

Further, it was indicated that the limit of 30g/l for outdoor and tinting systems is very difficult to achieve. "The proposed limit shall be extended for outdoor and tinting systems to 40g/l. For indoor white paints the limit of 30g/l was considered appropriate, while for indoor tinting systems 40g/l was considered to be a minimum (i.e. the shades produced from tinting bases shall have a maximum 40g/l for each tinting base. It was proposed that the producer shall declare the shade with the estimated max SVOCs). It was explained that "tinting systems, especially those used to tint both water and solvent based paints can contain SVOC as compatibilizers and SVOC as humectants (to avoid colorant to be dried in machine nozzles). Outdoor paints especially those based on Styrene Acrylic binders (the biggest market share in Europe) need enough coalescence agents (SVOC) in order to be applied in case of high humidity and low temperature(adverse conditions)". It was emphasized that it is very difficult to reduce SVOCs from tinting colorants, especially in Southern Europe. One stakeholder proposed to increase the general limit to 60g/l.

The following formulation of the criterion is proposed in the revised criteria version:

Criterion 4. Volatile Organic Compounds (VOC)

Volatile Organic Compounds 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°)	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	15
Binding primers	15
One-pack performance coatings	80
Two-pack reactive performance coatings for specific end use such as floors	80
Decorative effect coatings	80
Anti-corrosion paints	80

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.

SVOCs are defined as organic substances or mixtures with a boiling range between 250 and 400°C. The total Semi Volatile Organic Compound (SVOC) shall be limited to 30 g/l including water for indoor white paints and 40g/l for outdoor paints and for tinting systems (i.e. the shades produced from tinting bases shall have a maximum of 40g/l for each tinting base. The producer shall declare the shade with the max SVOCs as the worst case scenario).

classification of mixtures referred to in Regulation (EC) No 1272/2008 and all amending legislation.

Derogations of ingoing ingredients that are classified with Category 1 and 2 hazards will also be subject to the following additional rules:

- The applicant shall submit evidence of the health and safety procedures relating to handling of ingoing substance(s) classified as acutely toxic or CMR at production sites of the original paint and varnish manufacturer.
- Where they exist European Occupational Exposure Limit Values for the substances shall be met for all production sites handling the classified ingoing substance(s).
- Substances to which the classification applies to their dry form shall demonstrate that the user cannot come into contact with the substance in this form during use of the paint.

Assessment and verification: The applicant shall demonstrate compliance with this criterion by providing a declaration of the classification and/or non-classifications of each substance and mixture that forms an ingoing ingredient of the paint or varnish according to the hazard categories referred to above and, as far as this can be determined, as a minimum, based on information meeting the requirements listed in Annex VII of REACH Regulation (EC) 1907/2006.

This declaration shall be supported by a technical report which identifies the substances and mixtures that are contained within the final product at concentrations of greater than a cut-off value of 0.010% w/w. Substances and mixtures that may have specific concentration limits listed under Regulation (EC) No 1272/2008 which may fall below this cut-off value shall also be identified.

Substances and mixtures should be characterised in accordance with that specified in section 10, 11 and 12 of Annex II of Regulation (EC) 1907/2006 (Requirements for the Compilation of Safety Data Sheets). The technical report should also identify substances that are proposed for derogation by the applicant, accompanied by justifications and supporting information as to how the derogation requirements are met.

Annex 1

Restricted substances and mixtures list

Substance group	Scope of restriction	Limit values	Verification requirements and testing methods
Substances of Very High Concern (SVHC's)			
Substances that have been entered onto the ECHA Candidate List. <i>Applicability:</i> All products	SVHC's that appear on the Candidate List that is current at the time of application and which may appear in the final product shall not be present at concentrations of more than 0.1% w/w The current Candidate List can be consulted at: http://echa.europa.eu/web/guest/candidate-list-table	0.1% w/w	<i>Verification:</i> Documentation of Candidate List screening. <i>Test method:</i> To be specified according to each substance.
Residuals and contaminants			
Formaldehyde <i>Applicability:</i> All products.	Intentionally added free formaldehyde Total content arising from formaldehyde donors Residual formaldehyde from polymer production Total contribution from donors and carry-over residue	0,0% 0,010% w/w x,x% w/w x,x% w/w	<i>Verification:</i> Laboratory testing for white base, each tinting base and the tinted paint which has the maximum theoretical amount of formaldehyde. <i>Test method:</i> Determination of the in-can concentration using high-performance liquid chromatography or the VdL-RL 03 test method (VdL Guideline03) 'In-can

			concentration of formaldehyde determined by the acetyl-acetone method'
Monomer from binder	Acrylic acid that may be present at concentrations more than 0.01% in Paints Directive 2004/14/EC classes c,d,e and i	0.05%	Verification: To be determined Test method: To be determined
Surfactants			
APEO's Applicability: All products.	Alkylphenoethoxylates (APEOs) and their derivatives shall not be used in any paint or varnish preparations or formulations and are subject to limit values for the presence of the following substances in the final product: - Polyoxyethylated octyl phenol 9002-93-1 - Polyoxyethylated nonyl phenol 9016-45-9 - Polyoxyethylated p-nonyl phenol 26027-38-3	0.005% sum total	Verification: SDS to be provided for all surfactants used. Test method: C65 Solvent extraction HPLC MS
PFAS's Applicability: Colorant and tinting bases	The PFAS (perfluoroalkyl sulfonate) group of substances shall not be used. The following trace limits apply: PFOS (perflourooctane sulfonate and its derivatives) All other PFAS forms	Trace per substance 20.0 µg/kg	Verification: SDS to be provided for all surfactants used. Test method: Solvent extraction GC-MS or HPLC-MS
Pigments			
Metals and their compounds Applicability:	The following metals shall not be used as an ingredient of the product or tint (if applicable) whether as a substance or part of a mixture itself: Cadmium, lead, chromium VI, mercury, arsenic, barium, selenium and antimony.		Verification: Documented testing demonstrating that the pigment chromophore is

All products.	<p>The following derogations apply:</p> <ul style="list-style-type: none"> - Barium sulphate - Nepheline syenite (containing barium) - Antimony nickel within an insoluble TiO₂ lattice - Cobalt blue pigment 	<p>x.x% w/w x.x% w/w 3.0% w/w x.x% w/w</p>	<p>bonded within a crystal lattice and is insoluble. <i>Test method:</i> To be determined</p>									
Biocides												
<p>In-can and dry film preservatives <i>Applicability:</i> As specified.</p>	<p>The following active substances or active substance combinations may be used for the specified function, subject to the specified concentration limits:</p> <table border="1" data-bbox="483 619 1473 1311"> <tr> <td data-bbox="483 619 1473 833"> <p>a) Titanium dioxide (80%)/silver chloride (20%)</p> <ul style="list-style-type: none"> - In can preservative (indoor paint) - In can preservative (outdoor paint) - Dry film preservative (indoor paints) - Dry film preservative (outdoor paints) </td> <td data-bbox="1473 619 1720 833"> <p>50 ppm 500 ppm 500 ppm 2000 ppm</p> </td> </tr> <tr> <td data-bbox="483 833 1473 970"> <p>b) 2-methyl-2H- isothiazol-3-one (MIT) / 1,2-benzisothiazol-3(2H)-one (BIT) in a ratio of 1:1</p> <ul style="list-style-type: none"> - In can preservative </td> <td data-bbox="1473 833 1720 970"> <p>200 ppm</p> </td> </tr> <tr> <td data-bbox="483 970 1473 1098"> <p>c) 5-chloro-2-methyl-4-isothiazolin-3-one (CIT) / 2-methyl-4-isothiazolin-3-one (MIT) in a ratio of 3:1</p> <ul style="list-style-type: none"> - In can preservative </td> <td data-bbox="1473 970 1720 1098"> <p>15 ppm</p> </td> </tr> <tr> <td data-bbox="483 1098 1473 1232"> <p>d) 3-iodo-2-propynyl butylcarbamate (IPBC)</p> <ul style="list-style-type: none"> - In can preservative - Dry film preservative (outdoor wood paints) </td> <td data-bbox="1473 1098 1720 1232"> <p>60 ppm 450 ppm</p> </td> </tr> <tr> <td data-bbox="483 1232 1473 1311"> <p>e) 1,2- benzisothiazol-3(2H)-one</p> <ul style="list-style-type: none"> - In can preservative </td> <td data-bbox="1473 1232 1720 1311"> <p>200 ppm</p> </td> </tr> </table>	<p>a) Titanium dioxide (80%)/silver chloride (20%)</p> <ul style="list-style-type: none"> - In can preservative (indoor paint) - In can preservative (outdoor paint) - Dry film preservative (indoor paints) - Dry film preservative (outdoor paints) 	<p>50 ppm 500 ppm 500 ppm 2000 ppm</p>	<p>b) 2-methyl-2H- isothiazol-3-one (MIT) / 1,2-benzisothiazol-3(2H)-one (BIT) in a ratio of 1:1</p> <ul style="list-style-type: none"> - In can preservative 	<p>200 ppm</p>	<p>c) 5-chloro-2-methyl-4-isothiazolin-3-one (CIT) / 2-methyl-4-isothiazolin-3-one (MIT) in a ratio of 3:1</p> <ul style="list-style-type: none"> - In can preservative 	<p>15 ppm</p>	<p>d) 3-iodo-2-propynyl butylcarbamate (IPBC)</p> <ul style="list-style-type: none"> - In can preservative - Dry film preservative (outdoor wood paints) 	<p>60 ppm 450 ppm</p>	<p>e) 1,2- benzisothiazol-3(2H)-one</p> <ul style="list-style-type: none"> - In can preservative 	<p>200 ppm</p>	<p><i>Verification:</i> Applicant shall provide SDS for ingoing preservatives. <i>Test method:</i> n/a</p>
<p>a) Titanium dioxide (80%)/silver chloride (20%)</p> <ul style="list-style-type: none"> - In can preservative (indoor paint) - In can preservative (outdoor paint) - Dry film preservative (indoor paints) - Dry film preservative (outdoor paints) 	<p>50 ppm 500 ppm 500 ppm 2000 ppm</p>											
<p>b) 2-methyl-2H- isothiazol-3-one (MIT) / 1,2-benzisothiazol-3(2H)-one (BIT) in a ratio of 1:1</p> <ul style="list-style-type: none"> - In can preservative 	<p>200 ppm</p>											
<p>c) 5-chloro-2-methyl-4-isothiazolin-3-one (CIT) / 2-methyl-4-isothiazolin-3-one (MIT) in a ratio of 3:1</p> <ul style="list-style-type: none"> - In can preservative 	<p>15 ppm</p>											
<p>d) 3-iodo-2-propynyl butylcarbamate (IPBC)</p> <ul style="list-style-type: none"> - In can preservative - Dry film preservative (outdoor wood paints) 	<p>60 ppm 450 ppm</p>											
<p>e) 1,2- benzisothiazol-3(2H)-one</p> <ul style="list-style-type: none"> - In can preservative 	<p>200 ppm</p>											

f) 2-bromo-2-nitropropane-1,3-diol (BNPD) - In can preservative	200 ppm
g) BNPD + CIT/MIT (3:1) - In can preservative (all paints) for the three combinations of limit values	130 ppm + 15 ppm
	150 ppm + 10 ppm
	170 ppm + 5 ppm
h) MIT/BIT (1:1) + CIT/MIT (3:1) - In can preservative (all paints)	150 ppm + 12,5 ppm
	125 ppm + 15 ppm
i) 1,2-dibromo-2,4-dicyanobutane (DBDCB) - In can preservative (all paints)	500 ppm
j) BIT + CIT/MIT (3:1) - In can preservative (all paints)	150 ppm + 12,5 ppm
k) BNPD + MIT/BIT (1:1) - In can preservative (all paints)	120 ppm + 75 ppm
l) Zinc pyrithione (ZNP) - In-can preservative (outdoor paints for facades) - In-can preservative (all paints) - Dry film preservative (outdoor paints for facades)	250 ppm
m) Zinc pyrithione (ZNP) + BIT	100 ppm + 100 ppm
n) Zinc pyrithione (ZNP) + MIT/BIT (1:2 to 1:1)	50 ppm + 150 ppm

	q) BNPD + BIT - In-can preservative (all paints)	100 ppm + 100 ppm	
	r) Sodium pyrithione (NaP) + BIT - In-can preservative (all paints)	50 ppm + 150 ppm	
Phthalates			
Plasticisers in paint and varnish <i>Applicability:</i> All paints	<i>The following phthalates shall not be intentionally added as plasticisers:</i> DEHP (Bis-(2-ethylhexyl)-phthalate) BBP (Butylbenzylphthalate) DBP (Dibutylphthalate) DMEP (Bis2-methoxyethyl) phthalate DIBP (Diisobutylphthalat) DIHP (Di-C6-8-branched alkyphthalates) DHNUP (Di-C7-11-branched alkylphthalates) DHP (Di-n-hexylphthalate)	Sum total w/w 0.1%	<i>Verification:</i> SDS shall be provided for plasticisers used in the paint mixture. <i>Test method:</i> DIN EN 15777:2009-12

Annex 2

Derogated classifications for hazardous substances and mixtures

Substances that impart function to the final product

Substance group	Derogated classifications			Derogation conditions
	Indoor paint	Outdoor paint	Varnish	
Preservatives Only preservatives that are authorised under Biocide Directive 98/8/EC and Biocide Regulation (EC) No 528/2012, or for which a dossier has been submitted for evaluation pending a decision on authorisation or non-inclusion, are permitted for use. <i>Applicants should consult the most current authorisation list: http://ec.europa.eu/environment/biocides/annexi_and_ia.htm</i>				
In-can	H331 (R23), H317 (R43), H400 (R50), H410 (R50/53), H411 (R51/53), H412 (R52/53) Substances classified with H400 (R50) shall be non-bioaccumulative. Non-bioaccumulative substances shall have a Log Kow > 3.2 and a Bioconcentration Factor (BCF) < 100. Concentration limit: 0.050% w/w			<ul style="list-style-type: none">○ The final product shall not be classified as acutely toxic, a skin sensitiser (Category 1A/B) or hazardous to the environment.○ Formaldehyde concentrations in the final product shall not exceed 0.010% (see annex 1 for testing and verification).
Dry film	H317 (R43) H400 (R50), H410 (R50/53), H411 (R51/53), H412 (R52/53) Substances classified with H400 (R50) shall be non-bioaccumulative. Non-bioaccumulative substances shall have a Log Kow > 3.2 and a Bioconcentration Factor (BCF) < 100. Concentration limit: 0.1% w/w sum total in the product			<ul style="list-style-type: none">○ The final product shall not be classified as a skin sensitiser (Category 1A/B) or hazardous to the environment.

Substance group	Derogated classifications			Derogation conditions
	Indoor paint	Outdoor paint	Varnish	
Drying and anti-skinning agents				
Driers	H317 (R43) H411 (R51/53), H412 (R52/53), H413 (R53) Concentration limit: 0.10% w/w with the exception of cobalt driers at 1.0%			○ The final product shall not be classified as a skin sensitizer (Category 1A/B) or hazardous to the environment.
Anti-skinning	H412 (R52/53), H413 (R53), H317 (R43) Concentration limit: 0.40% w/w			○ The final product shall not be classified as a skin sensitizer (Category 1A) or hazardous to the environment.
UV protectors and stabilisers				
Stabilising agents for outdoor paints	H317 (R43) H411 (R51/53), H412 (R52/53), H413 (R53), Concentration limit: 0.60% w/w			○ The final product shall not be classified as a skin sensitizer (Category 1A) or hazardous to the environment.
Corrosion inhibitors				
Anti corrosion pigments	H410 (R50/53), H411 (R51/53), H412 (R52/53), H413 (R53) Concentration limit: 2.0% w/w With exception of Paints Directive 2004/14/EC classes d,i and j: 8.0%	n/a		○ The final product shall not be classified as hazardous to the environment.
Verdigris prevention	H412 (R52/53), H413 (R53) Concentration limit: 0.5% w/w	n/a		○ The final product shall not be classified as hazardous to the environment.
Miscellaneous functional substances				
Pigments	Pigments containing metal chromophores are to be derogated based on how the metal is bonded within the pigment. See restricted substances and mixtures list (annex 1).			○ Pigments in which the metal chromophore is bonded within a crystal lattice and is insoluble.

Surfactants in colourant and tinting bases	H412 (R52/53), H413 (R53) Concentration limit: 2.0% w/w	o The final product shall not be classified as hazardous to the environment.
Silicon resin emulsion in colourant and tinting bases	H412 (R52/53), H413 (R53) Concentration limit: 2.0% w/w	o The final product shall not be classified as hazardous to the environment.
Optical brighteners	H413 (R53) Concentration limit: 0.1% w/w	o The final product shall not be classified as a skin sensitizer (Category 1A/B)

Residual substances that may be contained in the final product

Substance group	Derogated classifications			Derogation conditions
	Indoor paint	Outdoor paint	Varnish	
Neutralising agents	H311 (R24), H331 (R23), H400 (R50), H412 (R52/53), H413 (R53) Concentration limit: 0.20% w/w With the exception of floor lacquers: 1.0% w/w			o The final product shall not be classified as acutely toxic or hazardous to the environment
Solvents present in some ingredients	H304 (R65) Concentration limit: to be determined% w/w			o The final product shall not be classified as a category 1 aspiration toxin

4.2.11 Formaldehyde

Formaldehyde is toxic both by inhalation and ingestion, and minimising or eliminating its use is an important goal for improving human health (classification under CLP with R23/24/25, R34, R40, R43). Stakeholders agreed that complete elimination of formaldehyde would be beneficial but felt that it was impractical at this stage. Formaldehyde is used as an in-can preservative and complete removal will reduce the quality and lifetime of the paint (particularly in hot, Southern European countries).

Stakeholders, both before and during consultation, indicated that the current testing regime is inappropriate for determining the concentration of formaldehyde. The requirement to test all the ingredients, particularly dry ingredients is unnecessary. Formaldehyde is used primarily to preserve liquid ingredients and therefore requiring a test for dry ingredients presents additional cost burdens to applicants. The amount of free formaldehyde in the paint is calculated by summing each component. This does not allow for any further in-can reactions that may generate more or less formaldehyde.

Concerns were also raised that the current in-can calculation using VdL-RL 03 is not sufficiently accurate, necessitating a further test using HPLC where 'formaldehyde donors' may be present. Three modifications have been suggested:

- Remove the requirement to test solid ingredients. This is the simplest option but does not provide any assurances of actual in-can formaldehyde testing.
- Remove the requirement to test all ingredients and perform an in-can test using HPLC. This reduces the administration burden on the paint suppliers and ensures that the amount of formaldehyde is accurate, however, it does mandate a potentially expensive test.
- Test indoor air quality. This option is discussed further in Section 4.2.2.

The most appropriate and robust suggestion was to perform HPLC analysis on the final paint formulation. Due to the variation in different paint colours and tinting systems, a testing regime suggested by stakeholders determines the maximum amount of formaldehyde in the end product. Although there is an additional cost associated with the testing of each tinting pigment, this cost is likely to be less than that associated with the current regime that requires testing of all ingredients.

Stakeholders also requested additional points of clarification, in particular, that the tests should be performed on the in-can formulations to ensure that any formaldehyde present was in its most concentrated state. It was also requested that all laboratory tests conform to ISO 17025:2005. Additional wording has been provided to reflect these points.

It should be noted that this criterion does not overlap with the Hazardous Substances criterion because formaldehyde donors may not necessarily be considered hazardous.

Free formaldehydes shall not be added. Formaldehyde donors may only be added in such quantities as will ensure that the resulting total content after tinting (if applicable) of free formaldehyde will not exceed 0,001 % (w/w).

Assessment and verification: The applicant shall provide a declaration of compliance with this criterion. In addition, the in-can concentration shall be determined using a standard based on High-Performance Liquid Chromatography using a testing laboratory certified to ISO 17025:2005. The applicant shall provide test results on the concentration of in-can formaldehyde on each paint colour, or where a tinting system is used, on the base paint, each colour tint, and the theoretical maximum on a tinted paint (i.e. a paint that contains the maximum amount of tint with the most amount of formaldehyde donor).

Feedback from AHWG2 and EUEB meeting

In the stakeholders' feedback it was indicated that formaldehyde shall be measured in can for white base, each tinting bases and only one tinted paint that applicant estimate the most representative. Another stakeholder proposed that formaldehyde shall not be tested for each bases of a tinting system but to take two extremes: white base and transparent tinted bases with maximum rates.

Furthermore, it was also asked to allow testing using the VdL03 method (used also in Blue Angel) beside the HPLC. Only if formaldehyde donators (added or brought via other ingredients of the formula) are used, the applicant shall be obliged for testing with HPLC.

Some stakeholders indicated that many polymers have residual formaldehyde donors from the polymerization process, which have to be considered as production impurities. The total of formaldehyde donors, as set in the currently valid criteria, shall not exceed 10 ppm.

It was also asked to set guidelines on the conditions, when new formaldehyde test are required. Such a guideline could be included in the user manual for both applicants and CB, explaining how much a formulation can be changed (new raw material with other substances and/or changed of the amount of raw material) before a new test is required.

The stakeholders proposed the below test:

"- if inorganic raw material in the form of powder is changed in the formulation, no new test is required, as it is not expected to have any impact in the amount for formaldehyde.

- if one raw material is changed with another raw material which contains the same substances, no new test is required, as it is not expected to have any impact in the amount for formaldehyde."

Opinion regarding setting such guidelines is asked to other stakeholders.

The following formulation of the criterion is proposed in the revised criteria version:

Criterion 8. Formaldehyde

Free formaldehydes shall not be added. Formaldehyde donators may only be added in such quantities as will ensure that the resulting total content after tinting (if applicable) of free formaldehyde will not exceed 0,001% by weight.

Assessment and verification: the applicant shall provide a declaration of compliance with this criterion. In addition, the in-can concentration shall be determined using a standard based on High-Performance Liquid Chromatography using a national standard or validated method. The applicant shall provide test results on the concentration of in-can formaldehyde for white base, each tinting bases and one tinted paint that applicant estimate the most representative (i.e. with the highest amount of formaldehyde donor) / for base/colour tint combination which has the maximum theoretical amount of formaldehyde (this base/colour combination shall be tested). Alternatively, the applicant shall provide test results from raw materials suppliers using the VdL-RL 03 test method (VdL Guideline03) 'In-can concentration of formaldehyde determined by the acetyl-acetone method' and calculations relating the data from these tests to the final product in order to indicate that the final maximum possible concentration of formaldehyde released by formaldehyde releasing substances is not higher than 0,001 % by weight.

4.2.12 Phthalates

Phthalates are used as plasticisers in PVC giving the plastic desired physical properties. They can be also used in paints to alter the overall finish of the paint. Several phthalates have been shown to be endocrine inhibitors; this can cause cancerous tumours, birth defects, and other developmental disorders. Some phthalates are in the candidate list to be classified as Substances of Very High Concern (SVHC) which will lead

based on article 6.7 of EC Ecolabel Regulation 66/2010 to be directly excluded from Ecolabel products. There is some guidance provided by the EU that certain phthalates, in particular di-isononyl phthalate (DINP) and diisodecyl phthalate (DIDP) have no associated health risks.⁴⁰

Many phthalates are excluded from several alternative ecolabels (US Green Seal and Austrian Ecolabel).⁴¹ Within the paint industry, they are used in only a few applications and most stakeholders would welcome a ban in their use. As such the following criterion is suggested.

Intentional addition of phthalates is not permitted.

Assessment and verification: The applicant shall provide a declaration of compliance with this criterion.

Feedback from AHWG2 and EUEB meeting

Industrial stakeholders submitted the following explanation on the differentiation regarding the family of phthalates.

Phthalates are a family of substances divided into two groups:

- high molecular weight (HMW) phthalates

and

- low molecular weight (LMW) phthalates.

The HMW phthalates have all been registered for REACH and do not require any classification for health and environmental effects, nor are they on the Candidate List for Authorisation. High molecular weight phthalates are not CMR, neither are they considered endocrine disruptors.

As to the Low Molecular Weight phthalates, they are recognised as Substances of Very High Concern (SVHC) by the REACH regulation because of their effects on reproduction in animal studies.

The association asked to differentiate between these two groups of phthalates and to change the requirement as follows: "Intentional addition of Low Molecular Weight phthalates is not permitted".

The issue of phthalates was considered also in revision of other criteria (for textiles, bed mattresses). The restriction set and explanation is given below:

- High molecular weight phthalates (HMW) such as DINP, DIDP and DPHP are registered under the REACH regulation, and are non-classified for any health and environmental hazard. These HMW phthalates are not on the Candidate List of substances of very high concern. However, a ban is proposed for:

1. The use of DINP and DIDP in baby mattresses, since these are prohibited e.g. in toys;
2. DNOP, since information about the risks posed by this substance appears more uncertain.

Low molecular weight phthalates (LMW) such as DBP, BBP, DIBP and DEHP are recognised as substances of very high concern by the REACH regulation because of their effects on reproduction in animal studies. The list of banned substances mirror that used e.g. by the Oeko-Tex 100 scheme which adopts this approach.

The following substances shall not be added intentionally to the product:

- Di-iso-nonylphthalate
- Di-n-octylphthalate
- Di(2-ethylhexyl)-phthalate

40 OJ C90/5 13.4.2006 (<http://www.didp-facts.com/upload/documents/document8.pdf>)

41 Environ Health Perspect. 2007 March; 115(3): 390–396. Published online 2006 December 19

- Diisodecylphthalate
- Butylbenzylphthalate
- Dibutylphthalate
- Di-iso-butylphthalate
- Di-C6-8-branched alkylphthalates
- Di-C7-11-branched alkylphthalates
- Di-n-hexylphthalate
- Di-(2-methoxyethyl)-phthalate

A similar formulation is proposed for the criteria for paints, with the exception of DINP, DNOP and DIDP as given below:

Criterion 9. Phthalates

Intentional addition of the following phthalates shall not be added intentionally. The sum of the prohibited phthalates shall be lower than 0.1% by weight.

Name	CAS number	Acronym
Di(2-ethylhexyl)-phthalate	117-81-7	DEHP
Butylbenzylphthalate	85-68-7	BBP
Dibutylphthalate	84-74-2	DBP
Di-iso-butylphthalate	84-69-5	DIBP
Di-C6-8-branched alkylphthalates	71888-89-6	DIHP
Di-C7-11-branched alkylphthalates	68515-42-4	DHNUP
Di-n-hexylphthalate	84-75-3	DHP
Di-(2-methoxyethyl)-phthalate	117-82-8	DMEP

Assessment and verification: the applicant shall provide a declaration of compliance with this criterion.

5 End of life

5.1 Unused paint disposal – **CRITERION WITHDRAWN**

5.1.1 Unused paint

As is discussed under the technical analysis in part 1 of this study, unused paint is a significant environmental concern. It adds significantly to the impact of the applied paint and causes environmental pollution from its improper disposal. A recent study⁴², 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. This equates to approximately 700,000 te 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 manufacture, the responsibility at the end of life is shared among manufacturers, retailers, authorities and consumers. Therefore developing an appropriate criterion under the Ecolabel is more problematic.

There are different options and actions that can reduce the environmental impacts:

1. **Reuse.** Several schemes, mainly run as charitable organisations make use of unwanted paint selling either to the general public or for use within the social sector. Although unlikely to be operated directly by the manufacturers, support for such schemes could encourage more reuse and prevent waste. The largest hurdle for implementation is that collection and reuse throughout Europe is likely to be different between countries, which may be expensive to operate.
2. **Recycle or set minimum recycled content.** Recycling paint is an emerging technology whereby unused white paint is added to the base formulation. This reduces the amount of unused paint requiring disposal and can produce premium quality paint. The main concern is on the quality of the paint, particularly its anti-biocidal properties (has the old paint been contaminated?).
3. **Take-back for appropriate disposal.** As is described within the background report, solvent-containing waste paint must be treated as hazardous material and be sent for hazardous waste disposal (usually incineration). Although all countries should have the appropriate infrastructure to control this process, consumers may dispose of the waste paint through ordinary municipal waste streams (which could be damaging to the environment). Encouraging customers to return unwanted paint, for example to the point of sale, for appropriate disposal could be beneficial. There could, however, be problems in coordinating this requirement across Europe and the overall benefit may be limited.
4. **Combination of the above.** It is conceivable that developing the infrastructure for any of the above would facilitate the adoption of several reuse and recycling options. This would allow a manufacturer to decide the most appropriate method for controlling waste paint. It would however, be difficult to develop a flexible yet robust criterion to monitor this activity.

Alternative Ecolabels, in particular the Austrian Ecolabel, specify the development and implementation of a scheme to take-back, recycle and reuse unwanted paint. The French industry label 'RETOUR' is run by the French Environment Agency, ADÈME, to fulfil the requirements of their environmental code L541-10-4 which states that dangerous waste must be safely disposed of. The label is awarded to any suppliers of hazardous/industrial waste (including paint suppliers) who operate well-functioning and environmentally well-performing take-back schemes for clients. The label guarantees a quality take-back service, and

⁴² Paint and woodcare products - distribution and delivery, WRAP, 2011

obliges the supplier to offer to take back any unused product when the client purchases new items. The unused paint is then safely disposed of within the existing EU regulations.

Manufacturers indicate that there would be a significant barrier to implementing a take-back or paint reuse scheme.

There is a clear environmental impact from unused paint. This extends to both disposal of the paint and also the impact of production of unused paint. There is significant resistance from manufacturers and producers to the implementation of a take-back or reuse scheme. They argue that the diversity of the waste collection regimes throughout Europe make developing a universal scheme impractical and schemes tailored to individual Member States are expensive. Conversely, there is some support from the Ecolabel Competent Bodies who recognise the environmental value of reuse. A criterion has been suggested that reflects these viewpoints.

Unused Paint

Applicants shall encourage paint reuse/recycling equivalent to at least 2%, by volume, of all their Ecolabelled paint sold per annum. This can be achieved by one or with combination of the following options:

- a) supporting reuse collection systems through third parties
- b) accepting unwanted paint for recycling or reuse
- c) supporting retailers with take-back systems.

The user should be respectively advised on the available options on how to deal with the unused paint.

Verification and assessment: The applicant shall either provide direct evidence of having a reuse scheme in place that reuses at least 2% by volume of paint per annum or provide evidence of substantial financial, logistical or physical support to a third party scheme that reuses 2%. It is not a requirement that the paint reused has obtained the EU Ecolabel. In addition, the applicant shall provide evidence through literature and packaging that instructs the end user where unused paint can be taken for reuse/recycling. These instructions should also be made available via the manufacturer website.

Feedback from AHWG2 and EUEB meeting

In general, the stakeholders considered the criterion very difficult. It was emphasized that producers have very limited or no influence on how products have been handled and on the consumer behaviour in reference to take take-back system: *“Paint producers have to take responsibility for products that are placed on the market or transferred to third party, but cannot manage processes outside the supply chain which he is not having control or influence on”*. Moreover, it was mentioned that reusing paint could also introduce increased risks of contamination by microorganisms, spoiling products, with negative effects on quality and environmental aspects as a consequence. It was mentioned that take-back systems for paint vary between EU countries and cannot be regulated in the frame of the EU Ecolabel.

Industry stakeholders proposed to inform with a explicit label on the product that “unused paint is no waste”. Furthermore, they proposed to have under the “user information criterion” a recommendation to the consumer to calculate the exact amount that matches the consumer needs prior the paint purchase (reduce that way the amount of unused paint) as well to provide information how to extend storing of the unused paint for longer time (e.g. dry conditions, best handling practise etc). See section “6.1 Consumer information” of this document.

Based on the analysis of the comments received, it is proposed not to include this criterion in the revised proposal and to reconsider this issue in the next revision.

5.2 Packaging material – **CRITERION WITHDRAWN**

5.2.1 New Criterion: Packaging

Although relatively minor compared to reducing the amount of unused paint, additional criteria on minimising packaging waste would be environmentally beneficial. The literature review of LCAs performed within the background report concludes that the environmental impact of packaging is only a minor constituent compared to the production of the paint. The visibility of packaging waste is an important consideration.

The manufacture, use and disposal of packaging are important when considering both the volume of packaging waste (once the paint has been used) and to reduce the risk spillage to minimise paint waste and environmental damage. The use of reusable or lightweight packaging could also be considered.

There are three ways to reduce the environmental impact of the packaging:

1. Increasing the amount of recycled material within the paint pot
2. Decreasing the amount of material within the paint pot
3. Improving the usability and lifetime of the paint through changes in packaging design.

Mandating (1) within the EU Ecolabel appears to be achievable and could be readily introduced. To reduce the weight of packaging material (2), a modified criterion defined in the EU Ecolabel detergents criteria could be used:

$$WUR = \sum [(W_i + U_i)/(D_i * r_i)]$$

Where:

W_i = the weight (g) of the packaging component (i) including the label if applicable

U_i = the weight (g) of non-recycled (virgin) material in the packaging component (i). If the proportion of recycled material in the packaging component is 0% then *U_i* = *W_i*

D_i = the number of functional units contained in the packaging component

(i). The functional unit = dosage in g/kg laundry. Note that the highest recommended dosage for each water hardness must be used in the WUR calculation.

r_i = recycling figure, i.e. the number of times the packaging component (i) is used for the same purpose through a return or refill system.

r=1 if the packaging is not re-used for the same purpose. If the packaging is reused *r* is set to 1 unless the applicant can document a higher number.

However, information would be needed on the average weight of paint pots (and how this varies with size); whereas (3) could be used but is difficult to mandate and may stifle innovation. Without additional input, (1) is proposed as a new criteria.

Paint packaging

Plastic paint pots shall be made of a minimum 25% (w/w) post-consumer recycled material, be made of one polymer or be of compatible polymers for recycling and have the relevant ISO11469 marking.

This criterion does not apply to paint systems that deliver greater than 25 litres.

Verification and assessment: The applicant shall provide a declaration of compliance with this criterion along with evidence of marking.

Feedback from AHWG2 and EUEB meeting

Setting such a criterion found certain support, especially from the side of some CBs, nevertheless, it was also emphasized that it will be difficult to verify it. On the other hand, industry stakeholders mentioned suppliers *“may not be able to afford the demand in capacity, taking into account the recycling channels are not yet well organized”*. Among other problems, stakeholders emphasized the lack of reproducibility in colour and the dark colour appearance, which could be a disadvantage for the consumer to select the product. Also worse durability/mechanical properties of the pots with recycled material as well the scarcity of suppliers and capacity at the market to supply enough packages to the market were mentioned. One stakeholder supported this criterion, if the requirement will not refer to post-consumer recycled material but to recycled material only (i.e. including pre-consumer recycled material too).

After the analysis of all comments received it has been decided not to set this criterion in the revised criteria version. More research is needed on the availability of the recycled materials and the properties of respective pots. This issue should be analysed more in depth ahead the next revision.

6 General

6.1 Consumer information

The following information shall appear on the packaging or attached to the packaging:

- **“Unused paint is not waste”. It shall be recommended to preserve and reuse the unused paint as well to calculate the amount of paint needed prior purchase for minimizing environmental impacts.**
- The use, substrate and conditions of use for which the product is intended. This shall include advice on preparatory work, etc., such as correct substrate preparation, advice on indoor use (where appropriate), or temperature
- Recommendations for cleaning tools and appropriate waste management (in order to limit water pollution). These recommendations shall be adapted to the type of product in question and field of application in question and may make use of pictograms if appropriate
- Recommendations concerning product storage conditions after opening (in order to limit solid waste), including safety advice if appropriate
- For darker coatings for which criterion 7(a) does not apply, advice is given concerning the use of the correct primer or base paint (if possible bearing the Community Eco-label)
- **(Indoor only)** — for thick decorative coatings a text informing that these are paints specially designed to give a three-dimensional decorative effect
- Text advising that unused paint requires specialist handling for safe environmental disposal and therefore it should not be thrown away with household refuse. The consumer should be informed on the provided and/or supported by the manufacture option for dealing the unused paint as given in criterion "unused paint".
- Recommendations on preventive protection measures for the painter. The following text (or equivalent text) shall appear on the packaging or attached to the packaging:
 - ‘For more information as to why this product has been awarded the Flower please visit the web-site: <http://ec.europa.eu/environment/ecolabel>.’

Assessment and verification: A sample of the product packaging shall be provided when submitting the application, together with a corresponding declaration of compliance with this criterion as appropriate. The information in which is given advice on how to deal with the "unused paint" should also be available via the manufacturer website.

Feedback from AHWG2 and EUEB meeting

Regarding assessment and verification one CB indicated that it is not needed that the applicant sends a sample of the product packaging. It is rather suggested that the applicant shall send art work (as PDF or other electronic form). The respective change is introduced in the revised criteria version.

One stakeholder asked additionally if the information on the class on wet scrub resistance should not be required to be placed on the product packaging. As it is not required to test all paints for SWR, this information cannot be required for all paints.

It is proposed to introduce the following information: **“Unused paint is not waste”. It shall be also recommended to preserve and reuse the unused paint as well to calculate the amount of paint needed prior purchase for minimizing environmental impacts. See exact formulation and the criteria text above.**

6.2 Information appearing on the Ecolabel

The current information appearing on the Ecolabel will need to be revised because the indoor and outdoor criteria are merged into a single document. In particular, a formalised system is needed to avoid customer confusion on the performance of the Ecolabel and the reason for the Ecolabel being awarded. This will partly be addressed within the structure of the new document and also the requirements for the labelling itself.

Box 2 of the Ecolabel shall contain the following text:

- Good performance for indoor use (where indoor criteria has been met)
- Good performance for outdoor use (where outdoor criteria has been met)
- Good performance for both indoor and outdoor use (where both indoor and outdoor criteria have been met)
- Minimised use of hazardous substances
- Low volatile organic compounds (VOCs).

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