



Properties criteria - BASTA

Option 1 - according to KIFS 2005:7

VERSION 2014:A2

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Introduction

The aim of the BASTA system is to phase out substances with particularly hazardous properties from construction products. Products that are registered in the BASTA system may not contain substances with properties according to agreed criteria, at concentrations equal to or above specified limits.

The supplier must also meet a number of requirements as to be allowed to register products in the system:

- the supplier confirms that any of their products registered in the BASTA-database meet the properties criteria at all times.
- the supplier can present documentation verifying the properties of their products registered in the BASTA-database.
- the supplier has an organisation with a clear distribution of responsibility for all information upon which their registration in the BASTA-database is based.
- the supplier has the appropriate expertise available for dealing with the terms of qualification for registration of products in the BASTA-database.

The criteria have been based on the REACH Regulation (Regulation (EC) No. 1907/2006), the Council Directive 67/548/EEC and on the PRIO-guide, a database for risk reduction of chemicals from the Swedish Chemicals Agency.

The classification according to KIFS 2005:7 applies to chemical products. Chemical products include both substances¹⁾ and preparations²⁾. If the classification of a mixture/preparation, due to its properties differ from the included substances respective classification, it is the classification of the preparations that applies if this is the way the product is delivered to the construction site (or equivalent).

Concentrations are to be considered for the product in the form it is delivered to a building site or equivalent. Chemicals that have been used in manufacturing but are not present in the delivered product do not need to be considered.

If different substances have similar properties a summation of the concentrations shall be done, if it says **yes** in the column for summation in the table for properties criteria shown below. The summation shall be done according to the footnote in this column. It is not always a matter of simple addition.

For complex articles that consist of several parts, the basis for calculations should be the weight of the individual part that contains the substance, not the total weight of the complex article. The concentration, which is compared to the BASTA defined concentration limit, should therefore be calculated on each part of a complex article which itself meets the definition of an "article" in article 33 in the REACH regulation (see note 13).

The properties criteria describe the substance properties which the BASTA-system aims to phase out. The properties are clearly defined. The accepted concentration limit normally allowed in the product is shown. (NOTE: It happens in some cases that other concentration limits are specially specified, see note 3). It is shown in the table below if a summation of different substances with similar properties shall be done. In addition there are footnotes with additional information. There is also a list of risk phrases used in this document.

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Properties criteria in the BASTA-register

Substance Properties	Definition according to Alternative 1	Concentration limit (by weight) (if specific limits not are specified) ^{3), 13)}	Summation ¹⁴⁾
1. Carcinogenic	a) Substances with properties according to hazard class of carcinogenic in category 1 or 2 ⁴⁾ (R45, R49)	0,1%	—
	b) Substances with properties according to hazard class of carcinogenic in category 3 ⁴⁾ (R40)	1%	—
2. Mutagenic	a) Substances with properties according to hazard class of mutagenic in category 1 or 2 ⁴⁾ (R46)	0,1%	—
	b) Substances with properties according to hazard class of mutagenic in category 3 ⁴⁾ (R68)	1%	—
3. Toxic to reproduction	a) Substances with properties according to hazard class of toxic to reproduction in category 1 or 2 (R60 and/or R61) ⁴⁾ Chemical products Articles	0,5% ⁵⁾	—
		0,1%	—
	b) Substances with properties according to hazard class of toxic to reproduction in category 3 ⁴⁾ (R62 and/or R63)	5%	—
4. Effect during lactation	Substances with properties according to hazard class of: may cause harm to breastfed babies (R64)	1%	—
5. Endocrine disrupting	The criterion will cover the substances which will receive the overall assessment Cat 1 or Cat 2 in EU's - EDC Database ⁶⁾ .	0.1%	—
6. Persistent, bio accumulative and toxic organic compound ⁷⁾ (PBT)	Substances with 1) a half-life > 60 days in seawater or >40 days in freshwater or > 180 days in seawater sediment or >120 days in freshwater sediment or >120 days in soil and 2) BCF (Bio Concentration Factor) >2000 and 3) Chronic toxicity NOEC < 0.01mg/l or NOEC < 30 mg/kg food or CMR or classified T; R48 or XN; R48 or R64	0,1%	—
7. Very persistent and very bio accumulative organic compound ⁷⁾ (vPvB)	Substances with 1) a half-life > 60 days in seawater or freshwater or > 180 days in seawater or freshwater sediment or > 180 days in soil and 2) BCF (Bio Concentration Factor) >5000	0,1%	—
8. Lead (Pb)	Lead or compounds of lead	0,1%	Yes
9. Mercury (Hg)	Mercury or compounds of mercury	Total Ban ⁸⁾	Yes
10. Cadmium (Cd)	Cadmium or compounds of cadmium	0,01%	Yes
11. Dangerous to the ozone layer	Substances with Ozon Depletion Potential (ODP) > 0 (R59)	0,1%	—

Substance Properties	Definition according to Alternative 1	Concentration limit (by weight) (if specific limits not are specified) ^{3), 13)}	Summation ¹⁴⁾
12. Sensitising	Substances with properties according to hazard class of causing sensitisation by inhalation and/or on skin contact ⁴⁾ (R42, R43)	1%	
13. Acute toxic	Substances with properties according to hazard class of very toxic or toxic on inhalation, on skin contact and/or if swallowed ⁴⁾ (R23, R24, R25, R26, R27 or R28)	1 % for R26, R27 or R28 25 % for R23, R24, R25 ⁹⁾	Yes
14. Acute toxic with danger of serious irreversible damage to health	Substances with properties according to hazard class of very toxic or toxic: danger of serious irreversible damage to health by inhalation, on skin contact and/or if swallowed ⁴⁾ (R39 in combination with R23, R24, R25, R26, R27 and/or R28)	1 % for R26, R27 or R28 10 % for R23, R24, R25	
15. High chronic toxicity	Substances with properties according to hazard class of toxic: danger of serious irreversible damage to health in prolonged exposure by inhalation, on skin contact or if swallowed ⁴⁾ (R48 in combination with R23, R24 and/or R25).	10%	
16. Volatile organic compounds ¹⁰⁾	Substances with an initial boiling point <250 °C measured at a standard pressure of 101,3 kPa and has properties according to the criteria for risk phrases: R20 (harmful by inhalation), or R23 (toxic by inhalation), or R65 (harmful: may cause lung damage if swallowed), or R67 (vapours may cause drowsiness and dizziness), or R48 together with R20 (harmful: danger of serious damage to health by prolonged exposure through inhalation).	10% ¹¹⁾	Yes
17. Dangerous for the environment	a) Substances meeting the criteria to be classified as very toxic to aquatic organisms ⁵⁾ (R50)	25% only if M=1 ¹²⁾	Yes
	b) Substances meeting the criteria to be classified as very toxic or toxic to aquatic organisms and may cause long term adverse effects on the aquatic environment ⁴⁾ (R50/53 or R51/53)	2.5% for just R50/53 substances M=1 25% for just R51/53 substances ¹²⁾	Yes
	c) Substances with properties according to hazard class of dangerous: may cause long-term adverse effects in the aquatic environment (R53) (Also including substances containing R50/53, R51/53 and R52/53) ⁴⁾	25% ¹²⁾	Yes

NOTES

- 1) Substances: means chemical elements and their compounds as they occur in the natural state or as produced by industry.
- 2) Preparations: means mixtures or solutions composed of two or more substances.
- 3) In cases where a lower concentration is stated in table 3.2 in Annex VI to the Council Directive on classification, labelling and packaging of substances and mixtures (CLP) (Regulation (EC) No. 1272/2008), the stated concentration applies. In cases where there are lower concentrations stated in Annex IV to the council directive on Persistent Organic Pollutants (1195/2006/EG), the stated concentration applies.
- 4) In accordance with Council Directive 67/548/EEC. The assessment is to be based on all relevant data on the hazardousness to health and the environment of the product. The criteria are directly applicable when data are obtained from information requirements described in article 13 to regulation (EC) no. 1907/2006 (REACH). If for a given property that is hazardous to health or the environment, there are data from several studies which, according to the criteria, would lead to differing classification, the data that result in the strictest classification are to be used provided they are of good scientific quality.
- 5) After the 1st of June 2015 the concentration limit for chemical products will be reduced to the same level as articles, 0,1%, according to the European Parliament and article 59 in the Regulation and classification, packaging and labelling of substances and mixtures (CLP) (Regulation (EC) No. 1272/2008).
- 6) EU's - EDS Database can be downloaded at: http://ec.europa.eu/environment/chemicals/endocrine/strategy/being_en.htm
To extract the database, please follow these instructions:
 1. Download the zipped file to your hard-disk
 2. Unzip the file and run the database (by a double-click on the mdb-file).
 3. Choose "Categorisation" in order to view the substances that are included in the database.Minimum requirement: MS Access 2003 or later.
- 7) There are substances that fulfil the criteria for both PBT and VPvB. They must be tested both according to the criteria 6 and 7, if such substances are present in the product. The criteria for potentially PBT according to PRIO (www.kemi.se) can, in cases where it indicates no potential and where no other data exist, be used as a base for the PBT-classification.
- 8) In accordance with the Swedish directive (1998:944) there is a general Swedish ban on mercury with specified exclusions. Low concentrations of mercury that are not intentionally added in any stage thus fall outside the prohibition. **Low levels of mercury refer in BASTA to a maximum occurring concentration of 2.5 mg per kg.**
- 9) If all constituent acute toxic substances have properties according to R26, R27 or R28, the concentration of the substances can be summed up and the concentration limit is then 1%. If all constituent acute toxic substances have properties according to R23, R24 or R25, the concentration of the substances can be summed up and the concentration limit is then 25%.
- 10) The initial boiling point is set in accordance with directive 2004/42/EC with the concentration limit in agreement with the paint, adhesive and sealants trade. The concentration limits are according to Directive 1999/45/EC Annex II

- 11) In the case that lower concentrations are stipulated for paints and lacquer in Council Directive 2004/42/EG, they should apply.
- 12) If none of the environmentally hazardous substances in the product have any specific lower concentration limit stated in Annex VI, table 3.2 in the Council Directive on classification, labelling and packaging of substances and mixtures (CLP) (Regulation (EC) No.1272/2008), the following applies:
- Criteria 17a: If the containing substances, which are classified R50 (or R50/53 which also shall be included in the calculation), all have M=1, then a summation of their concentrations shall be done, and the concentration limit will be 25%. For substances with other M-values the concentration limits are according to the tables 13a and 14 in KIFS 2005:7 (with current changes). For summation of substances with different M-values, it shall be performed according to the Method of calculation BASTA Option 1.
- Criteria 17b: If the containing substances only are classified R50/53, all have M=1, then a summation of their concentration shall be done, and the concentration limit will be 2.5%. If no substances are classified R50/53, then a summation of the concentration of the containing substances classified R51/53 shall be done, and the concentration limit is 25%
- Criteria 17 c: A summation of the concentrations of the containing substances shall be done and the concentration limit is 25%.

- 13) For complex articles that consist of several parts, the basis for calculations should be the weight of the individual part that contains the substance, not the total weight of the complex article. The concentration, which is compared to the BASTA defined concentration limit, should therefore be calculated on each part of a complex article which itself meets the definition of an "article" in article 33 in the REACH regulation:

"An article is an object which during production is given a special shape, surface or design which determines its function to a greater degree than its chemical composition".

During an industrial process, a chemical product may cease to be a chemical product and become an article. When an undesired substance is found in the chemical product, it is the weight of the new article that is formed in the process where the chemical product becomes an article which is used to calculate the concentration of the undesired substance when applying the BASTA criteria. For example, if two boards are glued together and an undesired substance is present in the adhesive layer, it is the weight of the new articles, i.e. the joined boards, that is used to calculate the concentration of the undesired substance.

If a board instead is covered with a laminate, which is defined as a separate article by the REACH definition, and there is an undesired substance present in the laminate; it is the weight of the laminate itself that is used to calculate the concentration of the undesired substance.

Swedish interpretation of the 0.1 % for giving information according to articles 7.2 and 33

Dissenting views on the guidance on requirements for substances in articles

- 14) In simple cases, when the different concentration limits are not given in Annex VI, table 3.2 (the Classification list), in the Council Directive on classification, labelling and packaging of substances and mixtures (CLP) (Regulation (EC) No. 1272/2008), the summation is an addition of the concentration of different substances with the same property. In cases where different concentration limits are given, and when the product contains substances with the same property, but on different levels, e.g. very toxic and toxic, then the summation shall be performed according to the Method of calculation BASTA Option 1.

Risk phrases used in these criteria

R20	Harmful by inhalation
R 23	Toxic by inhalation
R 24	Toxic in contact with skin
R 25	Toxic if swallowed
R 26	Very toxic by inhalation
R 27	Very toxic in contact with skin
R 28	Very toxic if swallowed
R 39	Danger of very serious irreversible effects
R 40	Limited evidence of carcinogenic effect
R 42	May cause sensitisation by inhalation
R 43	May cause sensitisation by skin contact
R 45	May cause cancer
R 46	May cause heritable genetic damage
R 48	Danger of serious damage to health by prolonged exposure
R 49	May cause cancer by inhalation
R 50	Very toxic to aquatic organisms
R 53	May cause long-term adverse effects in the aquatic environment
R 51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R 50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R 59	Dangerous for the ozone layer
R 60	May impair fertility
R 61	May cause harm to the unborn child
R 62	Possible risk of impaired fertility
R 63	Possible risk of harm to the unborn child
R 64	May cause harm to breastfed babies
R 65	Harmful: may cause lung damage if swallowed
R 67	Vapour may cause drowsiness and dizziness
R 68	Possible risk of irreversible effects

Information about construction products that meet the properties criteria are found on the web-site www.bastaonline.se

E-mail address is bastaonline@ivl.se

You can also contact IVL Swedish Environmental Research Institute, Box 21060, SE-100 31 Stockholm, Sweden. Telephone +46 8 598 563 00 for more information.



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