kind of energy is actually used at the mill or is externally purchased shall be provided by the applicant".

Criterion 2. Energy use

Criterion 2 – Energy use



The requirement is based on information on actual energy use in production in relation to a specified reference values.

The energy consumption includes electricity and fuel consumption for heat production that shall be expressed in terms of points (P_{total}) as detailed below.

The total number of points (**$P_{total} = PE + PF$**) shall not exceed **2.5** .

In case of mixtures of pulps, the reference value for electricity and fuel consumption for heat production shall be weighted according to the proportion of each pulp used (pulp 'i' with respect to air dried tonne of pulp), and summed together.

(a) Electricity (PE)

For each pulp i /paper I used, the related electricity consumption ($E_{pulp/paper,i}$ expressed in kWh/ADT) shall be calculated as follows:

$E_{pulp/paper,i}$ = Internally produced electricity + purchased electricity – sold electricity

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

Criterion 2 – Energy use



(b) Fuel consumption for heat production (PF)

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:

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

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_{paper} , expressed in kWh/ADT), shall be calculated as follows:

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

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

Criterion 2 – A&V



- All energy inputs should be calculated and divided into heat/fuels and electricity used during the production of pulp and paper.
- 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 — however, the applicant need only count 80 % of the heat energy from such sources when calculating the total heat energy.
- Electric energy means net imported electricity coming from the grid and internal generation of electricity measured as electric power
- Where 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.
- Energy used in the transport of raw materials, as well as conversion and packaging, is not included in the energy consumption calculations. Electricity used for waste-water treatment and – for tissue paper – air cleaning is not included.
- 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 pulp and paper production.

Reference values

Pulp grade	Fuel kWh/ADT				Electricity kWh/ADT			
	Preference				Ereference			
	Non-admp		admp		Non-admp		admp	
	P	C	P	C	P	C	P	C
Chemical pulp	3 650	4 000	4 650	5000	750	800	750	800
Thermomechanical pulp (TMP)	0	0	900	900	2 200	2200	2 200	2200
Groundwood pulp (including Pressurised Groundwood)	0	0	900	1000	2 000*	2000	2 000	2000
Chemithermomechanical pulp (CTMP)	0	0	800	1000	1 900	2000	1 900	2000
Paper grade								
Uncoated woodfree fine paper, neswprint			1 700	1800			750	700**
Magazine paper (SC)								
Coated woodfree fine paper								
Coated magazine paper (LWC, MWC)			1 700				800	800

***1900 kWh/ADt for C&G**

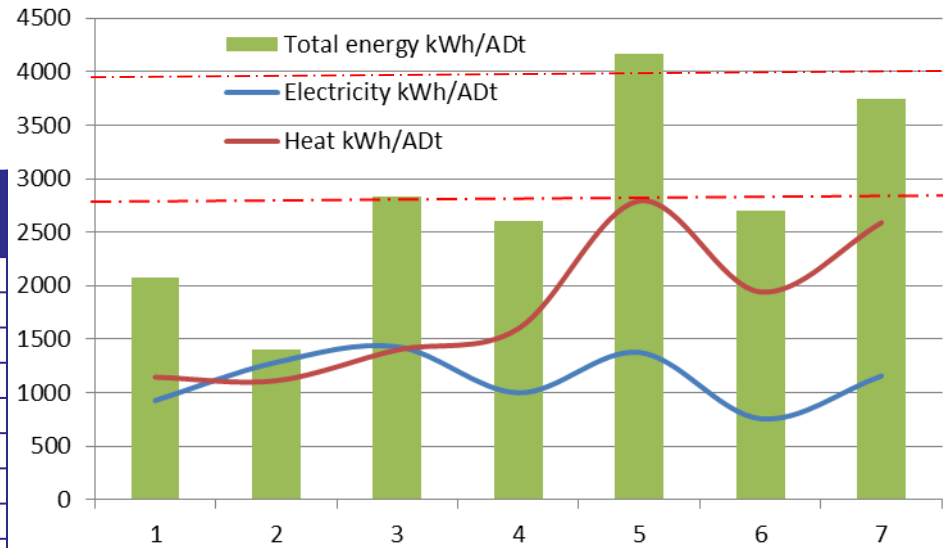
****600 kWh/ADt for C&G**



Energy use – recycled paper

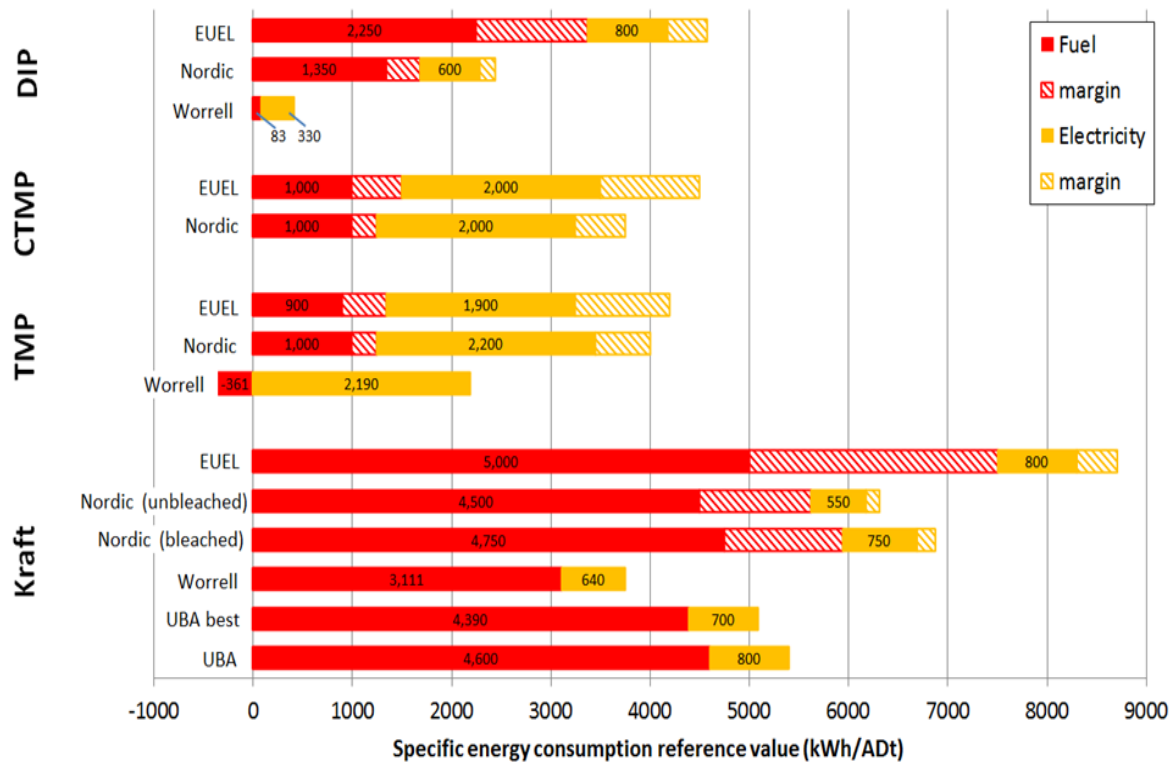
	Fuel kWh/ADt		Electricity kWh/ADt	
	Non-admp	admp	Non-admp	admp
a) newsprint,	300	1300	450	550
b) copying and printing	1800	2250	800	800
Proposed	1800	2800	1000	350

Process unit	Process heat (kWh/ADt)	Electrical power (kWh/ADt)
Pulp mill		
Deinking	56	175
Washing and screening	0	50
Bleaching	0	75
Total pulp mill	56	300
Paper mill		
Stock preparation	0	235
Paper machine	1472	350
Total paper mill	1528	585
Effluent treatment	0	32
Total pulp and paper mill	1528	917



Ambition level

A comparison of the current EU Ecolabel and Nordic Ecolabel reference values (and their inherent margins) is made together with the world best practice values reported by Worrell et al. (2008) and UBA (2007) – market pulp



Key changes proposed:

1. Alter reference values;
2. Alter margin from 1,5 to 1,25;
3. Reporting the total energy consumption with the score lower than 2,5

Pulp types	BREF, best performance mentioned		Nordic Ecolabel		Swedish mills, 2007		PAPRICAN 2008 (Median)		<i>Proposed</i>		<i>Current</i>	
	Non-admp	admp	Non-admp	admp	Non-admp	admp	Non-admp	admp	Non-admp	admp	Non-admp	admp
Bleached kraft pulp												
Heat (kWh/ADt)	3530	4400	3750	4750	3542	4960	4500	5436	3650	4650	4000	5000
Electricity (kWh/ADt)	700	550	750	750	700	800	550	667	750	750	800	800
Bleached sulphite pulp												
Heat (kWh/ADt)	2250	3050	3750	4750					3650	4650	4000	5000
Electricity (kWh/ADt)	550	650	750	750		800			750	750	800	800

Responses to 2nd questionnaire:

Electricity consumption: 364-1056 kWh/t

Heat: 1064 – 7686 kWh/t

Responses to 2nd questionnaire:

Electricity consumption: 1305-1960 kWh/t
(*Proposed 1900 kWh/t*)

Heat: 473 – 1142 kWh/t
(*Proposed 800 kWh/t*)

NOTE On the base of data received from 12 CTMP pulp mills and best practice energy balance it is proposed to further lower the electricity consumption to **1800 kWh/ADt**

<i>Department</i>	<i>Heat (kWh/tonne)</i>	<i>Electrical power (kWh/tonne)</i>
Pulp mill		
Recovered steam, only for process used	+750	
External supply	0	+1650
Consumption	0	-1600
Effluent treatment	0	-50
Excess energy from pulp mill	+750	0
Pulp dryer		
Consumption	-1556	-150
Steam boiler (wood residual and fuel oil)	+806	+150
Total external supply	806	1800

Specific energy consumption of German integrated mechanical pulp mills

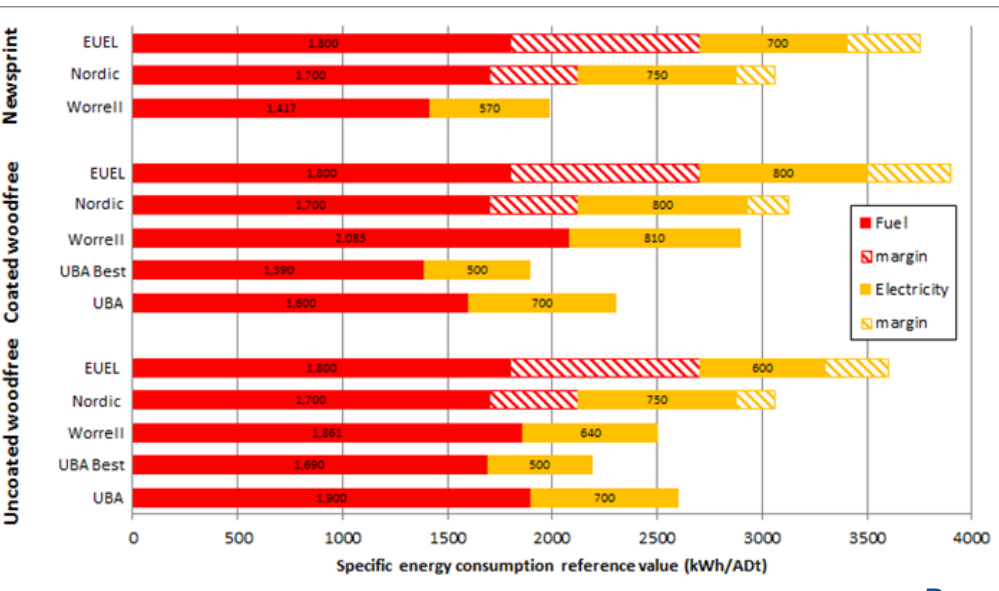
Electric power (kWh/t)	Process heat (kWh/t)	Total energy (kWh/t)
2091	1306	3397
1217	1775	2992
1514	1626	3140
1375	1025	2400
n.a.	n.a.	2838
1197	1495	2695

- *Variation in specific energy consumption amongst the mechanical pulp mills in Europe (mainly in Sweden) and so it would be even more difficult to try to justify values for different types of mechanical pulp (due to the very low numbers of each type of mechanical pulp mill).*
- *It was suggested that considering the minor presence of GWP and TMP production in the market, the particular cases should be evaluated on a case by case basis.*
- *Following stakeholders consultation specific values have been proposed to address the presence of mechanical pulp in the pulp mix.*
- *Considering the energy consumption data analysed it is proposed **to align** the energy consumption for GW and TMP pulp **with the values specified in EU Ecolabel for Newsprint Paper (2012/448/EU)**.*

Paper mill



Comparison of EUEL and Nordic reference levels for non-integrated paper production

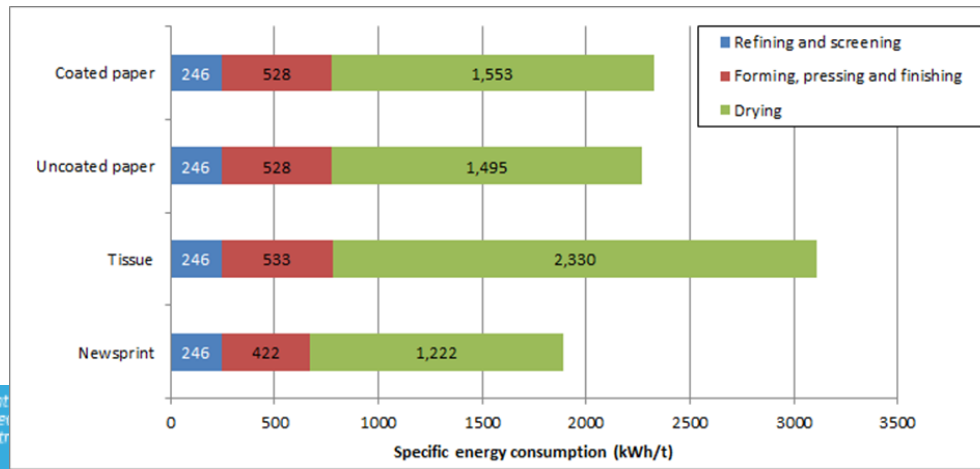


An example of a non-integrated fine paper mill with on-line coating with a technical age of no more than five years shows the total consumption of process heat of 1795 (kWh/t) and electric power of 829 (kWh/t) (BREF, 2015)

Proposal:

Pulp grade	Fuel kWh/ADT Reference	Electricity kWh/ADT Reference
Uncoated woodfree fine paper, Magazine paper (SC)	1 700	750
Coated woodfree fine paper, Coated magazine paper (LWC, MWC)	1 700	800

Breakdown of energy consumption during different stages of paper making for different paper grades (Bajpai, 2016)



Questions:

1. Do you think proposed reference values for fuel and electricity for each pulp type are adequate and reflect the current energy management best practice?
2. Should the equation for energy reporting system be changed as it is proposed, to accommodate the flexibility between fuel and power consumption: The total number of points ($P_{total} = PE + PF$) must not exceed 2.5?
3. Should the 25% margin be applied to individual pulp or paper scores only, or rather as is currently the case, to the overall weighted average? (final score 2.5)?
4. Should specific value for market pulp be developed for mechanical or RCF pulps, knowing that basically the production is integrated with paper manufacturing?
5. Should the reference value for GW and TMP pulp be unified and refer as mechanical pulp?
6. Should the reference value be linked to the final paper grade in which DIP is to be used? (e.g. a higher value for LWC paper than for newsprint?)
7. Do you think that the specific reference values should be introduced for RCF pulp with and without deinking?

Criterion 3

Fibres: sustainable forest management

Fibre sourcing criteria-1



Main points of criteria for CGP and for NP:

Copying and Graphic Paper	Newsprint Paper
Minimum requirements can be met by virgin and/or recovered fibres.	Minimum requirements can be met only by recovered fibres.
Ambition level increased from 50% to 70% for non-integrated mills. Only increased from 50% to 55% for integrated mills.	Ambition level increased from 70% to 90% . No distinction between integrated and non-integrated mills.
Any remaining fibres to be non-GMO and legal.	Any remaining fibres to be non-GMO and legal.
CoC certified FSC and PEFC claims accepted as proof for A+V.	CoC certified FSC and PEFC claims accepted as proof for A+V.
Alternative A+V allowed if requirements met by recovered fibre only.	Alternative A+V allowed if requirements met by recovered fibre only.



Points to cover:

- Basic facts about the Paper for Recycling and recovered fibres.
- Reasons for different proposal for NP and CGP.
- Forest certification in Europe.
- Reasons for different proposal for integrated and non-integrated for CGP.
- Justification of ambition levels.
- Assessment and verification considerations.

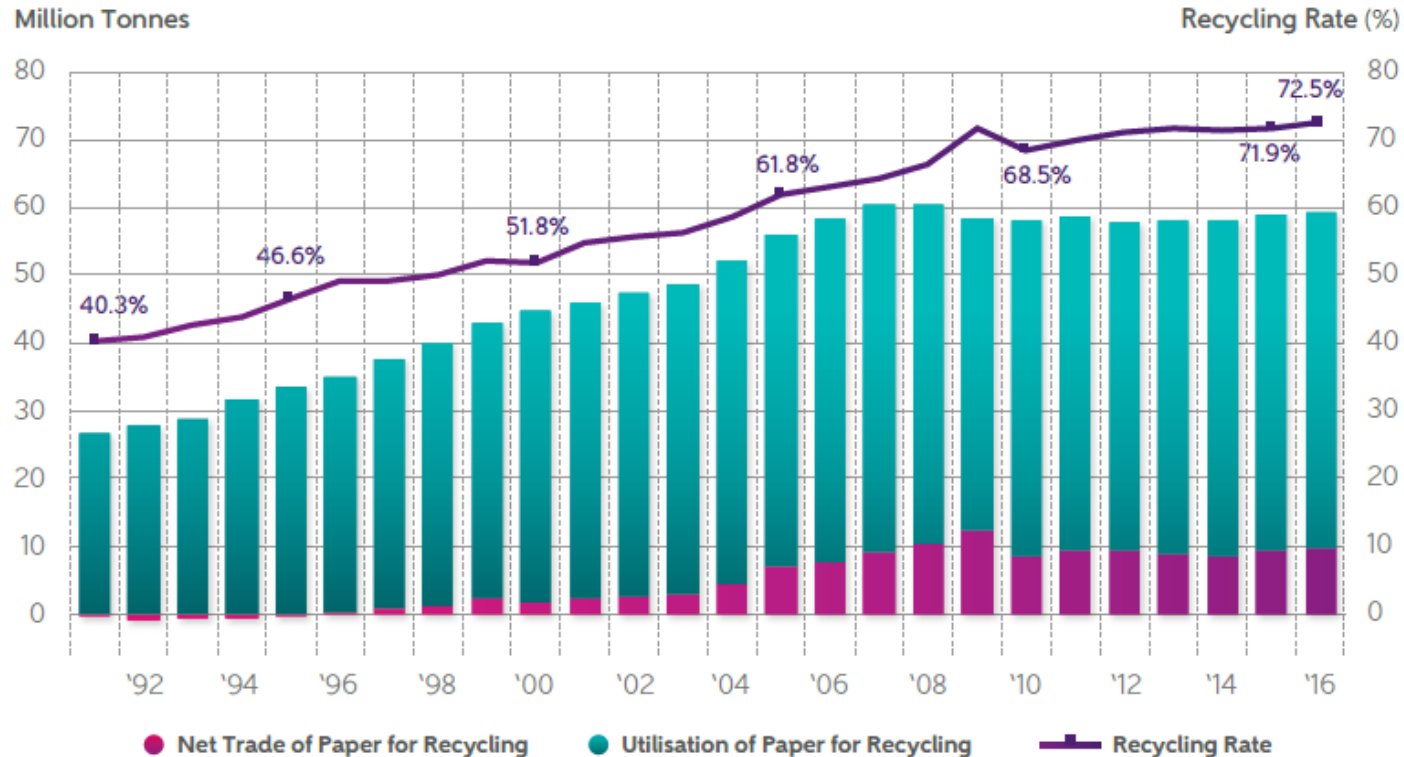
Fibre sourcing criteria-3



Basic facts about the Paper for Recycling market:

- CEPI Recycling rate = $\frac{\text{Total PFR used} + \text{net exported PFR}}{\text{Total paper \& board production}} \times 100$

- Increase in 90's and 00's driven by economics and technological improvements.
- Levelling off since 2009, both in exports and use.
- Further increases not possible without major policy intervention (e.g. post-consumer collection, landfill bans, export restrictions).



Practical limits to paper recycling

- Some products are inherently non-recyclable.
- Post-consumer collection rates and qualities will vary.

Technical limits to paper recycling

- As the loop closes:
 - Average fibre ages increase.
 - Quality of pulp decreases → optimal chemistry window narrows → options for possible use decreases.
 - Contaminant levels may increase.
 - Energy use, emissions and waste from deinking may increase.






Technical aspects to consider for paper recycling

- Stock preparation for paper machines is optimised for fibre properties.
 - Need to have the right mix of **fibre morphologies**.
 - Need to have the right **fibre surface electrostatic charges**.
 - Affected by ions in process water.
 - Affects their optimal dispersion.
 - Affects optimal flocculation with the right additives.
 - Need to have the right **fibre colour**.
 - Need to remove/control any impurities that may affect fibre properties.
- i.e. chemistry of stock preparation is carefully optimised to input pulp.
- Optimum stock preparation → optimum paper production.
 - Substituting virgin pulp for DIP will affect this a lot, esp. >10% (and viceversa).
 - No mill will want to go from e.g. 10% to 50% DIP just for EU Ecolabel.
 - Consequence is that mills are either: **a) virgin-based** or **b) DIP-based**



Basic facts about the Paper for Recycling market:

- 2016 CEPI statistics show:
 - 47 751 000 tonnes of Paper for Recycling traded
 - 41 000 tonnes of DIP sold as market pulp.
- 
- i.e. **around 99.9%** of all paper recycling done via **integrated mills**.
 - An integrated mill that processes Paper for Recycling must:
 - Have reliable access to economically viable sources of PfR.
 - For NP and CGP, only specific PfR grades can be accepted.
 - Optimise its deinking process for the PfR grade mixes purchased.

Open questions to stakeholders:

- Where are these integrated DIP mills located in CEPI countries?
- Of the 900+ mills in CEPI countries, how many are integrated with DIP?
- How many of those mills produce NP?
- How many of those mills produce CGP?

Fibre sourcing criteria-7



Basic facts about the Paper for Recycling market:

- Recycling rates vary substantially by sector.

$$\frac{\text{Total PfR in}}{\text{Total paper out}} \times 100 = \text{Utilisation rate}$$

- NP = 89.9% →
- CGP = 13.9% →

- Newspaper and magazines go to NP and CGP.
- Mixed grades, packaging and "other" do not go to NP and CGP.
- Packaging grades do not go to NP and CGP...

Grades of Paper for Recycling

'000 Tonnes Paper Sector	A Mixed Grades	B Corrugated and Kraft	C Newspapers & Magazines	D Other Grades	E Total Use of Paper for Recycling	F Utilisation by Sector ¹ %	G Total P&B Production	E:G Utilisation Rate ² %
Newsprint	22	0	5,732	131	5,885	12.3	6,549	89.9
Other Graphic Papers	129	27	2,986	667	3,809	8.0	27,360	13.9
Total Newsprint + O.G.P.	151	27	8,719	797	9,694	20.3	33,909	28.6
Case Materials	4,571	20,254	231	944	26,000	54.5	27,733	93.8
Carton Board	1,865	581	90	850	3,386	7.1	9,049	37.4
Wrappings, Other Pack	1,914	1,707	170	454	4,246	8.9	8,888	47.8
Total Packaging Papers	8,351	22,541	492	2,248	33,632	70.4	45,671	73.6
Sanitary and Household	269	126	535	1,882	2,813	5.9	7,301	38.5
Other Paper & Board	245	1,044	190	132	1,611	3.4	4,050	39.8
Total Paper & Board	9,016	23,738	9,936	5,060	47,751	100.0	90,931	52.5
Share of Total	18.9%	49.7%	20.8%	10.6%	100.0%			
De-inked Market Pulp	0	0	1	40	41			

Fibre sourcing criteria-8

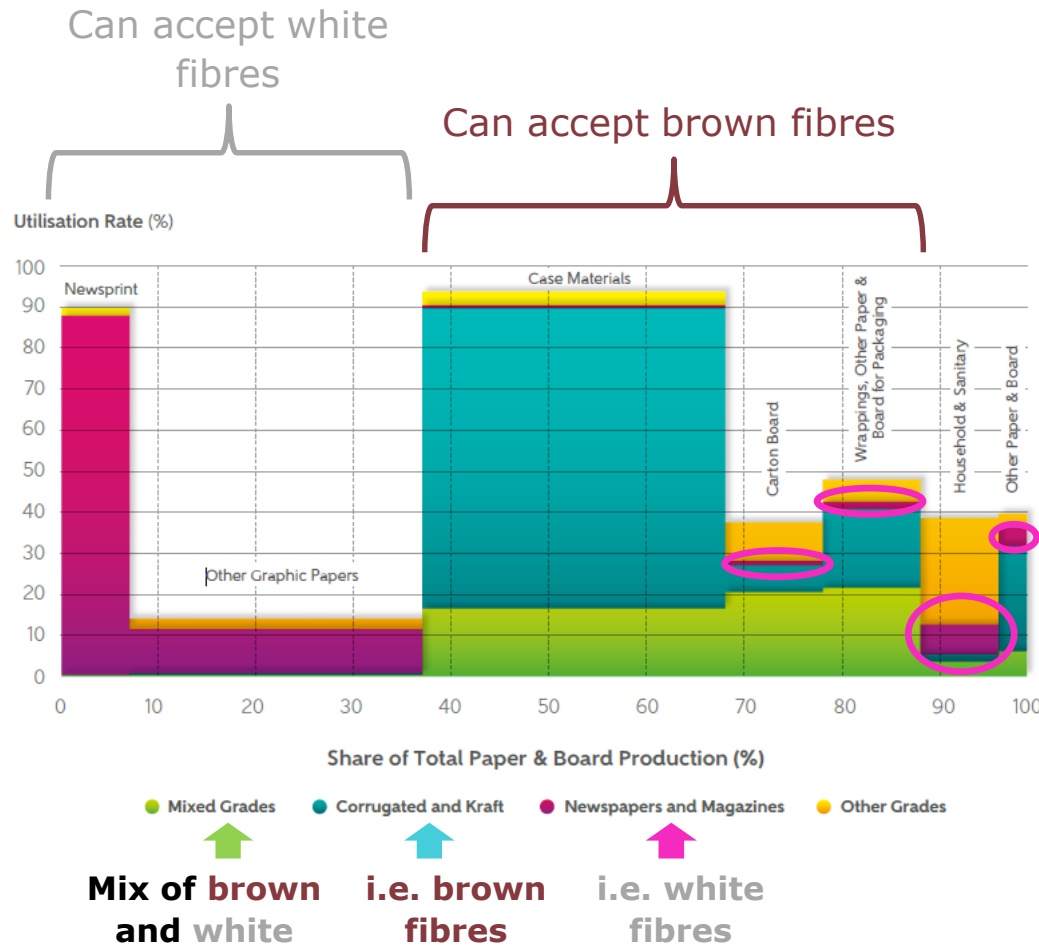


Basic facts about the Paper for Recycling market:

- There are loops within loops...
- Brown fibre → packaging
- White fibre → graphic
- Mixed fibre → packaging



- 69% of all PfR is not suitable for recycling in CGP or NP...
- Sector average Utilisation rates for NP and CGP stable.
- Not much scope for additional white fibre PfR input (circled).
- Unsure about white/brown nature of "other" PfR...



Fibre sourcing criteria-9



Why "Utilisation rate" \neq recovered fibre content:



1 tonne PfR

Debaling,
Pulping,
Cleaning,
Screening,
Deinking,
Washing,
Bleaching



1-x tonnes DIP

x tonnes

- X can be as high as **0.4**. For DIP for NP, **x=0.21** may be typical.
- Depends on non-paper impurities in PfR (1-3% as per EN 643).
- Depends on filler contents in paper (up to 35%).
- Depends on content of inks, adhesives, laminates etc. in paper.

Fibre sourcing criteria-10



Second look at market statistics for PfR...

'000 Tonnes Paper Sector	Grades of Paper for Recycling								
	A Mixed Grades	B Corrugated and Kraft	C Newspapers & Magazines	D Other Grades	E Total Use of Paper for Recycling	F Utilisation by Sector ¹ %	G Total P&B Production	E:G Utilisation Rate ² %	
Newsprint	22	0	5,732	131	5,885	12.3	6,549	89.9	
Other Graphic Papers	129	27	2,986	667	3,809	8.0	27,360	13.9	
Total Newsprint + O.G.P.	151	27	8,719	797	9,694	20.3	33,909	28.6	
Case Materials	4,571	20,254	231	944	26,000	54.5	27,733	93.8	
Carton Board	1,865	581	90	850	3,386	7.1	9,049	37.4	
Wrappings, Other Pack	1,914	1,707	170	454	4,246	8.9	8,888	47.8	
Total Packaging Papers	8,351	22,541	492	2,248	33,632	70.4	45,671	73.6	
Sanitary and Household	269	126	535	1,882	2,813	5.9	7,301	38.5	
Other Paper & Board	245	1,044	190	132	1,611	3.4	4,050	39.8	
Total Paper & Board	9,016	23,738	9,936	5,060	47,751	100.0	90,931	52.5	
Share of Total	18.9%	49.7%	20.8%	10.6%	100.0%				
De-inked Market Pulp	0	0	1	40	41				

- NP = 89.9%
- CGP = 13.9%
- Applying a yield factor of 0.79:
- Sector average recovered fibre contents become:
- NP = 71.0%
- CGP = 11.0%

Sector average recovered fibre content for NP = 71%
 2012 EU EEL NP criteria for recovered fibre content = 70%....



Sustainable certified forests

- Basically either FSC and/or PEFC.
- Doubts about real coverage due to double certification.
- Joint exercise to clarify this → end of 2016.
- Now a clearer picture emerges...(next slide).
- Big differences at the Member State level.
- Are these big differences important?
- Pulp is a globally traded commodity...
- But what about for integrated mills?

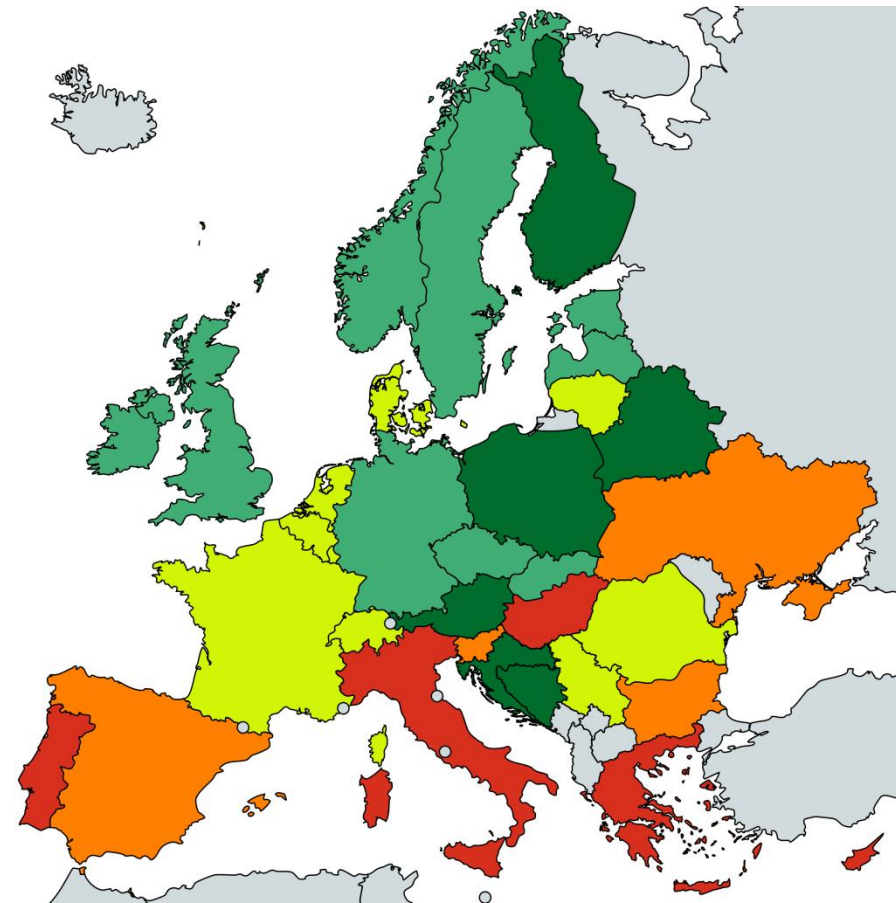
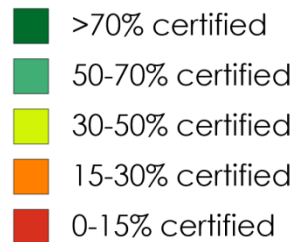
Certified forest coverage in Europe:

Lowest rates associated with:

- Greece (0%),
- Italy (9%),
- Portugal (12%),
- Hungary (15%) and
- Spain (19%).

Difficult for integrated mills in these countries → may need to import certified raw materials from other MSs or beyond EU.

Total forests certified

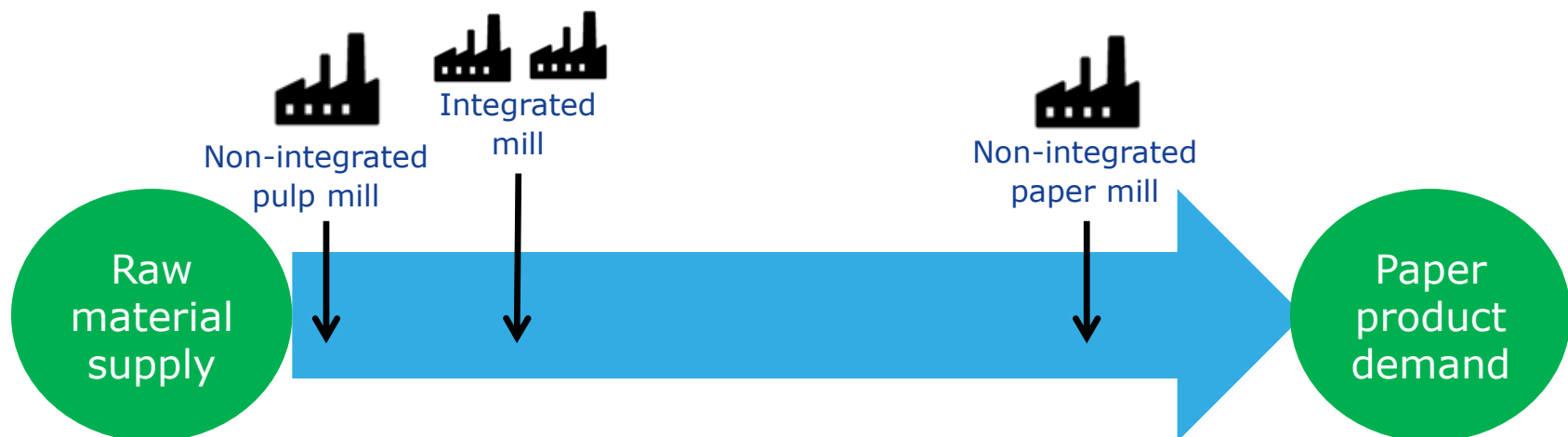


Created with mapchart.net ©

Why make a special case for integrated mills?

Offer other environmental benefits:

- Optimised for sourcing of raw materials (wood or PfR).
- Reduced transport of pulp (almost zero).
- No need to dry pulp:
 - Saves approx. **1000 kWh/ADt**.
 - Saves **≥20% total energy req.**





Justification of ambition levels:

- For NP, 70% is < sector average.....
- For CGP, 70% for non-integrated production aligns with FSC, PEFC and other EUEL product group ambition levels.
- For CGP, 55% is still an increase on existing criteria from 2011.
- Initial idea was only 55% in “red” Member States...
 - i.e. when forest certification <30% in that same MS.
 - but maybe not easy to capture in a legal text.



Forest and CoC certification

- Two separate aspects in theory.
- FSC and PEFC conveniently cover both aspects.
- Auditing covered from forest → supply chain → final product.
- Needed for any claims on certified virgin fibre content.
- How exactly do FSC and PEFC treat PfR supply chain/claims?
- How do they account for yields during conversion to DIP?

A+V of PfR/recovered fibre content

- Uncertainty about this, and seeing German approach, think about non-FSC and non-PEFC ways to assess and verify claims for recovered fibre content in final product.
- What minimum requirements for 3rd party auditors?
- What evidence to provide/audit precisely?

Fibre sourcing criteria-16



A+V of proposed ambition levels

- Can FSC or PEFC labels be used for easy verification?



	FSC 100%	FSC Mix	FSC Recycled	PEFC certified	PEFC recycled
Sustainable virgin	100%		0%	70-100% (with a maximum of 84.99% recycled material)	70-100%
Post-consumer recycled		70-100%	100%		
Pre-consumer recycled	0%		0%	0-30%	0-30%
Controlled		0-30%			

- For NP at 90%, FSC Recycled label OK, but PEFC not.
- For CGP at 70%, both FSC Mix and PEFC certified OK.
- For CGP at 55%, both FSC Mix and PEFC certified OK but can go





Discussion

- Any comments opinions on fibre criteria.
- OK with different approaches for CGP and NP?
- OK with increase in ambition level for NP? (70→90%)
- OK with divergent approach for CGP (Int. and Non-Int.)?
- OK with respective increases in ambition levels for CGP?
 - 50→55% for int., 50→70% for non.-int.
- Opinions about alternative A+V for compliance due to recovered fibre contents?
- Desire for a standardised fibre balance spreadsheet for CBs?
- Impact of new FSC accounting method? E.g. multi-site allocation

Criterion 4. Restricted hazardous substances and mixtures



Chemicals used in the paper industry

- Supply chains are relatively simple for CGP and NP.
- Conversion is not included in the scope for CGP and NP (except for cutting and reeling etc.).
- Good knowledge of chemicals going in to:
 - Pulp production.
 - Papermaking → process chemicals and functional chemicals.
- Main concern is with papermaking:
 - → much closer to final consumer product than pulp.
 - → functional chemicals *intended* to remain in final product.



Process chemicals used in papermaking

Main aim is to improve operation of paper machine.

1. Retention aids → *agglomerates fillers into bigger particles*
2. Formation aids → *reduces fibre agglomeration*
3. Effluent treatment "save all's" → *for fibre/filler recovery*
4. Drainage aids → *reduces water retention in fibres*
5. Defoamers → *remove entrained air bubbles and minimises translucent spot formation*
6. Wet-web strength additives → *reduce "breaks" in sheet when → press section*
7. Pitch control agents → *reduce spot formation (may stick to fillers)*
8. Slimicides and biocides → *reduce slime formation in water circulation system*

Similar chemicals and similar functions but at different stages of process for different reasons.

None of these chemicals "intended" to end up in paper product.

What are their CLP classifications & to what extent do they end up in paper?







Functional chemicals used in papermaking

Main aim is to improve properties of paper product.

1. Sizing agents → *to improve water repellency / reduce absorption*
2. Dry-strength additives → *enhance fibre bonds / compensate for use of DIP / filler*
3. Wet-strength additives → *covalent bonding of fibres / formation of cross-links*
4. **Chelating agents** → *heavy metal chelation in process water (esp. if bleaching)*
5. Fillers → *added at wet end: bulk up the sheet, substitute fibres, improve opacity*
6. Pigmented coatings → *improve gloss and printability*
7. Pigments → *brighter and finer versions of filler...others too: improve oil absorption, gloss and opacity.*

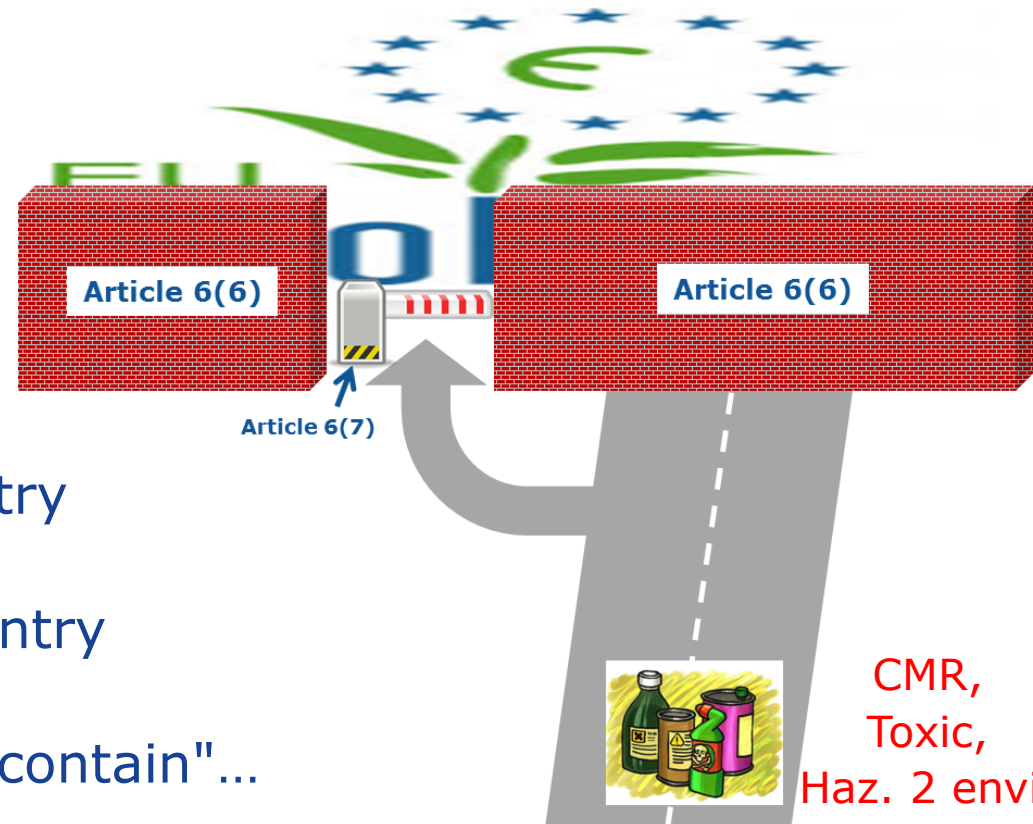
These chemicals are "intended" to end up in paper product in some form.
What are their CLP classifications & what are concentrations in paper?

Structure of chemicals criteria:

- Horizontal criteria (4a and 4b)  Point of application
Paper product 
 - Specific criteria (4c to 4j)  Chemical product 
- Horizontal criteria stem from Articles 6(6) and 6(7) of EU EEL Reg.
 - Exact wording of horizontal criteria to be based on recommendations of 2nd Chemicals Task Force who are working in parallel. **But the general approach will be the same.**

Idea behind horizontal criteria:

- Horizontal criteria stem from Articles 6(6) and 6(7) of EUEL Reg.



- Article 6(6) → barrier to entry
- Article 6(7) → conditional entry
- Interpretation of "shall not contain"...

Chemicals criteria-6



Step wise process

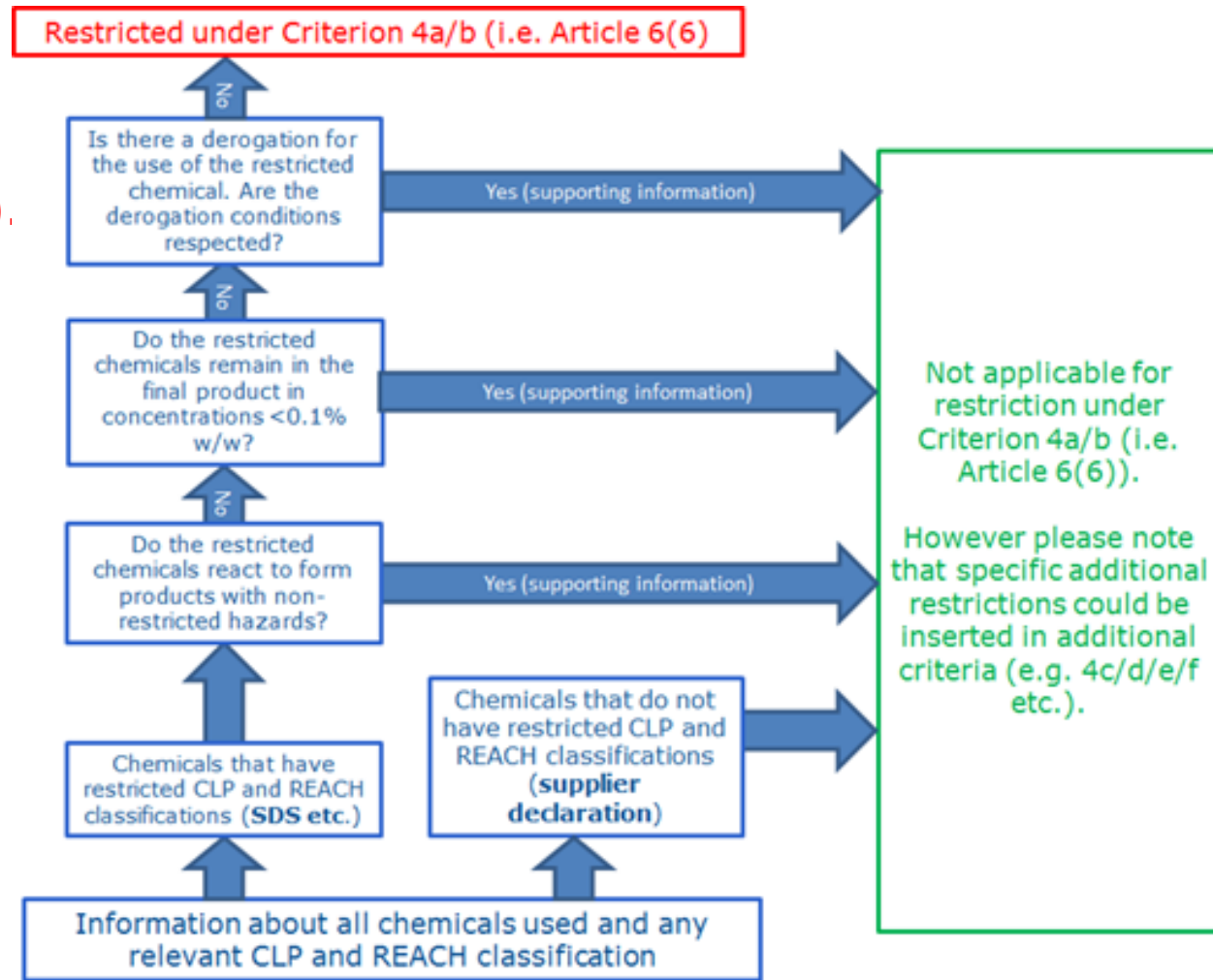
5-Consider relevant derogations (or need for).

4-Consider **quantities** involved (e.g. kg/ADt).

3-Consider **fate** of hazardous substances during process.

2-Screening for CLP hazards and SVHCs.

1-Chemicals inventory.





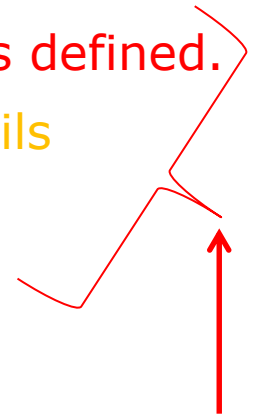
Derogations

- Need to be submitted **during criteria revision process.**
- Need to be based on justifications such as:
 - Not technically feasible to substitute for needed functionality.
 - Use results in net environmental benefits...
- No derogation requests submitted for CGP or NP...
- Are you sure?
- Anything >0.1% in paper that is Toxic, CMR or haz. to envi....?
- Request industry to check that their chemicals can comply with the stepwise process described in last slide.



Specific hazardous substance criteria

- 4c) Chlorine → no change.
- 4d) APEOs → no change.
- 4e) Acylamide impurities → only very minor change.
- 4f) Surfactants → conditional allowance for silicone-based surfactants.
- 4g) Biocidal products → update to Biocidal Products Regulation.
- 4h) Azo-dye restrictions → conditional testing requirements defined.
- 4i) Metal complex dye stuffs or pigments → nuancing details
- 4j) Ionic impurities in dye stuffs → exemption for Cu.



Grouped together in TR 1.0 but now re-separated following one stakeholder request.



Criteria for surfactants

- Existing CGP criteria → for deinking (ultimately biodegradable).
- Existing NP criteria → for deinking (ultimately biodegradable).
- TR1.0 proposal → all surfactants (ready or ultimate)
 - Distinction made between "inherent ultimate" and "inherent primary"
- Industry expressed doubts, NGOs and CBs not sure either.
- No concrete feedback received about extension of scope.
- But request to align with Nordic approach received.
 - Specifically mentioning silicone derivatives.
- TR2.0 proposal → partially aligned with Nordic approach

Criteria for surfactants

- Why make exemption for silicone derivatives?



- Not biodegradable....
- But end up in sludge, so if sludge is incinerated → less concern about environmental fate in aquatic environment.
- Nordic also ask for readily bio-D if surfactant use is $>100\text{g/ADt}$.
- Allow readily or inherently bio-D if $<100\text{g/ADt}$.



Criteria for dyes, dyestuffs and pigments

- 4h) Azo dye restrictions were expanded upon.
 - A specific list of relevant dyes to avoid was added in an Appendix.
 - Test methods were specified for cases of doubt.
- 4i) A clause added to clarify that **aluminium (restricted)** is not to be confused with **aluminosilicates (not restricted)**.
- 4j) A clause added to clarify that copper phthalocyanine is also exempted from this sub-criterion.
- **Help needed with definitions of the terms "dye", "dyestuff" and "pigments"!**



Discussion

- Any comments opinions on chemical criteria.
- Are horizontal criteria clear enough?
- May any derogations be needed for CGP or NP?
- Specific comments about surfactants?
- Specific comments about dyes, dyestuffs and pigments?

Criterion 5. Waste Management

All pulp and paper production sites shall demonstrate to have a system for handling of waste arising from the production of the licensed product.

The application should provide a comprehensive waste minimisation and management plan that details the system and includes information on the following points:

- Procedures for waste prevention;
- Procedures for waste separation, reuse and recycling;
- Procedures for the safe handling of hazardous waste;
- Continuous improvement objectives and targets.

Assessment and verification: *the applicant shall provide a waste minimisation and management plan for each of the sites concerned and a declaration of compliance with the criterion. The declaration should inform about the amount of waste generated per each class/category.*

Criterion 6. Fitness for use

Criterion 6



The product shall be suitable for its purpose.

A&V

The applicant shall provide appropriate documentation demonstrating compliance with the scope of the criteria. The product shall fulfil the requirements for permanence in accordance with 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 print double sided" (applicable for paper for office printing purposes)
- "Please collect used paper for recycling"

A&V:

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

Criterion 8.

Information appearing on the EU Ecolabel

Criterion 8



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

- *Low air and water pollution,*
- *Uses sustainable fibres,*
- *Low greenhouse gas emissions and energy use,*
- *Hazardous substances restricted',*
- *Contains xy% of recycled fibre (if applicable).*

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>

A&V:

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

Timing next steps.

1. Stakeholders can provide comments on separate draft criteria proposals for EU Ecolabel before **31st October including derogation requests**;
2. Tissue Meeting – 20th November (TBC)- comments before 8th of December including derogation requests,
3. Comments need to be transmitted in BATIS;
4. January 2018 sent out of the final DRAFT to EUEB
5. February 2018 - Final DRAFT presentation
6. Voting in RegCom in June 2018

Thank you for your attention

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