



European
Commission



Revision of EU Ecolabel Criteria for Lubricants

AHWG 2

9th & 10th October 2017

Interactive webinar

Joint Research Centre

the European Commission's
in-house science service



JRC Science Hub: ec.europa.eu/jrc

Joint
Research
Centre

Agenda 9th October

1. Political objectives of the EU Ecolabel and process description
2. Scope and definitions
3. Criterion 1. Excluded and limited substances
4. Criterion 2. Aquatic toxicity
5. Criterion 3. Biodegradability and Bioaccumulative potential

Agenda 10th October

1. Short welcome
2. Criterion 4. Raw materials
3. Criterion 5. Origin and traceability of renewable raw material
4. Criterion 6. Packaging
5. Criterion 7. Minimum Technical performance
6. Criterion 8. Consumer information regarding use and disposal
7. Criterion 9. Information appearing on the EU Ecolabel
8. Next steps and closure of the workshop

Agenda 9th October

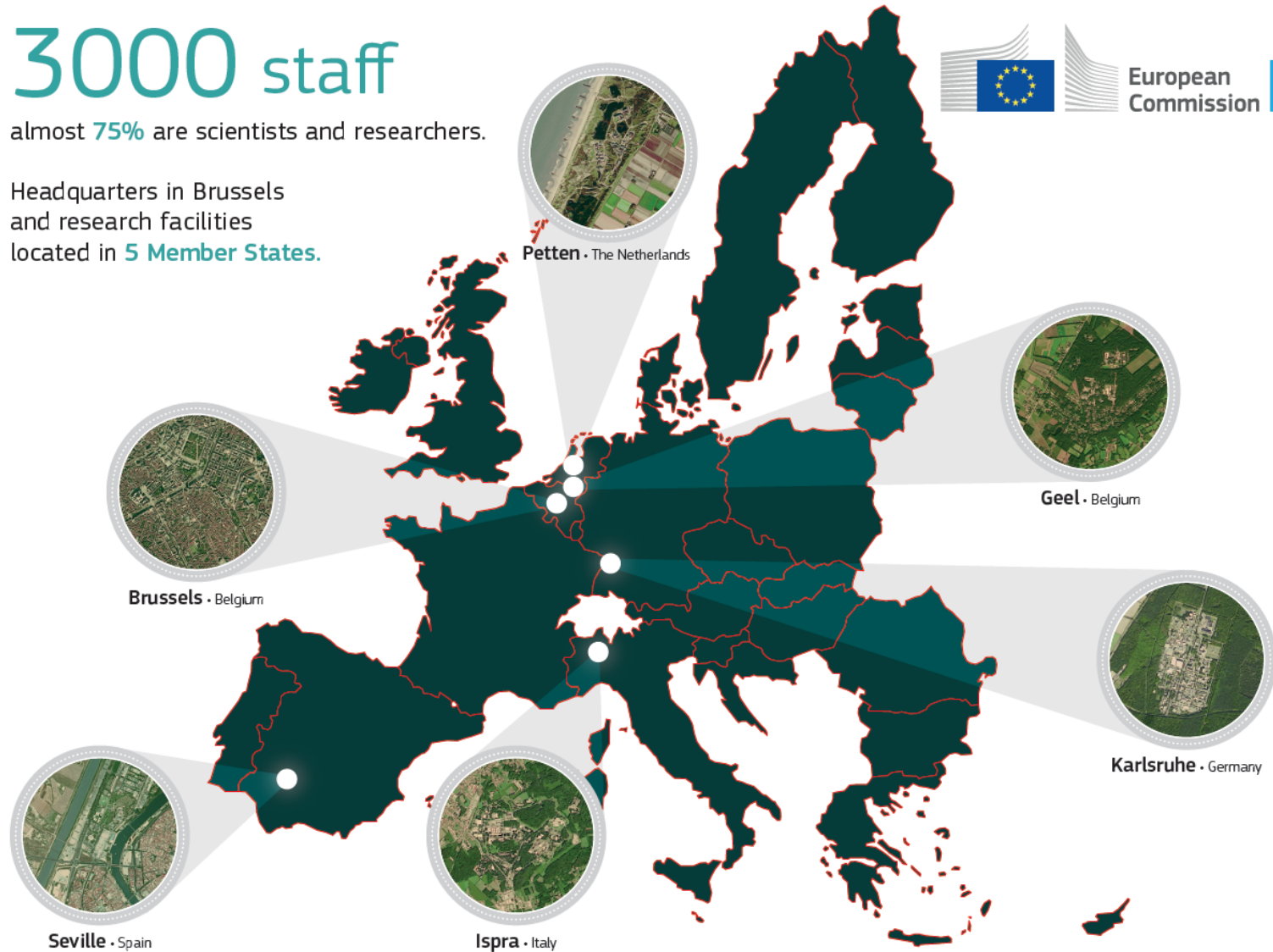
1. Political objectives of the EU Ecolabel and process description
2. Scope and definitions
3. Criterion 1. Excluded and limited substances
4. Criterion 2. Aquatic toxicity
5. Criterion 3. Biodegradability and Bioaccumulative potential



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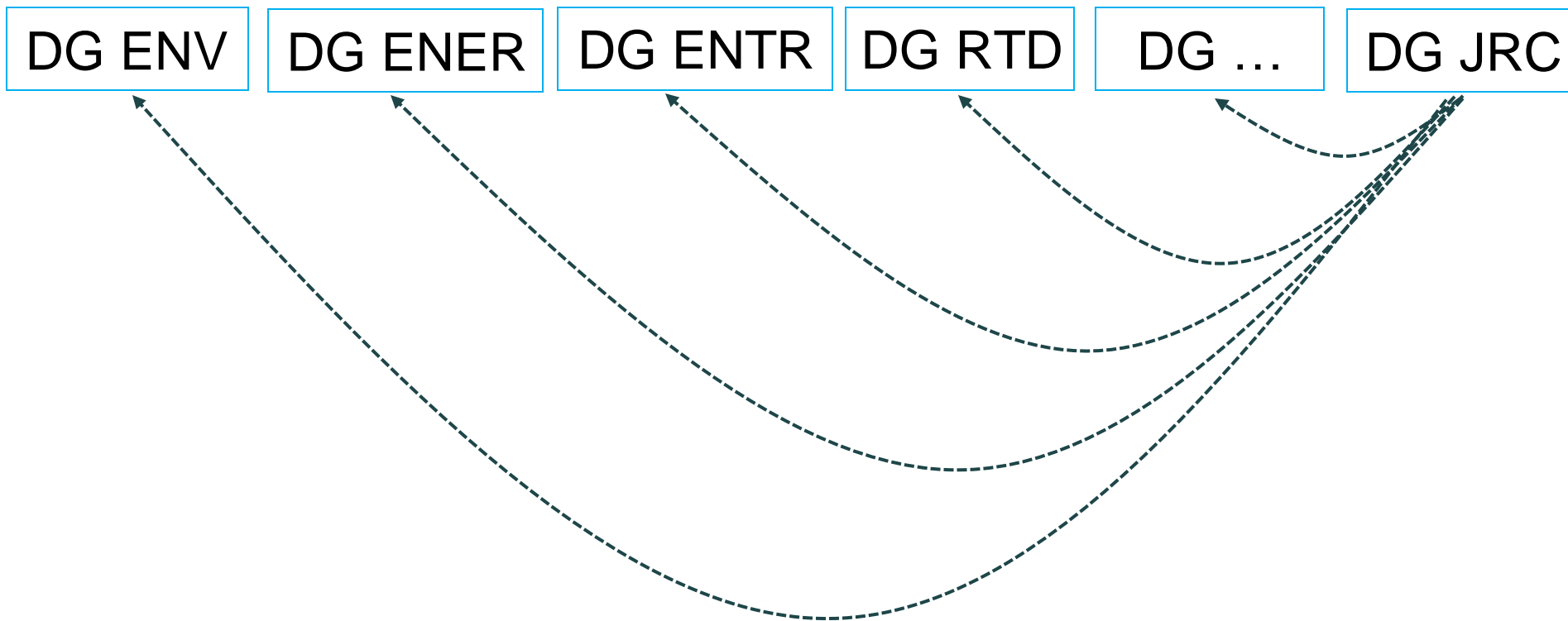


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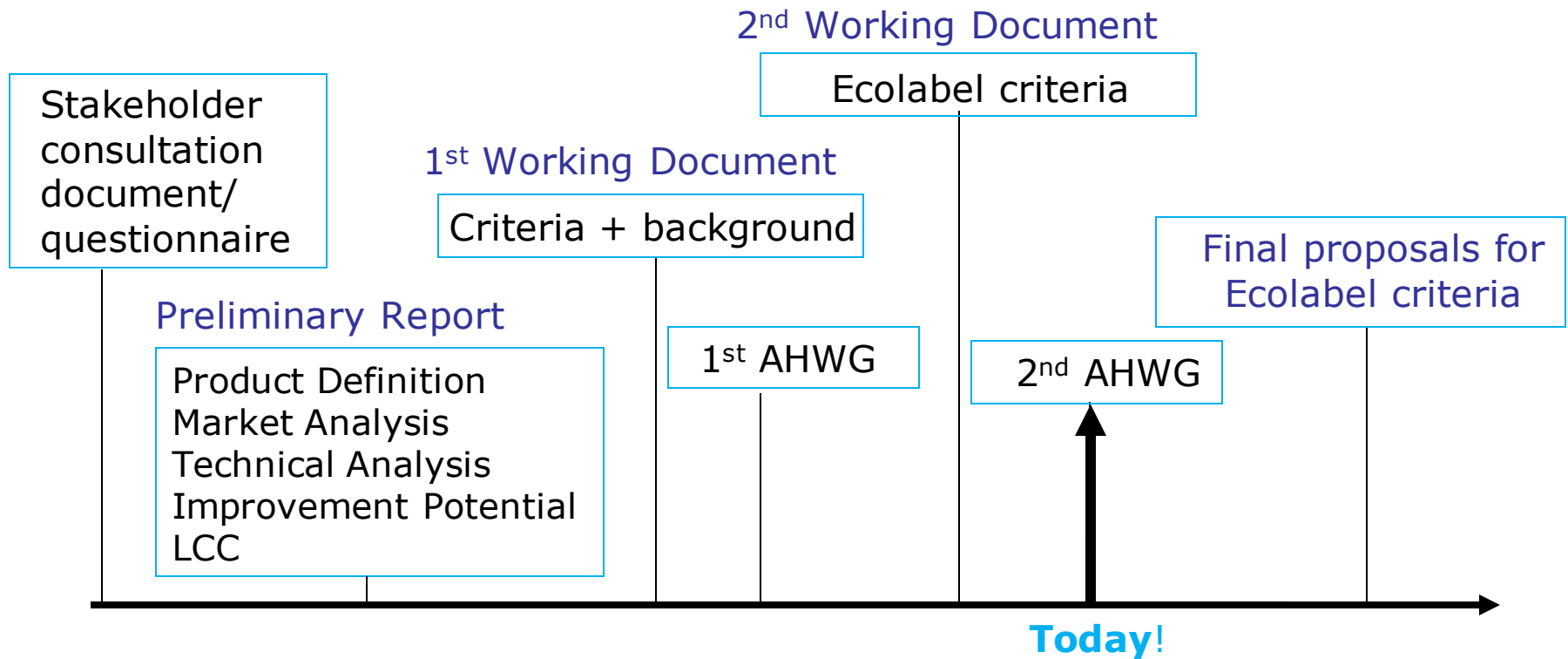
Joint Research Centre in the context of the European Commission:



Activities in support of Product Policy

- JRC B5 Product Bureau supports the **development and implementation of Sustainable Product Policies**, among them the EU Ecolabel Regulation and the Green Public Procurement Communication.
- **Analysis of product groups** with focus on techno-economic and environmental aspects.
- **Develop criteria** and implementing measures until the stage of voting in committee (resp. publication on GPP page).

Criteria development process





Using the BATIS system

author: Nicholas Dodd

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New consultation round on criteria proposals for EU Ecolabel/GPP comp

Dear Computer and Office IT Equipment stakeholders,
You are invited to post your comments in the AHWG2 and GPP consultation round folders.
You are also invited to post relevant background information in support of the

author: Nicholas Dodd

JOINT RESEARCH CENTRE
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<input type="checkbox"/> GPP Office IT Equipment_Technical background and criteria proposals_Version 1	(nicholas.dodd)	30/04/2014 10:32	30/04/2014 10:34	

1. Stakeholders can provide **comments** on technical report and criteria proposals **not later than by 31st October 2017**
2. Comments need to be submitted using the BATIS system.
3. February 2018: TR3.0 publication + EUEB final presentation + open online consultation for final comments
4. April 2018: TR4.0 for ISC
5. June 2018: Vote

Agenda 9th October

1. Political objectives of the EU Ecolabel and process description
2. Scope and definitions and summary of additional LCA research
3. Criterion 1. Excluded and limited substances
4. Criterion 2. Aquatic toxicity
5. Criterion 3. Biodegradability and Bioaccumulative potential



1st proposal

- The existing **definition** [i.e. 'lubricant' means a preparation consisting of base fluids and additives] is quite broad
- Nevertheless there exist complex lubricant compositions: emulsions or solid state compounds not covered by the existing EU Ecolabel definition based on composition.
- Amended to include a **reference to the functionality** of the product with the aim to better explain which products are meant.
- No changes were introduced with regard the complementary definitions.



1st proposal

- **Keep a focus on the total loss, and high risk (of accident) lubricants and extend the scope (ISO 6743 classification (Lubricants, industrial oils and related products)) to other lubricants:**
 - that presents **risk of accidental losses (accidental loss lubricants)**,
 - and to **other risks lubricants** which are those lubricants associated to **other environmental impacts** than those associate to its potential release.

- **Prioritisation procedure**
 - potential for release to the environment,
 - concerns regarding other aspects, like human health, disposal, possibility of recovery and reuse
 - market share and target end-consumers.
 - availability of other environmental labelling schemes



1st Proposal

1st Scope proposal:

- **Category 1:** Hydraulic systems (ISO Family H) and **metalworking fluids (ISO Family M)**
- **Category 2:** Greases (ISO Family X)
- **Category 3:** Total loss systems (ISO Family A), turbines stern tube (ISO Family T), concrete mould release (ISO Family B), **temporary protection against corrosion (ISO Family R)**
- **Category 4:** 2-T stroke oils, **4-T stroke oils** (ISO Family E)
- **Category 5:** Gears (ISO Family C)



Outcomes 1st AHWG meeting and first consultation

- General agreement with the **alignment** between the **EU Ecolabel** and the **ISO 6743** standard.
- Opposition to the **inclusion of 4T**. Different nature of engine oils might require setting very different requirements and exemptions for such engine oils, leading to an impact on the identity of the label.
- Metalworking fluids biocide content in **water-based MWF** will make it impossible to comply with the EU Ecolabel requirements. MWF are a dangerous waste.
- **Stern tube oils** were wrongly assigned to the ISO family T, turbine oils. Stern tube oils should not be treated as total loss as their loss into the ocean is incidental.
- Handling of **overlaps**: *How to handle properly a **grease** product which can have several applications and thus belongs to more than one category?*
- Some **ISO families** are not fully developed.



2nd Proposal main changes

Modification on the method of grouping the lubricants:

- **'Total Loss Lubricant, TLL'**
- **'Partial Loss Lubricant, PLL'**
- **'Accidental Loss Lubricant, ALL'**

Current scope		Proposed scope
Cat 1	Hydraulic fluids	ALL, Hydraulic systems
Cat 1	Tractor transmission oils	ALL, Hydraulic systems
Cat 2	Greases	PLL, ALL, or TLL greases depending on application
Cat 2	Stern tube greases	TLL, greases
Cat 3	Chainsaw oils	TLL, Chainsaw oils
Cat 3	Concrete release agents	TLL, Concrete release agents
Cat 3	Wire rope lubricants	TLL, Wire rope lubricants
Cat 3	Stern tube oils	TLL, Stern tube oils
Cat 3	Other total loss	TLL, Other total loss lubricants
Cat 4	Two-stroke oils	PLL, Two-stroke oils
Cat 5	Industrial gear oils	TLL, Open gear oils (open applications) and ALL, Closed gear oils (closed applications)
Cat 5	Marine gear oils	ALL, Closed gear oils



2nd Proposal main changes

Scope

- The existing five categories have been restructured in **3 main categories** (TLL, PLL, and ALL) according to the potential of the lubricant to be released during use.
- The revised structure is simpler, as it allows the requirements to be set according to the impact associated for each main category and are comprehensive enough to allow the incorporation of new lubricant products in future revisions.
- Clarification on how to address **other total loss lubricant** category is proposed to be included in the User Manual.
- **Metalworking fluids** continue to be proposed for this second criteria version and have been included in the as ALL category.
- **Temporary protection against corrosion** also continues to be proposed and have been included as PLL
- **4T engine oils** finally withdrawn in order to keep the current identity of the existing label and the current revision timeline



2nd Proposal main changes

Definitions:

- Minor changes in the **wording** of the product group definition.
- **Definitions of the lubricants covered** have been included.
- The ISO 6743 families has been used in order to better define the families included in each main category.
- **Complementary definitions section** has been further completed with other relevant terms.



Product group name:

Lubricants

Second revised product group definition proposal:

A lubricant means a **product** capable of reducing friction, adhesion, heat, wear and corrosion when introduced between two solid surfaces in relative motion and capable to transmit power. The most common **ingredients** are base fluids and additives.

Second revised scope proposal:

Total Loss Lubricants (TLL): chainsaw oils, wire rope lubricants, concrete release agents, open gear oils, stern tube oils, total loss greases and other total loss lubricants.

Partial Loss Lubricants (PLL): 2-stroke oils, temporary protection against corrosion and partial loss greases.

Accidental Loss Lubricants (ALL): hydraulic systems, metalworking fluids, closed gear oils and accidental loss greases.

*** Note:** Where grease can be used in both, i.e. TLL and PLL applications, as in the case in a multifunctional grease, criteria for TLL category shall apply. If grease can be used as PLL and ALL, but not as TLL, then the criteria for ALL category shall apply.

*text included in the general A&V of legal ANNEX



2nd Proposal

Second revised complementary definitions proposal:

‘**Base fluid**’ means a lubricating fluid whose flow, ageing, lubricity and anti-wear properties, as well as its properties regarding contaminant suspension, have not been improved by the inclusion of additive(s);

‘**Substance**’ as defined in Regulation No 1907/2006, means a chemical element and its compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the products and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition;

‘**Thickener**’ means one or more substances in the base fluid used to thicken or modify the rheology of a lubricating fluid or grease;

‘**Main component**’ means any substance accounting for more than 5 % by weight of the lubricant;

‘**Additive**’ means a substance or mixture whose primary functions are the improvement of the flow, ageing, lubricity, anti-wear properties or of contaminant suspension;

‘**Total Loss Lubricant (TLL)**’ means a lubricant product that is fully released to the environment during use.

‘**Partial Loss Lubricant (PLL)**’ means a lubricant product that is partially released to the environment during use.

‘**Accidental Loss Lubricant (ALL)**’ means a lubricant product that is used in closed systems. These products can be released to the environment only incidentally.

‘**Chainsaw oil**’ means a lubricant product that is used to lubricate the bar and chain on all types of chainsaw. A chainsaw is a portable, mechanical saw that cuts with a set of teeth attached to a rotating chain that runs along a guide bar; it is used in activities such as tree felling, limbing, bucking, pruning, cutting firebreaks in wildland fire suppression and harvesting firewood. They are mostly covered under ISO 6743 family A, Total loss systems.

‘**Wire rope lubricant**’ means a lubricant product that is used to lubricate wire ropes which consist of several strands of metal wire twisted into a helix. They are mostly covered under ISO 6743 family A, Total loss systems.

...
‘**Concrete release agent**’ means a lubricant product that is used in the construction industry to prevent the adhesion of freshly placed concrete to the forming surface, usually plywood, overlaid plywood, steel or aluminium.

‘**Gear oil**’ means a lubricant made specifically for transmissions, transfer cases, and differentials in automobiles, trucks, and other machinery. Open gear lubricants are used in open gears. Open gears are exposed to challenging conditions include outdoor environment, extended service operation, dust, silica, water, extreme heat and extreme pressures. Open gear oils must be specially formulated to keep equipment operating at maximum efficiency. Closed gear oils are used in closed gears. Closed gears are those gears contained within a closed box, in such a way that a lubricant loss in the environment can only happen accidentally. They are mostly covered under ISO 6743 family C, Gears.

‘**Stern tube oil**’ means the lubricant used in stern tube which is a narrow hole in the hull structure at the rear end (aft peak) of the ship, through which the propeller shaft passes and connects the engine and propeller.

‘**Grease**’ means a semisolid lubricant. Grease generally consists of a thickener, generally soap, with mineral or bio-based oil. The characteristic feature of greases is that they possess a high initial viscosity, which upon the application of shear, drops to give the effect of an oil-lubricated bearing of approximately the same viscosity as the base oil used in the grease. This change in viscosity is called shear thinning. Depending on application of the grease, there will be total, accidental or partial loss greases. They are mostly covered under ISO 6743 family X.

‘**Other total loss lubricants**’ means other lubricants not specified under the TLL but that are fully released to the environment during use.

‘**2 stroke oil**’ means oil used in two-stroke engines; sometimes called two-cycle oil or simple 2T oil. These are a special case of motor oils used in crankcase compression two-stroke engines. They are mostly covered under ISO 6743 family E, Internal combustion engine oils.

‘**Temporary protection against corrosion**’ means oils, solutions, and emulsions that are applied onto a metal surface as a thin film in order to protect water and oxygen from coming in contact with the metal surface. They are mostly covered under ISO 6743 family R, Temporary protection against corrosion.

‘**Hydraulic systems**’ also called hydraulic fluids or hydraulic liquids means the medium by which power is transferred in hydraulic machinery. They are mostly covered under ISO 6743 family H, Hydraulic systems.

‘**Metalworking fluid**’ means oil, emulsion or solution designed for metalworking processes, such as cutting and forming, which main roles are cooling, reducing friction, removing metal particles, and protecting the work pieces, the tool, and the machine tool from corrosion. They are mostly covered under ISO 6743 family M, Metalworking.

...
‘**LuSC-list**’ or Lubricant Substance Classification list is a list of substances and brands that have been assessed by a competent body on its biodegradation/bioaccumulation, aquatic toxicity, renewability and non-presence of excluded substances. The assessment is based only on a maximum treat rate allowed in a lubricant. The list is published on the EU Ecolabel website and the data can be used directly in the application form.

“**LoC**” or Letter of Compliance means a letter emitted by one of the EU ecolabel competent body indicating the assessment of a substance or brand used in a lubricant. It contains the same information as listed on the LuSC-list.

‘**Critical concentration for the aquatic toxicity**’ means the concentration of a substance at and above which injurious to an aquatic organism in an exposure to that substance.

‘**Acute aquatic toxicity**’ means the intrinsic property of a substance to be injurious to an aquatic organism in a short-term aquatic exposure to that substance.

‘**Chronic aquatic toxicity**’ means the intrinsic property of a substance to cause adverse effects to aquatic organisms during aquatic exposures which are determined in relation to the life-cycle of the organism.

‘**M-factor**’ means a multiplying factor. It is applied to the concentration of a substance classified as hazardous to the aquatic environment acute category 1 or chronic category 1, and is used to derive by the summation method the classification of a mixture in which the substance is present.

‘**Degradation**’ means the decomposition of organic molecules to smaller molecules and eventually to carbon dioxide, water and salts.

‘**Readily biodegradable**’ means a substance which in 28-day ready biodegradation tests:

- achieves at least 70 % of degradation for tests based on dissolved organic carbon: 70 %;
- achieves at least 60 % of degradation for tests based on oxygen depletion or carbon dioxide generation.

These levels of biodegradation must be achieved within 10 days of the start of degradation which point is taken as the time when 10 % of the substance has been degraded, unless the substance is identified as an UVCB or as a complex, multi-constituent substance with structurally similar components. In this case, and where there is sufficient justification, the 10-day window condition may be waived and the pass level applied at 28 days.

- In those cases, where only BOD and COD data are available, when the ratio of BOD5/COD is $\geq 0,5$.

... **Inherently biodegradable**’ means a substance, which achieves the following level of degradation:

> 70 % after 28 days for inherent biodegradation test, or

> 20 % but < 60 % after 28 days based on oxygen depletion or carbon dioxide generation.

‘**Non-biodegradable**’ means a substance which fails the criteria for ultimate and inherent biodegradability.

‘**Highly insoluble**’ means a substance which has a water solubility < 10µg/l according to OECD 105.

‘**Slightly soluble**’ means a substance which has a water solubility < 10mg/l according to OECD 105.

‘**Bioconcentration factor**’ (BCF) means the ratio of chemical concentration in an organism to that in surrounding water.

‘**EC50**’ is median effective concentration. It is the concentration that is estimated to cause some defined toxic effect to 50% of the test organisms; (e.g., death, immobilization, or serious incapacitation).

‘**IC50**’ means the inhibiting concentration for a 50% effect on the test organisms. It represents a point estimate of the concentration of test materials that can cause a 50% impairment in a quantitative biological function (e.g. reduced growth, impairment of the reproductive). These potential impacts do not kill the organism but may reduce the total population over time thereby decreasing aquatic productivity.

‘**LC50**’ means median lethal concentration. It is the concentration of material that is estimated to be lethal to 50% of the test organisms.

‘**Octanol/water partition coefficient**’ (Kow) means the ratio of a chemical's solubility in n-octanol and water at equilibrium.

‘**NOEC**’ means ‘no observed effect concentration’. It is the highest concentration at which no effect on test organisms is observed over a relatively long period in a chronic aquatic toxicity test.

‘**Biochemical Oxygen Demand**’ (BOD) means the quantity of oxygen utilized by micro-organisms growing under aerobic (oxygenated) conditions for the biochemical oxidation of organic substances under standard laboratory procedures which is usually 5 days (hence BOD5) but can be longer for specific purposes. BOD is usually expressed as a concentration (e.g., mg/l).

‘**Chemical Oxygen Demand**’ (COD) means the quantity of oxygen utilized in the chemical oxidation of an organic substance in water, as determined using a strong oxidant, under standard laboratory procedure, usually expressed in milligrams per litre (e.g., mg/l).

‘**Theoretical Oxygen Demand**’ (ThOD) is the calculated amount of oxygen required to oxidise an organic substance to its final oxidation products. However, there are some differences between standard methods that can influence the results obtained: for example, some calculations assume that nitrogen released from organics is generated as ammonia, whereas others allow for ammonia oxidation to nitrate. Therefore in expressing results, the calculation assumptions should always be stated.



Main conclusions of the preliminary environmental assessment

- Considering a **cradle-to-grave** approach release to the environment during use and disposal stages can be critical
- Most LCAs studied only cover **cradle-to-gate** scope and for this reason a quantification of the relevance of these last stages are not difficult

The overall findings indicate that the main environmental impact of lubricant life cycle is produced:

- during the **use stage and the end of life**
- and that the impact is **highly dependent on the raw materials used**

Main conclusions of the preliminary environmental assessment

Comparison of different base oils:

- The **composition (formulation) of lubricants** will condition the potential impact to the environment during and after use

Vegetable oils:

- **Main impacts due to agriculture stage.** Most affected impact categories associated to bio-based lubricants are **eutrophication, aquatic ecotoxicity and acidification**
- Lower energy consumption during processing and **lower global warming potential** than mineral and synthetic oils

Synthetic oils:

- Refining/synthesis phase is the main contributor of environmental impacts
- PAOs - highest impacts in most categories with exemption of photochemical oxidant formation, freshwater eutrophication, freshwater and marine ecotoxicity, metal depletion and agricultural and land and urban occupation compare to hydrocracked base oil
- **Longer life and lower impact during use**

Mineral base oils: Highest contribution due to the extraction phase

Climate change, abiotic depletion, ozone layer depletion and photo-oxidant formation

Re-refined oils: CO₂ emissions can be reduced by more than 50% as compared to the conventional mineral oils

Water base fluid: Environmental impact mainly during disposal of waste fluids



Outcomes 1st AHWG meeting

More LCA evidence and information about the impacts of different lubricants base fluids were asked.

Further research

Focus in lubricants that are **released to the environment during use.**

(Proposed **scope TLL, PLL and ALL**)



Other environmental sources of information have been further investigated



The **biodegradability** and **toxicity** key aspects to be considered for the proposed scope



Further research

Additional evidence on biodegradability and toxicity of different base oils (alternatives to conventional mineral oils):

- The biodegradability is mainly related with the base fluid, and not with the additives included in the formulation

Vegetable oils	<ul style="list-style-type: none">➤ They are biodegradable and have low toxicity➤ The damage to the environment is low
Synthetic oils	<ul style="list-style-type: none">➤ The composition of the synthetic oils can be controlled, avoiding the use of harmful substances➤ Some of the newest synthetic lubricants from a mineral base oils have shown higher biodegradability than mineral lubricants: esters, PAO and PAG
Re-refined oils	<ul style="list-style-type: none">➤ Re-refining of base oils causes less environmental impact than processing of base oil from crude oil➤ They present high toxicity and low biodegradability



Main conclusions on the key environmental aspects

- The **biodegradability** and **toxicity** key aspects --proposed scope
- **Mineral oils** are not the best performing option for lubricants released to the environment.
- **Vegetable oils** are used in environmentally sensitive areas and in total loss applications because they are biodegradable and have low toxicity. **Not all renewable raw materials are sustainable**, there are different issues influencing the sustainability of the bio-based products (e.g. impacts produced during the agricultural stage).
- **Synthetic oils** composition of the synthetic oils can be controlled.
- Re-refining of base oils causes less environmental impact than processing of base oil from crude oil. However **re-refined oils** present high toxicity and low biodegradability.



Link between the environmental aspects identified and the EU Ecolabel criteria

Existing EU Ecolabel criteria	Criteria second revised proposal	Environmental aspects	
Criterion 1. Excluded or limited substances and mixtures	Criterion 1. Excluded or limited substances	Hazardous substances Emission to soil/ water	It limits the hazardous substances that can be included in the product, limiting environmental and health risks for users.
Criterion 2. Restricted substances			
Criterion 3. Additional aquatic toxicity requirements	Criterion 2. Aquatic toxicity		It ensures that the overall aquatic toxicity is limited.
Criterion 4. Biodegradability and bioaccumulative potential	Criterion 3. Biodegradability and bioaccumulative potential		It ensures that the ingredients are biodegradable and will not persist in water.
Criterion 5. Renewable raw material	Criterion 4. Raw materials	Raw materials extraction and processing	It promotes more sustainable alternatives to mineral for loss applications oils.
	Criterion 5. Origin and traceability of vegetable oils		It ensures that the vegetable oils used for the lubricant manufacturing comes from a sustainably management plantation.

Scope and definition and summary of additional LCA research



Existing EU Ecolabel criteria	Criteria second revised proposal	Environmental aspects	
	Criterion 6. Packaging	Raw materials extraction and processing Spillage during use phase	It ensures prevention of spillage during use and promotes the use of recycled plastics.
Criterion 6. Minimum technical performance	Criterion 7. Minimum technical performance	Efficiency during use	It guarantees that the product meets certain quality (technical performance) requirements foreseen for the different applications.
	Criterion 8. Consumer information	Waste generation and disposal	It reminds consumers to dispose of the packaging in a responsible manner.
Criterion 7. Information on EU Ecolabel	Criterion 9. Information on EU Ecolabel		It informs consumers on the environmental benefits associated to the product, in order to encourage the purchase of the product.



Points for discussion and written feedback

- Do the definitions reflect properly the categories covered under the scope? How to improve them?
- For new the new additions in this revision (MWFs and Temporary protection against corrosion) stakeholders are asked to provide information on the ability of products on the market able to comply with proposed criteria.
- Do you consider the focus on loss lubricants (TLL, PLL and ALL) appropriate? Do you find the revised categorization proposal adequate?

Agenda 9th October

1. Political objectives of the EU Ecolabel and process description
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- 3. Criterion 1. Excluded or limited substances**
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Criterion 1: Excluded or limited substances



Main aim of this criterion

➔ Reduce the content of substances of concern in the **product formulation** to limit the potential of related environmental impacts

First proposal

- The two existing criteria in force (i.e. **1 Excluded or limited substances and mixtures** and **2 Exclusion of specific substances**) were merged under a single criterion: *Excluded or limited substances*
 - **1 (a) Hazardous substances:** proposal to restrict the EU Ecolabel hazards at substance level. Text aligned to detergents product group.
 - **1 (b) Specified excluded and restricted substances:** existing criterion **2 Exclusion of specific substances**. No changes were proposed.
 - **1 (c) Substances of very high concern (SVHCs):** suggested to restrict totally the presence of SHVC in the final product. Instead of current 0.010% w/w limit.

Outcomes 1st AHWG meeting and first consultation

- **Difficulty to apply the approach of restricting the EU Ecolabel hazards at substance level.**
- **Impact of the revised requirement on the LuSC list and the potential loss of current licenses if the proposed criterion is implemented.**
- Other stakeholders agreed to follow a **similar approach** than the rest of product groups **under the EU Ecolabel** seeking for harmonization.
- NGOs suggested investigating the **approach followed in Blue Angel**.

Further research

- The possibility to set a more **harmonized approach** with other product groups while not compromising the current licenses has been explored further.
- **No derogation request from industry** side was received in the first call for derogations. Stakeholders and CBs have been further consulted. **CBs provided information on the hazards present at substance level which evidence the need of potential derogation or more flexible approach.**
- **Blue Angel approach** has been explored. A comparative assessment has been carried out in order to elucidate which elements are in common between both environmental schemes.

Further research

- It should be noted that there are some restricted hazard statements not currently included in the EU Ecolabel for lubricants such as: H318, H335, H302, H312 and H332, while other hazards are included EU Ecolabel and are not considered in Blue Angel (EUH070, H420, EUH029 , EUH031 , EUH032 , EUH066).
- If the **allowed concentrations** are examined, the Blue Angel approach establishes **more flexible criteria** compared to the harmonised approach followed in several EU Ecolabel product groups.
- In the EU Ecolabel, specific substances and their hazards are derogated from EU Ecolabel article 6 (6) where no substitution is possible. In the **Blue Angel** approach, among the whole profiles considered, some hazards (of relative less concern) are derogated for total concentration of substances in the final product up to a maximum of half of the relevant concentration that would lead to classification of the final product.



2nd Proposal main changes

- The hazard statement H319 (Eye irritation category 2) was currently included in the existing list of restricted hazard statements according to the EU Ecolabel for lubricants, and the hazard statement H318 (Serious damage to eyes category 1) was not included. **H318 it is suggested to be added in line with Blue Angel.**

- **No relevant changes** have been introduced in criteria 1b) and 1c)
 - 1 (b) Specified excluded and restricted substances
 - 1 (c) Substances of very high concern (SVHCs)

- **Assessment and verification**, the text for each of the sub-requirements was aligned to the recently voted detergents product group. No comments have been received. No changes have been introduced for the second proposal.



Second proposal for criterion 1: Excluded or limited substances

1 (a) Hazardous substances

(i) Final product

The final product shall not be classified and labelled as being acutely toxic, a specific target organ toxicant, a respiratory or skin sensitiser, carcinogenic, mutagenic or toxic for reproduction, or hazardous to the aquatic environment, as defined in Annex I to Regulation (EC) No 1272/2008 and in accordance with the [entire list of hazards categories included](#) in Table 1.

(ii) Substances

The product shall not contain substances that meet the criteria for classification as acutely toxic, hazardous to the aquatic environment, respiratory or skin sensitiser, carcinogenic, mutagenic or toxic for reproduction in accordance with Annex I to Regulation (EC) No 1272/2008 [at a concentration limit as specified in Table 1 columns a\) and b\) for each hazard category](#).

Table 1. Restricted hazard classifications and their categorisation

[...]

Hazard categories	a) Concentration limit of or above 0,010 % weight by weight substance in final product	b) Concentration limit of or above the half of the	
		H370 Causes damage to organs	✓
		H372 Causes damage to organs through prolonged or repeated exposure	✓
Category 2			
		H371 May cause damage to organs	✓
		H373 May cause damage to organs through prolonged or repeated exposure	✓
Category 3			
H340 May cause genetic defects			✓
H350 May cause cancer			✓
H350i May cause cancer by inhalation			✓
H360F May damage fertility			✓
H360D May damage the unborn child			✓
H360FD May damage fertility. May damage the unborn child			✓
H360Fd May damage fertility. Suspected of damaging the unborn child			✓
H360Df May damage the unborn child. Suspected of damaging fertility			✓
Category 2			
H341 Suspected of causing genetic defects			✓
H351 Suspected of causing cancer			✓
H361f Suspected of damaging fertility			✓
H361d Suspected of damaging the unborn child			✓
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child			✓
H362 May cause harm to breast fed children			✓
Acute toxicity			
Category 1 and 2			
H300 Fatal if swallowed			✓
H310 Fatal in contact with skin			✓
H330 Fatal if inhaled			✓
H304 May be fatal if swallowed and enters airways			
Category 3			
H301 Toxic if swallowed			✓
H311 Toxic in contact with skin			✓
H331 Toxic if inhaled			✓
EUH070 Toxic by eye contact			✓
Specific target organ toxicity (STOT)			
Category 1			
H370 Causes damage to organs			✓
		H370 Causes damage to organs	✓
		H372 Causes damage to organs through prolonged or repeated exposure	✓
Category 2			
		H371 May cause damage to organs	✓
		H373 May cause damage to organs through prolonged or repeated exposure	✓
Category 3			
		H335 May cause respiratory irritation	✓ ¹
		H336 May cause drowsiness or dizziness	✓ ¹⁶
Respiratory and skin sensitisation (where applicable)			
Category 1A/1B			
		H317: May cause allergic skin reaction	✓
		H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled	✓
Skin corrosion/irritation			
Category 1			
		H314 Causes severe skin burns and eye damage	✓
Category 2			
		H315 Causes skin irritation	✓
Serious eye damage/eye irritation			
Category 1			
		H318: Causes serious eye damage	✓
Category 2			
		H319 Causes serious eye irritation	✓
Hazardous to the aquatic environment			
Category 1 and 2			
		H400 Very toxic to aquatic life	✓
		H410 Very toxic to aquatic life with long-lasting effects	✓
		H411 Toxic to aquatic life with long-lasting effects	✓
Category 3 and 4			
		H412 Harmful to aquatic life with long-lasting effects	✓
		H413 May cause long-lasting effects to aquatic life	✓
Hazardous to the ozone layer			
		H420 Harms public health and the environment by destroying ozone in the upper atmosphere	✓
Supplemental hazard information – Health hazards			
		EUH029 Contact with water liberates toxic gas	✓
		EUH031 Contact with acids liberates toxic gas	✓
		EUH032 Contact with acids liberates very toxic gas	✓
		EUH066 Repeated exposure may cause skin dryness or cracking	✓



[...]

Where stricter, the generic or specific concentration limits determined in accordance with Article 10 of Regulation (EC) No 1272/2008 shall take precedence.

This criterion does not apply to substances covered by Article 2(7)(a) and (b) of Regulation (EC) No 1907/2006 which set out criteria for exempting substances within Annexes IV and V to that Regulation from the registration, downstream user and evaluation requirements. In order to determine whether that exclusion applies, the applicant shall screen any ingoing substance present at a concentration above 0,010% weight by weight.

Assessment and verification: the applicant shall demonstrate compliance with this criterion for the final product and for any ingoing substance present at a concentration of or above 0,010% weight by weight in the final product. The applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, or SDS confirming that none of these substances meets the criteria for classification with one or more of the hazard statements listed in Table 1 in the form(s) and physical state(s) in which they are present in the product.

For substances listed in Annexes IV and V to Regulation (EC) No 1907/2006, which are exempted from registration obligations under points (a) and (b) of Article 2(7) of that Regulation, a declaration to this effect by the applicant shall suffice to comply.

The applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, or SDS confirming the presence of ingoing substances that fulfil the derogation conditions.

[...]

1 (b) Specified restricted substances

The substances listed below shall not be included in the product formulation above the concentration of 0,010% (w/w) of the final product:

substances appearing in the Union List of priority substances in the field of water policy in Annex X to Directive 2000/60/EC of the European Parliament and of the Council as amended by laid in Decision No 2455/2001/EC of the European Parliament and of the Council and the OSPAR List of Chemicals for Priority Action (<http://www.ospar.org/work-areas/hasec/chemicals/priority-action>);

- organic halogen compounds and nitrite compounds;
- metals or metallic compounds with the exception of sodium, potassium, magnesium and calcium. In the case of thickeners, also lithium and/or aluminium compounds may be used up to concentrations limited by the other criteria included in the Annex to this Decision.

Assessment and verification: the applicant shall provide a signed declaration of compliance supported by declarations from suppliers, if appropriate, confirming that the listed substances are not present in the product formulation above the limits set.

1 (c) Substances of very high concern (SVHCs)

The final product shall not contain any ingoing substances that have been identified in accordance with the procedure described in Article 59(1) of Regulation (EU) No 1907/2006, which establishes the candidate list for substances of very high concern.

Assessment and verification: the applicant shall provide a signed declaration of compliance supported by declarations from their suppliers, if appropriate, or SDS confirming the non-presence of all the candidate list substances. Reference to the latest list of substances of very high concern shall be made on the date of application.



Points for discussion and written feedback

- Competent Bodies and stakeholders are asked to give their opinion on the **alignment to the Blue Angel approach** and respond to the “excel survey” called “Hazard profile assessment of substances”
- Manufacturers and suppliers are asked to:
 - provide information on the **hazardous substances and/or functional groups of substances** above 0.01% with any of the EU Ecolabel hazards which potentially **require derogation due to difficulties to substitute them.**
 - with regard to biocides used in water-based metalworking fluids, hydraulic fluids and mould release – provide information on the **concentration used,**
 - in relation to the total restriction of SVHC in criterion 1c) – communicate if there are **SVHC** presents in the final product **below 0.010% w/w.**

Agenda 9th October

1. Political objectives of the EU Ecolabel and process description
2. Scope and definitions and summary of additional LCA research
3. Criterion 1. Excluded and limited substances
- 4. Criterion 2. Aquatic toxicity**
5. Criterion 3. Biodegradability and Bioaccumulative potential

Criterion 2: Aquatic toxicity



Main aim of this criterion



Lubricants have potential to cause disturbances in aquatic ecosystems through emissions to water during their life cycle or due to accidental spillages. EU Ecolabel aims to **limit the aquatic toxicity** of the ingredients used.

First proposal

- **existing criterion 3.1** (requirements for the product and main components) **only for greases when unknown substances are present in the mixture or reliable aquatic toxicity data of the mixture exists. For the other lubricants -- existing 3.2.**
- revised thresholds for aquatic toxicity for the freshly prepared lubricant were proposed in order to harmonize the ambition level between both sub-criteria → **the limits were reverted to the existing values in force** before the 1st AHWG.
- **threshold for sub-criterion 2.2 revised** according to data on aquatic toxicity of **47 products from 10 different countries**.
- **assessment and verification** → proposal to **request the toxicity data for three trophic levels**. Use of **QSARs** if no experimental data exist.



Outcomes 1st AHWG meeting and first consultation

- Chronic aquatic toxicity tests → was not entirely clear to stakeholders what is really needed to demonstrate compliance with the criterion and whether both acute and chronic toxicity data must be submitted.
- It was suggested to **keep the possibility to test mixtures (existing criterion 3.1) for all product categories**, not only for greases, as it is allowed in the existing criteria in force.
- Proposed **thresholds** for criterion 2.2 stakeholders considered **too strict**.
- In the case of **greases**, if the thresholds of aquatic toxicity for the content of harmful substances decrease from 25% to 20%, **complex greases** will not be able to comply due to the content of soaps.
- **Assessment and verification:**
 - Not in favour of testing substances at all the three trophic levels.
 - Clarification if QSARs could be applied if no experimental data exists.
 - General agreement that the A&V currently in force should be kept.



Further research

- Additional data on aquatic toxicity (existing criterion 3.2) asked.
- Data for 149 currently EU Ecolabelled products from 11 different countries was obtained, **which represents approximately the 40% of the total EEL products available on the market.**
- Generally the values proposed first in **criterion 2.2 are higher than the values for most of the samples investigated.** This **supports the proposal for stricter aquatic toxicity limits.**
- In the second revised criteria threshold values have been amended based on the analysis of this additional data.



2nd Proposal main changes

- The unification of the previous **categories 1 and 5** by **ALL**, **category 3** by **TLL and categories 2 and 4** by **PLL**, did not lead to any additional modifications as the thresholds for the merged categories are the same.
- For both requirements 2.1. and 2.2, clarification of the criterion formulation regarding the situation **when chronic data can be provided has been included**.
- **Criterion 2.1**, no changes have been proposed in the thresholds on aquatic toxicity → **existing values in force**.
- Option of testing the lubricant and its main components (critierion 2.1) for **all categories**.



2nd Proposal main changes

- Strictness of the **threshold values for criterion 2.2**. Minor modifications:
 - Threshold values for category ALL **maintained** as presented in the 1st AHWG. All assessed licences would be able to comply.
 - Threshold values for the content of chronic hazard category 2 substances for category **PLL relaxed** compared to the first proposal from a cumulative mass percentage $\leq 0,5\%$ to $\leq 0,6\%$. All the assessed licences would be able to comply.
 - Chronic hazard category 2 for category **TLL relaxed** compared to the first proposal from a cumulative mass percentage $\leq 0,3\%$ to $\leq 0,4\%$. Only 2 (out of 37) existing licenses would not be able to comply .

Aquatic toxicity		Cumulative mass percentages (%w/w) of substances present within the candidate lubricant)								
		CATEGORY1 and 5(ALL)			CATEGORY2 and 4(PLL)			CATEGORY3 (TLL)		
		current	revised	number products affected	current	revised	number products affected	current	revised	number products affected
Not hazardous to the aquatic environment	Acute aquatic toxicity >100 mg/L or Chronic aquatic toxicity >10 mg/L	NOT LIMITED								
Chronic hazard category 3	Acute aquatic toxicity >10 to ≤ 100 mg/L or 1 mg/L < Chronic aquatic toxicity ≤ 10 mg/L	≤ 20	≤ 10	1	≤ 25	≤ 20	0	≤ 5	≤ 2	0
Chronic hazard category 2	Acute aquatic toxicity >1 to ≤ 10 mg/L or 0,1 mg/L < Chronic aquatic toxicity ≤ 1 mg/L	≤ 5	≤ 2,5	2	≤ 1	≤ 0,6	0	≤ 0,5	≤ 0,4	3
Chronic category 1	Acute aquatic toxicity ≤ 1 mg/L	≤ 0,1/M	≤ 0,1/M	0	≤ 0,1/M	≤ 0,1/M	0	≤ 0,1/M	≤ 0,1/M	0
Acute category 1	Chronic aquatic toxicity ≤ 0,1 mg/L									



2nd Proposal main changes

- **Assessment and verification of the criterion 2.1 and 2.2 is proposed to be maintained as in the existing EU Ecolabel decision.**

Chronic aquatic toxicity is proposed to be maintained and shall be provided for **two trophic levels**: fish and crustacean.

- In addition, some modifications are included in the A&V text:
 - The replicates of the **OECD Test Guidelines** for some existing test methods (Reproduction Toxicity test method – **Part C.20** for daphnia and growth toxicity test method – **Part C.14** for fish) according to Regulation (EC) No 440/2008 laying down test methods pursuant to REACH.
 - **Clarification on the use of QSARs** if no experimental data exists. QSARs shall be accepted to fill data gap for only one of the three trophic levels rather having to perform the test.
 - **Exemptions from testing on aquatic toxicity (included in the existing criteria in force)** and list situations when the aquatic toxicity text is not needed **are maintained.**



Second Proposal for criterion 2: Aquatic toxicity

The applicant shall demonstrate compliance by meeting the requirements of either criterion 2.1 or 2.2.

Criterion 2.1. – Requirements for the lubricant and its main components

The critical concentration for the aquatic toxicity for both the freshly prepared lubricant and for each main components shall not exceed values specified in Table 2:

Table 2 Aquatic toxicity values for both freshly prepared lubricant and for each main component

		ALL	PLL	TLL
Aquatic toxicity for the freshly prepared lubricant	Acute aquatic toxicity OR	>100 mg/L	>1000 mg/L	>1000 mg/L
	Chronic aquatic toxicity	>10 mg/L	>100 mg/L	>100 mg/L
Aquatic toxicity for each main component	Acute aquatic toxicity OR	>100 mg/L		
	Chronic aquatic toxicity	> 10 mg/L		

[...]

Acute aquatic toxicity data for each main component shall be provided on each of the following two trophic levels:

- crustacean (preferred species Daphnia),
- aquatic plants (algae preferred).

In case acute aquatic toxicity data for each main component is missing, existing chronic aquatic toxicity tests shall be accepted for each of the following two trophic levels:

- crustacean (preferred species Daphnia)
- fish.

Acute aquatic toxicity data for the lubricant shall be provided on each of the following three trophic levels:

- crustacean (preferred species Daphnia),
- aquatic plants (algae preferred),
- and fish.

In case acute aquatic toxicity data for the applied lubricants is missing, existing chronic aquatic toxicity test shall be accepted for each of the following two trophic levels:

- crustacean (preferred species Daphnia),
- fish.

[...]



[...]

Criterion 2.2. – Requirements for each substance present above 0,10 % (w/w)

Substances exhibiting a certain degree of aquatic toxicity are allowed up to a cumulative mass concentration indicated in Table 3.

Table 3. Aquatic toxicity values for substances present above 0,10% (w/w) in the final product

Cumulative mass percentage (% weight by weight in the final product)		ALL	PLL	TLL
		Not limited		
Substance classified as not hazardous to the aquatic environment according to CLP	Acute aquatic toxicity >100 mg/L or Chronic aquatic toxicity > 10 mg/L	Not limited		
Substance classified as chronic aquatic hazard category 3 according to CLP ²⁵	Acute aquatic toxicity >10 to ≤ 100 mg/L or 1 mg/L < Chronic aquatic toxicity ≤ 10 mg/L	≤ 10	≤ 20	≤ 2
Substance classified as chronic aquatic hazard category 2 according to CLP ²⁵	Acute aquatic toxicity >1 to ≤ 10 mg/L or 0,1 mg/L < Chronic aquatic toxicity ≤ 1 mg/L	≤ 2,5	≤ 0,6	≤ 0,4
Substance classified as chronic aquatic hazard category 1 according to CLP ²⁵	Acute aquatic toxicity ≤ 1 mg/L or Chronic aquatic toxicity ≤ 0,1 mg/L	≤ 0,1/M (*)	≤ 0,1/M (*)	≤ 0,1/M (*)
Substance classified as acute aquatic hazard category 1 according to CLP				

[...]

Chronic aquatic toxicity for each substance present above 0,10% (w/w) shall be provided on each of the following two trophic levels:

- crustacean (preferred species *Daphnia*),
- and fish

In case chronic aquatic toxicity data is missing, acute aquatic toxicity tests shall be provided for each of the following two trophic levels:

- crustacean (preferred species *Daphnia*),
- aquatic plants (algae preferred).

Assessment and verification: the applicant shall provide high quality test reports or literature data (testing according to acceptable protocols and GLP) including the references demonstrating compliance with the requirements set in sub-criteria 2.1 or 2.2.

[...]



[...]

For determining acute aquatic toxicity data, the tests carried out according to and using relevant test species mentioned in the following guidelines shall be accepted:

- ISO/DIS 10253 or OECD Test Guideline 201 or Part C.3 of the Annex to Council Regulation (EC) No 440/2008 (1) for algae,
- ISO TC 147/SC5/WG2 or OECD Test Guideline 202 or Part C.2 of the Annex to Regulation (EC) No 440/2008 for daphnia,
- OECD Test Guideline 203 or Part C.1 of the Annex to Regulation (EC) No 440/2008 for fish,
- Equivalent test methods as agreed with a competent body are also permitted,
- According to Annex XI of REACH regulation, if no experimental data exists, results of (Q)SARs may be used. **QSARs shall be accepted to fill data gap in only one of the three trophic levels rather having to perform the test.**

Only acute aquatic toxicity (72 or 96 hr)Er C50 for algae, (48hr)EC50 for daphnia and (96hr)LC50 for fish are accepted.

Either marine or freshwater toxicity data are accepted for determining acute or chronic aquatic toxicity. The tests in marine water are carried out according to and using relevant test species mentioned in the above guidelines.

[...]

[...]

In the case of slightly soluble substances or preparations (< 10 mg/L) the method of the water-accommodated fraction (WAF) can be used in the aquatic toxicity determination. The established loading level, sometimes referred to as LL50 and related to the lethal loading, may be used directly in the classification criteria. The preparation of a water-accommodated fraction shall follow the recommendations set out according to one of the following guidelines: ECETOC Technical Report No 20 (1986), Annex III to OECD 301 (1992) and the OECD 310 test guidelines or the ISO Guidance document 10634 (1995), or ASTM D6081-98 (Standard practice for Aquatic Toxicity Testing for Lubricants: Sample Preparation and Results Interpretation or equivalent methods). In addition, demonstration of the absence of toxicity for a substance at its limit of water solubility shall be deemed to have met the requirements of this criterion. An aquatic toxicity study does not need to be conducted when:

- the classification of the substance, base fluid or additive is already stated on the Lubricant Substance Classification list (LuSC-list), or
- a valid letter of compliance from a competent body can be submitted, or
- the substance is unlikely to cross biological membranes $MM > 700 \text{ g/mol}$ or a molecular diameter $> 1,5 \text{ nm}$ ($> 15 \text{ \AA}$), or
- the substance is a polymer and its molecular weight fraction below $1\,000 \text{ g/mol}$ is less than 1 %, or
- the substance is highly insoluble in water (water solubility $< 10 \text{ \mu g/l}$),

as such substances are not regarded as toxic for algae and daphnia in the aquatic system.

The water solubility of substances shall be determined where appropriate according to OECD Test Guideline 105 or Part A.6 of the Annex to Regulation (EC) No 440/2008 or equivalent test methods.

The molecular weight fraction below $1\,000 \text{ g/mol}$ of a polymer shall be determined according to Part A.19 of the Annex to Regulation (EC) No 440/2008 or OECD Test Guideline 119 or equivalent test methods.

[...]



Points for discussion and written feedback

- Are the proposed changes (wording and thresholds) appropriate?
- Suggestions for wording clarification are welcome.
- Stakeholders are asked to provide information on the potential difficulties for new categories of products to comply with this criterion.

Agenda 9th October

1. Political objectives of the EU Ecolabel and process description
2. Scope and definitions and summary of additional LCA research
3. Criterion 1. Excluded and limited substances
4. Criterion 2. Aquatic toxicity
5. Criterion 3. Biodegradability and Bioaccumulative potential

Criterion 3: Biodegradability and bioaccumulative potential



Main aim of this criterion



To ensure that the ingredients are biodegradable and will not persist in water, reducing the environmental pollution due to spillages.

First proposal

- A change of nomenclature was proposed: ***Ultimately*** is changed to ***Readily***.
- More stringent values for **readily aerobic biodegradation** in the existing **categories 1, 2 and 3**.
- The **inherent aerobic biodegradability** proposed to be modified for the lubricant products **greases (category 2), 2-stroke oils and 4-stroke oils (category 4)**.
- More restrictive value for **non-biodegradable and non-bioaccumulative** fraction for **greases (category 2)**.
- The requirements for bioaccumulative potential proposed to be modified according to the last version of CLP Regulation. In the 1st AHWG, the following values proposed: **log K_{ow} < 4 or > 7 and BCF ≤ 500 L/kg**.



Outcomes 1st AHWG meeting and first consultation

Issues discussed:

- Whether the term “**readily biodegradable**” implies an obligatory consideration of the 10-day window in the pass level?

Stakeholders argued that lubricants are designed to comply with the 28-day ready biodegradation requirement.

- Most of the current EEL lubricants are not able to fulfil the criterion if the Log Kow upper limit is removed.

Stakeholders proposed **maintaining the current thresholds for the Bioconcentration factor (BCF) and log octanol-water partition coefficient: $BCF \leq 100$ or $\log Kow < 3$ or > 7 .**

- **Thresholds** proposed in 1st draft: problems for compliance reported for some products and for specific substances (e.g. thickeners).



Further research and 2nd Proposal main changes

- Text clarification: “Requirements for the biodegradability of **organic compounds**”.
- Nomenclature change from ultimately for readily biodegradation:
 - Main concern of stakeholders is to comply with 10-days windows test.
 - In order to be consistent with other EU Ecolabel product groups and with CLP, the terminology used in the 1st draft – **readily biodegradable** – is proposed to be **maintained**.
 - In case of substances identified as **UVCB** (Unknown or Variable composition, complex reaction products or biological materials) or as a complex, multi- constituent substance with structurally similar constituents an exemption from the **10-day window can be applied**.



Further research and 2nd Proposal main changes

➤ Threshold values:

The unification of the previous categories **1 and 5 under ALL**, and categories **2 and 4 under PLL** has created the need for a new threshold values.

Considerations used to define new thresholds:

- Set according the **level of risk of spill out**.
- Share of assessed products that comply with the revised thresholds (40% of licences).

Changes

- **Inherent aerobic biodegradation** has been adjusted in order to sum up to 100% when it is combined with readily biodegradability.
- The threshold value of **readily biodegradation** for **category 1 (ALL** in the second revised proposal) has been reverted to 90%.
- Threshold values for **readily biodegradability** of **PLL** (previous **categories 2 and 4**) has been reverted to existing value in force (75%).



2nd Proposal main changes

	Category 1 (ALL)			Category 2 (PLL)			Category 3 (TLL)			Category 4 (PLL)			Category 5 (ALL)		
	existi ng	Proposal		existi ng	Proposal		existi ng	Proposal		existi ng	Proposal		existi ng	Proposal	
		1 st	2 nd		1 st	2 nd		1 st	2 nd		1 st	2 nd		1 st	2 nd
Readily aerobically biodegradable	> 90	> 95	> 90	> 75	> 80	> 75	> 90	> 95	> 95	> 75	> 75	> 75	> 90	> 90	> 90
Inherently aerobically biodegradable	≤ 5	≤ 5	≤ 10	≤25	≤ 15	≤ 25	≤ 5	≤ 5	≤ 5	≤ 20	≤ 15	≤ 25	≤ 5	≤ 5	≤ 10
Non-biodegradable and non-bioaccumulative	≤ 5	≤ 5	≤ 5		≤ 15	≤ 20	≤ 5	≤ 5	≤ 5	≤ 10	≤ 10	≤ 20	≤ 5	≤ 5	≤ 5
Non-biodegradable and bioaccumulative	≤ 0,1	≤ 0,1	≤ 0,1	≤ 0,1	≤ 0,1	≤ 0,1	≤ 0,1	≤ 0,1	≤ 0,1	≤ 0,1	≤ 0,1	≤ 0,1	≤ 0,1	≤ 0,1	≤ 0,1



2nd Proposal main changes

➤ BCF and log Kow values:

- A cut-off for the log Kow of 10 is proposed and the existing cut-down value of 3 is re-introduced:

i.e. log Kow <3 or >10 instead of the existing log Kow <3 or >7

- A threshold for **BCF of ≤ 100 L/kg (as current in force)** is maintained.

➤ Assessment and verification:

- Most of the wording of the **current text in force is maintained.**
- **Complementary definitions for biodegradation and bioaccumulation** have been transferred to the definitions section.

Second proposal for criterion 3: Biodegradability and bioaccumulative potential

Requirements for the biodegradability of organic compounds and bioaccumulative potential shall be fulfilled by each substance present above 0,10 % weight by weight in the final product.

The lubricant shall not contain substances that are both: non-biodegradable and potentially bioaccumulative. However, the lubricant may contain one or more substances with a certain degree of degradability and potential or actual bioaccumulation up to a cumulative mass concentration as indicated in Table 3:

Table 3. Cumulative mass percentage (% w/w) of substances present in the product

	ALL	PLL	TLL
Readily aerobically biodegradable	> 90	> 75	> 95
Inherently aerobically biodegradable	≤ 10	≤ 25	≤ 5
Non-biodegradable and non-bioaccumulative	≤ 5	≤ 20	≤ 5
Non-biodegradable and bioaccumulative	≤ 0,1	≤ 0,1	≤ 0,1

[...]

[...]

Assessment and verification: The applicant shall provide a declaration of compliance with this criterion supported by a high quality test reports or literature data (testing according to acceptable protocols and GLP) including the references on the biodegradability and when required on the (potential) bioaccumulation of each constituent substance.

Biodegradation

Readily biodegradable shall be measured in accordance with the following tests:

- Regulation (EC) No 440/2008 (Part C.4, C.5 and C.6 of the Annex), OECD 301, OECD 310, or equivalent methods.

Inherently biodegradable shall be measured in accordance with the following tests:

- Regulation (EC) No 440/2008 (Part C.9 of the Annex), OECD 302 C or equivalent methods
- Tests based on oxygen depletion or carbon dioxide generation: Regulation (EC) No 440/2008 (Part C.4 of the Annex), OECD 306, OECD 310, or equivalent methods.

The biodegradation test does not need to be conducted when the classification of the substance, base fluid or additive is already stated on the Lubricant Substance Classification list or a valid letter of compliance from a competent body can be submitted.

The applicant may also use read-across data to estimate the biodegradability of a substance. 'Read-across' for the assessment of the biodegradability of a substance shall be acceptable if the reference substance differs by only one functional group or fragment from the substance applied in the product. If the reference substance is readily or inherently biodegradable and the functional group has a positive effect on the aerobic biodegradation then the applied substance may also be regarded as readily or inherently biodegradable. Functional groups or fragments with a positive effect on the biodegradation are: aliphatic and aromatic alcohol [-OH], aliphatic and aromatic acid [-C(=O)-OH], aldehyde [-CHO], Ester [-C(=O)-O-C], amide [-C(=O)-N or -C(=S)-N]. Adequate and reliable documentation of the study on the reference substance should be provided. In case of a comparison with a fragment, not included here above, adequate and reliable documentation of the studies should be provided on the positive effect of the functional group on the biodegradation of structurally similar substances.[...]

[...]

Bioaccumulation

The (potential) bioaccumulation does not need to be established when the substance:

- has a MM > 800 g/mol, or
- has a molecular diameter > 1,5 nm (> 15 Å), or
- has an octanol-water partition coefficient, log K_{ow}, value of <3 or >10, or
- has a measured BCF of ≤ 100 L/kg, or
- is a polymer and its molecular weight fraction below 1.000 g/mol is less than 1%.

Since most substances used in lubricants are quite hydrophobic the BCF- value should be based on the lipid weight content and care must be shown to ensure a sufficient exposure time. The bioconcentration factor (BCF) shall be assessed according to Part C.13 of the Annex to Regulation (EC) No 440/2008 or equivalent test methods.

The log octanol/water partition coefficient (log Kow) shall be assessed according to Part A.8 of the Annex to Regulation (EC) No 440/2008 or OECD 123 or equivalent test methods. In case of an organic substance other than a surfactant where no experimental value is available, a calculation method can be used. The following calculation methods are allowed: CLOGP, LOGKOW, (KOWWIN) and SPARC. Estimated log Kow values by any of these calculation methods < 3 or > 10 indicates that the substance is not expected to bioaccumulate.

Log Kow values are applicable to organic chemicals only. To assess the bioaccumulation potential of non-organic compounds, surfactants, and some organo-metallic compounds, BCF measurements shall be carried out.



Points for discussion and written feedback

- In general, are the proposed changes appropriate?
- In particular, stakeholders are asked to provide their opinion on the **viability** of of the second proposal (**log Kow <3 or >10** instead of the existing log Kow <3 or >7) in the on the potential impact this change could have on the **LuSC list**.
- Suggestions for **wording clarification** are welcome.

Next steps following on from this AHWG1 meeting

1. Stakeholders can provide **comments** on technical report and criteria proposals **not later than by 31st October 2017**
2. Comments need to be submitted using the BATIS system.
3. February 2018: TR3.0 publication + EUEB final presentation + open online consultation for final comments
4. April 2018: TR4.0 for ISC
5. June 2018: Vote

Thanks for your attention



Contact: Candela Vidal-Abarca Garrido,
Renata Kaps & Oyeshola Kofoworola

Tel. +34 954 48 71 92

e-mail: JRC-IPTS-LUBRICANTS@ec.europa.eu



European
Commission



Revision of EU Ecolabel Criteria for Lubricants

AHWG 2

9th & 10th October 2017

Interactive webinar

Joint Research Centre

the European Commission's
in-house science service



JRC Science Hub: ec.europa.eu/jrc

Joint
Research
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Agenda 9th October

1. Political objectives of the EU Ecolabel and process description
2. Scope and definitions
3. Criterion 1. Excluded and limited substances
4. Criterion 2. Aquatic toxicity
5. Criterion 3. Biodegradability and Bioaccumulative potential

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Criterion 4: Raw materials



Main aim of this criterion



To promote **better raw material alternatives** to mineral oils for **loss applications** oils (TLL, PLL, ALL). **High biodegradability and low toxicity raw materials.**

First proposal



- **Existing criteria** in force (Criterion 5: Renewable raw material) only requires a minimum **percentage of renewable content**.
- A draft **broader criterion** considering other alternative to pure mineral lubricants (i.e. **synthetic or re-refined origin**) was proposed for discussion for the AHWG meeting.
- In addition, **more restrictive thresholds** were proposed.



Outcomes 1st AHWG meeting and first consultation

- The inclusion of **re-refined** oils was not welcome:
 - Delete the re-refined oils of the criterion
 - Consider re-refined oils only for engine oil products.
- It would be problematic to comply with the **revised threshold values**, mainly for greases category.
- Clarification of the meaning of synthetic base oil, or **synthetic lubricants** in general.
- The current criterion was seen as controversial, since there is no evidence which supports bio-based as a superior environmental option. Issues relevant for biofuels that might be relevant for bio-based lubricants as well e.g. indirect land use change. Some stakeholders asked to **delete this criterion**.



Further research

- Synthetic base oil --- artificially made. From mineral oil, through chemical modification (for instance hydro cracking, hydrogenation with a catalyst) or made from a vegetable oil, through chemical modification (for instance transesterification).
- Considering that the use of **synthetic term** could be confusing, it will only be used accompanied by references to specific oils or lubricant types.
- **Several alternatives** to conventional mineral lubricants, in addition to bio-based lubricants, that present **good biodegradability potential, low toxicity and are not bioaccumulative**, and that therefore could be suitable alternatives for lubricants included in the scope of this EU Ecolabel (loss lubricants).

Lubricant base oil	Base oil source	Biodegradation	Toxicity	Bioaccumulation
Mineral oil	Petroleum	Persistent/ Inherently	High	Yes
PAG and PAO	Petroleum- synthesized hydrocarbon	Readily	Low	No
Synthetic esters	Petrochemical or biochemical alcohols (in different percentages)	Readily	Low	No
Vegetable oils	Naturally occurring vegetable oils (e.g rapeseed, sunflower, palm and coconut)	Readily	Low	No



Further research

- The **renewable synthetic oils are included** in the existing scope, since they can comply with the existing criterion on carbon content from renewable origin (criterion 5). **Other synthetic base oils from non-renewable sources:** including **poly-alphaolefins (PAOs), poly-alkylene glycols (PAGs) and synthetic non-renewable esters**. Some of these synthetic oils from non-renewable sources have good biodegradability potential, solubility, resist oxidation and have good temperature viscosity characteristics. However, they are not able to comply with the existing EU Ecolabel criterion 5 that focus on the renewable raw ingredients.
- The **Environmental Acceptable Lubricants (EAL)** includes the vegetables oils, synthetic esters (from renewable and non-renewable sources), PAGs and PAOs as the most common biodegradable base oils. Moreover, they are classified as low aquatic toxicity.



2nd Proposal main changes

- Besides the renewable carbon content, **PAGs, PAOs and non-renewable ester base oils are suggested to be considered** in line with the Environmental Acceptable Lubricants (EAL).
- The **thresholds values** have been adjusted and unified.
- **Re-refined oils** have been excluded due to their toxicity.



Second proposal for criterion 4: Raw materials

The lubricant product shall have a minimum content of:

- a) carbon derived from renewable raw materials; or
- b) synthetic esters, poly-alphaolefins (PAOs) or poly-alkylene glycols (PAGs); or
- c) a combination of a) and b),

at percentage

≥60% (m/m) for lubricants under ALL group,

≥65% (m/m) for lubricants under PLL group,

≥70% (m/m) for lubricants under TLL group.

Assessment and verification

[...]



Assessment and verification

➤ Existing criterion in force → only a declaration of compliance.

Several test methods to measure **biomass content**:

- ASTM D6866 for testing the bio-based content of a product.
 - ISO 13833: Stationary source emissions - Determination of the ratio of biomass (biogenic) and fossil-derived carbon dioxide - Radiocarbon sampling and determination.
 - EN 15440: Solid recovered fuels - Methods for the determination of biomass content.
- **First proposal** → test reports to support the declaration.









Assessment and verification: Outcomes from and after the 1st AHWG meeting

- ASTM D6866 is welcome for some stakeholders.
- Other test methods were suggested referring to the renewable content of a product:
 - EN 16640:2017 Bio-based products - Determination of the bio-based carbon content of products using the radiocarbon method.
 - EN 16785-1:2015 Bio-based products - Bio-based content - Part 1: Determination of the bio-based content using the radiocarbon analysis and elemental analysis.
 - Draft EN 16785-2 Bio-based products - Bio-based content - Part 2: Determination of the bio-based content using the material balance method.
 - DIN 51637 Liquid petroleum products - Determination of the bio-based hydrocarbon content in diesel fuels and middle distillates using liquid scintillation method.



Assessment and verification: Further research

Eco-labelling program	Logo	Testing method
OK Bio-based - Vinçotte (Belgium)		ASTM D6866
DIN- Geprüft Bio-based - DIN CERTCO (Germany)		ASTM D6866
EcoLogo- UL Environment (Canada)		ASTM D6866
BiomassPla- Japan BioPlastics Association		ASTM D6866
BioPreferred Program- U.S Department of Agriculture		ASTM D6866
Sustainable Biomaterials Collaborative		ASTM D6866



Second proposal for criterion 4: Raw materials

[...]

Assessment and verification

The applicant shall indicate on the application form the type (s), source(s) and origin of the material(s) of the main components. The applicant shall provide the competent body with a declaration of compliance with this criterion supported by the test results in case of renewable origin raw materials and data sheets of the product, from the supplier or applicant, as appropriate.

ASTM D6866 test method or equivalent (e.g. ISO 16620-2) shall be used to determine the renewable carbon content.



Points for discussion and written feedback

- Stakeholder views on the **proposed criteria text**?
- Do you support the extension to other **non-biobased raw material alternatives**?
- Is the **wording appropriate** and enough clear?
- In order to complement the self-declaration, what **method or document do you think is the best option to verify** the use of **non-renewable base oils (esters, PAGs and PAOs) (e.g. bill of the product)**?

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Criterion 5: Origin and traceability of renewable raw materials

Main aim of this criterion



To ensure that renewable materials present in the formulation of products are produced in compliance to sustainable practices.

First proposal

- A new criterion was proposed in the first criteria draft:
 - **Renewable raw materials:** must be sourced from plantations and exploitations that meet criteria for sustainable management.
 - **Assessment and verification:** the applicant shall provide third-party certification that the vegetable oils used in the manufacturing of the product originates from sustainably managed plantations.
 - **Existing certifications:** Roundtable on Sustainable Palm Oil (RSPO) certification (economic , social and ecological criteria).



Outcomes 1st AHWG meeting and first consultation

- The **feasibility** of the incorporation of this criterion for this revision was discussed, since **only few well-established third-party certification schemes** for renewable oils are available and not all of them are recognised across EU.
- These schemes may **not be commonly used for bio-based lubricants** by producers (no data available of the current number of products certified in the sector).
- Some stakeholders suggested to **conduct additional research** on all the available initiatives.



Further research

- Some standards, legislations, and third party voluntary sustainability certification schemes have been further investigated.

Summary of the different available schemes for bio-based products

Considerations and scope	ISCC	RSPO	RSB	RTRS
Voluntary	Yes	Yes	Yes	Yes
Global geographical scope, comprehensive criteria, multi-stakeholder	Yes	Yes	Yes	Yes
EU Recognized	Yes (but only for EU RED)	Yes (only RSPO RED Scheme for EU RED)	Yes (but only for EU RED)	Yes (but only for EU RED)
Applicable renewable feedstock	All types of feedstock	Palm Oil, Palm Kernel Oil and derivatives	All types of feedstock	Only Soy
Market uptake for certification of feedstocks for non-biofuel sector	High	High	High	Medium
Biolubricants in market with certified bio-based content	Yes (combination of RSPO and the ISCC Plus)	Yes (Certification applied is RSPO)	Yes	Yes
Certifications available	ISCC Plus / ISCC EU (Biofuel)	RSPO / RSPO NEXT	Production / chain custody	Production / chain custody



Further research

Summary of the different available schemes for bio-based products. EU RED 2009 criteria coverage

General considerations and criteria scope	ISCC	RSPO	RSB	RTRS
Ecological	Yes	Yes	Yes	Yes
Reduction of environmental impacts (GHG)	Yes	Yes	Yes	Yes
Energy	Yes	Yes	Yes	Yes
High carbon stock & biodiversity	Yes	Yes	Yes	Yes
Land use change	Yes	Yes	Yes	Yes
Traceability	Yes	Yes	Yes	Yes
Accredited	No	Yes	Yes	No
Social and labour	Yes	Yes	Yes	Yes
Water	Yes	Yes	Yes	Yes



2nd Proposal main changes

Maintain the initially proposed criterion BUT introduce several modifications:

- The **requirements have been further specified** based on the sustainability requirements for the production of biofuels and bioliquids through the use of certified renewable raw materials including biomass as documented in the European Union Renewable Energy Directive and the criteria included in the different **available schemes used to fulfil RED Directive**.
- **References to valid available certification** schemes that could be used for the **assessment and verification** of the proposed criterion have been included in the text. In addition, other equivalent schemes which fulfil criteria to be complied with are suggested to be equally accepted.
- It is suggested to **broaden the scope** of the criterion to all types of renewable raw materials.

2nd Proposal for criterion 5: Origin and traceability of renewable raw materials

Second proposal for criterion 5: Origin and traceability of renewable raw materials

The renewable raw materials used in the lubricant shall be produced in a way that at least satisfies the mandatory sustainability requirements for the production of biofuels and bioliquids from bio-based renewable materials (including biomass) as documented in the European Union Renewable Energy Directive 2009/28/EC⁴⁴ and, or equivalent standards. For this purpose, the renewable raw material sourced shall be certified as sustainable via recognized international third party voluntary schemes with a membership base that includes NGOs, industry and government, and offers credible certification of products from various economic sectors extending beyond the biofuel sector to the food, feed, energy and bio-based products sector.

[...]



2nd Proposal for criterion 5: Origin and traceability of renewable raw materials

[...]

Assessment and verification

The applicant shall demonstrate through the provision of a valid certificate issued by a body or organisation accredited to offer third-party certification services against a relevant and internationally recognized standard and or certification scheme that the renewable raw material(s) used in the manufacturing of the product are sustainable. This includes valid certification against ISCC Plus, RSPO (for segregated and mass balance models), or similar schemes, which are based on the specific multi-stakeholder sustainability criteria, that confirms the purchase of the claimed renewable raw material(s) content and substantiate traceability.



Points for discussion and written feedback

- To what extent do producers and suppliers of bio-based lubricants use **third party sustainability** schemes to certify renewable raw materials for their products?
- **Current licence holders** use of certified renewable raw materials for their products?

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Criterion 6: Packaging requirements



Main aim of this criterion



Minimise the environmental impact of waste generated due to lubricant packaging and from improper dosage.

First proposal



- **No existing criteria on packaging.**
- **New criterion:**
 - **Design:** A dispenser closure shall be available for a proper dosage and avoid spillages.
 - **Recycled content and recyclability:** recyclable plastic and recycled material use



Outcomes 1st AHWG meeting and first consultation

Design:

- No relevant comments

Recycled content and recyclability:

- Lubricant products are mainly sold in metal drums and pails
- The inclusion of a minimum recycled content in the package and the consideration of the recyclability was supported by a group of stakeholders.
- Problems with the recycling of grease contaminated plastics.



Further research

- 95% of the EU Ecolabel lubricants are B2B products.
- B2C products on the market that potentially could apply for the EU Ecolabel.
- In relation to B2B products normally are delivered as:
 - **Small packs**, suitable for small volumes of lubricant (up to 10 L) and or infrequent use.
 - **Pails**, can be made from plastic or steel, usually in the range 5-25 kg. These are best for handling, small volume use and limited space / staking is required.
 - **Drums**, where large volumes of lubricant supply are required. The 55 gallon drum is the most frequently used in the industry. These are best for constant consumption. A full drum can usually weight 204 kg.



Second proposal for criterion 6: Packaging requirements

In the case of lubricants designed to be sold to private end consumers

- a) Design: a dispenser closure system avoiding spillage shall be made available to the users as part of the packaging.
- b) Recycled content: plastic packaging shall be made on a minimum of 25% of recycled material.

In the case of lubricants designed to be sold in bulks (B2B)

- a) The take-back system needs to be provided
- b) Recycled content: plastic packaging shall be made on a minimum of 25% of recycled material.

Assessment and verification

The applicant shall provide a declaration including the commercial use of the lubricant specifying that the product is marketed for private end consumer and a description of the dispenser closure, along with photos or technical drawings of the dispenser closure system.

The applicant or packaging supplier, as appropriate, shall provide a declaration of compliance specifying the material composition of the packaging and the shares of recycled and virgin material



Points for discussion and written feedback

- Stakeholders are asked to provide information on the availability of B2C products for the different lubricant categories included in the scope of the EU Ecolabel?
- Competent Bodies are asked if they could provide data on the share of licences that correspond to products marketed as B2C?
- Is recycled content of plastic used currently in lubricant packaging? In case that it is, which **percentage of recycled content** does the packaging have for B2C and B2B products?
- Do the B2B lubricant producers provide **take back system service**?

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Criterion 7: Minimum technical performance



Main aim of this criterion



To guarantee that the product meets certain quality requirements.

First proposal



- It is proposed to incorporate a **technical performance criterion for the new categories**.
- Minimum technical performance criteria have been revised taking into consideration the modifications of the **revised scope**.
- Some categories that are currently considered in the EU Ecolabel being **fit for purpose** were revised in order to **establish a minimum technical performance** that brings additional protection to the EU Ecolabel as a quality seal.



Outcomes 1st AHWG meeting and first consultation

- The minimum stability requirements (**MSR**) defined was not well defined and should therefore be called “fit for purpose” or establishing “user tests” or **OEM approval**.
- it was said that the KWF-Test got revised together with the RAL-UZ 48 basic award criteria document for **chainsaw oils** should.
- For **wire ropes** it was stated that manufacturers have their own test procedures and therefore the stakeholder suggested to change the requirement to “fit for purpose”.
- For **stern tube lubricants** the minimum technical performance should be “**fit for purpose**” instead of ISO 8068:2006.
- Remove **fire test** for **hydraulic fluids**, since in Europe fire resistant hydraulic fluids should meet the 7th Luxembourg Report.
- For **multipurpose greases**, it was a not easy to know which minimum requirement had to be met. **Gear greases** proposal:
 - **DIN 51826** for **closed gear boxes** greases
 - **DIN 51825** for greases in roller bearings, plain bearings and sliding surfaces.

Second proposal for criterion 7: Minimum technical performance

The quality of the lubricant product must be equal to or better than the quality of a reference lubricant, or within the tolerances, as specified in Table 5.

Table 5. Minimum technical performance for lubricant products

Lubricant family	Minimum technical performance
Chainsaw oils	Based on RAL-UZ 178
Wire rope lubricants, stern tube lubricants and other total loss lubricants	At least one relevant OEM approval
Concrete release agents	At least one relevant OEM approval
Gear lubricants	Enclosed gear oils. DIN 51517 section (I, II or III) Open gears: At least one relevant OEM approval
2-stroke oils	2-stroke marine : NMMA TC-W3 2-stroke terrestrial : ISO 13738:2011 (EGD)
Hydraulic systems	ISO 15380 (Tables 2 to 5) Fire resistant hydraulic fluids : ISO 12922 or Factory Mutual Approval
Metalworking fluids	At least one relevant OEM approval
Temporary protection against corrosion	ISO/TS 12928:1999
Greases	Greases for temporary protection against corrosion : ISO/TS 12928:1999 Greases for closed gear : DIN 51826 Greases for roller bearings, plain bearings and sliding surfaces : DIN 51825 All other greases : fit for purpose

Note: Multipurpose greases that include any of the above specified applications among their potential uses shall be tested according to the corresponding specific test of the relevant specified application



[...]

Assessment and verification: the applicant shall provide a declaration of compliance with this criterion supported by testing results, where appropriate. The testing laboratories confirming compliance with the requirements could be manufacturer's own laboratory which has a quality assurance system encompassing sampling and analysis and has been certified according to ISO 9001 or ISO 9002 or independent third party testing laboratories.

For hydraulic systems, it shall be indicated on the product information sheet which elastomers have been tested.



Points for discussion and written feedback

- Stakeholder views on the proposal are welcome.
- Stakeholders are asked to provide additional relevant information on tests performed for technical performance of the different categories and their costs.

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Criterion 8: Consumer information regarding use and disposal



Main aim of this criterion



To ensure the proper disposal of waste lubricant to decrease the overall environmental impact, especially in aquatic ecosystems.

First proposal



- New criterion proposed in order to ensure the proper disposal of waste lubricants.
- The criterion alerted about the lubricant risk in case of ending up in the environment, and was defined for lubricants designed to be sold to private end consumers.



Outcomes 1st AHWG meeting and first consultation

- This criterion has not been controversial and not many comments against have been received.
- The sentence initially proposed has been questioned as it refers to the health and environmental risks, considered as contradicting criterion 1, 2 and 3 of the EU Ecolabel.
- The relevance of this criterion considering the number of products certified B2C has been questioned.

2nd Proposal main changes

Second proposal for criterion 8: Consumer information

In the case of lubricants designed to be sold to private end consumers, the following information shall be present in the label of the package:

“Lubricating oil may **contain substances harmful** to health and environment, **therefore be mindful and avoid any spillage to the environment**. **Product residue** must be managed by an authorized waste manager”.

Assessment and verification: the applicant shall provide a **sample of the product packaging or its artwork** where the above information appears.



Points for discussion and written feedback

- Stakeholder views on the proposal are welcome.

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Criterion 9: Information appearing on the EU Ecolabel



Main aim of this criterion



To inform the consumer and make easy the environmental friendly decision

First proposal



- Main change corresponded to the **deletion** of the claim *contains a large fraction of biobased material* that would not be always the case regarding the introduction of **Criterion 4. Raw materials.**
- It was suggested to introduce the claims:
 - *Restricted amount of hazardous substances;*
 - *Tested for lubricating performance*



Outcomes 1st AHWG meeting and first consultation

- Maintain the previous sentences of the Criterion.
- The sentence “*Tested for lubricating performance*” is not suitable for all the families included in the revision. Modify the sentence according to the last version of the Criterion 8.
- Information has to be focused on aquatic toxicity and biodegradation of lubricants.

2nd Proposal main changes

Second proposal for criterion 9: Information appearing on the EU Ecolabel

Optional label with text box shall contain the following text:

- “**Limited** amount of hazardous substances”,
- “Limited impact on the aquatic environment”,
- “**Verified performance/As effective as the average product on the market**”

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

http://ec.europa.eu/environment/Ecolabel/promo/logos_en.htm

Assessment and verification: the applicant shall provide a sample of the label, together with a declaration of compliance with this Criterion.

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Points for discussion and written feedback

- Stakeholder views on the proposal are welcome.

Next steps following on from this AHWG1 meeting

1. Stakeholders can provide **comments** on technical report and criteria proposals **not later than by 31st October 2017**
2. Comments need to be submitted using the BATIS system.
3. February 2018: TR3.0 publication + EUEB final presentation + open online consultation for final comments
4. April 2018: TR4.0 for ISC
5. June 2018: Vote

Thanks for your attention



Contact: Candela Vidal-Abarca Garrido
&
Renata Kaps

Tel. +34 954 48 71 92

e-mail: JRC-IPTS-LUBRICANTS@ec.europa.eu