

**VALOXY®****DATA SHEET VERSION 2.6****1. SUBSTANCE AND COMPANY INFORMATION****1.1 Substance Information****1.1.1 Commercial name: VALOXY®.**

A substance rich in alumina with properties similar to bauxite, arising from the re-treatment of slags, drosses and general dusts from the aluminium industry.

1.1.2 Valoxy® is a waste classified in the European Waste Catalogue under code 10 03 30 (wastes from treatment of salt slags and black drosses other than those mentioned in 10 03 29*).**1.2 Producer Identity**

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2 COMPOSITION AND INFORMATION ABOUT COMPONENTS**2.1 Chemical Characterization**

Valoxy is a substance rich in alumina arising from the re-treatment of salt slags, drosses and general dusts from the aluminium industry. Its main components are corundum, magnesium spinelle and aluminium hydroxide.

Major components:

Corundum	Al_2O_3
Magnesium spinelle	$\text{MgO}_x\text{Al}_2\text{O}_3$
Aluminium hydroxide	$\text{Al}(\text{OH})_3$
Silicates	

Minor components:

Aluminium	Al
Iron	Fe
Silicon	Si
Fluorite	CaF ₂
Nitrides	AlN
Salts of non-ferrous heavy metals	
Sodium chloride	NaCl
Potassium chloride	KCl

2.2 Other indications: NH₃ solution present in the material is extremely dilute.

3 INDICATION OF DANGERS

3.1 Specific Information on Dangers to Humans and the Environment

Valoxy is non-toxic. The only possible health risk arises from the presence of ammonia in the moist product which emits a small quantity during the slow decomposition of nitrides contained in the product.

The rate of ammonia emission can be:

- per m² of pile surface up to 0.04 g/hr
- per kg of material up to 6 x 10⁻⁷ litres/hr

A harmful NH₃ concentration may develop in closed containers and rooms where Valoxy® is stored for a prolonged time without ventilation. Therefore, it is always important to ensure adequate venting when handling Valoxy® and to ensure breathing protection.

Valoxy forms agglomerates as a result of the moisture it contains (around 25%). Valoxy in the delivered condition is not dusty and there is therefore no cause for concern.

3.2 Supplementary information:

Valoxy itself is non-combustible.

4 PHYSICAL AND CHEMICAL PROPERTIES

4.1 Presentation

4.2 Form: Solid agglomerates from fine grains to pieces

4.3 A typical distribution of grain size diameter is shown below:

Fraction (%)	Average (%)
>500 μm	11.6
100-500 μm	28.1
40-100 μm	12.4
< 40 μm	47.9
Total	100.0

4.4 Typical chemical analysis (XRF)

	By wt.
Al_2O_3	70%
MgO	8%
SiO_2	4%
CaO	2%
Cl ⁻	$\leq 0.5\%$

4.5 Typical Mineralogical Analysis (XRD)

Phase	Formula	By wt.
Spinel	MgAl_2O_4	30-35%
Corundum	Al_2O_3	8-12%
Aluminium hydroxide	$\text{Al}(\text{OH})_3$	25-40%
Amorphous		20-30%

4.6 Colour Grey

4.7 Odour Ammonia smell, otherwise odourless

4.8 Safety Data

- 4.8.1 Melting point Approx. 1650°C
- 4.8.2 Flash point Not applicable
- 4.8.3 Flammability Not applicable
- 4.8.4 Properties favouring fire Not applicable
- 4.8.5 Danger of explosion None
- 4.8.6 Bulk Density Approx. 1.4 g/cm³

4.9 Leaching Test

The results shown below derive from the standard leaching protocol, CEN EN12457-2. This requires placing the residue in contact with a volume of water (expressed in litres) to 10 times the mass of residue (expressed in kg dry mass) for a period of 24 hours with stirring by inversion.

Parameters	Units	Concentration
Arsenic	mg/l As	<0.005
Cadmium	mg/l Cd	<0.0002
Chromium	mg/l Cr	0.006
Chromium hexavalent	mg/l Cr	<0.01
Copper	mg/l Cu	<0.01
Tin	mg/l Sn	<0.02
Mercury	mg/l Hg	<0.0002
Nickel	mg/l Ni	<0.005
Lead	mg/l Pb	<0.005
Zinc	mg/l Zn	<0.02
Total cyanide	mg/l CN	<0.01
Phenol index	mg/l	<0.01
Pentachlorophenol	mg/l	<0.0005
Hydrocarbon index (C10-C40)	mg/l	<0.03
EOX	mg/l	<0.001

4.10 Solubility in acids and bases: partially soluble

4.11 pH 9-10

4.12 Consistency: solid

5 STABILITY AND REACTIVITY5.1 Conditions to avoid: Uncontrolled contact with acids and bases5.2 Dangerous decomposition products

In case of reaction with acids: Not applicable

In case of reaction with bases: Ammonia

In case of reaction with water: Ammonia in very small quantity

6 TOXICOLOGY INFORMATION

- 6.1 Acute toxicology: **Valoxy is non-toxic**
- 6.2 Toxicological data relevant to human beings: To date there is no data indicating a toxicological effect on humans.
- 6.3 Other indications:

The rate of ammonia emission can be:

- per m² of pile surface up to 0.04 g/hr
- per kg of material up to 6 x 10⁻⁷ litres/hr

With regard to MAK values of ammonia harmful effects on health are not a cause for concern. (MAK = maximum permissible concentration in the work place).

In the delivery condition Valoxy does not form fine dusts due to the moisture it contains.

In the fine dust fraction Valoxy does not produce metal enrichment.

7 ECOLOGICAL INFORMATION

- 7.1 In aqueous environment, very weak fluorine may be indicated.
- 7.2 Ecotoxic effects:

Toxicity on bacteria	GL 1 (no toxic effect on bacteria)
TTC	GB 1 (no dehydrogenase inhibition)
Toxicity on fish	GF 2 (no deterioration noted)
Toxicity on water fleas	GD 2 (no deterioration noted)