Revision of European Ecolabel Criteria for Textile products

3. Chemicals and process criteria

26th-27th September 2012, Brussels

Joint Research Centre, Institute for Prospective Technological Studies

Structure of the proposed changes

Proposed new criteria

10. Hazardous substances and mixtures

Criteria 10 to be interpreted by 11, 12 and 13

11. Restricted Substance List (RSL)
12. Substitution of hazardous substances used in dyeing, printing and finishing
13. Dyeing, printing and finishing process efficiency

Structure of the proposed changes

The following criteria are proposed for *replacement by Criteria 11 and 12*

10. Auxilliaries and finishing agents for fibres and yarns
11. Biocidal and biostatic products
14. All chemicals and chemical preparations
17 - 23 Dye criteria
24. Halogenated carriers for polyester
26. Formaldehyde
28. Flame retardants
29. Anti-felting finishes
30. Fabric finishes
32. Coatings, laminates and membranes

Structure of the proposed changes

The following criteria are proposed for deletion

12. Stripping or depigmentation
13. Weighting

The following criteria remain unchanged

10. Fibre and yarn spinning agents
16. Bleaching agents
25. Printing (25.2 moved to RSL)
27. Wastewater discharges from wet processing
31. Fillings

Required new criteria:
Hazardous substances and mixtures

In accordance with Article 6(6) of Regulation (EC) No 66/2010 on the EU Ecolabel, the product or any component of it shall not contain substances that:

- Are referred to in **Article 57 of Regulation (EC) No 1907/2006** and of the Council of 18th December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- Have been identified according to **the procedure described in Article 59(1)** which establishes the Candidate List for Substances of Very High Concern
- Meet the criteria for **classification as toxic, hazardous to the environment, carcinogenic, mutagenic or toxic for reproduction (CMR)** in accordance with Regulation (EC) No 1272/2008 or Directive 67/548/EC

Required new criteria:
Hazardous substances and mixtures

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

No derogation shall be given concerning substances that meet the criteria of Article 57 of Regulation (EC) No 1907/2006 and that **are identified according to the procedure described in Article 59(1) of that Regulation**, and are present in mixtures, in an article or in any homogeneous part of a complex article in concentrations higher than 0,1 % (weight by weight).

Hazardous substances and mixtures
REACH Annex XIV/XVII substances

- Biocides:
  - *Textiles must not contain pentachlorophenol (PCP). The import, export, sale or use of products containing 5 ppm, or above of PCP or its salts or esters is prohibited.*
- Dyes
  - *Azo dyes is the name of the group of synthetic chemicals based on nitrogen that are often used in the textile industry.*
- Flame retardants
  - *Penta- and octabromodiphenol ethers (penta and octa-BDE) Threshold limit is 0,1% (w/w). Impregnants tris (2, 3-dibrompropyl), phosphate cas. Nr. 126-72-7, (TRIS), tris (1-aziridinyl) phosphineoxide (TEPA) cas. Nr. 5455-55-1) and polybrominated biphenyls (PBB) cas. Nr. 59536-65-1 must not be used in textiles which are intended to come into contact with the skin, e.g. articles of clothing or linen.*
- Surface repellents
  - *PFOS (perflourooctane sulfonate and its derivatives) are prohibited in textiles. Special notice should be taken of the ban on textiles or other materials with a coating, if the amount of PFOS comprises 1µg/m^2 or more of the coated materials.*

Hazardous substances and mixtures
Substances of Very High Concern

- Auxilliaries
  - *4-(1,1,3,3-tetramethylbutyl)phenol*
  - *1-Methyl-2-pyrrolidone*
- Dyes and mordants
  - *Anthracene (dye precursor)*
  - *See table 1.3 in the Preliminary Report*
- Flame retardants
  - *HBCD – Hexabromocyclododecane*
  - *TCEP – Tris (2,chloroethyl)phosphate*
  - *Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)*
- Plasticizers (phthalates)
  - *DEHP (Di-(2-ethylhexyl)-phthalate) CAS no. 117-81-7*
  - *BBP (Butylbenzylphthalate) CAS no. 85-68-7*
  - *DBP (Dibutylphthalate) CAS no. 84-74-2*
  - *Bis(2-methoxyethyl) phthalate*
  - *DIBP (Diisobutylphthalat)*
  - *TCEP (Tris(2-chlorethyl)phosphate)*

Hazardous substances and mixtures

Hazard statements and risk phrases

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 R23/26

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 R60/61/60-61

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 R39/23/24/25/26/27/28

H371 May cause damage to organs R68/20/21/22

H372 Causes damage to organs R48/25/24/23

H373 May cause damage to organs R48/20/21/22

H400 Very toxic to aquatic life R50

H410 Very toxic to aquatic life with long-lasting effects R50-53

H411 Toxic to aquatic life with long-lasting effects R51-53

H412 Harmful to aquatic life with long-lasting effects R52-53

H413 May cause long-lasting effects to aquatic life R53

EUH059 Hazardous to the ozone layer R59

EUH029 Contact with water liberates toxic gas R29

EUH031 Contact with acids liberates toxic gas R31

EUH032 Contact with acids liberates very toxic gas R32

EUH070 Toxic by eye contact R39-41

Sensitising substances

H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled R42

H317: May cause allergic skin reaction R43

Hazardous substances and mixtures

Key questions we have focussed on

- Which substances currently used by industry would be restricted?
- What proportion of these substances may subsequently remain in the final product, either as residues or as functional components?
- What is the capacity of industry to respond to restriction of all the listed classifications, is it proportional in its impact?
- Are all the classifications relevant given the exposure paths associated with the textile supply chain and subsequent use and disposal by the consumer?
- How might harmonisation with existing labels help manage the burden of any associated product testing?

Hazardous substances and mixtures
Stakeholder feedback (1)

- A clear distinguishment should be made between substances and preparations e.g. GOTS approach.
- Manufacturers were on balance in agreement with the addition of allergen risk phrases to the list - a consumer-facing issue
- Monomers or additives could be exempted from the requirements relating to classification as long as they are reacted with and are covalently bonded to polymers e.g. water repellent coatings
- Safety Data Sheets must meet the requirements of Annex II, Article 3 of Directive (EC) No 1907/2006
- Reference should be made to industry best practice, including Restricted Substance Lists (RSL's), industry road maps and systems such as Bluesign

Hazardous substances and mixtures
Stakeholder feedback (2)

- Testing of the final product was proposed as a requirement for verification, for consumer safety and the nature of the textile supply chain and processes. Testing could be carried out on a risk basis e.g. by age group, product group, colour, finishing.
- Air emissions from textile finishing processes are proposed as a new criterion which could complement possible derogations.
- Some of the current criteria could be addressed by the horizontal approach within the hazardous substance criteria e.g. flame retardants, biocides

A number of substances and R Phrases were also highlighted for either restriction or derogation.

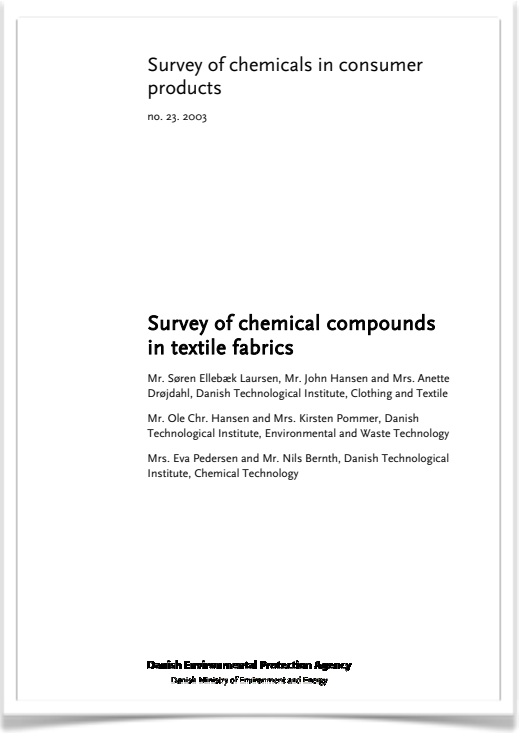
Hazardous substances and mixtures
Identifying substances on the final product

- A review of the feedback from stakeholders and their proposals for derogations and new substance restrictions (see **Annex 1**)
- Literature bringing together the results of sample testing of final textile products (see **Annex 2**)
- A screening of some of the most commonly used substances against the H Statements and R Phrases listed in the proposed criterion (**spreadsheet to be circulated**)
- Industry Restricted Substance Lists (e.g. AFIRM) and screening tools (e.g. TEGEWA classification method)

Fixed and residual substances from the bleaching (optical brighteners), dyeing, printing and finishing stages are of most significance.

Hazardous substances and mixtures

Final product studies (see Annex 2)



Survey of chemicals in consumer products

no. 23. 2003

Survey of chemical compounds in textile fabrics

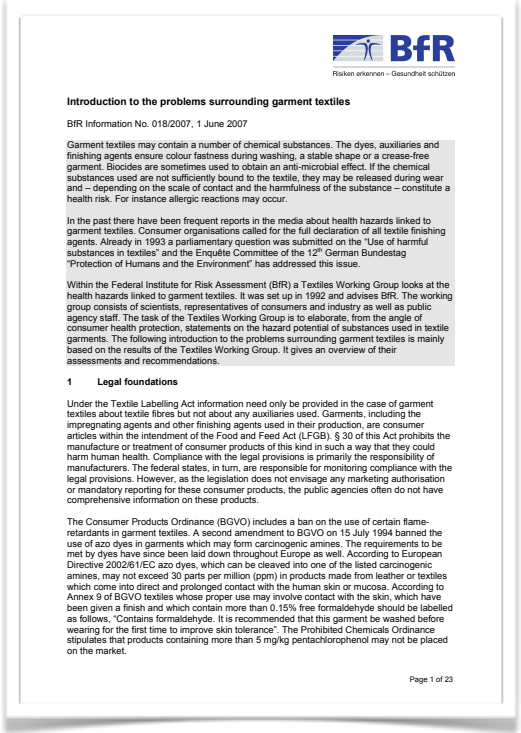
Mr. Søren Ellebæk Laursen, Mr. John Hansen and Mrs. Anette Drejdahl, Danish Technological Institute, Clothing and Textile

Mr. Ole Chr. Hansen and Mrs. Kirsten Pommer, Danish Technological Institute, Environmental and Waste Technology

Mrs. Eva Pedersen and Mr. Nils Bernth, Danish Technological Institute, Chemical Technology

Danish Environmental Protection Agency

Danish Ministry of Environment and Energy



BfR

Risiken erkennen – Gesundheit schützen

Introduction to the problems surrounding garment textiles

BfR Information No. 018/2007, 1 June 2007

Garment textiles may contain a number of chemical substances. The dyes, auxiliaries and finishing agents ensure colour fastness during washing, a stable shape or a crease-free garment. Biocides are sometimes used to obtain an anti-microbial effect. If the chemical substances used are not sufficiently bound to the textile, they may be released during wear and – depending on the scale of contact and the harmfulness of the substance – constitute a health risk. For instance allergic reactions may occur.

In the past there have been frequent reports in the media about health hazards linked to garment textiles. Consumer organisations called for the full declaration of all textile finishing agents. Already in 1993 a parliamentary question was submitted on the "Use of harmful substances in textiles" and the Enquête Committee of the 12th German Bundestag "Protection of Humans and the Environment" has addressed this issue.

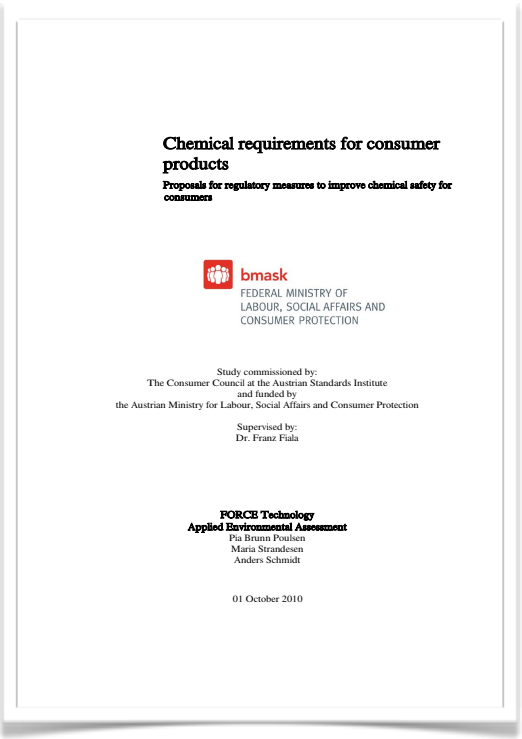
Within the Federal Institute for Risk Assessment (BfR) a Textiles Working Group looks at the health hazards linked to garment textiles. It was set up in 1992 and advises BfR. The working group consists of scientists, representatives of consumers and industry as well as public agency staff. The task of the Textiles Working Group is to elaborate, from the angle of consumer health protection, statements on the hazard potential of substances used in textile garments. The following introduction to the problems surrounding garment textiles is mainly based on the results of the Textiles Working Group. It gives an overview of their assessments and recommendations.

1 Legal foundations

Under the Textile Labelling Act information need only be provided in the case of garment textiles about textile fibres but not about any auxiliaries used. Garments, including the impregnating agents and other finishing agents used in their production, are consumer articles within the intendment of the Food and Feed Act (LFGB). § 30 of this Act prohibits the manufacture or treatment of consumer products of this kind in such a way that they could harm human health. Compliance with the legal provisions is primarily the responsibility of manufacturers. The federal states, in turn, are responsible for monitoring compliance with the legal provisions. However, as the legislation does not envisage any marketing authorisation or mandatory reporting for these consumer products, the public agencies often do not have comprehensive information on these products.

The Consumer Products Ordinance (BGVO) includes a ban on the use of certain flame-retardants in garment textiles. A second amendment to BGVO on 15 July 1994 banned the use of azo dyes in garments which may form carcinogenic amines. The requirements to be met by dyes have since been laid down throughout Europe as well. According to European Directive 2002/61/EC azo dyes, which can be cleaved into one of the listed carcinogenic amines, may not exceed 30 parts per million (ppm) in products made from leather or textiles which come into direct and prolonged contact with the human skin or mucosa. According to Annex 9 of BGVO textiles whose proper use may involve contact with the skin, which have been given a finish and which contain more than 0.15% free formaldehyde should be labelled as follows, "Contains formaldehyde. It is recommended that this garment be washed before wearing for the first time to improve skin tolerance". The Prohibited Chemicals Ordinance stipulates that products containing more than 5 mg/kg pentachlorophenol may not be placed on the market.

Page 1 of 23



Chemical requirements for consumer products

Proposals for regulatory measures to improve chemical safety for consumers

bmask

FEDERAL MINISTRY OF LABOUR, SOCIAL AFFAIRS AND CONSUMER PROTECTION

Study commissioned by:
The Consumer Council at the Austrian Standards Institute
and funded by
the Austrian Ministry for Labour, Social Affairs and Consumer Protection

Supervised by:
Dr. Franz Fiala

FORCE Technology
Applied Environmental Assessment
Pia Brunn Poulsen
Maria Strandesen
Anders Schmidt

01 October 2010

Hazardous substances and mixtures

Indicative concentrations on the final product (1)

Functional group	Concentration on finished product (% w/w)	Technical notes
Dyes *Aryl amines*	0.05 – 3.0% >30 ppm	The concentration will depend on the strength and depth of colour. Aryl amines will only be present as degradation products of certain azo dyes. Printed patterns, if applied, comprise dyes and pigments.
Carriers	0.1 – 1.0%	May also include other printing and dyeing auxilliaries

Hazardous substances and mixtures

Indicative concentrations on the final product (2)

Surfactants	5.5 – 26.4 mg/kg	Residual concentrations may remain from dyeing, washing and finishing
Optical brighteners	Up to 0.5%	Added during pre-treatment process stages.
Softeners	*Check source*	Added during washing and rinsing before or after dyeing.
Easy care	Up to 8%	Mainly cross linking agents. May also include levelling and fixing agents.
Fluorocarbons	0.3 – 8.0%	Coatings that provide dirt or water repellency

Hazardous substances and mixtures

Proposed restrictions and derogations

Hazardous substances and mixtures
General conclusions (1)

- The concentrations and range of substances commonly found in final textile products generally pose minimal health risks to consumers
- Some combinations of consumers, garments and substances that may pose higher risks e.g. baby wear, tight skin contact garments coloured with allergenic disperse dyes.
- Poorly regulated production can also result in greater risks of exposure.
- Many hazards and risks phrases are more relevant to occupational exposure and to wastewater and aerial emissions to the environment.
  - *e.g. many dyes carry H317 (Category 1 skin allergen) which reflects hazards associated with handling in their dust form*
- It is difficult to identify, within the limitations of the Ecolabel revision process, the potential for substitution.
  - *However, some hazards and risks require derogation because they would restrict commonly used substances*

Hazardous substances and mixtures
General conclusions (2)

- Many of the substance restrictions contained within the existing Ecolabel criteria are mirrored by industry and NGO Restricted Substance Lists
  - *A driver for improvement for suppliers*
  - *RSL's are generally subject to due diligence which requires the sample testing of final products*
  - *Sample testing can be carried out on a risk basis e.g. by colour related to banned azo dyes, childrens clothing ranges where there is greater risk from exposure, plastic elements that may contain phthalates*
- EU Industry has successfully used screening tools to reduce the number of hazardous substances used in textile formulations and recipes e.g. TEGEWA, ETAD

Hazardous substances and mixtures
Proposed approach to managing risk (1)

- Restricted Substances List: Existing substance restrictions with the Ecolabel criteria together with Candidate List SVHC's would be compiled into an RSL
- Substitution of hazardous substances: Each supplier that carries out a dyeing, printing or finishing process would be required to, as far as possible, substitute hazardous substances used in their process chemistry
  - *This may require derogations and lead-time to achieve substitution of lower level hazards*

Hazardous substances and mixtures
Proposed approach to managing risk (2)

- Hazard statements could be differentiated by splitting them into
  - *Category A (most significant hazards according to CLP Guidance)*
  - *Category B (lower level hazards according to CLP guidance).*
- Durability of surface finishes: Surface finishes that impart a functional benefit to the textile product, including easy-care, softeners, water repellency, flame retardancy should achieve a high level of durability
- Due diligence: Multiple suppliers, and the difficulty of controlling the nature and concentration of substances on final products may require testing to supplement self-decarations.

Hazardous substances and mixtures

How could the burden of testing be minimised?

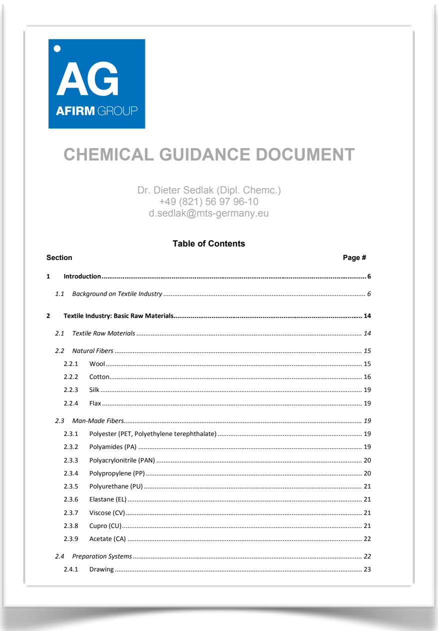
- Testing could be required on a risk basis e.g. specific colours or finishes, childrens clothing, plastic accessories
- Testing could be carried out randomly or on a risk basis across all licenseholders
- Testing could be exempted if suppliers carry out their own testing of intermediate products (at manufacturing sites)
- Oeko-Tex 100 labelling and/or reference to white lists of products could be accepted as contributing towards compliance
- Risk minimised by using suppliers that already fulfill industry RSL's or Oeko-Tex 100

Comments and feedback

- Focus on the final product
  - *Dyeing, printing and finishing stages*
- Proposed overall approach
  - *Restricted Substance List*
  - *Differentiated approach to CLP classifications*
- Final product testing

C11 Restricted Substance List

Industry precedents reviewed

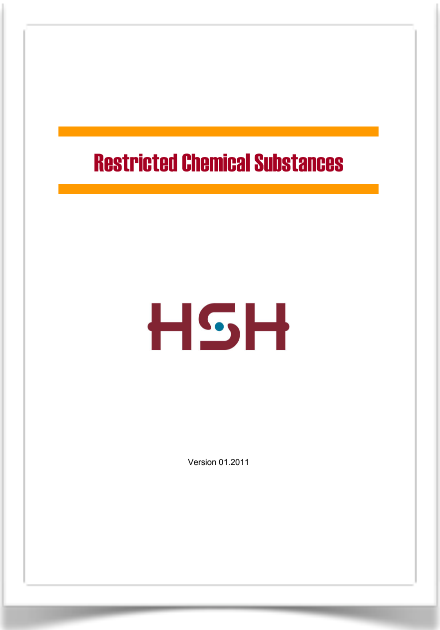


AG AFIRM GROUP

CHEMICAL GUIDANCE DOCUMENT

Dr. Dieter Sedlak (Dipl. Chemc.)
+49 (821) 56 97 96-10
d.sedlak@mts-germany.eu

Table of Contents



Restricted Chemical Substances

HSH

Version 01.2011

VERSION 1.0 MARKS & SPENCER MAY 2011

YOUR M&S

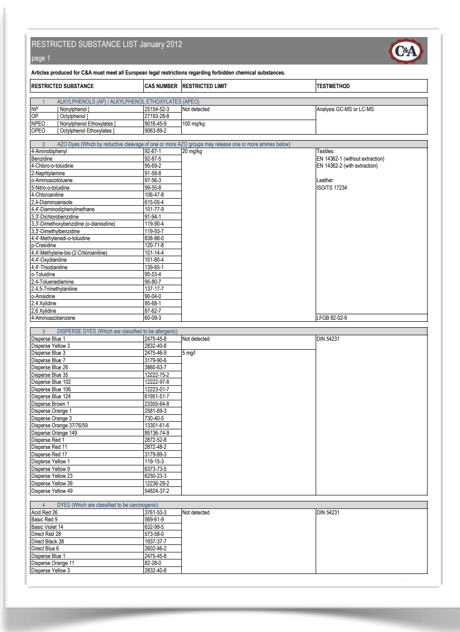
ECP

Module 1: RSL

Restricted Substance List

VERSION 1.0
MAY 2011

ENVIRONMENTAL & CHEMICAL POLICY FOR TEXTILE PROCESSING



RESTRICTED SUBSTANCE LIST January 2012

page 1

C&A

Articles produced for C&A must meet all European legal restrictions regarding forbidden chemical substances.

RESTRICTED SUBSTANCE	CAS NUMBER	RESTRICTED LIMIT	TESTMETHOD
1 ALKYLPHENOLS (AP) / ALKYLPHENOL ETHOXYLATES (APEO)			
2 AZO Dyes (Which by reductive cleavage of one or more AZO groups may release one or more amines below)			
3 DISPERSE DYES (Which are classified to be allergenic)			
4 DYES (Which are classified to be carcinogenic)			

C11 Restricted Substance List

Source criteria for draft RSL

11. Biocidal and biostatic products
14. All chemicals and chemical preparations
15. Detergents, fabric, softeners and complexing agents
17 - 23 Dye criteria
24. Halogenated carriers for polyester
25. Printing
26. Formaldehyde
27. Flame retardants
28. Anti-felting finishes

C11 Restricted Substance List

Proposed substance revisions (main listing)

C11 Restricted Substance List
Stakeholder feedback on dyes

Specific dyes proposed for addition were:

- Disperse Yellow 23 and Disperse Orange 149 because they can cleave to aryl amines,
- Disperse Orange 149 and Disperse Yellow 23 because they are CMR,
- Disperse Blue 1 and Disperse Yellow 3 because they are sensitising.
- Opinions were mixed on whether to add MAKIII Category 2 dyes

Comments were provided in relation to the risk phrases carried by dyes – these were discussed under Criterion 10 and 11.

C11 Restricted Substance List

Proposed substance revisions (dye listing)

C11 Restricted Substance List
Listing of banned aryl amines or dyes?

- A review of industry RSL's highlighted the potential to list specific dyes available on the world market that may cleave to aryl amines.
- Listings used by industry are derived from the opinions of the EU Scientific Committee on Health and Environmental Risks (SCHER) on the use of azo dyes in cosmetic and non-food products.
- Discussions with RSL technical expert suggests that labs are now geared around testing for amines, although some countries moving to dye listings e.g. India

Potential benefit: Clearer and easier to apply for industry.

C11 Restricted Substance List
Proposed criteria text

Final products should not contain substances listed in the the Restricted Substance List (RSL) or at or above the specified concentration limits in RSL which can be found in Annex 3.

The RSL should be communicated to suppliers and agents at the dyeing, printing, finishing and the cut/make/trim stages.

Assessment and verification: The applicant shall demonstrate compliance through selective testing of ~~the~~ final or intermediate products. Samples of product should be selected on a risk basis by reference to the RSL and the accompanying risk matrix. The applicant shall provide documentation and test reports showing compliance with the RSL.

Comments and feedback

- Restricted Substance List
- Incorporation of a number of existing criteria
- Application to printing, dyeing and finishing
- Final product testing for due diligence

C12 Substitution of hazardous substances

Precedent: TEGEWA auxilliaries substitution

Class	Number				Quantity (t/yr)				Quantity (%)			
	1997	1998	1999	2000	1997	1998	1999	2000	1997	1998	1999	2000
I	2821	3020	3242	3164	98446	105983	102578	104406	63	67	75	77
II	1499	1485	1358	1258	29972	29422	23321	22103	19	18	17	16
III	460	417	358	297	27574	23830	10231	9206	18	15	8	7
Total	4780	4922	4958	4719	155992	159235	136130	135715	100	100	100	100

Source: European Commission (2003)

C12 Substitution of hazardous substances
General conclusions (1)

- Dyes: A range of CMR, carcinogenic or allergenic dyes already form part of the proposed RSL
  - *H334, 317 : Dyes carry these classifications because of their characteristics in dust form*
  - *H412,413: The Blue Angel has derogated dyes from these classifications because it would exclude most common dyes*
- Carriers and levelling agents: They can be classified with a significant number of H Statements, including H Statements H300-362.

C12 Substitution of hazardous substances
General conclusions (2)

- Finishes: *Some* easycare, softeners, water repellents and flame retardants are classified with acutely toxic, CMR and aquatic environment hazards. Possible exposure routes:
  - *workers from VOC emissions in the factory,*
  - *the environment from the rinsing off of fabrics*
  - *consumers from leaching from a fabric during use.*
- Coatings, laminates and membranes: Some of these additional elements of a fabric or product may, depending on their content, contain phthalates and perfluorocarbons.
- EUH 029, 031, 032: Industry stakeholders stated that use of substances carrying these classifications would not permit the operation of textile processes.

C12 Substitution of hazardous substances
General conclusions (3)

Critical to interpretation of Hazard classifications are the generic concentration levels that trigger classification, as well as specific concentration limits and M factors that may be listed in Annex 1 of the CLP Regulation (EC) No 790/2009.

C12 Substitution of hazardous substances

Source criteria

10. Auxilliaries and finishing agents for fibres and yarns
15. Detergents, fabric softeners and complexing agents
22. Dyes that are carcinogenic, mutagenic or toxic to reproduction
28. Flame retardants
30. Fabric finishes
32. Coatings, laminates and membranes

C12 Substitution of hazardous substances

How the criteria works with other criteria

Final product focus **but** this criteria should not be seen in isolation

Eliminate: Proposed Restricted Substance List
- Addresses the most significant hazardous substances that now screened and tested for by industry

Control: Proposed process efficiency criteria
- Careful control of substance concentrations and process parameters allow for more greater consistency of final product
- High levels of dye fixation and adequate washing minimises residual dye that may not have been rinsed off

Fix: Existing and Proposed Fitness for use criteria
- Dye fastness minimises the potential for leaching to the skin
- Proposed new criteria addressing finish fastness and durability minimises the potential for leaching whilst also extending product life/functionality

C12 Substitution of hazardous substances

Proposed criteria text (1)

Substances and preparations applied to fibres, fabrics or yarns during dyeing, printing or top finishing processes meeting the criteria for classification with the hazard statements or risk phrases specified below in accordance with Regulation (EC) No 1272/2008 or Directive 67/548/EC or that referred to in Article 57 of Regulation (EC) No 1907/2006 are subject to the restrictions explained below.

For the purpose of this criteria only, the hazard statements listed in the table below have been split into Category A and Category B. The following restrictions apply:

- Substances or preparations which meet criteria for classification with the hazard statements listed under Category A cannot be used during dyeing, printing or top finishing processes and cannot be present in the product at any concentration.

C12 Substitution of hazardous substances

Proposed criteria text (2)

- Substances or preparations which meet criteria for classification with the hazard statements listed under Category B cannot be used during dyeing, printing or top finishing processes if they may be present on the product at or above the generic concentrations provided in the CLP guidance, or the specific concentrations listed in Annex 1 of the Regulation (EC) No 790/2009,

- Substances or preparations which meet criteria for classification with the hazard statements listed under Category B that may be present on the product below the generic concentrations provided in the CLP guidance, or the specific concentrations listed in Annex 1 of the Regulation (EC) No 790/2009 may be used in dyeing, printing or top finishing processes until 2 years of commencement of this version of the criteria, date after which they have to be substituted.

C12 Substitution of hazardous substances

Proposed criteria text (hazard statements)

C12 Substitution of hazardous substances

Proposed criteria text (5)

The following substances are specifically exempted from the requirements above in accordance with the conditions described below if they are present on the product at or below the generic concentrations provided in the CLP guidance, or the specific concentrations listed in Annex 1 of the Regulation (EC) No 790/2009. Hazards EUH023, EUH 031 and EUH 032 are derogated for all substances.

C12 Substitution of hazardous substances
Proposed criteria text (6)

Function group	Derogated classifications	Derogation conditions
Dyes	Category B, H412, H413, H300-331, H317 and H334	• EU BAT measures shall be used to minimise worker exposure to dyes in powder form; • Wastewater shall be treated according to the additional requirements in Criteria 27
Optical brighteners	Category B, H412 or H413	• No specific additional requirements
Softeners	Category B	• Must not be classified with H334 or H317

C12 Substitution of hazardous substances
Proposed criteria text (7)

Cross linking agents	Category B	• Must not be classified with H334 or H317
Flame retardants	Category B	• Should be required by fire legislation and/or ISO, EN or Member State standards for specific end-uses.
Water and stain repellents	Category B	• Should not be classified with H410 – 413
Membranes and laminates	Category B	• Plasticizers and solvents should not be classified with H410 - 413

C12 Substitution of hazardous substances
Proposed criteria text (7)

Other residual substances		
All functional groups	Category B, EUH023, EUH 031, EUH 032	• EU BAT measures are used to minimise the exposure of workers during the handling of substances; • That wastewater effluent from manufacturing sites is treated according to the additional requirements described in Criteria 27;

C12 Substitution of hazardous substances

Proposed criteria text (8)

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 that forms part of a dyeing, printing or finishing preparations 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.

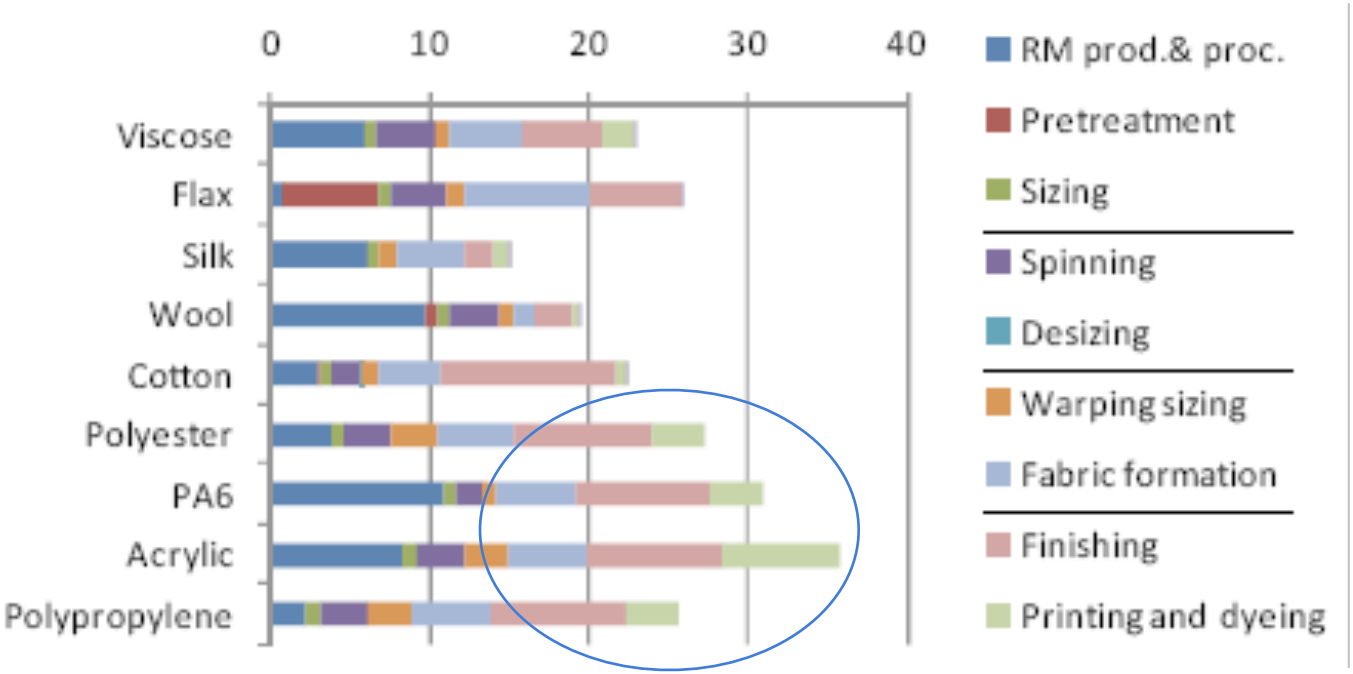
This declaration shall be supported by a technical report which identifies the substances and preparations used for dyeing, printing and finishing and the predicted concentrations on the final product. Substances and preparations should be characterised in accordance with the level of detail specified 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 for how the derogation requirements are met.

Comments and feedback

- Focus on dyeing, printing and finishing
- Categorisation of hazard statements
- Reference to CLP concentration limits
- Derogation of functional groups
  - *Varying derogation conditions*
  - *Permanent derogation for important functions e.g. dyes*
  - *2 year time frame for residues e.g. carriers*

C13 Dyeing, printing and finishing process efficiency

Improving criteria focus on BAT techniques



Impacts on climate change of textile production according to fibre type and production phases in kg CO_2 eq/kg fabric [IMPRO, 2009]

C13 Dyeing, printing and finishing process efficiency

Improving criteria focus on BAT techniques

Aim: To characterise the improvement potential and the most important parameters which influence process efficiency

Reference points: Textile BREF, expert literature and industry guidance

Dyeing

- Benchmarking studies suggest savings in the range of 60% for energy consumption, 70% for water consumption and 20-70% for chemical consumption
- Dyeing without colour instrumentation and automated dosing of dyes and auxilliaries leads to higher environmental impacts
- Washing and rinsing is common to all dyeing processes and consumes greater quantities of energy and water. Water savings potential of 50-75%

C13 Dyeing, printing and finishing process efficiency

Improving criteria focus on BAT techniques

Printing

- Industry standard printing processes such as screen printing wasteful of printing pastes, with 50% being typical
- Digital inkjet printing as BAT, using 80% less energy and avoiding nearly all print residues
- Fixing, washing and drying are process stages common to all print finishing with the exception of transfer and pigment printing

Top finishing

- Energy use associated with drying and curing in stenter frames is a generic process, improvement potential of 15-30%

C13 Dyeing, printing and finishing process efficiency

Case studies of process efficiency initiatives

C13 Dyeing, printing and finishing process efficiency

Findings from the case studies

- The aim of improving communication along the supply chain is common to all the initiatives
- Production management and energy/water efficiency receive the strongest emphasis
- Distinct variations in the approach included:
  - engage suppliers in a process of continuous improvement
  - identification of specific improvement measures and limit values
  - confidential dialogue with partners, including technical advice on BAT
  - self-audit questionnaire to raise awareness of the client expectations
- Verification of performance by site visit is required by Marks & Spencers, Bluesign and Oeko-Tex 1000.

C13 Dyeing, printing and finishing process efficiency

Proposed EU Ecolabel self-audit checklist

BAT theme	Proposed self-audit criteria
1. Production management	a. Engagement of the workforce: i. Environmental awareness training, ii. Good practices for maintenance and cleaning, b. Automatic dosing and dispensing i. Installation of automatic systems which meter chemicals, auxiliaries and water. c. Process control and optimisation i. Process monitoring, flow control and timing, ii. Well-documented production procedures.
2. Process-specific measures	Dyeing a. Design and colour instrumentation i. Systems enabling accurate reproduction of customer designs and colours; b. Right first time dyeing results i. Reject rates of less than <2-3% c. Specification of high-fixation dyestuffs d. Use of low liquor ratio dyeing machines e. Water re-use/recycling in batch processes Printing a. Print paste waste recovery systems and routines i. Recovery from preparation and production b. Use of digital printing for: i. Sample runs ii. Small to medium sized production runs Top finishing a. Control of VOC emissions from drying processes i. Optimised application of finishes ii. Installation of pollution control equipment
3. Water and energy efficiency	a. Energy and water management i. Sub-metering, ii. Process energy monitoring, iii. Insulation of pipework, valves and flanges iv. Heat recovery e.g. rinse water, steam condensate b. Washing and rinsing i. Smart rinsing technologies, c. Drying and curing (including stenter frames) i. Insulated enclosures ii. Efficiency burner systems

C13 Dyeing, printing and finishing process efficiency

Proposed criteria text

The applicant shall demonstrate that all suppliers of dyeing, printing and top finishing processes have completed a self-audit questionnaire identifying process improvements they have implemented. Suppliers must score more than xx points. The questionnaire to be used is provided as an annex to the textile criteria.

Assessment and verification:
The applicant shall provide a list of suppliers of dyeing, printing and top finishing services. Fully completed self-audit questionnaires should be provided for each supplier. Suppliers shall be requested to update their self-audit responses each year of the license period.

Equivalent self-audit formats, as well as certifications which address process efficiency - such as Oeko-Tex 1000 and Bluesign - will be accepted as proof of compliance. Site visits may be requested by Competent Bodies at any time in order to verify compliance.

C13 Dyeing, printing and finishing process efficiency
Options for how the criteria could work

Option 1: Applicants would be required to obtain completed checklists from their suppliers

Option 2: A simple scoring system could be introduced, with applicants being required to show that their suppliers meet a minimum score

Option 3: Applicants would be required to show that they have used the checklist to inform their selection of suppliers

Option 4: Applicants would be required to show that they, or a third party, had inspected the supplier

Option 5: Compliance with agreed third party certification scheme or evidence of compliance with industry scheme using similar criteria

Comments and feedback

- Focus on BAT techniques
- Dyeing, printing and finishing processes
- Selected to save energy, water and chemicals
- Checklist format for suppliers to complete
- Options for how it could work

C15 Detergents, fabric softeners and complexing agents

Proposed revision

The biodegradability requirements shall be updated in-line with the EU Ecolabel criteria for Industrial and Institutional laundry detergents for professional use, which distinguishes between aerobic and anaerobic biodegradation.

It is proposed that softeners are considered alongside other finishes as part of Criterion 12.

C15 Detergents, fabric softeners and complexing agents

Proposed revised criteria

At each wet-processing site, at least 95 % by weight of fabric softeners, complexing agents and detergents by weight shall be sufficiently degradable or eliminable in wastewater treatment plants.

This is with the exception of surfactants in detergents and fabric softeners at each wet processing site, which must be biodegradable under aerobic conditions. All non-ionic and cationic surfactants must also be biodegradable under anaerobic conditions.

Assessment and verification:

~~'Ultimate aerobic biodegradation' has to be interpreted as laid down in Annex III to Regulation (EC) No 648/2004 of the European Parliament and of the Council (1).~~

Comments and feedback

C26 Formaldehyde
Review of evidence

- The limit values specified by Oeko-Tex 100 can readily be met by using alternative easy care finishes
- Some common low or no formaldehyde alternatives, such as dihydroxyethylene urea (DMDHEU), are similarly classified with H351 (suspected of causing cancer) and H317 (Allergen skin reactions)
- Studies and literature reviews by the Danish EPA which tested final products suggest that after a single domestic wash cycle 57% to 81% may be washed out
- Stakeholders have requested 16 ppm l.o.d. limit value for babies and young children

See also proposed new Fitness for use criteria – cross linking agents

C26 Formaldehyde
Proposed revised criterion

The amount of free and partly hydrolysable formaldehyde in the final fabric shall not exceed 16 ppm for products used for babies and young children under 3 years old, ~~30 ppm~~ 75 ppm for all other clothing products and 300 ppm for interior textile products.

Assessment and verification:
The applicant shall either provide a declaration that formaldehyde containing products have not been applied or provide a test report using the following test method: EN ISO 14184-1.

Comments and feedback

Comments and feedback

- Deletion of the criteria (see RSL)
- Ajustment of limit values

C27 Wastewater treatment from from wet processing

Review against BREF

- Previous consultations with Danish industry does, however, suggest that the current 20 g/kg of finished fabric is workable
- The textile BREF suggests that 85% would represent BAT performance for COD removal
- Whilst this limit value is shared by GOTS, both Bluesign and Oeko-Tex 1000 refer to an 85% COD reduction target
- Oeko-Tex 1000 also refers to a 180 mg/l COD reduction target

C27 Wastewater treatment from from wet processing
Review against BREF

Possibility for derogation hardly degradable substances (e.g. Nitrilotriacetic acid) or non-degradable substances (e.g. some forms of dye)?

- Treatment of textile waste water in activated sludge system with low food-to-micro organisms ratio (p-405) – Suitable for degradation of effluents which contain hardly biodegradable substances.
- Anaerobic removal of residual dyestuff from padding liquors and printing paste residues (p-426) – Suitable in particular for dye colour removal, sometimes in combination with activated carbon.
- Treatment of selected and segregated, non-biodegradable waste water stream by chemical oxidation (p-428) – Suitable for effluents with very high levels of COD and non-biodegradable substances e.g. desizing baths, dye baths.

C27 Wastewater treatment from from wet processing

Proposed revised criteria

Waste water from wet-processing sites shall, when discharged to surface waters after treatment (whether on-site or off-site) shall, with the exception of greasy wool scouring sites and flax retting sites, have a COD content of less than 20 mg/kg, or a reduction of COD by at least 85%, expressed as an annual average.

In order to derogate substances that are hardly biodegradable or non-biodegradable, or to achieve ultimate aerobic biodegradation, additional treatment systems shall be introduced. In this case mineralisation and/or colour removal should be at least 90%.

Comments and feedback

C28 Flame retardants
Stakeholder feedback

- Industry stakeholders highlighted requirements to meet international and national fire regulations
- Flame retardants should be completely restricted by the Ecolabel with derogations only where necessary to meet fire regulations.
- Reactive flame retardants are not reacted to near 100% as defined by the Ecolabel
- Distinguishment between reactive and additive does not say anything about health or environmental risks
- Each flame retardant should each be assessed on its own merit depending on its CLP classification
- The permanency of flame retardants should be considered within the criterion - the incorporation of the function should be as permanent as possible.
- Inherently flame retardant fibres should be favoured.

C28 Flame retardants

Encouraging substitution and inherent function

- The new hazardous substance criterion will:
  - *restrict flame retardants used to treat textiles, including APO and TRIS.*
  - *require that hazardous substances should be substitute*
- In the UK some retailers meet nightwear fire regulations for by specifying less flammable fibres e.g. modacrylic
- Functionality can also be achieved by modifying the polymer structure during manufacturing e.g. Trevira
- Oeko-Tex 100 white list includes a number of inherently flame retardant fibres and fabrics e.g. products by Gore Tex, Trevira and Dupont

C28 Flame retardants
Encouraging greater permanency

- European Flame Retardant Association (EFRA) highlights the importance of flame retardant durability
- Expert literature distinguishes between non-durable, semi-durable and durable finishes
  - *Non-durable finishes - retreating after one laundering*
  - *semi-durable - more than 5-10 washing cycles or dry cleaning (where removable and washable)*
  - *durable - more than 50 washing cycles*
- Inherently flame retardant fibres are durable, although certain washing conditions can damage the flame retardancy of some fibres

C28 Flame retardants
Proposed approach

Flame retardants classified in accordance with Regulation (EC) No 1272/2008 can be derogated if it can be demonstrated that:

1. They are required to meet fire regulations;
2. They are required to meet ISO, EN or Member State standards for specific product end-uses;
3. Their flame retardancy is:
    i. Durable for clothing applications;
    ii. Semi-durable for interior textiles (see proposed new Criterion 40);

Further input is requested from stakeholders to inform the durability specifications and to identify any relevant standards.

Comments and feedback

- Deletion of criteria (see C11 and C12)
- Derogation conditions relating to need
- Durability is a further requirement
- See proposed new fitness for use criteria

Revision of European Ecolabel Criteria for Textile products

4. Fitness for use criteria

26th-27th September 2012, Brussels

Joint Research Centre, Institute for Prospective Technological Studies

Fitness for use criteria
Proposed approach

- Alignment of the tolerances of criteria 34 with the Blue Angel
- Feedback from stakeholders suggests additional testing standards too narrowly defined to apply to workwear, health services, hotels etc..
  - Industrial washing should be included
  - ISO 15797 could be used as a reference standard
  - Linked standards could be used for GPP e.g. abrasion, tenacity, piling
  - Potential to develop an index for textile lifespan or 'rate of use'

Proposed new criteria – durability of surface finishes

Durability of surface finishes
Rationale for new criteria

Functional finishes may be applied to the final textile product, with their fastness depending upon their distinct chemistry and how the garment is used.

Focus on fastness and durability could:

- reduce the risk of exposure of consumers and the environment from leaching during use and during the re-application of finishes (if this is feasible)
- extend the life of products which consumers may dispose of if their functionality has diminished

Durability of surface finishes
Criteria and testing standards

- Expert literature and manufacturers suggest that 50 and 100 wash cycles *or* resistance to boil temperatures or dry cleaning
  - *ISO 6330:2001 (+ 2009 A1) which specifies textile washing and drying procedures*
  - *BS 3426:36 which specifies testing for the stability of coated fabrics to domestic washin*
- Further information is required for softeners and anti-wrinkle, which may have a shorter lifespan of 5-10 wash cycles
- Deterioration upon folding and creasing could also be a relevant consideration.

Durability of surface finishes
Products with inherent properties

Fibres, fabrics or membranes have been developed that minimise or avoid the need for surface finishes

- inherently flame retardant fibres e.g. WL Gore's Pyrad laminate
- densely woven cotton e.g. Ventile fabric
- modal viscose fibres e.g. Lenzing's MicroModal fibres
- polyester-cotton blends e.g. 'easycare' products
- weatherproof membranes e.g. Schoeller Dry Skin membranes

Durability of surface finishes
Proposed criteria text (1)

Surface finishes that impart a functional benefit to the textile product should achieve a high level of durability. Finishes addressed by this criterion are easy care, softeners, water repellency and flame retardancy. The following requirements apply:

- Flame retardant and water repellent finishes should retain xx% of their functionality after 50 wash cycles at 40°C, or as specified within the relevant standards listed below.
- Softeners intended to improve the handle of fabrics and anti-wrinkle finishes intended to reduce the need for ironing should retain xx% of their functionality after x wash cycles at 40°C.

For water repellents and flame retardants consumers should be provided with guidance as how to maintain the functionality of the coatings applied to the product.

Textile fibres, fabrics and membranes that lend the final product intrinsic functional properties are exempt from these requirements.

Durability of surface finishes
Proposed criteria text (2)

Assessment and verification: The applicant shall provide reports from tests carried out according to ISO 6330:2001 (+ 2009 A1) and BS 5852. For products with intrinsic properties applicants shall provide test reports demonstrating a high level of comparable performance with alternatives which may be applied as finishes.

Additional testing criteria for industrial laundries?

Comments and feedback

- Durability of specific finishes
- Flame retardancy, water repellents, softeners and cross linking agents (anti-wrinkle)
- Standards based on number of wash cycles

Revision of European Ecolabel Criteria for Textile products

5. Proposed new criteria areas

26th-27th September 2012, Brussels

Joint Research Centre, Institute for Prospective Technological Studies

Corporate Social Responsibility (CSR)
Stakeholder feedback

- Opposing views were expressed by stakeholders.
- This is a high profile issue for consumers as textiles are imported from 'high risk countries'
- Manufacturers supported the proposal because it fitted with their existing CSR policies e.g. SA8000
- In contrast views were expressed that this criterion would be difficult to verify and would complicate certification e.g. imported products, grey fabrics
- an ability to suspend licenses if a scandal occurs or non-compliance is reported was considered important
- third party proof of compliance based on the growing number of compliance schemes and reporting standards.

Corporate Social Responsibility (CSR)
Lessons from Horizontal Working Group

Experience shared by Germany, Denmark and the Netherlands:

- The Blue Angel has taken a view based on stakeholder opinion to focus on the International Labour Organisation's core conventions which have been adopted as 'basic principles'
- The Nordic Swan has focused on minimum number of issues for compliance. Features of their approach are a requirement for open/ public CSR reports and plans to audit against, a requirement for SA8000 compliance
- The Netherlands have developed an approach based on, as a minimum, an annual requirement for supply chain risk assessment, self-declarations of 'reasonable endeavours' and/or certified performance against standards or codes established by supply chain initiatives.

Corporate Social Responsibility (CSR)
Proposed criteria text (1)

Applicants shall ensure that the fundamental principles and rights at work as specified in the - International Labour Organisation's Core Labour Standards shall be observed by all production sites used to manufacture EU Ecolabelled products. The ILO Core Standards are:

029 Forced Labour
087 Freedom of Association and Protection of the Right to Organise
098 Right to Organise and Collective Bargaining
100 Equal remuneration
105 Abolition of Forced Labour
111 Discrimination (Employment and Occupation)
138 Minimum Age Convention
182 Elimination of the Worst Forms of Child Labour

A license may be suspended or revoked if substantive evidence is received that ILO Core Labour Standards have been breached.

Corporate Social Responsibility (CSR)
Proposed criteria text (2)

Assessment and verification: The applicant shall obtain reports on compliance from their production sites. These should be compiled and provided to Competent Bodies. Third party certification will be accepted as evidence of compliance.

Comments and feedback

- ILO Core standards
- License suspension/revoke option

Product repair, re-use and recycling
Stakeholder feedback

- This criterion should incorporate Design for Durability and Cradle to Cradle concepts
- Product closed loops are more costly because of the logistics.
- The important issue is to ensure products enter a take-back system.
- Options should include state controlled and private take-back schemes, with a preference for local recycling in order to avoid a shift of burdens
- The material flow between retailers and wholesalers was also highlighted, including packaging and clothes hangers.
- Examples were given of industry initiatives by Timberland (Earthkeepers 2.0), Marks & Spencers (with Oxfam) and Intimissimi (bra recycling into sound insulating board).

Product repair, re-use and recycling
Follow-up research (1)

Repairing and/or improving the product in support of continued use by the original purchaser

- Consumer are able to send garments to in-house or approved workshops where features such as taped seams, stitching and waterproofing can be renewed
- Data published by these manufacturers suggests that a substantial number of garments are repaired annually
  - *North Face claims to have repaired 46,021 products globally in 2010*
  - *See also GPP case studies*

Product repair, re-use and recycling
Follow-up research (2)

Re-distribution of the product for further re-use by other consumers

- LCA studies have modelled take-back cycles for clothing collected and sorted according to quality and suitability for re-sale
- A proportion is usually exported or downcycled into other products such as industrial wipers and non-woven fibre products
  - *EU re-use rate is estimated to be 7.3%*
  - *higher re-sale value are critical in funding re-use schemes*
  - *100 second hand garments may avoid 60 and 85 new garments*
- In France producer responsibility legislation has led to the establishment of take-back systems which retailers must pay into
- Trialled voluntarily by a number of EU retailers e.g. Gap, H&M and Marks & Spencers
- See also GPP case studies

Product repair, re-use and recycling
Follow-up research (3)

Mechanical or chemical recycling into textile products with a similar value and specification

- Polyester fabrics by technical clothing manufacturers Patagonia, Henri Lloyd and Quiksilver
- Consumers are able to return specifically labelled clothing items to the manufacturer directly or via retailers
- Disadvantage is that there are only two manufacturers – Hyosung in Korea and Teijin in Japan
- Streamlined LCA carried out by Patagonia suggests that the environmental burdens still substantially outweighed by environmental benefits

Product repair, re-use and recycling
Follow-up research (4)

Mechanical or chemical recycling into high value products or components

- Already exists in the wider market for textile recycling
- Explored recently by manufacturers such as Levi and retailers as Intimissimi
- Garments or items can be returned by consumers via retailer networks
- Benefit is cleaner, sorted waste streams for manufacturers e.g. insulation manufactured from denim, floor underlay and furniture and mattress fillings

Product repair, re-use and recycling
Follow-up research (5)

Cradle to cradle

- Fibre and fabric production and chemistry to ensure that products can either: - -
  - *safely biodegrade as 'xxxx nutrients' (in the case of natural fibres)*
  - *be recycled as 'technical nutrients' (in the case of synthetic fibres)*
- Products can now be certified as being designed to be 'Cradle to Cradle' e.g. Victor Innovatex, Gabriel A/S, Rohner Textil AG and Trevira CR

Certification is not transparent enough for the Ecolabel at this stage?

Product repair, re-use and recycling
Proposed criteria text (1)

Applicants that produce branded final products, or have a direct interface with textile consumers via retail stores or contractual agreements, shall make available at least one of the following textile recycling or re-use schemes.

Schemes should enable consumers to return textile products for the purpose of either:

1. Repair or improvement of products in a way that facilitates continued use by the original purchaser;
2. Sorting and re-distribution of products so that they can be re-used by other consumers. An incentive should be provided for consumers to return their products;
3. Mechanical or chemical recycling of products into new clothing, accessories or interior textile products;
4. Mechanical or chemical recycling into other new products or components;

Product repair, re-use and recycling
Proposed criteria text (2)

Take-back of the product shall be arranged by the applicant, either directly via their own stores, via agreements with third parties or via payments made to accredited national producer responsibility schemes.

The option selected should be made available for all ecolabelled product lines. Information about schemes should be provided to consumers on product labeling, in stores and via marketing and websites.

Assessment and verification: The applicant shall provide information that demonstrates how the measure has been implemented. This shall include consumer-facing information, transaction records and waste contracts. Certifications provided by producer responsibility schemes shall be accepted as evidence.

Comments and feedback

- Focus on branded product with customer interface
- Range of end-of-life options to provide flexibility
- No specific % requirements - make available the take-back route

Energy saving advice
Stakeholder feedback

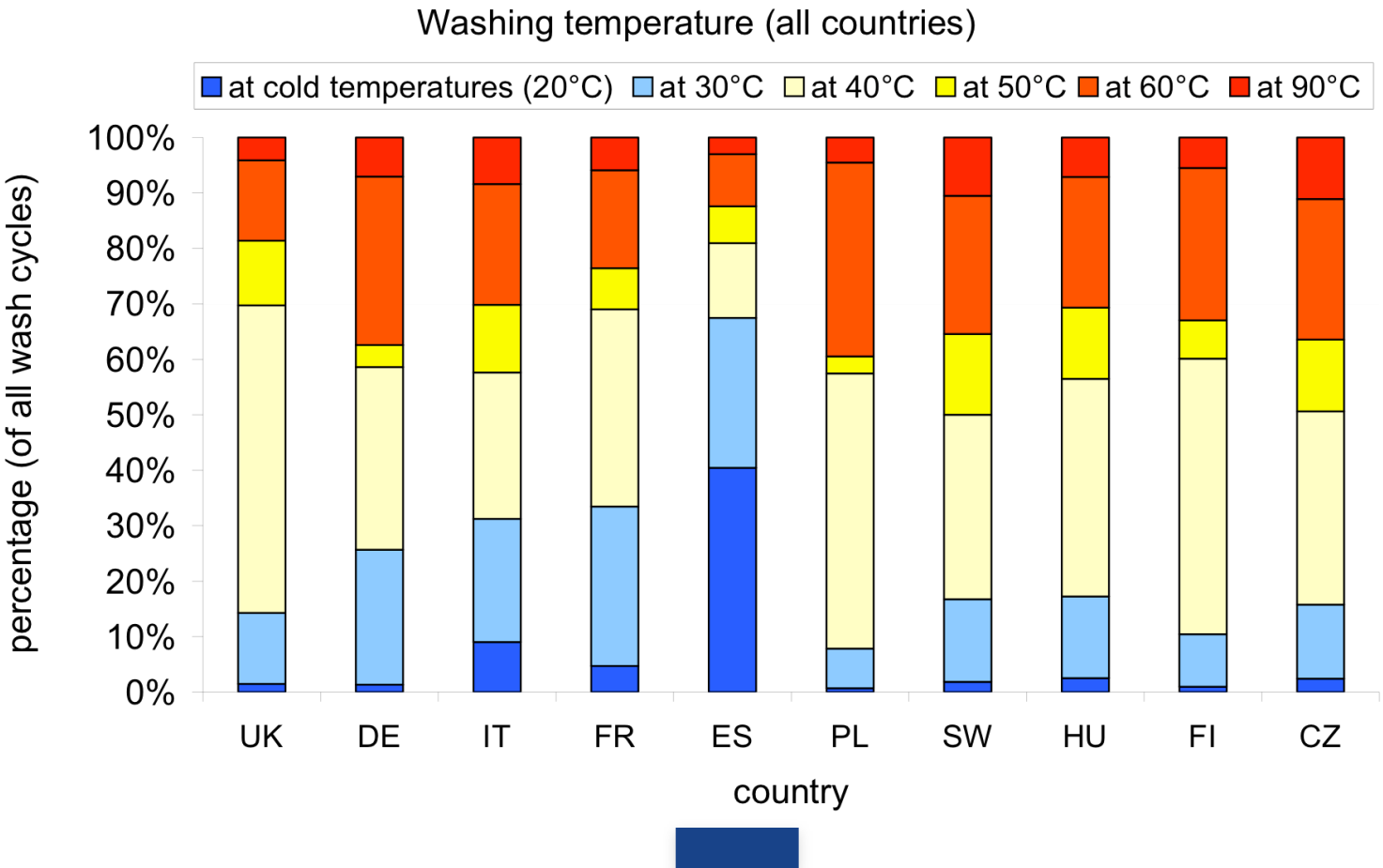
- Habits may vary by country (e.g. more line drying in south of Europe which may be complemented by higher temperature washing)
- Some products have care labels which apply across the EU – would they have to be varied across Europe?
- The criterion should ensure that a garment is still cleaned adequately and does not deteriorate in quality.
- The use of messages printed on packaging was suggested in addition to care labels.
- A distinguishment should be made between domestic and industrial/professional laundry conditions.

Energy saving advice
Analysing consumer behaviour

IMPRO textiles modelled the improvement potential and reviewed Ecodesign and market research data:

- Load capacity optimisation and reduced washing temperatures had the greatest improvement potential
- Survey data which has been used to inform the Ecodesign implementing actions for washing machines suggests significant potential to reduce washing temperatures and improve load factors:
  - *Estimated average washing temperature for EU 27 is 45.8 ^{o}C,*
  - *23% of wash cycles are at 60^{o}C*
  - *average load is 3.2 kg based on an average capacity of 6 kg*
  - *influenced by perceptions of cleanliness and convenience*
- Tumble drying is influenced by ownership levels, which on average are 35%, and climatic conditions, but also electricity costs.

Energy saving advice
EU washing temperature profile



Energy saving advice
Examples from the retail sector

Consumer research suggests there is significant evidence that washing temperatures, load factors and modes of drying can be influenced

The most high profile industry examples are Marks & Spencer in the UK, IKEA and the Levi brand

- publicity campaigns
- messages on packaging
- amendments to care labelling
- joint marketing e.g. low temperature detergents

Common in the commercial sector e.g. blends reduce laundry costs

Energy saving advice
Proposed criteria text (1)

Applicants that produce branded products shall use marketing, packaging and swing tags to communicate energy saving measures to ecolabel consumers.

Applicants that have a direct interface with consumers via retail stores or websites should develop consumer-facing content and/or marketing material that communicates energy saving measures to ecolabel consumers.

Energy saving measures communicated should, as a minimum, include reduced recommended washing temperatures, the potential to minimise tumble drying, and washing and drying with full loads.

Energy saving advice
Proposed criteria text (2)

Care labelling may be altered to complement energy saving messages but this should not compromise the durability of the product. The print on the care tag must be indelible.

Assessment and verification: Applicants shall provide evidence in the form of example marketing material, packaging and swing tags. Where care labelling is proposed to be altered in order to complement energy saving messages then the durability of the product must be tested and assured according to ISO 6330.

Comments and feedback

- Focus on licenseholders with consumer interface
- Range of medium can be used to communicate
- Three specific messages must be communicated as a minimum
- Durability of product must not be compromised