

# bluesign® criteria for production sites

## Annex: Surface treatment of metals

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# 1 Scope

Comprehensive requirements for companies with production sites are determined in the *bluesign® criteria for production sites*. This document defines additional provisions for surface treatment of metals.

## 2 Definitions

### 2.1 Surface treatment of metals

In the scope of this document surface treatment of metals encompasses

- Electroplating (plating of one metal onto another by hydrolysis)
- Pickling (soaking of metal in an acid to remove the hardened scale that develops from hot working)
- Anodizing (converting the metal surface into a decorative, durable, corrosion-, abrasion-resistant, anodic finish)
- Black oxide finishing (conversion coating to form an integral protective surface)
- Hot dip galvanizing (application of zinc and zinc-iron alloy to steel or iron to prevent rusting)
- Enameling (application of melted powdered glass to metals to improve hardness, durability and scratch resistance)
- Varnishing (protection of metals from oxidation and making them glossy)

## 3 Best available techniques

A manufacturer of surface treated metals shall be aware of best available techniques that are relevant for the industry (see for example: <http://eippcb.jrc.ec.europa.eu/reference/>; surface treatment of metals and plastics).

## 4 Product stewardship

### 4.1 Input stream management

The kind and quantity of impurities in metals (e.g. lead or cadmium) used as raw materials may differ depending on the metal type and its source(s). A manufacturer has to assure by means of an appropriate input control, as for example supplier evaluation and supplier selection, purchase conditions and testing program, that relevant legal and the BSSL limits (consumer safety limits) are kept.

### 4.2 Finished product

Even if an appropriate input stream management is available a manufacturer has to assure, by random testing of the finished product, that at least the legal limits (e.g. lead concentration regulated by CPSIA) are properly managed.

## 5 Industry specific requirements

### 5.1 General

The following principles of an effective process management shall be regarded:

- Treatment of process baths with the appropriate techniques to prolong operating life
- Minimizing water and chemical components discharged to the wastewater
- Re-use of chemicals employed in surface treatment process
- Multiple use of rinsing baths
- Phasing out solvents for degreasing that are characterized with the risk phrases/hazard statements R55, R46/ H340, R49/H350i, R60 or R61/ H360FD

An appropriate wastewater treatment, which considers both the inorganic components and organic ingredients from degreasing and surface coating, shall be installed.

## 5.2 Wastewater limits

The limit values for the direct wastewater discharge are compiled in Table 1.

Source	Method	Electroplating	Pickling	Anodizing	Black oxide finishing	Hot-dip galvanizing	Enameling	Varnishing
NH <sub>4</sub> -N	DIN EN ISO 11732	100	30	-	30	30	20	-
NO <sub>3</sub> -N	DIN EN ISO 10304-2	-	5	5	5	-	5	-
COD	DIN 38409-41	400	100	100	200	200	100	300
Fluoride	DIN 38405-D4-2	50	20	50	-	50	50	-
Free chlorine	DIN 38408-G4-1	0.5	0.5	-	0.5	-	-	-
Hydrocarbons	DIN EN ISO 9377-2	10	10	10	10	10	10	10
Phosphor Total	DIN EN 1189	2	2	2	2	2	2	2
Fish egg toxicity	DIN EN ISO 15088	6	4	2	6	6	4	6
AOX	DIN 38409 H22	1	1	1	1	1	1	1
Aluminum	DIN EN ISO 11885	3	3	3	-	-	2	-
Arsenic	DIN EN ISO 11969	0.1	-	-	-	-	-	3
Cadmium	DIN EN ISO 11885	0.2	-	-	-	0.1	0.2	0.2
Chromium Total	DIN EN ISO 11885	0.5	0.5	0.5	0.5	-	0.5	0.5
Chromium VI	DIN 38405-24	0.1	0.1	0.1	0.1	-	0.1	0.1
Cobalt	DIN EN ISO 11885	-	-	1	-	-	1	-
Copper	DIN EN ISO 11885	0.5	0.5	-	-	-	0.5	0.5
Cyanide	DIN 38405-D 13-1	0.2	-	-	-	-	-	-
Iron	DIN EN ISO 11885	3	3	-	3	3	3	3
Lead	DIN EN ISO 11885	0.5	-	-	-	0.5	0.5	0.5
Nickel	DIN EN ISO 11885	0.5	0.5	-	0.5	-	0.5	0.5
Selenium	DIN 38405-D23-2	-	-	-	-	-	1	-
Silver	DIN EN ISO 11885	0.1	-	-	-	-	-	-
Sulphide	DIN 38405-D27	1	1	-	1	-	1	-
Tin	DIN EN ISO 11885	2	-	2	-	2	-	-
Zinc	DIN EN ISO 11885	2	2	2	-	2	2	2

Table 1: Wastewater limit values (all limits in mg/l apart from fish egg toxicity – unit LID). The measuring point is after the wastewater treatment, before discharge to aquatic body.

National or local requirements that are stronger or more detailed than the bluesign® criteria will supersede the limit values specified above.

The measurements shall be performed in regular intervals according to the above mentioned (Table 1) or similar standard methods. A sampling interval depends on the dimension and complexity of the plant as well as on the findings. Third party measurements must be at hand.

Mixed samples (two hour) are preferred.

### 5.3 Air emissions

If relevant, monitoring of off-gas parameters shall be established and maintained. It applies to such parameters as: TOC off-gas, dust, HCl, NO<sub>x</sub>, Cr(VI).

## 6 Verification of compliance

bluesign technologies verifies the compliance with the criteria at hand by means of a screening including an on-site inspection. Re-screenings have to be carried out no later than every three years.

## 7 Validity

This document comes into effect from April 01, 2014. It replaces the *bluesign® criteria for production sites* including section *surface treatment of metals, edition 1.3* from March 2010.

For all companies that signed the screening agreement before April 01, 2014 and for all system partners the implementation of the revised sections shall take place until April 01, 2015 at the latest.

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

## 8 Other applicable documents

- bluesign® system (effective version)
- bluesign® criteria for production sites (effective version)
- bluesign® system substances list (effective version)