PRODUCT SPECIFICATION

Product Name	Sodium Aluminate Solution
Trade Name	Natral® 23
Specification Reference	SOALSO/1 (22/11/0034348)

Property	**Value**
Aspect	Clear, viscous, slightly yellow solution
Temperature (in bulk, by tanker)	≥40°C
Density @ 20°C	1.500- 1.530 g/ml
Al_2O_3	22.5 – 23.5%
NaOH	24.5 – 25.5%
Na2O	19.0 – 19.8%
Fe	<50 ppm
As	<1 ppm
Cd	<1 ppm
Cr	<5 ppm
Cu	<5 ppm
Hg	<1 ppm
Ni	<5 ppm
Pb	<1 ppm
Sb	<1 ppm
Se	<1 ppm

This product is in accordance with norm EN 882

NOTES

Exclusion of Liability

Information contained in this publication is accurate to the best of the knowledge and belief of Tennants.

Any information or advice obtained from Tennants otherwise than by means of this publication and whether relating to Tennants materials or other materials, is also given in good faith. However, it remains at all times the responsibility of the customer to ensure that Tennants materials are suitable for the particular purpose intended.

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Health and Safety

A Material Safety Data Sheet has been issued describing the health, safety and environmental properties of this product, identifying the potential hazards and giving advice on the handling precautions and emergency procedures. This must be consulted fully before handling, storage and use.

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Product Name	Sodium Aluminate Solution
Trade Name	Natral® 23

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

Industrial use:
Manufacturing of the substance
Formulation
Drinking water and waste water treatment
Chemical industry and laboratory
Manufacture of zeolites and other aluminium compounds
Paper and paperboard industry (pulp)
Pigments industry
Paints, inks, industry
Construction sector (concrete setting accelerator) Cleaning agent and maintenance products
Fire retardant and fire protection
Professional use:
Drinking water and wastewater treatment
Cleaning agent and maintenance products

Uses advised against
No additional information available

Details of the supplier of the safety data sheet

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2. HAZARD IDENTIFICATION

2.1. Classification of the substance or mixture

Met. Corr. 1	H290
Skin Corr. 1A	H314
Eye Dam. 1	H318

Full text of hazard classes and H-statements : see section 16

Adverse physicochemical, human health and environmental effects

May be corrosive to metals. Causes severe skin burns and eye damage. Before neutralisation the alkalinity of the product may represent a danger to aquatic organisms.

2.2 Label elements:

Signal word: Danger

Contains: Sodium aluminate; Sodium hydroxide

Hazard statements:

H290 - May be corrosive to metals.
H314 - Causes severe skin burns and eye damage.

Precautionary statements

P260 - Do not breathe spray.
P280 - Wear protective clothing, eye protection, face protection, protective gloves.
P301+P330+P331+P310 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Immediately call a doctor, a POISON

CENTER.
P303+P361+P353+P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a doctor, a POISON CENTER.
P305+P351+P338+P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor, a POISON CENTER.
P390 - Absorb spillage to prevent material damage.

2.3. Other hazards

Other hazards which do not result in classification: None to our knowledge.
To our knowledge, contains no PBT/vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixture

Name	Product Identifier	%	Classification according to Regulation (EC) No. 1272/2008 (CLP)
Sodium Aluminate	(CAS-No.) 1302-42-7 (EC-No.) 215-100-1 (REACH-no) 01-2119519249-35	10 - 45	Met. Corr. 1, H290 Skin Corr. 1A, H314 Eye Dam. 1, H318 EUH071
Sodium Hydroxide	(CAS-No.) 1310-73-2 (EC-No.) 215-185-5 (EC Index-No.) 011-002-00-6 (REACH-no) 01-2119457892-27	2 - 20	Met. Corr. 1, H290 Skin Corr. 1A, H314 Eye Dam. 1, H318

Specific concentrations limits

Name	Product Identifier	Specific concentration limits
Sodium Hydroxide	(CAS-No.) 1310-73-2 (EC-No.) 215-185-5 (EC Index-No.) 011-002-00-6 (REACH-no) 01-2119457892-27	(0.5 ≤C < 2) Eye Irrit. 2, H319 (0.5 ≤C < 2) Skin Irrit. 2, H315 (2 ≤C < 5) Skin Corr. 1B, H314 (5 ≤C < 100) Skin Corr. 1A, H314

Full text of Hand EUH statements: see section 16

4. FIRST AID MEASURES

4.1. Description of first aid measures

First-aid measures after inhalation

In the event of aerosol inhalation: Move the affected person away from the contaminated area and into the fresh air. Call a physician immediately.

First-aid measures after skin contact

Immediately remove contaminated clothing or footwear. Immediately rinse with plenty of water. Call a physician immediately.

First-aid measures after eye contact

Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum). Consult an eye specialist immediately, even if there are no immediate symptoms.

First-aid measures after ingestion

Rinse mouth out with water. Never attempt to induce vomiting. Transfer to hospital rapidly.

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

Symptoms/effects after skin contact: Burns.

Symptoms/effects after eye contact: Burns. Serious damage to eyes.

Symptoms/effects after ingestion: Severe irritation or burns to the mouth, throat, oesophagus, and stomach. Nausea. Vomiting. May perforate the oesophagus or the digestive tract.

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

Immediate / special treatment: Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media: All extinguishing agents can be used.

5.2. Special hazards arising from the substance or mixture

During combustion: Toxic and irritating gases are released.

5.3. Advice for fire-fighters

Firefighting instructions: Contain the extinguishing fluids by bunding.

Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Ventilate spillage area.

Emergency procedures: Avoid any direct contact with the product. Do not breathe aerosol. In case of important spillage: Only qualified personnel equipped with suitable protective equipment may intervene. Mark out the contaminated area with signs and prevent access to unauthorised personnel.

6.1.2. For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Contain the spilled material by bunding. Do not discharge into drains or rivers. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment: Absorb spillage with: inert absorbent material, Sand/earth.

Other information: Dispose of at a licensed waste collection centre.

6.4. Reference to other sections

For further information refer to section 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Precautions for safe handling

Ensure good ventilation of the work station. Anti-corrosion electrical installations. Avoid any direct contact with the product. Do not breathe spray. Handle and open the container with care. Dilutions or neutralizations are very highly exothermic, avoid spatters and carry out slowly. Comply with instructions for use (refer to technical sheet). Handle in accordance with good industrial hygiene and safety practice.

Hygiene measures

Do not drink, eat or smoke in the workplace. Always wash hands after handling the product. If on skin, take off contaminated clothing.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures

The floor of the depot should be impermeable and designed to form a water-tight basin.

Storage conditions

Keep container closed when not in use. Store in dry, cool,
well-ventilated area. Keep away from incompatible materials. Avoid thermal shock.

Incompatible materials

Strong oxidising agents. Strong acids. Non ferrous metals (Al, Cu, Zn) and their alloys. Halocarbons.

Packaging materials

Ordinary steel. Ebonited or rubberised steel. Stainless steel with an epoxy lining. Plastic materials.

Specific end use(s): No data available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Sodium hydroxide (1310-73-2)

United Kingdom - Occupational Exposure Limits

Local name	Sodium hydroxide
WEL STEL (mg/m³)	2 mg/m³
Regulatory reference	Chemical Agents Code of Practice 2021

Recommended monitoring procedures

No additional information available

Air contaminants formed

No additional information available

DNEL and PNEC

No additional information available

Control banding

No additional information available

8.2. Exposure controls

Engineering measures

Ensure good ventilation of the workstation. Emergency eye wash fountains and safety showers should

be available in the immediate vicinity of any potential exposure.

Hand protection

Protective gloves made of PVC. Neoprene rubber gloves. The protective gloves to be used must comply with the specifications of the regulation 2016/425 and the resultant standard EN 374. Breakthrough time: refer to the recommendations of the supplier

Eye protection

Goggles + face shield EN 166

Skin and body protection

Protective clothing (with elasticated cuffs and closed neck). Corrosion proof clothing

Respiratory protection

If mist is formed: Breathing apparatus with filter A (EN 133)

Environmental exposure controls

Avoid discharge of the product as is into the environment.

Thermal hazards

No additional information available

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Colour	Light yellow.
Appearance	Clear. Viscous.
Odour	Odourless.
Odour threshold	Not applicable
Melting point	Not applicable
Freezing point	-20 °C
Boiling point	102 – 110 °C
Flammability	The product is not flammable
Explosive properties	Not explosive.
Oxidising properties	Non oxidizing material according to EC criteria.
Explosive limits	Not available
Lower explosion limit	Not available
Upper explosion limit	Not available
Flash point	Not applicable (aqueous liquid)
Auto-ignition temperature	Not applicable
Decomposition temperature	Not determined
pH	> 13 at 20 °C
Viscosity, kinematic	Not determined
Viscosity, dynamic	20 – 250 mPa.s at 20 °C
Solubility	Water: Soluble
Partition coefficient n-octanol/water (Log Kow)	Not applicable (inorganic)
Vapour pressure	Not determined
Vapour pressure at 50°C	Not available
Density	1.3 – 1.56 g/ml at 20 °C
Relative density	1.3 – 1.56 at 20 °C
Relative vapour density at 20°C	Not determined
Particle characteristics	Not applicable

9.2. Other information

No additional information available

10. STABILITY AND REACTIVITY

10.1. Reactivity

May be corrosive to metals

10.2. Chemical stability

Stable at ambient temperature and under normal conditions of use.

10.3. Possibility of hazardous reactions

Attacks many metals releasing highly flammable gas (hydrogen) which generates fire or explosion hazards.

10.4. Conditions to avoid

None to our knowledge

10.5. Incompatible materials

Strong oxidizing agents. Strong acids. Non ferrous metals (Al, Cu, Zn) and their alloys. Halogenated hydrocarbons.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity (oral): Not classified

Acute toxicity (dermal): Not classified

Acute toxicity (inhalation): Not classified

Additional information: Not applicable (corrosive)

Skin corrosion/irritation: Causes severe skin burns. pH: > 13 at 20°C

Serious eye damage/irritation: Causes serious eye damage. pH: > 13 at 20°C

Respiratory or skin sensitisation: Not classified (Based on available data, the classification criteria are not met) Additional information: Not applicable (corrosive)

Germ cell mutagenicity Not classified (Based on available data, the classification criteria are not met)

Carcinogenicity: Not classified (Based on available data, the classification criteria are not met)

Reproductive toxicity: Not classified (Based on available data, the classification criteria are not met)

STOT-single exposure: Not classified (Based on available data, the classification criteria are not met)

STOT-repeated exposure: Not classified (Based on available data, the classification criteria are not met)

Aspiration hazard: Not classified (Based on available data, the classification criteria are not met)

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - general: Before neutralisation the alkalinity of the product may represent a danger to aquatic organisms.

Hazardous to the aquatic environment, short-term (acute): Not classified (Based on available data, the classification criteria are not met)

Hazardous to the aquatic environment, long-term (chronic): Not classified (Based on available data, the classification criteria are not met)

Sodium aluminate (1302-42-7)

LC50 fish > 100 mg/l/96h (Total Al) (Salmo trutta) (OECD 203 method)

EC50 Daphnia 389 µg/l/48h (Daphnia magna)

NOEC chronic fish 1.49 mg/l (16 days) (Oncorhynchus mykiss (Rainbow trout))

Additional information (results obtained by read-across)

12.2. Persistence and degradability

Not applicable. Inorganic substance

12.3. Bioaccumulative potential

Partition Co-efficient n-octanol/water (Log Pow): Not applicable (inorganic substance)

Bioaccumulative potential: Not applicable (inorganic substance).

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Not applicable (inorganic substance)

12.6. Other adverse effects

No additional information available

Other information

Endocrine disrupting properties

No additional information

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste treatment methods: After cleaning, recycle or dispose of at an authorised site.

Product/Packaging disposal recommendations: Dispose of in accordance with relevant local regulations.

Additional information: The user's attention is drawn to the possible existence of specific European, national or local regulations regarding disposal.

14. TRANSPORT INFORMATION

In accordance with ADR / IATA / IMDG / ADN

ADR	IMDG	IATA	ADN

14.1. UN number			
UN 1819	UN 1819	UN 1819	UN 1819
14.2. UN proper shipping name			
SODIUM ALUMINATE SOLUTION	SODIUM ALUMINATE SOLUTION	Sodium aluminate solution	SODIUM ALUMINATE SOLUTION
14.3. Transport hazard class(es)			
8	8	8	8
			
14.4. Packing group			
II	II	II	II
14.5. Environmental hazards			
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No

14.6. Special precautions for user

Overland transport

Classification code (ADR): C5

Limited quantities (ADR): 1l

Excepted quantities (ADR): E2

Packing instructions (ADR): P001, IBC02

Mixed packing provisions (ADR): MP15 Portable tank and bulk container instructions (ADR) : T7

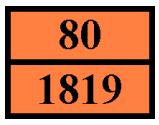
Portable tank and bulk container special provisions (ADR): TP2

Tank code (ADR) : L4BN

Vehicle for tank carriage: AT

Transport category (ADR): 2

Hazard identification number (Kemler No.): 80

Orange plates: 

Tunnel restriction code (ADR): E

EAC code: 2R

Transport by sea

Limited quantities (IMDG): 1 L

Excepted quantities (IMDG): E2

Packing instructions (IMDG): P001

IBC packing instructions (IMDG): IBC02

Tank instructions (IMDG): T7

Tank special provisions (IMDG): TP2

EmS-No. (Fire): F-A

EmS-No. (Spillage): S-B

Stowage category (IMDG) : A

Segregation (IMDG): SG35

MFAG-No: 154

Air transport

PCA Excepted quantities (IATA): E2

PCA Limited quantities (IATA): Y840 PCA limited quantity max net quantity (IATA) : 0.5L

PCA packing instructions (IATA): 851

PCA max net quantity (IATA): 1L

CAO packing instructions (IATA) : 855

CAO max net quantity (IATA): 30L

Special provisions (IATA): A3

ERG code (IATA): 8L

Inland waterway transport

Classification code (ADN): C5

Limited quantities (ADN): 1 L

Excepted quantities (ADN): E2

Equipment required (ADN): PP, EP

Number of blue cones/lights (ADN): 0

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code: Not applicable

15. REGULATORY INFORMATION

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

EU-Regulations

REACH Annex XVII (Restriction List)

Contains no substance(s) listed on REACH Annex XVII (Restriction Conditions)

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (1005/2009)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

National regulations

No additional information available

15.2. Chemical Safety Assessment

A Chemical Safety Assessment has been carried out.

16. OTHER INFORMATION

Other information:

Full text of H- and EUH-statements:

EUH071	Corrosive to the respiratory tract.
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.

H318	Causes serious eye damage.
H319	Causes serious eye irritation.
Met. Corr. 1	Corrosive to metals, Category 1
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2

Modification from last revision:

Safety Data Sheet has been revised in accordance with current data.

Revision Date: 04/07/2024