Safety Data Sheet

Aluminum sulphate, liquid

Date of issue: 01.02.2017  Revision date: 14.05.2019  Version: 4.0

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

1.1. Product identifier
   - Product form: Mixture
   - Product name: Aluminum sulphate, liquid

1.2. Relevant identified uses of the substance or mixture and uses advised against
   1.2.1. Relevant identified uses
   - Use of the substance/mixture: Flocculating agent, Pulp chemicals and paper auxiliaries, Agent for water treatment
   1.2.2. Uses advised against
   - No additional information available

1.3. Details of the supplier of the safety data sheet
   - Oker-Chemie GmbH
   - Im Schleeke 77
   - 38642 Goslar
   - Tel.: +49 (0)5321 75153415
   - Safety Data Sheet: DLAC Dienstleistungsagentur Chemie GmbH, E-mail: sds@dlac-gmbh.de

1.4. Emergency telephone number

<table>
<thead>
<tr>
<th>Country</th>
<th>Organisation/Company</th>
<th>Address</th>
<th>Emergency number</th>
</tr>
</thead>
<tbody>
<tr>
<td>GERMANY</td>
<td>Giftinformationszentrum-Nord</td>
<td>Robert-Koch Strasse 40, D-37075 Göttingen</td>
<td>+49 551 19240</td>
</tr>
</tbody>
</table>

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
   - Classification according to Regulation (EC) No. 1272/2008 [CLP]
     - Serious eye damage/eye irritation, Category 1 H318
     - Corrosive to metals, Category 1 H290
   - Full text of H statements: see section 16

   Adverse physicochemical, human health and environmental effects
   - No additional information available

2.2. Label elements
   - Labelling according to Regulation (EC) No. 1272/2008 [CLP]
     - Hazard pictograms (CLP):
       - GHS05
     - Hazardous ingredients: Aluminum sulphate
     - Signal word (CLP): Danger
     - Hazard statements (CLP): H318 - Causes serious eye damage, H290 - May be corrosive to metals
     - Precautionary statements (CLP):
       - P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection.
       - P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
       - P310 - Immediately call a doctor, a POISON CENTER.
       - P406 - Store in a corrosion resistant, stainless steel container with a resistant inner liner.

2.3. Other hazards
   - No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances
   - Not applicable

3.2. Mixtures

14.05.2019  EN (English)  1/8
14.05.2019
EN (English)
SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling:

Provide local exhaust or general room ventilation. Do not breathe vapour/aerosol. Avoid contact with skin and eyes.

Hygiene measures:

Handle in accordance with good industrial hygiene and safety procedures. Contaminated work clothing should not be allowed out of the workplace. When using do not eat, drink or smoke. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Take off contaminated clothing and wash it before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions:

Store tightly closed in a dry and cool place. Keep out of direct sunlight. Keep away from heat.

Prohibitions on mixed storage:

Keep away from food, drink and animal feedingstuffs.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.2. Exposure controls

Appropriate engineering controls:

Provide local exhaust or general room ventilation.

Hand protection:

Wear suitable gloves (EN 374). Natural rubber, ≥ 0.5 mm. Viton, ≥ 0.4 mm. The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:

Chemical goggles or face shield (EN 166).

Skin and body protection:

Wear suitable protective clothing (EN 13034).

Respiratory protection:


SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:

Colourless liquid

Odour:

Odourless

Odour threshold:

No data available

pH:

2 - 2.7

Melting point/freezing point:

-10 °C

Initial boiling point and boiling range:

100 – 120 °C

Flash point:

No data available

Evaporation rate:

No data available

Flammability (solid, gas):

Not applicable
Aluminum sulphate, liquid

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Upper/lower flammability or explosive limits : No data available
Vapour pressure : No data available
Vapour density : No data available
Relative density : No data available
Density : 1.33 g/cm$^3$ (20 °C)
Solubility(ies) : Water: completely miscible
Partition coefficient: n-octanol/water : No data available
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Viscosity : No data available
Explosive properties : Not explosive
Oxidising properties : No oxidising properties

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No dangerous reactions known under normal conditions of use.

10.2. Chemical stability
Stable under use and storage conditions as recommended in section 7.

10.3. Possibility of hazardous reactions
None under normal use.

10.4. Conditions to avoid
No conditions to avoid known.

10.5. Incompatible materials
Metals, Bases.

10.6. Hazardous decomposition products
Sulphur oxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified
Based on available data, the classification criteria are not met
LD50 oral rat: > 2000 mg/kg (OECD 401)
LD50 dermal rabbit: > 5 000 mg/kg (OECD 402)

Skin corrosion/irritation : Not classified
Based on available data, the classification criteria are not met

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitisation : Not classified
Based on available data, the classification criteria are not met

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

Specific target organ toxicity (single exposure) : Not classified.
Based on available data, the classification criteria are not met
Specific target organ toxicity (repeated exposure): Not classified
Aspiration hazard: Not classified
Potential adverse human health effects and symptoms: No additional information available

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Acute aquatic toxicity: Not classified
Chronic aquatic toxicity: Not classified

12.2. Persistence and degradability
The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential
Not required for inorganic substances.

12.4. Mobility in soil
No additional information available

12.5. Results of PBT and vPvB assessment
This product does not meet the PBT- or vPvB criteria of REACH regulation, annex XIII.

12.6. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Regional legislation (waste): Disposal must be done according to official regulations.
Waste disposal recommendations: Do not empty into drains.
European List of Waste (LoW) code: The valid EWC waste code numbers are source related. The manufacturer is therefore unable to specify EWC waste codes for the articles or products used in the various sectors. The EWC codes listed are intended as a recommendation for users.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number
UN-No. (ADR): 3264
UN-No. (IMDG): 3264
UN-No. (IATA): 3264

14.2. UN proper shipping name
Proper Shipping Name (ADR): CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (ALUMINIUM SULPHATE, SOLUTION)
Proper Shipping Name (IMDG): CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (ALUMINIUM SULPHATE, SOLUTION)
Proper Shipping Name (IATA): Corrosive liquid, acidic, inorganic, n.o.s. (aluminium sulphate, solution)
Transport document description (ADR): UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (ALUMINIUM SULPHATE, SOLUTION), 8, III, (E)
Transport document description (IMDG): UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (ALUMINIUM SULPHATE, SOLUTION), 8, III
Transport document description (IATA): UN 3264 Corrosive liquid, acidic, inorganic, n.o.s. (aluminium sulphate, solution), 8, III
14.3. Transport hazard class(es)

ADR
Transport hazard class(es) (ADR) : 8
Danger labels (ADR) : 8

IMDG
Transport hazard class(es) (IMDG) : 8
Danger labels (IMDG) : 8

IATA
Transport hazard class(es) (IATA) : 8
Hazard labels (IATA) : 8

14.4. Packing group

Packing group (ADR) : III
Packing group (IMDG) : III
Packing group (IATA) : III

14.5. Environmental hazards

Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user

Overland transport
Classification code (ADR) : C1
Special provisions (ADR) : 274
Limited quantities (ADR) : 5l
Excepted quantities (ADR) : E1
Packing instructions (ADR) : P001, IBC03, LP01, R001
Mixed packing provisions (ADR) : MP19
Portable tank and bulk container instructions (ADR) : T7
Portable tank and bulk container special provisions (ADR) : TP1, TP28
Tank code (ADR) : L4BN
Vehicle for tank carriage : AT
Transport category (ADR) : 3
Special provisions for carriage - Packages (ADR) : V12
Aluminum sulphate, liquid

Hazard identification number (Kemler No.) : 80
Orange plates : 80

Tunnel restriction code (ADR) : E
EAC code : 2X
APP code : B

Transport by sea
Special provisions (IMDG) : 223, 274
Packing instructions (IMDG) : P001, LP01
IBC packing instructions (IMDG) : IBC03
Tank instructions (IMDG) : T7
Tank special provisions (IMDG) : TP1, TP28
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-B
Stowage category (IMDG) : A
Stowage and handling (IMDG) : SW2
Properties and observations (IMDG) : Causes burns to skin, eyes and mucous membranes.

Air transport
PCA Excepted quantities (IATA) : E1
PCA Limited quantities (IATA) : Y841
PCA limited quantity max net quantity (IATA) : 1L
PCA packing instructions (IATA) : 852
PCA max net quantity (IATA) : 5L
CAO packing instructions (IATA) : 856
CAO max net quantity (IATA) : 60L
Special provisions (IATA) : A3
ERG code (IATA) : 8L

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations
Contains no substance on the REACH candidate list
Contains no substance on REACH Annex XIV list

15.1.2. National regulations
No additional information available

15.2. Chemical safety assessment
Chemical safety assessments for substances in this mixture were carried out.

SECTION 16: Other information


Changes compared to earlier Versions : General revision

Aluminium sulphate (10043-01-3)
Listed on: EINECS/REACH (Europe)
Listed on: NZIoC (New Zealand Inventory of Chemicals)
Listed on: PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on: TCSI (Taiwan’s chemical substance inventory)

Abbreviations and acronyms:
ADR
European Agreement concerning the International Carriage of Dangerous Goods by Road
EC50
Median effective concentration
IATA
International Air Transport Association
IMDG
International Maritime Dangerous Goods
LC50
Median lethal concentration
LD50
Median lethal dose
NOAEC
No-Observed Adverse Effect Concentration
NOAEL
No-Observed Adverse Effect Level
NOEC
No-Observed Effect Concentration
OECD
Organisation for Economic Co-operation and Development
PBT
Persistent Bioaccumulative Toxic
REACH
SDS
Safety data sheet
vPvB
Very Persistent and Very Bioaccumulative

Full text of H- and EUH-statements:
Eye Dam. 1
Serious eye damage/eye irritation, Category 1
Met. Corr
Corrosive to metals, Category 1
H290
May be corrosive to metals
H318
Causes serious eye damage

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.