



Grade name:	Slags, lead reverbratory smelting
Substance:	Slags, lead reverbratory smelting
EC Number:	273-800-2
CAS Number:	69029-58-9
Substance Type:	UVCB
Degree of purity:	100 % (w/w)
Description of Product:	Slags, lead reverbratory smelting are slags formed during primary or secondary lead smelting. The slags contain relatively high concentrations of lead, as well as impurity base metals, all of which are mainly present as oxides, silicates or sulphates.

Composition:

Constituents	Typical concentration	Concentration range	Remarks
Lead EC no.: 231-100-4	<= 63.7 % (w/w)	>= 4 — <= 75 % (w/w)	Refers to % element. Pb is generally present in the compound form such as sulphates (e.g. $K_2Pb(SO_4)_2$, $PbFe_6(SO_4)_4(OH)_{12}$), silicates (e.g. Pb_2SiO_4), sulphides (e.g. $(Sn,Pb)_S$) and oxides (e.g. PbO).
Copper EC no.: 231-159-6	<= 5.5 % (w/w)	>= 0 — <= 14 % (w/w)	Refers to % element. In general Cu is mainly present in the sulphide form (e.g. CuS , $CuFeS_2$, Cu_5FeS_4) and may also be present in the metallic form.
Zinc EC no.: 231-175-3	<= 8.94 % (w/w)	>= 0 — <= 14 % (w/w)	Refers to % element. Zn is generally present in the form of compounds such as oxides (e.g. $FeZnNiO$, $FeCrZnO$) or sulphates (e.g. $ZnSO_4 \cdot H_2O$).
Cadmium EC no.: 231-152-8	<= 0.2 % (w/w)	>= 0 — <= 0.3 % (w/w)	Refers to % element. Cd is assumed to be present in the sulphate form.
Iron EC no.: 231-096-4	<= 21.1 % (w/w)	>= 0 — <= 25 % (w/w)	Refers to % element. Fe is generally present in the form of compounds such as oxides (e.g. Fe_3O_4 , $FeZnNiO$, $FeCrZnO$) and/or sulphates (e.g. $PbFe_6(SO_4)_4(OH)_{12}$) and sulphides (e.g. FeS , $CuFeS_2$, Cu_5FeS_4).
Cobalt EC no.: 231-158-0	<= 0.4 % (w/w)	>= 0 — <= 1 % (w/w)	Refers to % element. Co is assumed to be present in the sulphate form.
Nickel	<= 1.37 % (w/w)	>= 0 — <= 10 % (w/w)	Refers to % element. Ni is

Constituents	Typical concentration	Concentration range	Remarks
EC no.: 231-111-4			generally present in the oxide form (e.g. FeZnNiO).
Silver EC no.: 231-131-3	<= 0.4 % (w/w)	>= 0 — <= 1 % (w/w)	Refers to % element. Ag is assumed to be present in the sulphate form.
Gold EC no.: 231-165-9	<= 0.5 % (w/w)	>= 0 — <= 1 % (w/w)	Refers to % element. Au is assumed to be present in the sulphate form.
Antimony EC no.: 231-146-5	<= 2.1 % (w/w)	>= 0 — <= 30 % (w/w)	Refers to % element. Sb is assumed to be present in the sulphate form.
Arsenic EC no.: 231-148-6	<= 1.7 % (w/w)	>= 0 — <= 10 % (w/w)	Refers to % element. As is assumed to be present in the sulphide form.
Bismuth EC no.: 231-177-4	<= 0.09 % (w/w)	>= 0 — <= 10 % (w/w)	Refers to % element. Bi is assumed to be present in the sulphate form.
Tin EC no.: 231-141-8	<= 0.22 % (w/w)	>= 0 — <= 10 % (w/w)	Refers to % element. Sn is generally present in the sulphide form (e.g. (Sn,Pb)S).
Selenium EC no.: 231-957-4	<= 0.12 % (w/w)	>= 0 — <= 0.2 % (w/w)	Refers to % element. Se is assumed to be present in the sulphate form.
Tellurium EC no.: 236-813-4	<= 0.04 % (w/w)	>= 0 — <= 0.2 % (w/w)	Refers to % element. Te is assumed to be present in the sulphate form.
Aluminium EC no.: 231-072-3	<= 4.2 % (w/w)	>= 0 — <= 8 % (w/w)	Refers to % element. Al is generally present in the silicate form (e.g. KAlSiO ₄ *H ₂ O).
Chromium EC no.: 231-157-5	<= 0.4 % (w/w)	>= 0 — <= 1 % (w/w)	Refers to % element. Cr is assumed to be present in the oxide form.
Molybdenum EC no.: 231-107-2	<= 0.2 % (w/w)	>= 0 — <= 1 % (w/w)	Refers to % element. Mo is assumed to be present in the sulphate form.
Manganese EC no.: 231-105-1	<= 1.03 % (w/w)	>= 0 — <= 2 % (w/w)	Refers to % element. Mn is assumed to be present in the sulphate form.
Sodium EC no.: 231-132-9	<= 0.95 % (w/w)	>= 0 — <= 11 % (w/w)	Refers to % element. Na is assumed to be present in the sulphate form.
Potassium EC no.: 231-119-8	<= 4.8 % (w/w)	>= 0 — <= 18 % (w/w)	Refers to % element. K is generally present in the sulphate form (e.g. K ₂ Pb(SO ₄) ₂).
Magnesium EC no.: 231-104-6	<= 1.1 % (w/w)	>= 0 — <= 10 % (w/w)	Refers to % element. Mg is generally present in the oxide form (e.g. MgO).
Calcium EC no.: 231-179-5	<= 6.72 % (w/w)	>= 0 — <= 12 % (w/w)	Refers to % element. Ca is generally present in the form of compounds such as sulphates (e.g. CaSO ₄ *H ₂ O), carbonates (e.g. CaCO ₃) and silicates (e.g. CaSiO).
Silicon	<= 18.4 % (w/w)	>= 0 — <= 26 % (w/w)	Refers to % element. Si is

Constituents	Typical concentration	Concentration range	Remarks
EC no.: 231-130-8			generally present in the silicate form (e.g. $KAlSiO_4 \cdot H_2O$, Pb_2SiO_4 , $CaSiO$).
Sulphur EC no.: 231-722-6	$\leq 13.1\%$ (w/w)	≥ 0 — $\leq 14\%$ (w/w)	Refers to % element. S is generally present in the form of sulphides (e.g. CuS , $(Sn,Pb)_2S$, FeS , $CuFeS_2$) and/or sulphates (e.g. $PbFe_6(SO_4)_4(OH)_{12}$, $ZnSO_4 \cdot H_2O$, $KAlSiO_4 \cdot H_2O$, $K_2Pb(SO_4)_2$, $CaSO_4 \cdot H_2O$).

Classification:

Dangerous Substances Directive 67/548/EEC - Not classified as hazardous.

Classification Labelling and Packaging Regulation EC 1272/2008 - Not classified as hazardous.

Industry classification proposals - Industry proposes to classify slags, lead reverbratory smelting to bring it into line with the latest scientific data and knowledge. The proposed classification will be:

DSD

Xn; R20/22 Harmful by inhalation and if swallowed.

Xn; R48/20/22 Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

Xi; R41: Irritant; Risk of serious damage to eyes.

R42/43: May cause sensitisation by inhalation and skin contact.

Muta. Cat. 2; R46: May cause heritable genetic damage.

Carc. Cat. 1; R45: May cause cancer.

Repr. Cat. 1; R60: May impair fertility.

Repr. Cat. 1; R61: May cause harm to the unborn child.

N; R50/53: Dangerous for the environment; Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

CLP

Acute Tox. 4; H302: Harmful if swallowed.

Acute Tox. 4; H332: Harmful if inhaled.

Eye Damage 1; H318: Causes serious eye damage.

Resp. Sens. 1; H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin Sens. 1; H317: May cause an allergic skin reaction.

Repr. 1A; H360FD: May damage fertility. May damage the unborn child.

Carc. 1A; H350: May cause cancer.

Muta. 1B; H340: May cause genetic defects.

STOT Rep. Exp. 1; H372: Causes damage to organs through prolonged or repeated exposure

Aquatic Chronic 1; H410: Very toxic to aquatic life with long lasting effects.

Aquatic Acute 1; H400: Very toxic to aquatic life.

Labelling:

Signal word: Danger

Hazard pictograms:

GHS05: Corrosion



GHS07: exclamation mark



GHS08: health hazard



GHS09: environment



Hazard statements:

H302	Harmful if swallowed.
H332	Harmful if inhaled.
H318	Causes serious eye damage.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H360FD	May damage fertility. May damage the unborn child.
H340	May cause genetic defects.
H350	May cause cancer.
H372	Causes damage to central nervous system, blood and kidneys through prolonged or repeated exposure by inhalation or ingestion.
H410	Very toxic to aquatic life with long lasting effects.

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