



# Development of Green Public Procurement criteria for paints

## Criteria Proposal Report

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## Glossary

Units Conventional SI units and prefixes used throughout: {k, kilo, 1000} {M, mega, 1,000,000} {G, giga,  $10^9$ } {kg, kilogramme, unit mass} {t, metric tonne, 1,000 kg}

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# 1 Introduction

Green Public Procurement (GPP), defined in the Commission Communication “*Public procurement for a better environment*”<sup>1</sup> as “*a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured.*” This is a voluntary instrument, which public authorities can use to provide industry with incentives for developing and marketing more environmentally sound products.

Within GPP, for each product/service group two sets of criteria are presented:

The core criteria are those suitable for use by any contracting authority across the Member States and address the key environmental impacts. They are designed to be used with minimum additional verification effort or cost increases.

The comprehensive criteria are for those who wish to purchase the best products available on the market. These may require additional verification effort or a slight increase in cost compared to other products with the same functionality.

The process of establishing the criteria proceeds at the European level following consultation with experts and all interested parties.

## 1.1 Document rationale and structure

This document sets out the rationale for creating GPP criteria for paints and varnishes and provides core, comprehensive and award criteria (where appropriate) at the end of each section. The development of GPP criteria for this product group is conducted in parallel with the EU Ecolabel criteria revision for indoor and outdoor paints and varnishes similar to other product groups. Regarding the general procedure of the GPP criteria development information are found in the respective GPP website of DG ENV<sup>2</sup>. This document has a strong reference to the work conducted for the development of the EU Ecolabel, and we have used it as a starting point for the development of an equivalent GPP criteria document. In general, the GPP comprehensive criteria list mirrors that within the EU Ecolabel criteria with less challenging criteria described for GPP core. The final section provides complete proposed criteria for paints and varnishes.

This document relies on the evidence base described within the following reports<sup>3</sup>: “*Ecolabel and Green Public Procurement (GPP) Criteria for Paints and Varnishes: Preliminary Background Report*”, and “*Revision of EU European Ecolabel and Development of EU Green Public Procurement Criteria for Indoor and Outdoor Paints and Varnishes: GPP Background Report*” referred to as *The Background Document* throughout this report and the feedback received from stakeholders and from the 1<sup>st</sup> Ad-Hoc Working Group (AHWG). Reference to these documents is necessary for the environmental and financial case for the proposed criteria.

## 1.2 Key environmental concerns


The key environmental impacts of paints and varnishes are associated with their production; this also has an effect on the overall impact when paint is left unused and the time between repaints (durability of the paint). Solvent based paints have a higher environmental impact than water based paints while binder and TiO<sub>2</sub> manufacture have an important environmental impact of paint production. Additives have a wide range of health and environmental implications.

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<sup>1</sup> Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Public procurement for a better environment, COM (2008) 400, available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0400:FIN:EN:PDF>

<sup>2</sup> DG ENV : Procedure for the development and revision of GPP criteria. [http://ec.europa.eu/environment/gpp/gpp\\_criteria\\_procedure.htm](http://ec.europa.eu/environment/gpp/gpp_criteria_procedure.htm)

<sup>3</sup> Reports are available via the project website: <http://susproc.jrc.ec.europa.eu/paints/stakeholders.html>

Key Environmental Areas	Green Public Procurement Approach
<ul style="list-style-type: none"> <li>• In-use durability</li> <li>• Unused paint</li> <li>• Solvent based paints have a higher environmental impact than water based paints</li> <li>• TiO<sub>2</sub> manufacture is an important environmental impact of paint production</li> <li>• Additives have a wide range of health and environmental implications.</li> </ul>	
	<ul style="list-style-type: none"> <li>• Minimise the impact of production</li> <li>• Reduce the number of hazardous materials included in the paint</li> <li>• Limit paint wastage</li> <li>• Purchase durable paints.</li> </ul>

### 1.3 Overview of criteria proposal

In the following table is presented the proposal of the GPP criteria. It is given which criteria are proposed in the technical specifications to be used as core or comprehensive and which criteria are proposed to be used under the contract performance clause.

Criterion	Criterion Type			Key aspect addressed
	Core	Comprehensive	Award	
White pigments	X	X		Manufacturing impacts
Spreading rate	X	X		Performance
Wet scrub	X	X		Performance
VOCs	X	X		Emissions during use
Metals	X	X		Emissions during use
Hazardous substances	X	X		Emissions during use
Titanium Dioxide			X	Manufacturing impacts
Indoor Air Quality			X	Emissions during use
	<b>Contract performance clause</b>			
Unused Paint	X	X		Manufacturing impacts
Unused Paint disposal	X	X		Emissions at end of life

## 2 Scope

### 2.1 Overlap with scope of EU Ecolabel

The definition and scope of the product group of paints and varnishes has been addressed in The Background Document. This issue was the subject of discussion and agreement in the 1st Ad-hoc Working Group (AHWG) meeting. The primary differences between this scope and that presented in the EU Ecolabel criteria are the presence of Road Markings and additional services criterion.

Below details of the updates of the EU Ecolabel Paints and Varnishes scope are presented.

The product group ‘paints and varnishes’ shall comprise both indoor and outdoor decorative paints and varnishes, woodstains and related products and painting services, as defined in paragraphs 2 and 3, intended for use by do-it-yourself and professional users (please note that these are not industrial users).

This includes, inter alia, floor coatings, floor paints and road markings, products which are tinted by distributors at the request of amateur or professional decorators, tinting systems, decorative paints in liquid or paste formulas which may have been pre- conditioned, tinted or prepared by the manufacturer to meet consumer’s needs, including wood paints, wood and decking stains, masonry coatings and metal finishes

primers and undercoats of such product systems as defined within Directive 2004/42/CE Annex I 1.1.d and 1.1.g.

Painting services shall be mandated to procure and use paints that meet the specification defined within these criteria. They are also subject to specific criteria.

‘Paint’ means a pigmented coating material, in liquid or in paste form, which when applied to a substrate, forms an opaque film having protective, decorative or specific technical properties.

‘Painting services’ are contractors directly engaged to paint, usually termed ‘painters and decorators’.

‘Varnish’ means a clear coating material which when applied to a substrate forms a solid transparent film having protective, decorative or specific technical properties.

After application, the paint or varnish dries to a solid, adherent and protective coating.

‘Decorative paints and varnishes’ means paints and varnishes that are applied to buildings, their trim and fittings, for decorative and protective purposes. They are applied in-situ. While their main function is decorative in nature, they also have a protective role.

‘Woodstains’ (lasures) means coatings producing a transparent or semi-transparent (using substantially non-white pigment) film for decoration and protection of wood against weathering, which enables maintenance to be carried out easily.

‘Tinting systems’ is a method of preparing coloured paints by mixing a ‘base’ with coloured tints.

Masonry coatings are coatings that produce a decorative and protective film for use on concrete, (paintable) brickwork, blockwork, rendering, calcium silicate or fibre-reinforced cement. They are intended principally for exterior use, but may also be used internally, or on soffits and balcony ceilings.

‘Road markings’ are coatings used on a road surface in order to convey official information. They can also be applied in other facilities used by vehicles to mark parking spaces or designate areas for other uses. Within the confines of this standard, road markings will not include mechanical markings such as Cat’s Eyes.

The following definitions shall be used:

Transparent contrast ratio < 90% at 120 $\mu$

Semi Transparent contrast ratio 90-98% at 120 $\mu$

Opaque contrast ratio >98% at 120 $\mu$ .

White and light coloured paints are those with a tri-stimulus (Y-value) >70%

The product group shall not comprise:

anti-fouling coatings

wood preservation products

coatings for particular industrial and professional uses, including heavy-duty coatings

facade coatings

powder coatings

UV curable paint systems

paints primarily intended for vehicles

products that do not form film over the substrate.

## 3 Requirements on paint production

### 3.1 Raw material sourcing

#### 3.1.1 White pigments

##### Rationale

A reduction in the use of pigment in paints, particularly titanium dioxide, is desirable because it is a major contributor to the paint's environmental impact. Pigment has an effect on the opacity of paint, therefore any reduction in use must be balanced against a reduction in the performance. Paint spreading performance is defined within the Spreading Rate criterion and is directly linked to the amount of pigment added to the paint.

As a starting point, the newly proposed criterion for the EU Ecolabel was used for the comprehensive GPP criterion. To formulate the core criterion, a suggestion that these figures are relaxed by approximately 20% to encompass more of the market place.

##### Core criterion formulation

White pigment content (white inorganic pigments with a refractive index higher than 1,8): Paints shall have a white pigment content lower or equal to that described in the table below per m<sup>2</sup> of dry film, with 98 % opacity.

Wet scrub resistance	Indoor limit (g/m <sup>2</sup> )	Outdoor limit (g/m <sup>2</sup> )
Class 1	48	50
Class 2	42	44

This requirement does not apply to varnishes and woodstains.

Assessment and verification: The applicant shall either provide a declaration of non-use or provide documentation showing the content of white pigments, the spreading rate and the assessment and verification criteria set out for the wet scrub resistance criterion, together with the detailed calculation showing compliance with this criterion.

##### Comprehensive criterion formulation

White pigment content (white inorganic pigments with a refractive index higher than 1,8): Paints shall have a white pigment content lower or equal to that described in the table below per m<sup>2</sup> of dry film, with 98 % opacity.

Wet scrub resistance	Indoor limit (g/m <sup>2</sup> )	Outdoor limit (g/m <sup>2</sup> )
Class 1	40	42
Class 2	36	38
Class 4 (Matt paints)	25	27

This requirement does not apply to varnishes and woodstains.

Assessment and verification: The applicant shall either provide a declaration of non-use or provide documentation showing the content of white pigments, the spreading rate and the assessment and verification criteria set out for the wet scrub resistance criterion, together with the detailed calculation showing compliance with this criterion.

### 3.1.2 Titanium dioxide

#### Rationale

Although an important factor in the environmental performance of the paint, controlling the emissions associated with TiO<sub>2</sub> production is partially addressed under the white pigments criterion. To limit the number of criteria required for public procurers within the GPP it is proposed that the criterion under the EU Ecolabel for paints and varnishes is used as an award criterion.

#### Award Criterion formulation

If the product contains more than 3.0 weight % of titanium dioxide, the emissions and discharges of wastes from the production of any titanium dioxide pigment used shall not exceed the following [as derived from the Reference Document on Best Available Technology for the Manufacture of Large Volume Inorganic Chemicals (BREF) (August 2007)]:

The sulphate process:

SO<sub>x</sub> calculated as SO<sub>2</sub>: 7.0 kg/ton TiO<sub>2</sub>

Sulphate waste: 500 kg/ton TiO<sub>2</sub>.

The chloride process:

If natural ore is used, 103 kg chloride waste/ton TiO<sub>2</sub>

If synthetic ore is used: 179 kg chloride waste /ton TiO<sub>2</sub>

If rutile ore is used: 329 kg chloride waste /ton TiO<sub>2</sub>.

If more than one type of ore is used, the values will apply in proportion to the quantity of the individual ore types used.

Note:

SO<sub>x</sub> emissions only apply to the sulphate process.

For the avoidance of doubt, the Waste Framework Directive 2008/98/EC, Article 3 defines waste. If the TiO<sub>2</sub> producer can satisfy Article 5 (by-product production) of the Waste Framework Directive for its solid wastes then, the wastes shall be exempt.

Assessment and verification: The applicant shall either provide a declaration of non-use or provide the supporting documentation indicating the respective levels of emissions and discharges of wastes for these parameters, the titanium dioxide content of the product, the spreading rate, together with the detailed calculations showing compliance with this criterion. Products holding a relevant Type 1 Ecolabel fulfilling the listed requirements will be deemed to comply.



## 4 Use

### 4.1 Efficiency in use

#### 4.1.1 Spreading rate

##### Rationale

A key environmental consideration is the amount of paint used during application. Minimising the amount of paint used, whilst achieving a high quality finish can result in a significant environmental saving. The most appropriate criterion by which this can be monitored is through the paints spreading rate. This is a criterion in the current revision of the EU Ecolabel Paints and Varnishes.

The interplay between this criterion and the criterion on "White pigments" in section 3.1.1 mean that a variation in either has an impact on both. It is suggested to use the same approach as applied in the EU Ecolabel and agreed in the 1<sup>st</sup> AHWG. Therefore, it is proposed to use the spreading rate requirements of the current Ecolabel criteria and regarding an improvement in environmental performance to focus on the amount of white pigment within the formulations described in Section 3.1.1. Due to the requirements under the white pigment criterion, the spreading rate criterion must apply to both core and comprehensive criteria. Modification to the wording to reduce the burden of delivery of the criterion has been suggested.

##### Formulation of the core and comprehensive criterion

White paints and light-coloured paints (including finishes, primers, undercoats and/or intermediates) shall have a spreading rate (at a hiding power of 98 %) of at least 8m<sup>2</sup> per litre of product for indoor paints and 6m<sup>2</sup> for outdoor paints. For tinting systems, this criterion applies only to the white base (the base containing the most TiO<sub>2</sub>). In cases where the white base is unable to achieve this requirement, the criterion shall be met after tinting the white base to produce the standard colour RAL 9010.

This requirement does not apply to varnishes, woodstains, floor coatings, floor paints, primers or any other transparent coatings.

Assessment and verification: The applicant shall provide a test report using the method ISO 6504/1 (Paints and varnishes — determination of hiding power — Part 1: Kubelka-Munk method for white and light-coloured paints) or 6504/3 [Part 3: determination of contrast ratio (opacity) of light-coloured paints at a fixed spreading rate]. Products holding a relevant Type 1 Ecolabel fulfilling the listed requirements will be deemed to comply.

#### 4.1.2 Wet scrub resistance

##### Rationale

Wet scrub resistance can be considered a means to determine the durability of a particular paint. Manufacturers state that this is one of the key performance indicators for hard wearing paints (particularly floor and bathroom/kitchen paint). The durability of a paint is important in reducing its environmental impact. As is shown within the LCA in the Background Report, any increase in time between repaints, in this case due to an increase in wear resistance, leads to a decrease in the overall lifecycle impact of the paint.

A key concern is whether this test needs to be carried out for all paints or only for those claiming wet scrub resistance. Due to the costs and difficulties in meeting the tougher EU Ecolabel threshold, it is proposed that for the core criteria only paints claiming wet scrub resistance will be mandated to meet the wet-scrub resistance thresholds. For the comprehensive criterion, all paints will be required to undergo testing. Products holding a relevant Type 1 Ecolabel fulfilling the listed requirements will be deemed to comply.

## Core criterion formulation

Paints (according to EN 13300) for which claims are made (whether on the product or in related marketing material) that they are brushable, shall have a wet scrub resistance as measured by EN 13300 and EN ISO 11998 of class 2 (not exceeding 20 microns after 200 cycles).

Paints (according to EN 13300) for which claims are made (whether on the product or in related marketing material) that they are hard wearing, shall have a wet scrub resistance as measured by EN 13300 and EN ISO 11998 of class 1 (not exceeding 5 microns after 200 cycles).

Due to the large potential range of possible tinting colours, this criterion will be restricted to the testing of tinting bases.

Assessment and verification: The applicant shall provide a test report according to EN 13300 using the method EN ISO 11998 (Test for cleanability and scrub resistance). Products holding a relevant Type 1 Ecolabel fulfilling the listed requirements will be deemed to comply.

## Comprehensive criterion formulation

All paints shall have a wet scrub resistance as measured by EN 13300 and EN ISO 11998 of class 4 (not exceeding 70 microns after 200 cycles).

Paints (according to EN 13300) for which claims are made that they are brushable (whether on the product or in related marketing material), shall have a wet scrub resistance as measured by EN 13300 and EN ISO 11998 of class 2 (not exceeding 20 microns after 200 cycles).

Paints (according to EN 13300) for which claims are made (whether on the product or in related marketing material) that they are hard wearing, shall have a wet scrub resistance as measured by EN 13300 and EN ISO 11998 of class 1 (not exceeding 5 microns after 200 cycles).

Due to the large potential range of possible tinting colours, this criterion will be restricted to the testing of tinting bases.

Assessment and verification: The applicant shall provide a test report according to EN 13300 using the method EN ISO 11998 (Test for cleanability and scrub resistance) and evidence (on the product packaging or related marketing material) that the end-user is informed that the product has not been tested for wet scrub resistance in the case of ceiling paints. Products holding a relevant Type 1 Ecolabel fulfilling the listed requirements will be deemed to comply.

## 4.2 Emissions during use

### 4.2.1 Volatile organic compounds

#### Rationale

Volatile Organic Compounds (VOCs) are used as solvents within paints to help keep it stable prior to use and aid in spreading and delivery of the paint to the substrate. VOCs encompass a wide variety of compounds and are generally classed as organic substances with a boiling point less than 250°C.<sup>4</sup> VOCs generally evaporate or sublime from the paint during and after application. The release of these emissions can cause eye, nose, and throat irritation along with headaches and loss of coordination. Due to the wide diversity of compounds

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<sup>4</sup> Directive 2004/42/CE

encompassed by this classification, more extreme reactions can also present, in particular, damage to liver, kidney, and central nervous system and some are suspected or known to cause cancer in humans.<sup>5</sup>

The Background Report also highlights that VOCs have an environmental impact of production and disposal. Therefore a reduction in their use will limit both human health impacts and environmental impacts.

The current VOC limits within the EU Ecolabel criteria are based on modified (reduced) 2010 limits from the Paints Directive 2004/42/EC. Updated limits have been developed for the new revision based on feedback from stakeholders and dossier submissions from EU Ecolabel Competent Bodies. Most suppliers appear to be able to meet the current in force in Ecolabel VOC limits and therefore will be used as the core criterion. The updated limits will be used as the comprehensive criterion. It is suggested that the requirements for SVOCs are removed from the core criterion because they will add extra burden to both manufacturers and procurers.

To determine the appropriate level of VOC for road markings, an analysis of other ecolabel or national limits was performed; it is suggested that the best-in class and average solvent content are used for comprehensive and core criteria respectively. These will be based on information provided within the Background Report.

Table 1: National or ecolabel limits for VOC content in road markings

Country	Limit of VOC content (wt%)	Limit of VOC content (g/l)**
Netherlands	28	297
Austria	>75 wt% solids	265
Germany	25	265
Finland	2	21
Sweden	2	21
USA*	8	85
Canada*	14 (summer)	150 (summer)
	42 (winter)	450 (winter)

\*acetone is not considered part of the VOC content, \*\* calculated based on a conversion based on 10.6g/l per wt%

### Formulation of the core criterion

VOC content shall not exceed:

Description	VOC limits (g/l including water)
Indoor matt walls and ceilings (Gloss <25@60°)	15
Indoor glossy walls and ceilings (Gloss >25@60°)	60
Outdoor walls of mineral substrate	40
Indoor/outdoor trim and cladding paints for wood and metal	90
Indoor trim varnishes and woodstains, including opaque woodstains	75
Outdoor trim varnishes and woodstains, including opaque woodstains	90
Indoor and outdoor minimal build woodstains	75
Primers	15
Binding primers	15
One-pack performance coatings	100
Two-pack reactive performance coatings for specific end use such as floors	100
Decorative effect coatings	90
Road markings	265

In this context volatile organic compounds (VOC) means any organic compounds having an initial boiling point less than or equal to 250°C measured at a standard pressure of 101,3 kPa as defined in Directive 2004/42/EC. The subcategories for paints and varnishes of the Directive are used for defining VOC limits. These values shall

<sup>5</sup> <http://www.epa.gov/iaq/voc.html>

be measured at the point of application and must include any additional solvent added to the paint prior to application.

Assessment and verification:

Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply.

The applicant shall provide a declaration of compliance with this criterion. For all products the applicant shall indicate the VOC content. Products holding a relevant Type 1 Ecolabel fulfilling the listed requirements will be deemed to comply.

### Formulation of the comprehensive criterion

VOC content shall not exceed:

Description	VOC limits (g/l including water)
Indoor matt walls and ceilings (Gloss <25@60°)	10
Indoor glossy walls and ceilings (Gloss >25@60°)	40
Outdoor walls of mineral substrate	25
Indoor/outdoor trim and cladding paints for wood and metal	80
Indoor trim varnishes and woodstains, including opaque woodstains	65
Outdoor trim varnishes and woodstains, including opaque woodstains	75
Indoor and outdoor minimal build woodstains	50
Primers	10
Binding primers	10
One-pack performance coatings	80
Two-pack reactive performance coatings for specific end use such as floors	80
Decorative effect coatings	80
Road markings	25

In this context volatile organic compounds (VOC) means any organic compounds having an initial boiling point less than or equal to 250°C measured at a standard pressure of 101,3 kPa as defined in Directive 2004/42/EC. The subcategories for paints and varnishes of the Directive are used for defining VOC limits. These values shall be measured at the point of application and must include any additional solvent added to the paint prior to application.

The total Semi Volatile Organic Compound (SVOC) shall be limited to 30 g/l including water. SVOC are defined as organic substances or mixtures with a boiling range between 250 and 400°C.

Assessment and verification:

Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply.

The applicant shall provide a declaration of compliance with this criterion. For all products the applicant shall indicate the VOC and SVOC content. Products holding a relevant Type 1 Ecolabel fulfilling the listed requirements will be deemed to comply.

## 4.2.2 Indoor air quality

### Rationale

Studies in the 1980s in the USA<sup>6</sup> showed that the contamination of indoor air by 12 of the most commonly encountered VOCs was between two and five times that found in outside air irrespective of whether it was in a rural or industrial environment. Limiting emissions to air of VOCs from paint will reduce health impacts.

The Background Report described the desire as well as the trend toward Indoor Air Quality (IAQ) testing. Although this is a nascent subject, requirements in Germany and, in particular, France were considered suitable for inclusion into the EU Ecolabel. In general, there was support for the use of IAQ to determine the emissions of VOC from paint. However, stakeholders were concerned over the cost as well as the fact that an international test has yet to be agreed. The trend towards IAQ should also be reflected within the GPP criteria but, due to uncertainties over the testing requirements, it is suggested that the IAQ requirements as defined within the EU Ecolabel are limited to an Award Criteria. This can also be justified in that IAQ is partially addressed within the VOC criterion.

### Award criterion formulation

Each indoor paint shall undergo testing for indoor air quality and meet Class A+ as defined within French Decree NOR : DEVL1104875A. This requirement is restricted to the lightest colour paint within a series or, in tinting systems, the base paint.

Verification and assessment: The applicant shall provide test results using the methodology described within NOR: DEVL1104875A. Products holding a relevant Type 1 Ecolabel fulfilling the listed requirements will be deemed to comply.

## 4.2.3 Metals

### Rationale

In large quantities, certain metals are considered carcinogenic and hazardous to human health<sup>7</sup>. Although present in the environment, and necessary for human health in small amounts, any large concentration can cause acute or chronic toxicity<sup>8</sup>. As they are elements, they cannot be broken down and therefore will persist in the environment<sup>9</sup>. When absorbed by humans, they have been shown to have detrimental effects on kidney function, reproductive organs and the nervous system, particularly in unborn infants and young children. Prohibiting their use is an important goal.

It is suggested that the current EU Ecolabel criterion for metals is applied to both core and comprehensive criteria.

An additional derogation for road markings is suggested to account for the use of lead and chromium-based paints which are still widely used. The current alternatives are not fully established in the marketplace.

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<sup>6</sup> EPA's Office of Research and Development's "Total Exposure Assessment Methodology (TEAM) Study" (Volumes I through IV, completed in 1985)

<sup>7</sup> [http://www.apis.ac.uk/overview/pollutants/overview\\_HM.htm](http://www.apis.ac.uk/overview/pollutants/overview_HM.htm)

<sup>8</sup> <http://www.lef.org/protocols/prtcl-156.shtml>

<sup>9</sup> [http://www.apis.ac.uk/overview/pollutants/overview\\_HM.htm](http://www.apis.ac.uk/overview/pollutants/overview_HM.htm)

## Core and comprehensive criterion formulation

The following heavy metals or their compounds shall not be used as an ingredient of the product or tint (if applicable) (whether as a substance or as part of any preparation used): cadmium, lead, chromium VI, mercury, arsenic, barium (excluding barium sulphate), selenium and antimony.

It is accepted that ingredients may contain traces of these metals up to 0.01 deriving from impurities in the raw materials and can be present at these quantities for each metal for each ingredient.

Cobalt shall also not be added as an ingredient with the exception of cobalt salts used as a siccative in alkyd paints. These may be used up to a concentration not exceeding 0,05 % (m/m) in the end product, measured as cobalt metal. Cobalt in pigments is also exempted from this requirement.

Lead and chromium VI restrictions are not applicable to pigments used to road markings.

Assessment and verification: The applicant shall provide a declaration of compliance with this criterion as well as declarations from ingredient suppliers (where applicable). Products holding a relevant Type 1 Ecolabel fulfilling the listed requirements will be deemed to comply.

### 4.2.4 Hazardous substances

#### Rationale

A large number of different additives to paints can be considered toxic. Of particular concern is the emission of hazardous and eco-toxic chemicals, both during production and during the application and use of the paint. During previous revisions of the EU Ecolabel Paint and Varnishes criteria the following compounds were highlighted for special consideration:

Alkylphenolethoxylates (APEOs)

Perfluorinated alkyl sulfonates (PFAS)

Formaldehyde

Halogenated organic solvents

Phthalates

Volatile aromatic hydrocarbons (VAHs)

Isothiazolinone compounds.

With the advent of the new requirements on hazardous substances for EU Ecolabel, these compounds (along with a large number of other hazardous materials) are now banned. The new hazardous materials criterion encompasses a wide variety of compounds, requiring derogations for particular substances but may be too complex for general inclusion within the GPP core criteria. . A simpler GPP core criterion should mandate the exclusion of Substances of Very High Concern (SVHC) or those that appear on the candidate list of SVHCs. This will provide some limitations for paint producers and provide protection against some of the most toxic chemicals but will limit the burden on procurers.

For the comprehensive criterion, two options have been suggested:

1. A criterion that takes account of highlighted hazardous substances from the previous revision of the EU Ecolabel. These are the compounds of most concern and have been highlighted for exclusion.
2. The new EU Ecolabel hazardous substances criterion. This follows the requirements that all chemicals with risk phrases should be prohibited.

Option 1 is less onerous on business and procurers whereas option two provides the widest degree of protection.

#### Core criterion formulation

No ingredients (substances) shall be listed on the product label, in the safety data sheet (SDS) or in other relevant technical data sheets that are on the candidate list for Substances of Very High Concern or have been identified as substances of very high concern and have been included in the list foreseen in Article 59 of Regulation (EC) No 1907/2006 (the REACH Regulation). The list of substances referred to (the candidate list) can be found at: [http://echa.europa.eu/chem\\_data/authorisation\\_process/candidate\\_list\\_table\\_en.asp](http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp).

Verification: The provision of the ingredients listed on the product label, the safety data sheet (SDS), the manufacturer's website and any other relevant technical data sheets, along with their CAS-Number and a declaration that none of the listed ingredients are on the candidate list.

### Comprehensive criterion formulation (option 1)

In addition to the core criterion for hazardous substances, the following compounds shall not be directly added to paint formulations:

- Volatile aromatic hydrocarbons
- Alkylphenolethoxylates (APEOs)
- Substances listed in the OECD 'Preliminary lists of PFOS, PFAS, PFOA, PFCA, related compounds and chemicals that may degrade to PFCA (as revised in 2007)'
- Free formaldehydes (excluding formaldehyde donors)
- Phthalates
- The product may include biocides in order to preserve the product, and in the appropriate dosage for this purpose alone. These biocides shall be registered in the Biocide Product Regulation (BPD) scheme. Further, in accordance with Directive 67/548/EEC, Directive 1999/45/EC of the European Parliament and of the Council or Regulation (EC) No 1272/2008 substances or mixtures used as preservatives, that are classified as: H400, H410, H411, H412 and H413 are permitted but only if their bioaccumulation potentials are characterised by log Kow (log octanol/water partition coefficient) < 3,0 or an experimentally determined bioconcentration factor (BCF) ≤ 100.
- The paint formulation shall not contain any hazardous substances, or combinations thereof, that result in the formulation being greater than 0.7 as defined within PART A of directive 1999/45/EC and as required by the CLP regulation for marking dangerous substances for the following risk phrases:

Risk Phrase <sup>1</sup>				
R28	R68	R61-62	R48/20; R48/21; R48/22	R31
R25	R45	R62	R50	R32
R65	R49	R63	R50-53	R39-41
R27	R40	R62-63	R51-53	<b>Sensitising substances</b>
R24	R60	R64	R52-53	R42
R23; R26	R61	R39/23; R39/24; R39/25; R39/26; R39/27; R39/28	R53	R43
R23	R60-61	R68/20; R68/21; R68/22	R59	
R46	R60-63	R48/25; R48/24; R48/23	R29	

<sup>1</sup>Directive 67/548/EEC with adjustment to REACH according to Directive 2006/12/EC and Directive 1999/45/EC as amended.

Verification: A declaration that the requirements are fulfilled. The provision of the ingredients listed on the product label, the safety data sheet (SDS), the manufacturer's website and any other relevant technical data sheets, along with their CAS-Number (where available) and a declaration that none of the added ingredients are on the list.

## Comprehensive criterion formulation (option 2)

As described above another option for the comprehensive criterion could have been the use of the hazardous substances criterion as it is formulated in the last proposal of the EU Ecolabel criteria revision<sup>10</sup>. An advantage following this option will be the full alignment with Ecolabel in this area. However, the research team considers the formulation very complex for procurers (e.g. in GPP cannot be used transition periods). Further discussion with stakeholders is necessary and adjustments will be needed if this option will be preferred.

Formulation of Option 2 follows:

### Hazardous substances

According to Article 6(6) of the regulation No 66/2010 on EU Ecolabel, the product or any part of it thereof shall not contain substances or mixtures meeting the criteria for classification with the hazard classes or categories in accordance with Regulation (EC) no 1227/2008 specified below nor shall it contain substances referred to in Article 57 of REACH Regulation (EC) no 1907/2006. The risk phrases below generally refer to substances. However, for mixtures of substances where information on the substances is difficult to obtain, classification for rules of mixtures may be applied. The term mixture and substance are used as defined within the CLP Regulation (EC) No 1272/2008.

Hazard Statement <sup>1</sup>	Risk Phrase <sup>2</sup>
H300 Fatal if swallowed	R28
H301 Toxic if swallowed	R25
H304 May be fatal if swallowed and enters airways	R65
H310 Fatal in contact with skin	R27
H311 Toxic in contact with skin	R24
H330 Fatal if inhaled	R23; R26
H331 Toxic if inhaled	R23
H340 May cause genetic defects	R46
H341 Suspected of causing genetic defects	R68
H350 May cause cancer	R45
H350i May cause cancer by inhalation	R49
H351 Suspected of causing cancer	R40
H360F May damage fertility	R60
H360D May damage the unborn child	R61
H360FD May damage fertility. May damage the unborn child	R60-61
H360Fd May damage fertility. Suspected of damaging the unborn child	R60-63
H360Df May damage the unborn child. Suspected of damaging fertility	R61-62
H361f Suspected of damaging fertility	R62
H361d Suspected of damaging the unborn child	R63
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child	R62-63
H362 May cause harm to breast fed children	R64
H370 Causes damage to organs	R39/23; R39/24; R39/25; R39/26; R39/27; R39/28
H371 May cause damage to organs	R68/20; R68/21; R68/22
H372 Causes damage to organs through prolonged or repeated exposure	R48/25; R48/24;

<sup>10</sup> [http://susproc.jrc.ec.europa.eu/paints/docs/Ecolabel%20Paints%20Criteria\\_for%20website.pdf](http://susproc.jrc.ec.europa.eu/paints/docs/Ecolabel%20Paints%20Criteria_for%20website.pdf)



	R48/23
<b>H373 May cause damage to organs through prolonged or repeated exposure</b>	R48/20; R48/21; R48/22
<b>H400 Very toxic to aquatic life</b>	R50
<b>H410 Very toxic to aquatic life with long-lasting effects</b>	R50-53
<b>H411 Toxic to aquatic life with long-lasting effects</b>	R51-53
<b>H412 Harmful to aquatic life with long-lasting effects</b>	R52-53
<b>H413 May cause long-lasting harmful effects to aquatic life</b>	R53
<b>EUH059 Hazardous to the ozone layer</b>	R59
<b>EUH029 Contact with water liberates toxic gas</b>	R29
<b>EUH031 Contact with acids liberates toxic gas</b>	R31
<b>EUH032 Contact with acids liberates very toxic gas</b>	R32
<b>EUH070 Toxic by eye contact</b>	R39-41
<b>Sensitising substances</b>	
<b>H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled</b>	R42
<b>H317: May cause allergic skin reaction</b>	R43

<sup>1</sup>Regulation (EC) no 1272/2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) no 1907/2006

<sup>2</sup>Directive 67/548/EEC with adjustment to REACH according to Directive 2006/12/EC and Directive 1999/45/EC as amended.

Derogations: Following substances are exempt from this criterion

Derogation number a/a	USE	Chemical Composition Ingredient	CAS nr/ EINECS Nr / REACH registration Nr *	Classification	Requirement	Maximum allowed concentration % w/w	Type of paint
1	In can preservative	2-Methyl-2H-isothiazol-3-one	2682-20-4	R 22-23-34-43-50	1, 5, 8, 9	0,1%	
2		1,2-Benzisothiazol-3(2H)-one	2634-33-5	R 22-38-41-43-50	1, 5, 8, 9	0,1%	
3		Tetrahydro-1,3,4,6-tetrakis(hydroxymethyl)imidazo[4,5-d]imidazol-2,5(1H,3H)-dion	5395-50-6	R43	2, 8, 9	0.080%	
4		bronopol (INN) 2-bromo-2-nitropropane-1,3-diol	52-51-7	R21/22 R37/38-41, R50	2, 5, 8, 9	0.100%	
5		mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)	55965-84-9	R23/24/25-34-43-50-53	2,3, 5, 8, 9	0.002%	
6		Sodium N-(hydroxymethyl)glucinate	70161-44-3	Xi; R36, R43	8, 9	0.050%	
7		3-iodo-2-propinyl-butylcarbamate (IPBC)	55406-53-6 EINECS: 259-627-5	R 20/22-41-50	8, 9	0,3%	
8		Pyrithione zinc	13463-41-7	R 22-23-38-41-50	2, 5, 8, 9	0,1% 0,020%	Outdoor paint – façade coatings All paints in film
9	Dry film preservative	terbutryn	886-50-0	Xn, Xi, N; R 22-43-50/53 Or Xn R22; Xn R48/22; Xi R43; R52/53 Or only R 50/53	2, 5, 8, 9	0.100%	
10		4,5-Dichloro-2-octyl-3(2H)-isothiazolone	64359-81-5	C;R34, Xi;R37, Xi;R43, N;R50	5, 9	0.700%	
11		Pyrithione zinc	13463-41-7	R 22-23-38-41-50	2, 5, 8, 9	0,1% 0,020%	Outdoor paint – façade coatings All paints in film
12		Cobalt, complexes de neodecanoate et de borate	68457-13-6	Xn, N, R38, R43, R50/53, R22	5, 9	0.025%	
13		3-iodo-2-propinyl-butylcarbamate (IPBC)	55406-53-6 EINECS: 259-627-5	R 20/22-41-50	2, 8, 5, 9	0,3%	
14		2-Octyl-2H-isothiazol-3-one	26530-20-1	R 22, 23/24-34-43-50/53	1, 2, 5, 8, 9	0.040%	
15		zinc oxide	1314-13-2	R 50/53	2, 5, 8, 9	2%	
16		Sodium polynaphthalene sulphonate	9084-06-4	R 52/53	2, 5, 8, 9	0.1%	
17		Neutralising agent-pH	triethylamine	121-44-8	R11, R22, R23/24, R25	2, 9	0.200%

				R41			
18	corrector	Alkanolamine	102-79-4	Xi: R41	9	2.000%	
19		Ammoniaque	1336-21-6	C, N, R34, R50	5, 9	0.200%	
20		2-amino-2-methylpropanol	124-68-5	Xi: R36/38; R52/53	5, 9	0.200%	
21		Ammonia	7664-41-7	R10; R23; R34; R50	2,5, 9	0.065%	
22		RTECS #: BO0875000	2,2'-iminodiethanol (DEA)	111-42-2	R22-48/22; R38-41	2, 9	2.000%
23	Cobalt dryer	Cobalt bis(2-ethylhexanoate)	136-52-7	Xi; R43 N; R50/53	2,4,5, 9	1%;	
24		Fatty acids, tall-oil, cobalt salts	61789-52-4	Xn; R22 Xi; R43 , N; R51/53	4,5, 9	0.500%	
25		Neodecanoic acid	26896-20-8	R52/53	4,5, 9	1.000%	
26	Zinc dryer	Hexanoic acid, 2-ethyl-, zinc salt,BASIC	85203-81-2	R38, R51/53	5, 9		
27	Anti-skinning agent	2-butanone oxime ethyl methyl ketoxime / ethyl methyl ketone oxime	96-29-7	R40; R21; R41, R43	6, 9	0.400%	
28		Acideoctanoïque, sel de zirconium	18312-04-4	Xi, R38	9	1.300%	
29		lithium neodecanoate	27253-30-1	Xi, R38 Or Xi R38 ; R52/53	5	0.200%	
30		Manganese salts	CAS 15956-58-8 or CAS 27253-32-3	Xi;R38.	9	4%	
31		Zirconium salt of 2-ethylhexanoic acid	22464-99-9	Xn, R20	9	0.600%	
32	Other driers	Iron(1+), chloro[dimethyl-9,9-dihydroxy-3-methyl-2,4-di-(2-pyridyl-kN)-7-[(2-pyridinyl-kN)methyl]-3,7-diazabicyclo[3.3.1]nonane-1,5-dicarboxylate-kN3, kN7]-, chloride(1-)	478945-46-9	Xn; R22 Xn; R48/22 Xi; R43 R52/53	2, 5	0.050%	
33	UV protection filtre (Light stabilizer)	Melange de : bis(2,2,6-tetramethyl-1-octyloxypiperidin-4-yl)-1,10-decanedioate; 1,8-bis((2,2,6,6-tetramethyl-4-((2,2,6,6-tetramethyl-1-octyloxypiperidin-4-yl)-decan-1,10-dioxy)piperidin-1-yl)oxy)octane	406-750-9	R53	5, 9	0.60%	Outdoor paints
34		Bumetrizole	3896-11-5	R53	5, 9	1.00%	Outdoor paints
35		reaction mass of $\alpha$ -3-(3-(2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyphenyl)propionyl- $\omega$ -hydroxypoly(oxyethylene) and $\alpha$ -3-(3-(2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyphenyl)propionyl- $\omega$ -3-(3-(2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyphenyl)propionyloxypoly(oxyethylene)	EC: 400-830-7	R43 R51-53	5, 9	0.990%	Outdoor paints
36		bis(1,2,3,6-tetrahydro-2H-pyridin-4-yl)propanoate	41556-26-7	R43, R50/53	5, 9	0.600%	Outdoor paints

		sebacate 70 - 80 % Xi - N R43 - R50/53					
37		methyl 1,2,2,6,6-pentamethyl-4-piperidylsebacate	82919-37-7	R43-R50/53	5, 9	0.200%	Outdoor paints
38		de 3-(3-(2h-benzotriazol-2-yl)5-(1,1-dimethylethyl)-4-hydroxyphenyl)propionates de c7-c9 alkyleramifie et lineaire	127519-17-9	R51/53	5, 9	0.500%	Outdoor paints
39	Anticorrosive pigment (solid corrosive inhibitor).	zinc phosphate (2,5% ZnPO4)	ZnPO4: 7779-90-0	R50/53	5, 9	8-10%	
40		Zinc oxide	1314-13-2	R50/53	5, 9	2%	
41	Substrate Wetting agent / surface tension modifier	Polypropylene glycol alkylphenyl ether	9064-13-5	R43	9	3.000%	
42		Polyoxyethyleneisodecyl ether	61827-42-7	Xi; R41 & Xn; R22	9	2.000%	
43		Alcohols, C9-C11, ethoxylated	68439-46-3	Xi; R41	9	2.000%	
44		Secondary Alcohols, C11-C15, ethoxylated	68131-40-8	Xi; R38, R41	9	2.000%	
45		Secondary Alcohols, C12-C14, ethoxylated	84133-50-6	Xi; R41	9	2.000%	
46		Alcohols, C16-C18, ethoxylated	68439-49-6	Xi, N, R50, R41 or Xn R22 ; Xi; R41	5, 9	2.000%	
47		Fatty alcohol ethoxylated	None	Xi; R41	9	2.000%	
48		Alcohols, tallow,ethoxylated	61791-28-4	Xn; R22 ; Xi; R41	9	2.000%	
49		Alcohols, C12-14,ethoxylated	68439-50-9	Xi; R41; N; R50	5, 9	2.000%	
50		Polyoxyethylenetridecyl ether phosphate	9046-01-9	Xi; R38 ; R41	9	2.000%	
51		Poly(oxy-1,2-ethandediyl),a-isotridecyl-w-hydroxy-,phosphate	73038-25-2	Xi; R38 ; R41; R52/53	5, 9	2.000%	
52		Polyoxyethylenestearyl ether	9005-00-9	Xi; R41	9	2.000%	
53		Isotridecanol, ethoxylated	9043-30-5 69011-36-5	Xn; R22 ; Xi; R41	9	2.000%	
54		Alkyl polyglucoside	500-220-1	Xi; R41	9	2.000%	
55		Tridecyl(polyethyleneoxy)ethanol	78330-21-9	Xn; R22 ; Xi; R41	9	2.000%	
56		Sodium di-(2-ethylhexylic) sulfosuccinate	577-11-7	Xi; R38 ; R41	9	0.200%	
57		2,4,7,9-tetramethyldec-5-yne-4,7-diol	126-86-3 / EINECS: 204-809-1	R 36, R 52/53	5, 9	0.25%	
58		Alkoxyated Alcohol	None	R52/53	5, 9	2.000%	
59	Silicon Resin Emulsion	triethoxy(2,4,4-trimethylpentyl)silane	35435-21-3	R10 ; R52/53	5, 9	3.000%	
60	Solvent (in composition of some ingredients)	Hydrocarbures, C10-C13, n-alcanes, isoalcanes, cycliques, < 2% aromatiques	01-2119457273-39-XXXX	Xn; R65, R66	9	2.000%	
61		2-methylpropan-1-ol	78-83-1	R10 Xi; R37/38-R41 R67	9	2.000%	
62		Petroleum distillates, solvent dewaxed heavy paraffinic (DMSO extract <3%)	64742-65-0	CAS N°64742-65-0 ; 72623-87-1 : These CAS N° stands	9	2.000%	

				below 3% (Note H,L)			
63		Hydrocarbures en c12-18	93924-45-9	Xn, R65, R66	9	0.060%	
64		Ethylene glycol monobutyl ether	111-76-2	Xn; R20/21/22 - Xi; R36/38	9	1%	
65		Lubricating oils (petroleum), C20-50, hydrotreated neutral oil-based	72623-87-1	CAS N°64742-65-0 ; 72623-87-1 : These CAS N° stands for a Toxic R45 substance except the DMSO extract is below 3% (Note H,L)	9	2.000%	
66	Pigment	Nickel Titanium Yellow	8007-18-9	Heavy metal	9	2.000%	
67		leucophyllite minerals containing crystalline silica classified STOT RE 1 and STOT RE 2		R48/25/24/23 or R48/20/21/22	9, 10	0.500%	All paints
68		crystalline silica classified STOT RE 1 or STOT RE 2 contained in fillers		R48/25/24/23 or R48/20/21/23	9, 10	0.500%	All paints
69		Heptanes (Naphtha),	092045-53-9	R11, 38, 51/53, 65, 67	5, 9	0.020%	
70		Complex alkanolamine	068784-47-4	R36/38	9	1.000%	
71		Diethylene glycol (EC No. 2038722)	000111-46-6	R22	9	0.500%	
72		iso-Propanol	000067-63-0	R11, 36, 67	9	0.020%	
73	Unreacted impurity	Volatile Aromatic Hydrocarbons	Various	Various	7		

Notes:

1. The sum of the total allowable concentration of these compounds is 0.05 % (w/w) before or after tinting (if applicable). For outdoor wood coatings the total allowable concentration shall not exceed 0.2 % (w/w).
2. The sum of the total allowable concentration of these compounds is 0.1% w/w).
3. The sum of the total allowable concentration of these compounds is 0.0015 % (w/w).
4. These compounds can only be used in alkyd paints and varnishes and up to a concentration not exceeding 0,05 % (w/w), measured as % of cobalt metal in the end product.
5. Substances or mixtures can have an allowable maximum concentration of 2% (w/ww/w) in the final paint formulation.
6. May be used in alkyd paints up to a limit of 0.3 % (w/w) in the final paint formulation.
7. Ingredients containing VAH may be added up to such a limit that the VAH content in the end product will not exceed 0,1 % (w/w). In this context volatile aromatic hydrocarbon (VAH) means any organic compound, as defined in Directive 2004/42/EC, having an initial boiling point less than or equal to 250 °C measured at a standard pressure of 101,3 kPa and having at least one aromatic nucleus in its developed structural formula.
8. The product may include biocides in order to preserve the product, and in the appropriate dosage for this purpose alone. These biocides shall be registered in the Biocide Product Regulation (BPD) scheme. Further, in accordance with Directive 67/548/EEC, Directive 1999/45/EC of the European Parliament and of the Council or Regulation (EC) No 1272/2008 substances or mixtures used as preservatives, that are classified as: H400, H410, H411, H412 and H413 are permitted but only if their bioaccumulation potentials are characterised by log Kow (log octanol/water partition coefficient) < 3,0 or an experimentally determined bioconcentration factor (BCF) ≤ 100.
9. The paint formulation shall not contain any hazardous substances, or combinations thereof, that result in the formulation being greater than 0.7 of the limits defined within PART A of directive 1999/45/EC and as required by the CLP regulation for marking dangerous substances.
10. Derogation is granted provided that the user before and during the paint use cannot come in contact with the substance in a dry form (e.g. the substance is within the liquid paint).

Assessment and verification: The applicant shall provide a technical dossier and a declaration of compliance with this criterion, together with a product material safety data sheet meeting the requirements of Annex II to the REACH Regulation and the quantity, in % (w/w), for all chemicals where derogations are sought. The applicant shall provide copies of the material safety data sheets of any preservatives added, together with information on their exact concentration in the product. The manufacturer or supplier of the preservatives shall provide information on the dosage necessary to preserve the product.

Products holding a relevant Type 1 Ecolabel fulfilling the listed requirements will be deemed to comply.

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## 5 End of life

### 5.1 Unused paint

#### Rationale

As is discussed under the Background Report, unused paint is an environmental concern. It adds significantly to the impact of the applied paint and causes environmental pollution from its improper disposal. A recent study<sup>11</sup>, based on relatively old data, highlights the problem of unused paint in the UK. In the DIY market, an estimated 25% of all paint goes unused, whereas with trade this drops to 1.5%. Stakeholders disagree with these figures and believe that approximately 10% of all paint is wasted. Even so, this equates to approximately 700,000te of unused paint wasted every year for the whole of Europe. Solvent-containing paint must be considered hazardous waste and undergo appropriate treatment. As is described within the LCC in the Background Report, hazardous waste disposal via incineration is approximately ten times the costs of non-hazardous waste.

A criterion to reduce the amount of wasted paint is important to reduce the overall environmental impact of the paint both in production and in treatment of the residuals. Unlike the manufacturing stage of paint where the ingredients and process are largely under the control of the manufacturer, painters and decorators (termed the “service providers”) are largely in control of this aspect. Setting a requirement for limiting the amount of surplus paint produced from a painting project would limit the overall environmental impact.

#### Core and comprehensive criterion formulation

The service provider shall minimise paint wastage by limiting unused paint to 5%.

Verification and assessment: The service provider shall provide evidence of the amount of paint sent for disposal compared to the amount of paint used during a previous six month period. Figures can be presented in volume or weight.

### 5.2 Unused paint disposal

#### Rationale

As is mentioned in Section 5.1, unused paint has a significant environmental impact and also adds additional costs at disposal. Appropriate disposal, preferentially through reuse and recycling, could reduce further the environmental impact of paint. Private and charitable schemes exist for the reusing and recycling of unwanted paint as well as government-led operations for the appropriate disposal of paint. Mandating painting services to appropriately dispose of paint through these schemes will reduce the environmental burden.

At the entry level, it is important to mandate that the contractor is performing their obligations to appropriately dispose of unwanted paint (with the associated evidence). A core and comprehensive criterion has been suggested to this effect. Furthermore, an award criterion has been formulated that requires service providers to donate unwanted paint to paint reuse or recycling organisations.

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<sup>11</sup> Paint and woodcare products - distribution and delivery, WRAP, 2011

**Core and comprehensive criterion formulation**

The service provider shall appropriately dispose of unwanted paint.

Verification and assessment: The service provider shall provide evidence of their procedures for disposing of paint at government or private waste treatment facilities.

**Award criterion formulation**

The service provider shall donate all suitable unwanted paint for reuse or recycling.

Verification and assessment: The service provider shall provide evidence of their procedures for donating all unused paint for reuse or recycling.

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## 6 Investigation of other criteria

The current GPP criteria proposal is developed in parallel with the revision of the EU Ecolabel Paints and Varnishes criteria. EU Ecolabel criteria were used as the basic reference. In the following Table 2 requirements applied in the current and in the new revised proposal of the EU Ecolabel criteria are presented; nevertheless these are not proposed for use in the GPP criteria.

Table 2: GPP criteria and EU Ecolabel requirements not covered in the current proposal

EU Ecolabel criteria	Justification for not including the criterion in GPP	Comment/further action
Resistance to water	These criteria are related to performance rather than environmental characteristics of the paint. Although the performance of the paint does have some bearing on the sustainability of the paint, the effect is less well defined. Ensuring a manageable number of criteria are included within the GPP document is important, therefore, It was decided that these criteria should be removed in the GPP criteria proposal.	These criteria are out of scope of the current GPP remit and therefore will continue to be excluded. However, these criteria should be considered if further performance criteria are required.
Adhesion		
Abrasion		
Weathering		
Water vapour permeability		
Liquid vapour permeability		
Fungal resistance		
Crack bridging		
Alkali resistance		
Corrosion resistance		
Nanomaterials	This is a new area where the risks and benefits of nanomaterials are still being defined. As such, the wider industry is less well prepared to meet the requirement of any criterion.	This may be further considered at a future revision of the criteria document.
Formaldehyde	The hazardous nature of these compounds is addressed within the hazardous materials criteria. These additional criteria have been developed on a precautionary basis and are probably more than is needed by the GPP criteria.	It is unnecessary to consider these criteria for incorporation into the GPP criteria unless further evidence is developed.
Phthalates		
Unused paint	The advantage of GPP is that it can cover the services surrounding painting. These criteria have been significantly altered to enable closer control of unused end of life paint. In general, further service-based criteria could be included as this GPP matures.	Further criteria should be developed on painting services to reduce the overall environmental burden.
Packaging	The environmental impact of packaging is minor compared to the production of the paint. To limit the length of the GPP to practical levels, this criterion was omitted.	Due to its relatively low environmental impact, this criterion should probably remain outside the scope of the GPP criteria.
Consumer information and Ecolabel information	This is specific to the EU Ecolabel.	Not a relevant requirement

# 7 Criteria

## EU GPP Criteria for Paints and Painting Services

Green Public Procurement (GPP) is a voluntary instrument. This document provides the EU GPP criteria developed for the Paints and Varnishes product group. The accompanying Technical Background Report provides full details on the reasons for selecting these criteria and references for further information.

For each product/service group two sets of criteria are presented:

The core criteria are those suitable for use by any contracting authority across the Member States and address the key environmental impacts. They are designed to be used with minimum additional verification effort or cost increases.

The comprehensive criteria are for those who wish to purchase the best products available on the market. These may require additional verification effort or a slight increase in cost compared to other products with the same functionality.

### 1) Definition and Scope

The product group shall comprise both indoor and outdoor decorative paints and varnishes, woodstains and related products and painting services, as defined below, intended for use by do-it-yourself and professional users (please note that these are not industrial users). For simplification the product group is further called 'Paints and Painting Services'.

This includes, inter alia, floor coatings, floor paints and road markings, products which are tinted by distributors at the request of amateur or professional decorators, tinting systems, decorative paints in liquid or paste formulas which may have been pre- conditioned, tinted or prepared by the manufacturer to meet consumer's needs, including wood paints, wood and decking stains, masonry coatings and metal finishes primers and undercoats of such product systems as defined within Directive 2004/42/CE Annex I 1.1.d and 1.1.g.

Painting services shall be mandated to procure and use paints that meet the specification defined within these criteria. They are also subject to specific criteria.

'Paint' means a pigmented coating material, in liquid or in paste form, which when applied to a substrate, forms an opaque film having protective, decorative or specific technical properties.

'Painting services' are contractors directly engaged to paint, usually termed 'painters and decorators'.

'Varnish' means a clear coating material which when applied to a substrate forms a solid transparent film having protective, decorative or specific technical properties.

After application, the paint or varnish dries to a solid, adherent and protective coating.

'Decorative paints and varnishes' means paints and varnishes that are applied to buildings, their trim and fittings, for decorative and protective purposes. They are applied in-situ. While their main function is decorative in nature, they also have a protective role.

'Woodstains' (lasures) means coatings producing a transparent or semi-transparent (using substantially non-white pigment) film for decoration and protection of wood against weathering, which enables maintenance to be carried out easily.

'Tinting systems' is a method of preparing coloured paints by mixing a 'base' with coloured tints.

Masonry coatings are coatings that produce a decorative and protective film for use on concrete, (paintable) brickwork, blockwork, rendering, calcium silicate or fibre-reinforced cement. They are intended principally for exterior use, but may also be used internally, or on soffits and balcony ceilings.

'Road markings' are coatings used on a road surface in order to convey official information. They can also be applied in other facilities used by vehicles to mark parking spaces or designate areas for other uses. Within the confines of this standard, road markings will not include mechanical markings such as Cat's Eyes.

The following definitions shall be used:

Transparent contrast ratio < 90% at 120 $\mu$

Semi Transparent contrast ratio 90-98% at 120 $\mu$

Opaque contrast ratio >98% at 120 $\mu$ .

White and light coloured paints are those with a tri-stimulus (Y-value) >70%

The product group shall not comprise:

anti-fouling coatings

wood preservation products

coatings for particular industrial and professional uses, including heavy-duty coatings

facade coatings;

powder coatings


UV curable paint systems

paints primarily intended for vehicles

products that do not form film over the substrate.

## 2) Key Environmental impacts

The key environmental impacts of paints and varnishes are associated with their production; this also has an effect on the overall impact when paint is left unused and the time between repaints (durability of the paint). Solvent based paints have a higher environmental impact than water based paints while binder and TiO<sub>2</sub> manufacture have an important environmental impact of paint production. Additives have a wide range of health and environmental implications.

Key Environmental Areas	Green Public Procurement Approach
<ul style="list-style-type: none"> <li>• In-use durability.</li> <li>• Unused paint</li> <li>• Solvent based paints have a higher environmental impact than water based paints</li> <li>• TiO<sub>2</sub> manufacture is an important environmental impact of paint production</li> <li>• Additives have a wide range of health and environmental implications.</li> </ul>	 <ul style="list-style-type: none"> <li>• Minimise the impact of production</li> <li>• Reduce the number of hazardous materials included in the paint</li> <li>• Limit paint wastage</li> <li>• Purchase durable paints</li> </ul>

Detailed information about the Paints and Varnishes product group, including the information about related legislation and other sources, can be found in the Technical Background Report.

Paints																							
Core	Comprehensive																						
<b>White pigments</b>																							
White pigment content (white inorganic pigments with a refractive index higher than 1,8): Paints shall have a white pigment content lower or equal to that described in the table below per m <sup>2</sup> of dry film, with 98 % opacity.	White pigment content (white inorganic pigments with a refractive index higher than 1,8): Paints shall have a white pigment content lower or equal to that described in the table below per m <sup>2</sup> of dry film, with 98 % opacity.																						
<table border="1"> <thead> <tr> <th style="background-color: #c6e0b4;">Wet scrub resistance</th> <th style="background-color: #c6e0b4;">Indoor limit (g/m<sup>2</sup>)</th> <th style="background-color: #c6e0b4;">Outdoor limit (g/m<sup>2</sup>)</th> </tr> </thead> <tbody> <tr> <td style="background-color: #c6e0b4;">Class 1</td> <td style="background-color: #c6e0b4;">48</td> <td style="background-color: #c6e0b4;">50</td> </tr> <tr> <td style="background-color: #c6e0b4;">Class 2</td> <td style="background-color: #c6e0b4;">42</td> <td style="background-color: #c6e0b4;">44</td> </tr> </tbody> </table>	Wet scrub resistance	Indoor limit (g/m <sup>2</sup> )	Outdoor limit (g/m <sup>2</sup> )	Class 1	48	50	Class 2	42	44	<table border="1"> <thead> <tr> <th style="background-color: #c6e0b4;">Wet scrub resistance</th> <th style="background-color: #c6e0b4;">Indoor limit (g/m<sup>2</sup>)</th> <th style="background-color: #c6e0b4;">Outdoor limit (g/m<sup>2</sup>)</th> </tr> </thead> <tbody> <tr> <td style="background-color: #c6e0b4;">Class 1</td> <td style="background-color: #c6e0b4;">40</td> <td style="background-color: #c6e0b4;">42</td> </tr> <tr> <td style="background-color: #c6e0b4;">Class 2</td> <td style="background-color: #c6e0b4;">36</td> <td style="background-color: #c6e0b4;">38</td> </tr> <tr> <td style="background-color: #c6e0b4;">Class 4 (Matt paints)</td> <td style="background-color: #c6e0b4;">25</td> <td style="background-color: #c6e0b4;">27</td> </tr> </tbody> </table>		Wet scrub resistance	Indoor limit (g/m <sup>2</sup> )	Outdoor limit (g/m <sup>2</sup> )	Class 1	40	42	Class 2	36	38	Class 4 (Matt paints)	25	27
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<p>or provide documentation showing the content of white pigments, the spreading rate and the assessment and verification criteria set out for the wet scrub resistance criterion, together with the detailed calculation showing compliance with this criterion.</p>	<p>non-use or provide documentation showing the content of white pigments, the spreading rate and the assessment and verification criteria set out for the wet scrub resistance criterion, together with the detailed calculation showing compliance with this criterion.</p>
<p><b>Spreading rate</b></p>	
<p>White paints and light-coloured paints (including finishes, primers, undercoats and/or intermediates) shall have a spreading rate (at a hiding power of 98 %) of at least 8m<sup>2</sup> per litre of product for indoor paints and 6m<sup>2</sup> for outdoor paints. For tinting systems, this criterion applies only to the white base (the base containing the most TiO<sub>2</sub>). In cases where the white base is unable to achieve this requirement, the criterion shall be met after tinting the white base to produce the standard colour RAL 9010.</p> <p>This requirement does not apply to varnishes, woodstains, floor coatings, floor paints, primers or any other transparent coatings.</p> <p>Assessment and verification: The applicant shall provide a test report using the method ISO 6504/1 (Paints and varnishes — determination of hiding power — Part 1: Kubelka-Munk method for white and light-coloured paints) or 6504/3 (Part 3: determination of contrast ratio (opacity) of light-coloured paints at a fixed spreading rate). Same as Core Criterion</p>	
<p><b>Wet scrub resistance</b></p>	
<p>Paints (according to EN 13300) for which claims are made that they are brushable (whether on the product or in related marketing material), shall have a wet scrub resistance as measured by EN 13300 and EN ISO 11998 of Class 2 (not exceeding 20 microns after 200 cycles).</p> <p>Paints (according to EN 13300) for which claims are made (whether on the product or in related marketing material) that they are hard wearing, shall have a wet scrub resistance as measured by EN 13300 and EN ISO 11998 of Class 1 (not exceeding 5 microns after 200 cycles).</p> <p>Due to the large potential range of possible tinting colours, this criterion will be restricted to the testing of tinting bases.</p> <p>Assessment and verification: The applicant shall provide a test report according to EN 13300 using the method EN ISO 11998 (Test for cleanability and scrub resistance).</p>	<p>All paints shall have a wet scrub resistance as measured by EN 13300 and EN ISO 11998 of Class 4 (not exceeding 70 microns after 200 cycles).</p> <p>Paints (according to EN 13300) for which claims are made that they are brushable (whether on the product or in related marketing material), shall have a wet scrub resistance as measured by EN 13300 and EN ISO 11998 of Class 2 (not exceeding 20 microns after 200 cycles).</p> <p>Paints (according to EN 13300) for which claims are made (whether on the product or in related marketing material) that they are hard wearing, shall have a wet scrub resistance as measured by EN 13300 and EN ISO 11998 of Class 1 (not exceeding 5 microns after 200 cycles).</p> <p>Due to the large potential range of possible tinting colours, this criterion will be restricted to the testing of tinting bases.</p> <p>Assessment and verification: The applicant shall provide a test report according to EN 13300 using the method EN ISO 11998 (Test for cleanability and scrub resistance) and evidence (on the product packaging or related marketing material) that the end-user is informed that the product has not been tested for wet scrub</p>

		resistance in the case of ceiling paints.	
Volatile Organic Compounds (VOCs)			
VOC content shall not exceed:		VOC content shall not exceed:	
<b>Description</b>	<b>VOC limits (g/l including water)</b>	<b>Description</b>	
	Core	Comprehensive	
Indoor matt walls and ceilings (Gloss <25@60°)	15	Indoor matt walls and ceilings (Gloss <25@60°)	
Indoor glossy walls and ceilings (Gloss >25@60°)	60	Indoor glossy walls and ceilings (Gloss >25@60°)	
Outdoor walls of mineral substrate	40	Outdoor walls of mineral substrate	
Indoor/outdoor trim and cladding paints for wood and metal	90	Indoor/outdoor trim and cladding paints for wood and metal	
Indoor trim varnishes and woodstains, including opaque woodstains	75	Indoor trim varnishes and woodstains, including opaque woodstains	
Outdoor trim varnishes and woodstains, including opaque woodstains	90	Outdoor trim varnishes and woodstains, including opaque woodstains	
Indoor and outdoor minimal build woodstains	75	Indoor and outdoor minimal build woodstains	
Primers	15	Primers	
Binding primers	15	Binding primers	
One-pack performance coatings	100	One-pack performance coatings	
Two-pack reactive performance coatings for specific end use such as floors	100	Two-pack reactive performance coatings for specific end use such as floors	
Decorative effect coatings	90	Decorative effect coatings	
Road markings	265	Road markings	
<p>In this context volatile organic compounds (VOC) means any organic compounds having an initial boiling point less than or equal to 250°C measured at a standard pressure of 101,3kPa as defined in Directive 2004/42/EC. The subcategories for paints and varnishes of the Directive are used for defining VOC limits. These values shall be measured at the point of application and must include any additional solvent added to the paint prior to application.</p> <p>Assessment and verification: Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply.</p>		<p>In this context volatile organic compounds (VOC) means any organic compounds having an initial boiling point less than or equal to 250°C measured at a standard pressure of 101,3kPa as defined in Directive 2004/42/EC. The subcategories for paints and varnishes of the Directive are used for defining VOC limits. These values shall be measured at the point of application and must include any additional solvent added to the paint prior to application.</p> <p>The total Semi Volatile Organic Compound (SVOC) shall be limited to 30 g/l including water. SVOC are defined as organic substances or mixtures with a boiling range between 250 and 400°C.</p>	

<p>The applicant shall provide a declaration of compliance with this criterion. For all products the applicant shall indicate the VOC content.</p>	<p>Assessment and verification: Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply.</p> <p>The applicant shall provide a declaration of compliance with this criterion. For all products the applicant shall indicate the VOC and SVOC content.</p>
<p><b>Metals</b></p>	
<p>The following heavy metals or their compounds shall not be used as an ingredient of the product or tint (if applicable) (whether as a substance or as part of any preparation used): cadmium, lead, chromium VI, mercury, arsenic, barium (excluding barium sulphate), selenium and antimony.</p> <p>It is accepted that ingredients may contain traces of these metals up to 0.01 deriving from impurities in the raw materials and can be present at these quantities for each metal for each ingredient.</p> <p>Cobalt shall also not be added as an ingredient with the exception of cobalt salts used as a siccative in alkyd paints. These may be used up to a concentration not exceeding 0,05 % (m/m) in the end product, measured as cobalt metal. Cobalt in pigments is also exempted from this requirement.</p> <p>Lead and chromium VI restrictions are not applicable to pigments used to road markings.</p> <p>Assessment and verification: The applicant shall provide a declaration of compliance with this criterion as well as declarations from ingredient suppliers (where applicable). Products holding a relevant Type 1 Ecolabel fulfilling the listed requirements will be deemed to comply.</p>	<p>Same as Core Criterion</p>
<p><b>Hazardous substances</b></p>	
<p>No ingredients (substances) shall be listed on the product label, in the safety data sheet (SDS) or in other relevant technical data sheets that are on the candidate list for Substances of Very High Concern or have been identified as substances of very high</p>	<p>To be determined – option 1 is proposed.</p> <ul style="list-style-type: none"> <li>• The following compounds shall not be directly added to paint</li> </ul>

concern and have been included in the list foreseen in Article 59 of Regulation (EC) No 1907/2006 (the REACH Regulation). The list of substances referred to (the candidate list) can be found at:

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

**Verification:**

Other appropriate means of proof will also be accepted, such as the provision of the ingredients listed on the product label, the safety data sheet (SDS), the manufacturer's website and any other relevant technical data sheets, along with their CAS-Number (where available) and a declaration that none of the listed ingredients are on the candidate list.

formulations: 1) Volatile aromatic hydrocarbons, 2) Alkylphenoethoxylates (APEOs), 3) Substances listed in the OECD 'Preliminary lists of PFOS, PFAS, PFOA, PFCA, related compounds and chemicals that may degrade to PFCA (as revised in 2007)', 4) Free formaldehydes (excluding formaldehyde donors), 5) Phthalates

- The product may include biocides in order to preserve the product, and in the appropriate dosage for this purpose alone. These biocides shall be registered in the Biocide Product Regulation (BPD) scheme. Further, in accordance with Directive 67/548/EEC, Directive 1999/45/EC of the European Parliament and of the Council or Regulation (EC) No 1272/2008 substances or mixtures used as preservatives, that are classified as: H400, H410, H411, H412 and H413 are permitted but only if their bioaccumulation potentials are characterised by log Kow (log octanol/water partition coefficient) < 3,0 or an experimentally determined bioconcentration factor (BCF) ≤ 100.
- The paint formulation shall not contain any hazardous substances, or combinations thereof, that result in the formulation being greater than 0.7 as defined within PART A of directive 1999/45/EC and as required by the CLP regulation for marking dangerous substances for the following risk phrases:

Risk Phrase <sup>1</sup>				
R28	R68	R61-62	R48/20; R48/21; R48/22	R31
R25	R45	R62	R50	R32
R65	R49	R63	R50-53	R39-41
R27	R40	R62-63	R51-53	<b>Sensitising substances</b>
R24	R60	R64	R52-53	R42
R23; R26	R61	R39/23; R39/24; R39/25; R39/26; R39/27; R39/28	R53	R43
R23	R60-61	R68/20; R68/21; R68/22	R59	
R46	R60-	R48/25; R48/24; R48/23	R29	



	<p style="text-align: center;">63</p> <p><sup>1</sup>Directive 67/548/EEC with adjustment to REACH according to Directive 2006/12/EC and Directive 1999/45/EC as amended.</p> <p>Verification: A declaration that the requirements are fulfilled. The provision of the ingredients listed on the product label, the safety data sheet (SDS), the manufacturer's website and any other relevant technical data sheets, along with their CAS-Number (where available) and a declaration that none of the added ingredients are on the list.</p>
<b>Award criterion for core and comprehensive set of criteria only</b>	
<b>Titanium Dioxide</b>	
<p>No award criterion for core part of technical specifications</p>	<p>If the product contains more than 3.0 weight % of titanium dioxide, the emissions and discharges of wastes from the production of any titanium dioxide pigment used shall not exceed the following [as derived from the Reference Document on Best Available Technology for the Manufacture of Large Volume Inorganic Chemicals (BREF) (August 2007)]:</p> <p>The sulphate process:</p> <ul style="list-style-type: none"> <li>• SO<sub>x</sub> calculated as SO<sub>2</sub>: 7.0 kg/ton TiO<sub>2</sub></li> <li>• Sulphate waste: 500 kg/ton TiO<sub>2</sub>.</li> </ul> <p>The chloride process:</p> <ul style="list-style-type: none"> <li>• If natural ore is used, 103 kg chloride waste/ton TiO<sub>2</sub></li> <li>• If synthetic ore is used: 179 kg chloride waste /ton TiO<sub>2</sub></li> <li>• If rutile ore is used: 329 kg chloride waste /ton TiO<sub>2</sub>.</li> </ul> <p>If more than one type of ore is used, the values will apply in proportion to the quantity of the individual ore types used.</p> <p>Note: SO<sub>x</sub> emissions only apply to the sulphate process.</p> <p>For the avoidance of doubt, the Waste Framework Directive 2008/98/EC, Article 3</p>

	<p>defines waste. If the TiO<sub>2</sub> producer can satisfy Article 5 (by-product production) of the Waste Framework Directive for its solid wastes then, the wastes shall be exempt.</p> <p>Assessment and verification: The applicant shall either provide a declaration of non-use or provide the supporting documentation indicating the respective levels of emissions and discharges of wastes for these parameters, the titanium dioxide content of the product, the spreading rate, together with the detailed calculations showing compliance with this criterion.</p>
<b>Indoor Air Quality</b>	
No award criterion for core part of technical specifications	<p>Each indoor paint shall undergo testing for indoor air quality and meet Class A+ as defined within French Decree NOR: DEVL1104875A. This requirement is restricted to the lightest colour paint within a series or, in tinting systems, the base paint.</p> <p>Verification and assessment: The applicant shall provide test results using the methodology described within NOR: DEVL1104875A.</p>
<b>Paint reuse requirement for painting services</b>	
<p>The service provider shall donate all suitable unwanted paint for reuse or recycling.</p> <p>Verification and assessment: The service provider shall provide evidence of their procedures for donating all unused paint for reuse or recycling.</p>	Same as Core Criterion part
<b>Contract performance clause</b>	
<b>Unused paint requirement for painting services</b>	
<p>The service provider shall minimise paint wastage by limiting unused paint to 5%.</p> <p>Verification and assessment: The service provider shall provide evidence of the amount of paint sent for disposal compared to the amount of paint used during a previous six month period. Figures can be presented in volume or weight.</p>	
<b>Paint disposal requirement for painting services</b>	
<p>The service provider shall appropriately dispose of unwanted paint.</p> <p>Verification and assessment: The service provider shall provide evidence of their procedures for disposing of paint at government or private waste treatment facilities.</p>	