

bluesign[®] criteria for chemical assessment

Annex: Flame retardants

Version 2.0 | April 01, 2014

Content

1	Preliminary remarks	2
2	Definitions	2
2.1	Flame retardant	2
3	Reporting	2
4	Risk assessment	2
5	Required data	3
5.1	Product information	3
5.2	EHS-data	3
5.2.1	Composition	3
5.2.2	Chemical and physical data	3
5.2.3	Toxicological data	3
5.3	Confirmation of the flame retardant effect	4
5.3.1	Fastness properties (if relevant)	4
5.3.2	Application	4
5.3.3	Disposal of residual liquors and/or exhausted baths	4
6	Downstream user	4
7	Labeling	4
8	Standards for the involved laboratories	5
9	Validity	5
10	Other applicable documents	5

1 Preliminary remarks

Flame retardants used for manufacturing of bluesign® approved articles must be manufactured by a bluesign® system partner. However, if possible the use of flame retardants shall be avoided or minimized (e.g. by the use of an appropriate fabric construction). Only products with scientifically proven effect and minimized adverse reactions shall be used.

The bluesign® criteria for flame retardants include requirements on:

- Function/effect
- Fastness properties (if relevant)
- EHS aspects

2 Definitions

2.1 Flame retardant

Flame retardants are intended to reduce the inflammability and combustibility as well as the afterglow of textiles.

3 Reporting

It is a duty of a manufacturer of a product intended for the bluesign® registration to report the required data in a compact risk assessment to bluesign technologies. The required data have to be made available as the additional information to the Product Screening Form or to the online homologation form. The data shall be submitted to bluesign technologies in a printed or electronic format (PDF).

It is strongly recommended to attach original test reports wherever possible.

The risk assessment is peer-reviewed by bluesign technologies. If the evaluation of the data leads to the conclusion that the product is compliant with the bluesign® criteria, the product can be registered in the bluesign® bluefinder. The peer-review is submitted to the manufacturer of the product.

Note 1: A manufacturer shall inform bluesign technologies if a complete data set can not be provided; in such case the further approach depends on the risk performance of the substance(s).

Note 2: A reliable conclusion by analogy to characterize EHS-properties is possible; in this case the chemical supplier shall inform on the alternative data basis.

4 Risk assessment

The manufacturer of a flame retardant that is intended for registration as bluesign® approved shall submit to bluesign technologies a compact risk assessment with the following information:

- Description of the substance/mixture and its application
- Life-cycle hazard profile
- Life-cycle exposure profile (human, environment)
- Risk evaluation (workplace, consumer, environment)
- Risk management (workplace, consumer, environment)

Unless stated otherwise, the risk assessment must include at least the data described in Chapter 5.

Note 1: Due to nondisclosure aspects, bluesign technologies may accept (on a case by case basis) that some of the required data are not reported or are reported only in an indirect way.

Note 2: If not stated otherwise, information shall be given for the complete mixture or the active substance(s). In each case the information shall be consistent and it must be clear whether a mixture or an active substance(s) is/are addressed.

5 Required data

5.1 Product information

- Trade name
- Manufacturer
- Regulatory compliance (notification and registration of the product)
- Claims (flame retardant effect(s), type of substrate(s), type of final article(s))
- Material Safety Data Sheet (GHS Standard)
- Technical Data Sheet

5.2 EHS-data

5.2.1 Composition

- Active substance(s)
 - Common name(s)
 - IUPAC name
 - CAS number
 - % w/w
- Other substance(s)
 - Common name(s)
 - IUPAC name
 - CAS number
 - % w/w

Information on active substance(s) and substances that are restricted and banned according to the bluesign® system is mandatory. Information on other substances in the product is strongly recommended. In cases where the active substance is incorporated in a special matrix, a description of the matrix shall be given with special attention to consumer safety issues.

5.2.2 Chemical and physical data

- Appearance
- Melting point
- Boiling point
- Solubility in water
- Density
- pH-value
- Flashpoint
- Ionogenicity
- Potentially dangerous chemical reactivity
- Stability (chemical and physical)

5.2.3 Toxicological data

Note: Bold letters mean mandatory data.

- Toxicity
 - Acute oral LD50 (OECD 423)**
 - Acute dermal LD50 (OECD 402)**
 - Mutagenicity (OECD 471), Ames test (can be replaced by other mutagenicity test methods)
 - Chromosome aberration (OECD 473)
 - Cancerogenicity (strongly recommended for the active substances)
- Skin tolerance
 - Sensitization (OECD 406) or Local Lymph Node Assay (OECD 429)**
 - Irritation (OECD 404)**
 - Acute eye irritation (OECD 405); mandatory if OECD 404 is negative**
 - Cytotox (EN ISO 10993-5)
 - Human repeated patch test or closed single patch test (strongly recommended)
 - Other scientifically proven test methods
- Ecotoxicity
 - Daphnia (OECD 202)
 - Fish (OECD 203)
 - Bacteria (OECD 209)
 - Algae (OECD 201)

- Biodegradability
- Preferably OECD 302 B; also possible OECD 301 A–F, 303A, 310
- AOX content
- BOD5 (Biological Oxygen Demand)
- COD (Chemical Oxygen Demand) or TOC (Total Organic Carbon)
- Air Emission Parameters
- Water Hazard Classification

- Exposure to consumer

Information on measured or calculated exposure of the consumer to a product or an active substance (e.g. release rate from textile, penetration rate to human skin) shall be delivered. If possible a comparison with a scientifically acknowledged ADI-value (Acceptable Daily Intake) should be performed.

5.3 Confirmation of the flame retardant effect

The claimed flame retardant effect has to be determined and demonstrated on all relevant substrates and on their claimed properties (e.g. after a certain number of wash cycles) by appropriate test methods.

5.3.1 Fastness properties (if relevant)

To avoid release of an active substance during use, fastness properties must be at a high level. Values for wash and light fastness as well as values for the release resistance to dry cleaning must be reported to bluesign technologies.

Claimed release resistance has to be tested and, if possible, analyzed on all relevant substrates separately under defined standardized conditions. Substrate, recipe and application process, load test methods and efficacy test methods and results have to be disclosed to bluesign technologies.

Examples of resistance tests:

- Shrinkage and appearance test EN ISO 6330 (Textiles - Domestic Washing and Drying Procedures for Textile Testing)
- Leaching tests e.g. with synthetically made sweat (or urine)
- Light or UV-stability
- Dry cleaning resistance
- Foam cleaning resistance

5.3.2 Application

The manufacturer of a flame retardant is obliged to inform the textile finisher in a detailed document on the appropriate application technique (pick-up, liquor ratio, temperature, drying/fixation conditions, textile substrates, etc.) and on the appropriate risk management.

5.3.3 Disposal of residual liquors and/or exhausted baths

The manufacturer of a flame retardant is obliged to inform the textile finisher in a detailed document on the appropriate method to dispose the residual liquors and/or exhausted baths.

6 Downstream user

The downstream user (as for example a textile finishing plant) must use a flame retardant in a responsible way. Emissions to the wastewater and off-gas have to be avoided or minimized. Regarding the emissions to the water path, PEC/PNEC calculations have to be performed before use.

Occupational health aspects are of importance. All employees that are in contact with flame retardants have to be periodically educated concerning the handling of these chemicals; an appropriate personal protective equipment must be available (safety gloves, safety glasses etc.).

7 Labeling

Those textiles that are certified with the bluesign® label and that are finished with flame retardants, must include the information confirming that the textile is finished with a flame retardant.

8 Standards for the involved laboratories

The tests that are necessary to verify compliance with the bluesign® system have to be carried out by third party-certified laboratories (DIN EN ISO 17025 or a comparable certification). If a certificate from a third party is not given, the manufacturer of the substance has to report to bluesign technologies that an adequate quality assurance system is established (round robin test, quality management documentation etc.).

9 Validity

This document comes into effect from April 01, 2014. It replaces the *bluesign® criteria for flame retardants, edition 1.4* from June 2010.

This document is subject to changes. Changes will come into effect after prior notice and defined transition time.

10 Other applicable documents

- bluesign® system (effective version)
- bluesign® system substances list (effective version)
- bluesign® criteria for chemical assessment (homologation) (effective version)
- bluesign® criteria for bluesign® approved chemical products and articles for industrial use (effective version)