# Safety Data Sheet
# JBlast – Iron Silicate

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|---|---|
| Trade Name: | JBlast – Iron Silicate |
| Grades: | Standard, Supa, Supafine, Special |
| Original Issue Date: | September 2003 (as MSDS 31) |
| This Issue: | November 2022 |

## SECTION 1:
## Identification of the substance/mixture and of the company/undertaking

1.1

| | |
|---|---|
| Product Identifier: | Iron Silicate |
| Product Name: | JBlast, Iron Silicate, Copper Slag |
| Product Description: | Iron Silicate |
| EINECS: | 266-968-3 |
| CAS: | 67711-92-6 |

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Product use: Blast cleaning abrasive, concrete filler, anti-slip screed, road surface dressing.

The substance does not meet the criteria for classification as dangerous according to EC1272/2008 and is not PBTor vPvB. Therefore exposure assessment, risk characterisation and exposure scenarios for the identified uses through the life cycle is not required (REACH Regulations 1907/006, Annex 1 and ECHA Guidance on information requirements and chemical safety assessment part A)

### 1.3 Details of supplier of the safety data sheet

Hodge Clemco Ltd, Orgreave Drive, Sheffield S13 9NR, U.K.

Email address of person: sales@hodgeclemco.co.uk

Emergency telephone number of the supplier

| | |
|---|---|
| Telephone number: | +44(0)114 254 8811 |
| Hours of operation: | Mon – Fri 08.30 – 1700 |

## SECTION 2:
## Hazards Identification

### 2.1 Classification of substance or mixture

Classification according to Regulation(EC) No. 1272/2008 (which replaces Directive 67/548/EC(DSD)

Classification: Not classified. Copper slag does not meet the crtiteria for classification in accordance with the regulations EC1272/2008. No special conditions are therefore needed. Risk management measures due to the potential occurrence of hazardous dusts during use as an abrasive may be needed.

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### 2.2 Label Elements

Labelling according to Regulation (EC) No 1272/2008 (which replaces Directive 67/548/EC(DSD)
None

### 2.3 Other hazards

The substance does not meet the criteria for a PBT or vPvB substance
Use of this material may generate dust so risk management measures may be needed

## SECTION 3:
## Composition/information on ingredients

Iron Silicate, amorphous glass composition, inert by-product from granulation in water of slag arising from copper smelting process.

| Substance | CAS No | EC No | Composition w/w | Remarks |
|---|---|---|---|---|
| Iron | 7439-89-6 | 231-096-4 | ca 41% | The iron content refers to elemental composition. Iron is present as iron silicate in amorphous glass (Si, (Fe,Al,Ca)$O^{2-3}$ or fayalite($Fe^2Si0^4$) with accessory magnetite ($Fe^3O^4$). |
| Oxides | | | ca 42.0% | It refers to total content of Si, Al, Mg, Ca, Mn, K, Na calculated and reported as oxides. They are actually prsent in amorphous glass and/or augite (Ca, Mg, Al)$Si^2O^6$, and/or fayalite. |
| Copper | 7440-50-8 | 231-159-6 | <0.9% | The copper content refers to elemental composition. Copper is present as copper sulphides, metallic copper, copper alloys, and as inclusion/isomorphic substitution in silicates |
| Zinc | 7440-66-6 | 231-175-3 | <2.1% | The zinc content refers to elemental composition. Zinc is mainly carried by glass, sphalerite and less by magnetite. |
| Lead | 7439-92-1 | 231-100-4 | <0.35% | The lead content refers to elemental composition. Lead mainly occurs as galena. |
| Nickel | | 231-111-4 | <0.04% | The nickel content refers to elemental composition. Nickel is present in metallic or alloy from. |
| Arsenic | 7440-38-2 | 231-148-6 | <0.1% | The arsenic content refers to elemental composition. Arsenic is completely included in the glass phase. |
| Cobalt | 7440-48-4 | 231-158-0 | <0.05% | The cobalt refers to elemental composition. Cobalt is incorporated in glass, in sulphides and/or alloys |
| Tin | 7440-31-5 | 231-141-8 | <0.1% | The tin content refers to elemental composition. Tin is incorporated in copper-tin alloys. |
| Cadmium | 7440-43-9 | 231-152-8 | <0.003% | |

## SECTION 4:
## First Aid Measures

### 4.1 Description of First Aid Measures

*Inhalation:* Remove to fresh air. Get medical attention if symptoms occur.

*Skin:* Substance is not a skin irritant and not a skin sensitiser. Wash with water and soap. Remove contaminated clothing and footwear, Get medical advice if symptoms occur.

*Eye:* Substance is not an eye irritant. Use general measures if eye irritations occur. Do not rub eyes. Immediately wash with plenty of water. Check for and remove any contact lenses. If irritation persists, get medical attention.

*Ingestion:* No danger known, wash mouth out if appropriate. Do not induce vomiting. Give water to drink.

*Advice to physician:* No specific advice. Treat according to symptoms present.

### 4.2 Most important symptoms and effects, both acute and delayed.

The product may cause temporary mechanical irritation to the eyes, nose, throat and lungs.

### 4.3 Indication of any immediate medical attention and special treatment needed.

Notes for the doctor. Treat symptomatically.

## SECTION 5:
## Fire Fighting Measures

### 5.1 Extinguishing media

The product is non-combustible. Use an extinguishing agent appropriate to the surrounding materials.

### 5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: None

### 5.3 Advice for fire-fighters

Wear self-contained breathing apparatus and protective clothing

## SECTION 6:
## Accidental Release Measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Avoid breathing dust. Use appropriate personal protective equipment.

### 6.2 Environmental precautions

Make sure spills can be contained. Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

### 6.3 Methods and material for containment and clean-up

Ventilate the area thoroughly. Vacuum or sweep up material and place in a suitable container for re-cycling or disposal.

### 6.4 References to other sections

Section1 for emergency contact information
Section 8 for information on personal protective equipment
Section 13 for Waste Disposal

## SECTION 7: Handling and Storage

### 7.1 Precautions for safe handling

Copper slag is not classified and no protective measures are needed for safe handling. Prevent formation of dust. Use only in well ventilated areas. Wear personal protective clothing. Wash hands and face before breaks and after work.

### 7.2 Conditions for safe storage including any incompatibilities

Keep dry. No other special requirements.

### 7.3 Specific end uses

Abrasive blast cleaning may fracture the product and generate dust. Ventilate work area in vicinity of operator

## SECTION 8: Exposure Controls/Personal Protection

### 8.1 Control parameters of relevance to industrial settings (occurrence of dusts, mists and fumes)

| Product/component name | Exposure Limit Values as per EH40/2005 WELs(UK) |
|---|---|
| Copper slag | TWA 4mg/m³ 8 hours. Form: respirable dust<br>TWA 10mg/m³ 8 hours. Form: total dust |
| Copper dusts and mists (as Cu) | TWA 1 mg/m³ 8 hours. Form: dusts and mists<br>TWA 0.2 mg/m³ 8 hours. Form: fume<br>STEL: 2 mg/m³ (15 minute reference period) Form: total dust<br>Refers only to metallic copper content |
| Silica – amorphous.<br>No free silica | TWA 6 mg/m³ (inhalable)<br>TWA 2.4 mg/m³ (respirable) |
| Lead and inorganic compounds of lead (as Pb) | Control of Lead at Work Regulations 2002 (UK)<br>TWA: 0.5 mg/m³ 8 hours. Form: total dust |
| Manganese and inorganic compounds of manganese (as Mn) | TWA: 0.5 mg/m³ 8 hours. Form: total dust |
| Chromium (III) compounds (as Cr) | TWA: 0.5 mg/m³ 8 hours. Form: total dust |
| Nickel and water insoluble nickel compounds (as Ni) | TWA: 0.5 mg/m³ 8 hours. Form: total dust |

### 8.1 Continued…

| Product/component name | Exposure Limit Values as per EH40/2005 WELs(UK) |
|---|---|
| Cobalt and cobalt compounds (as Co) | TWA: 0.1 mg/m³ 8 hours. Form. : total dust |
| Tin compounds (as Sn) | TWA: 2 mg/m³ 8 hours. Form: total dust |
| Cadmium compounds (as Cd) | TWA: 0.025 mg/m³ 8 hours. Form: total dust |

### 8.1.2 PNECs and DNELs

Not available for the substance. The PNECs and DNELs of the elemental constituents apply.

### 8.2 Exposure controls for industrial settings

CRITICAL COMPONENTS THAT REQUIRE MONITORING AT THE WORKPLACE:
-Copper, lead, arsenic, cadmium in accordance with national legislation.

### 8.2.1. Appropriate Engineering Controls

Use process enclosures, local exhaust ventilation or other engineering controls to keep exposure to below any recommended or statutory limits. For storage and handling, general ventilation is adequate.

### 8.2.2 Personal Protective Equipment

Blasting operatives should wear a CE marked or HSE approved blasting helmet. Ancillary workers should use a P2 dust respirator and safety goggles. Operatives should always wear appropriate gauntlets. Operatives should wear heavy-duty coveralls or a purpose designed blasters' suit.

## SECTION 9:
## Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

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|---|---|
| *Appearance:* | Solid, glassy, angular particles |
| *Colour;* | Black |
| *Odour* | None |
| *Odour threshold:* | Not applicable |
| *pH:* | Not applicable |
| *Melting point:* | 1150°C |
| *Initial boiling point and range:* | Not applicable |
| *Flash Point:* | Not applicable |
| *Evaporation Point:* | Not applicable |
| *Flammability (solid/gas):* | Non-flammable |
| *Upper/lower flammability or explosive limits* | Not applicable |
| *Vapour pressure:* | Not applicable |
| *Vapour density:* | Not applicable |
| *Relative Density (ref water at 20°C)* | 3.2 – 4 Kg/dm$^3$ |
| *Bulk Density:* | 1.75 Kg/dm$^3$ |
| *Solubility:* | Poorly soluble [1] |
| *Partition coefficient: n-octanol/water:* | Not applicable |
| *Auto-ignition temperature:* | Not applicable |
| *Decomposition temperature:* | Decomposition and/or melting starts at 1059°C |
| *Viscosity:* | Not applicable |
| *Explosive properties:* | Non explosive |
| *Oxidising properties:* | Non oxidising |

[1] Solubilisation and agitation for 14 days (pH 6.3-7.6) resulted in dissolved CU, NI, Pb <0.2 mg/L

### 9.2 Other information

Not applicable

## SECTION 10:
## Stability and reactivity

### 10.1 Reactivity

Not applicable. See Section 9.

### 10.2 Chemical stability

Stable under normal conditions

### 10.3 Possibility of hazardous reactions

No hazardous reactions known

### 10.4 Conditions to avoid

Avoid dust formations and contact with acids

### 10.5 Incompatible materials

Strong acids

### 10.6 Hazardous decomposition products

The material does not decompose. Trace metals are close bonded into the glass/crystal structures of the silicate and other mineral phases, and so release is very limited.

## SECTION 11:
## Toxicological information

### 11.1 Information on toxicological effects

| Toxicity endpoints | Description of effects |
|---|---|
| **Effects** | Derived based on CLP Mixture toxicity rules applied on constituents listed under Section 3, taking into account the forms present and assuming release of soluble, potentially bio-available ionic species as described in the section bio-accessibility. |
| **Bio- accessibility and read-across** | The physical form (solid) and the physico-chemical properties (metal constituents present in mineral forms) limit the solubility of the constituents in biological fluids. Limited solubility results in limited potential for cellular absorption of the constituents. The toxicokinetics are therefore primarily related to the degree to which the metal mineral phases react with biological fluids and release soluble, potentially bio-available ionic species. |

| Toxicity endpoints | Description of effects |
|---|---|
| **Oral (gastric) kinetics)** | Copper slag is a solid and needs to dissolve before it can be absorbed. Reduced absorption in the gastrointestinal tract is therefore expected due to poor water solubility. To assess the potential availability of slags after oral intake, the metal release in the human digestive system was estimated through in vitro bio-accessibility tests in extraction solvent that resembles gastric fluid (using HCl 0.07N at pH 1.5) in accordance with the ASTM D 5517-07 standard (Rodrigues et al, 2010). The fraction of metals that solubilise under these conditions can be considered as worst case determinant of bio-accessibility of metal constituents, because only solubility in the biological fluid is assessed and the absorption and homeostatic control mechanisms at the level of cells (eg, intestine and liver) are ignored. Relative bio-accessibility of metals (amount of metal released/total amount of metal from representative slag sample compared to the solubility of reference soluble compound) is low: Cu 5%, Ni 10%, As 16%, Pb 16%. |
| **Inhalation kinetics** | Copper slags in massive and granular forms do not contain inhalable particles (particles<100 µm) and cannot be inhaled. |
| **Dermal kinetics** | Copper slag particles have to dissolve into the surface moisture of the skin before dermal uptake can begin. As the copper slag is poorly soluble in water it is not expected to partition to the epidermis. Therefore dermal uptake is likely to be low. The solubility of Ni was assessed during an in-vitro bio-accessibility test in artificial sweat fluid in accordance with the standardised test method (EN 1811) The amount of Ni released during the sweat tests of two copper slags is in the ranges between 1.9% to 2.5% or 0.021 and 0.036 µg Ni/cm$^2$/week. |
| **Acute toxicity** | ORAL: Based on the available acute oral toxicity data (i.e.LD50>2000mg/kg) and calculated Oral Acute toxicity estimate (ATE>2000mg/kg) copper slag is not classified as hazardous for acute toxicity by the oral route.<br><br>INHALATION: No test data on acute inhalation toxicity are available. The calculated Inhalation Acute toxicity estimate of the mixture is >5mg/L thus copper slag is not classified as hazardous for acute toxicity by the inhalation route. The result is further confirmed by extrapolation from oral to inhalation route based on worst case 100% absorption rate. Using ATE oral: 2000 mg/kg BW and the extrapolation formula 1mg/kg BW = 0.0052mg/L/4h, the inhalation ATE will be 10.4 mg/L/4h.<br><br>DERMAL: Consideration of available acute dermal toxicity data (i.e. LD50>2000mg/kg) leads to the conclusion that copper slag does not require classification for acute lethal effects. Copper slag is an inorganic solid poorly soluble in water. It is not likely to penetrate through skin in any significant quantity and so would therefore not cause any toxic effects following dermal exposure. Furthermore, negligible metal release in in-vitro bio-accessibility test in artificial sweat fluid was observed (0.021 to 0.036 µg Ni/cm$^2$/week) |
| **Skin/eye irritation/corrosion** | Non-irritating. In vivo skin and eye irritation studies (Caballero and Alava, 2001) demonstrate that copper slag is non-irritant and therefore does not require classification for skin irritation/corrosion and eye irritation.<br>Copper slag contains some minor ingredients classified as Skin Corrosive and/or Skin Irritation but these are all present at concentrations <1%. Copper slag does not contain any constituents classified as Eye Dam1. It contains some minor ingredients classified as Eye Irrit 2 but these are all present at concentrations <1%. Therefore copper slag is not classified for skin corrosion, skin irritation and eye effects. Assessed by calculation: excel MECLAS tool (Verdonck: D'Havé (2010) in accordance with the EU CLP guidance (2009) |

| Toxicity endpoints | Description of effects |
|---|---|
| **Respiratory or skin sensitisation** | Not sensitising. Copper slag contains only minor constituents classified as skin or respiratory sensitisers but their actual levels are much lower than<1%, thus copper slag is not classified for skin or respiratory sensitisation. Assessed by calculation: excel MECLAS tool (Verdonck: D'Havé (2010) in accordance with the EU CLP guidance 2009. The conclusion is further confirmed by in-vitro bio-accessibility tests in artificial sweat fluid in accordance with standardised test method (EN 1811). |
| **Genotoxicity** | Negative. Two EU B13 studies: (Cantalejo and Catediano, 1997) with *Salmonella typhimurium* (strains TA98, TA 100, TA 1537 and TA 1538) and (Caballero and Alava, 2000 with *Escherichia coli WP2 uvrApKM 101* indicate negative results with respect to genotoxic activity observed.<br><br>Copper slag does not contain any constituents classified as a Category 1 mutagen. It does contain minor constituents (Cd compounds) classified as Category 2 mutagen at actual levels much lower than <0.1% thus much lower than the generic concentration limit of 1% for extrapolating the classification Cat 2 from one constituent to the UVCB substance. Therefore copper slag does not meet criteria for classification for germ cell mutagenicity. Assessed by calculation; excel MECLAS tool (Verdonck: D'Havé (2010)in accordance with the EU CLP guidance (2009). |
| **Carcinogenicity** | Negative. Copper slag does not contain any constituents classified as a Category 1 carcinogen. It does contain minor constituents classified as a Category 2 carcinogen but below 1%.Therefore copper slag does not meet criteria for classification for carcinogenicity. Assessed by calculation : excel MECLAS tool ((Verdonck: D'Havé (2010) in accordance with the EU CLP guidance (2009) |
| **Toxicity for reproduction** | Negative. Based on consideration of chemical composition and reduced bio-accessibility no reproductive toxicity classification is warranted. Assessed by calculation : excel MECLAS tool ((Verdonck: D'Havé (2020) in accordance with the EU CLP guidance (2009) |
| **Repeated dose toxicity and STOT-RE** | Based on the information on bio-accessible constituents, the classification criteria for oral and inhalation route are not met.<br>Oral (rat), 90 day repeated dose, dose concentration > 100mg/kg body weight/day.<br>Inhalation (rat), 90 days repeated dose, dust/mixture/fumedose/concentration >2mg/l/6h/day.<br>Assessed by calculation : excel MECLAS tool ((Verdonck: D'Havé (2010) in accordance with theEU CLP guidance (2009). |

## SECTION 12
## Ecological information

The ecotoxicological information was obtained from Chemical Safety Report submitted as part of the REACH registration (November 2010).

## 12.1 Eco-toxicity

**Environmental bio-availability**

The uptake of copper slag by living organisms is related to the degree to which the mineral phases in the slag react with water/biological fluids and release soluble, potentially bio-available ionic and other metal bearing species. Standardised (OECD) transformation/dissolution tests of copper slag were carried out to study its potential to release soluble available ionic and other metal-bearing species to the environment (Rodrigues et al, 2010). Transformation/dissolution tests for 7 days at pH6 (worst case) and loading of 100mg/l were performed on 12 samples. The results demonstrate low releases of copper to the OECD media: 2.6µg Cu/L from granules. Other metals lead, nickel, zinc, arsenic and cadmium were below the detection limits.

**Acute fresh water toxicity**

Reliable acute/short term toxicity data of copper slag are available for the three trophic levels (algae, Daphnia and fish). These studies show that the lowest L(E) C50 is > 100mg/L and confirm that there is no need to classify copper slag for acute aquatic hazard.

- 96h LC50 (fish) >100g/L(Sauerwald and Weiss, 2004)
- 48h EC50 (Daphnia magna) 980mg/L to >6250mg/L (Simon, 2010)
- 48h EC50 (Daphnia magna) >100g/L (Sauerwald and Weiss, 2004)
- 72h EC50 (P. Subcapitata) 155mg/l to 965 mg/L (Wenzel, 2010)
- 72h EC50 (N. Pelliculosa) 1047 mg/L to 3125mg/L (Wenzel, 2010)
- 72h IC50 (algae) >100g/L (Sauerwald and Weiss, 2004)

The calculated classification based on transformation/dissolution data (Rodrigues 2010) and Toxic Unit approach (Higher Tier MECLAS tool) resulted in no classification. Based on this result, the related crtiteria provided the estimated value for acute short term toxicity:

- 48h EC50 (for crustacea) >100 mg/L
- 96h LC50 (for fish) > 100 mg/L
- 72h ErC50 (for algae) > 100 mg/L

**Chronic freshwater toxicity and PNEC derivation**

A reliable study (De Schamphelaere, 2010) was performed which assessed the chronic toxicity of mesocosm water extracts of five slags on Brachionus calyciforus (rotifer). The 48 h EC10 for copper slag was in the range of 94 mg/L to >674 mg/L.

The calculated classification based on transformation/dissolution data (Rodriguez 2010)and Toxic unit approach (Higher Tier MECLAS tool) resulted in No chronic classification, Based on this result, the related criteria provided the estimated value for chronic (long term) toxicity to aquatic fish:

- NOEC (fish, crustacean, algae) >1mg/L

Mesocosm study (Hommen et al, 2010) was performed to evaluate effects of iron silicate crushed stone fines and stones on algae, macrophytes, zooplankton and benthic macro invertebrates in outdoor mesocosms. The copper slag mesocosm study allows for the derivation of a reliable NOEC for the stones of 50g slag/L and for the granules of 12.5 g slag/L. These values are used as a basis for the freshwater PNEC derivation. Additional weight of evidence for the mesocosm NOEC was obtained from read-across from metal-ion toxicity level, metal releases data for a range of slag materials and eco-toxicity data for a range of slag materials. The uncertainty analysis further demonstrates the quality and ecological relevance of the mesocosm NOEC. The NOEC from the mesocosm study is therefore carried forward as PNEC to the risk characterisation without adding an additional uncertainty factor.

**Chronic freshwater sediment toxicity test results and PNEC derivative**

Data on the effect of copper slag on sediment organisms is currently not available. Copper slag is a complex metal-containing substance. It mainly contains iron silicate-like natural rocks which are ubiquitous in the environment and found naturally in soil, water and sediment. Furthermore, copper slag is not classified as hazardous to the aquatic environment. For metals uptake from water is believed to be the predominant route of exposure for aquatic organisms, it is therefore expected that copper slag that is not hazardous to the aquatic environment will not be toxic to sediment organisms. The toxicity to sediment organisms will be influenced by the trace metals contained in the slag and the distribution of metals between the aqueous phase and the sediment matter. PNEC sediment derived from different metals in the slags are available and hence used for risk characterisation.

**Chronic terrestrial toxicity test results and PNEC derivation**

Data on the effect of copper slag on sediment organisms is currently not available. Copper slag is a complex metal-containing substance. It mainly represents iron silicate-like natural rocks which are ubiquitous in the environment and found naturally in soil, water and sediment. Furthermore, copper slag is not classified as hazardous to the environment. The toxicity to terrestrial organisms will be influenced by the metals contained in the slag and the distribution of metals between the aqueous phase and soil matter. PNEC soil derived for different metals in the slag is available and hence used for risk characterisation.

### 12.2 Persistence and degradability

Not degraded in classic terms but geo-chemical cycling leads to removal of the metals from the system.

### 12.3 Bio-accumulative potential

Not applicable

### 12.4 Results of PBT and vPvB assessment

The PBT and vPvB criteria of Annex XIII to the Regulation do not apply to inorganic substances, such as copper slags. Copper slags are not PVT or vPvB.

### 12.5 Other adverse effects

None

## SECTION 13: Disposal considerations

The abrasive must be disposed of in accordance with national legislation (See Section 16) and local regulations. The material as supplied is classed as a non-hazardous inert solid waste, European Waste Catalogue (EWC 2002) 10 06 01 (slags from primary and secondary/production of copper). Spent abrasive used as a blasting medium must be disposed of under classification 12 01 16 (waste blasting material containing dangerous substances) or 12 01 17 (waste blasting material other than those mentioned in 12 01 16). The waste producer must determine if hazardous substances in the coating being removed are likely to cause the waste to be hazardous.

## SECTION14:
## Transport information

### 14.1 UN number

Not applicable

### 14.2 UN proper shipping name

Not applicable

### 14.3 Transport hazardous classes

Not applicable

### 14.4 Packing group

Not applicable

### 14.5 Environmental hazards

Not applicable

### 14.6 Special precautions for user

Not applicable

### 14.7 Transport in bulk according to Annex II of MARPOL and the IBC code

Not applicable

## SECTION 15:
## Regulatory Information

### 15.1 Safety, health and environmental regulations/legislation specific for substance or mixture

The product is not subject to identification regulations under EC Directives

### 15.2 Chemical Safety Assessment

A Chemical Safety Assessment for this substance has been carried out

## SECTION 16:
## Other information

Abbreviations and acronyms:

| | |
|---|---|
| CAS | - Chemical Abstracts Service number |
| CLP | - Classification, Labelling and Packaging Regulation (Regulation (EC) No. 1272/2008) |
| DNEL | - Derived No-effect Level |
| EC | - European Commission |
| EC No. | - European Chemical number (replaces EINECS, ELINCS or NLP) |
| ECHA | - European Chemicals Agency |

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| | |
|---|---|
| EINECS | - European Inventory of Existing Commercial Chemical Substances |
| ELINCS | - European List of Notified Chemical Substances |
| EWC | - European Waste Catalogue |
| GLP | - Good Laboratory Practice |
| LC50 | - Lethal concentration, 50% |
| NOEC | - No Observable Effect Concentration |
| OEL | - Occupation Exposure Limit |
| PBT | -persistent, bi-accumulative and toxic |
| PNEC | -Predicted No Effect Concentration |
| STEL | -Short Term Exposure Limit |
| vPvB | -very persistent and very bio accumulative |

Key literature references and sources of data

Workplace Exposure Limits – 2005, HSE EH40/2005
Workplace Exposure Limits – Supplement 2007, HSE EH40/2005
EC Commission Directive 2001/58/EC
EC Commission Regulation 1907/2006 and amendment EC 987/2008

Legislation:

The Waste (England & Wales) Regulations 2011
The Waste (Miscellaneous Provisions) (Wales) Regulations 2011
The Waste (Scotland) Regulations 2011
The Waste (Northern Ireland) Regulations 2011
The List of Wastes Regulations 2005

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