SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

OS15

Section: 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier: OS15
Substance type: CLP Mixture

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

Use of the Substance/Mixture: OXYGEN SCAVenger

Recommended restrictions on use: Reserved for industrial and professional use.

1.3 Details of the supplier of the safety data sheet:

COMPANY IDENTIFICATION
NALCO EUROPE B.V.
Postbus 627
2300 AP Leiden, The Netherlands
TEL: 0031 71 5241100

LOCAL COMPANY IDENTIFICATION
Nalco Ltd.
P.O. BOX 11, WINNINGTON AVENUE
NORTHWICH, CHESHIRE, U.K. CW8 4DX
TEL: +44 (0)1606 74488

For Product Safety information please contact: msdseame@nalco.com

1.4 Emergency telephone number: +32-(0)3-575-5555 Trans-European

Date of Compilation/Revision: 30.04.2016
Version Number: 1.0

Section: 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Respiratory sensitization, Category 1 H334
Skin sensitization, Category 1 H317
Germ cell mutagenicity, Category 2 H341
Carcinogenicity, Category 1B H350i
Reproductive toxicity, Category 1B H360F
Acute aquatic toxicity, Category 1 H400
Chronic aquatic toxicity, Category 1 H410

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms: 

Signal Word: Danger

Hazard Statements:
H317 May cause an allergic skin reaction.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341 Suspected of causing genetic defects.
H350i May cause cancer by inhalation.
OS15

H360F  May damage fertility.
H410   Very toxic to aquatic life with long lasting effects.

Precautionary Statements:

Prevention:
- P261 Avoid breathing dust/ fume/ gas/ mist/vapours/spray.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P284 In case of inadequate ventilation wear respiratory protection.

Response:
- P302 + P352 IF ON SKIN: Wash with plenty of water.
- P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Hazardous components which must be listed on the label:
Cobalt Sulphate Heptahydrate

2.3 Other hazards
None known.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Hazardous components

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>Classification (REGULATION (EC) No 1272/2008)</th>
<th>Concentration: [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobalt Sulphate Heptahydrate</td>
<td>10026-24-1</td>
<td>Note 1, *** Acute toxicity Category 4; H302 Respiratory sensitization Category 1; H334 Skin sensitization Category 1; H317 Germ cell mutagenicity Category 2; H341 Carcinogenicity Category 1B; H350i Reproductive toxicity Category 1B; H360F Acute aquatic toxicity Category 1; H400 Chronic aquatic toxicity Category 1; H410 Chronic aquatic toxicity Category 1; H410</td>
<td>10 - &lt; 20</td>
</tr>
<tr>
<td></td>
<td>233-334-2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

Section: 4. FIRST AID MEASURES

4.1 Description of first aid measures

If inhaled:
- Remove to fresh air.
- Treat symptomatically.
- Get medical attention.

In case of skin contact:
- Wash off immediately with plenty of water for at least 15 minutes.
- Use a mild soap if available.
- Wash clothing before reuse.
- Thoroughly clean shoes before reuse.
- Get medical attention.
In case of eye contact: Rinse with plenty of water. Get medical attention if symptoms occur.

If swallowed: Rinse mouth. Get medical attention if symptoms occur.

Protection of first-aiders: In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

4.3 Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically.

Section: 5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media: None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting: Not flammable or combustible.

Hazardous combustion products: Decomposition products may include the following materials: Sulphur oxides

5.3 Advice for firefighters

Special protective equipment for firefighters: Use personal protective equipment.

Further information: Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

Section: 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.

Advice for emergency responders: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials.
6.2 Environmental precautions

Environmental precautions : Do not allow contact with soil, surface or ground water.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Flush away traces with water. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway.

6.4 Reference to other sections

See Section 1 for emergency contact information.
For personal protection see section 8.
See Section 13 for additional waste treatment information.

Section: 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling : Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Use only with adequate ventilation.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep out of reach of children. Keep container tightly closed. Store in suitable labeled containers.

Suitable material : Keep in properly labelled containers.

Unsuitable material : not determined

7.3 Specific end uses

Specific use(s) : OXYGEN SCAVENGER

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

**Occupational Exposure Limits**

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobalt Sulphate</td>
<td>10026-24-1</td>
<td>TWA</td>
<td>0.1 mg/m3 (Cobalt(Co))</td>
<td>UKCOSSTD</td>
</tr>
</tbody>
</table>
8.2 Exposure controls

Appropriate engineering controls

Effective exhaust ventilation system. Maintain air concentrations below occupational exposure standards.

Individual protection measures

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling.

Eye/face protection (EN 166): Safety glasses

Hand protection (EN 374): Recommended preventive skin protection

- Gloves
  - Nitrile rubber
  - Butyl-rubber

Breakthrough time: 1 – 4 hours

Minimum thickness for butyl-rubber 0.7 mm for nitrile rubber 0.4 mm or equivalent (please refer to the gloves manufacturer/distributor for advise).

Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Skin and body protection (EN 14605): Wear suitable protective clothing.

Respiratory protection (EN 143, 14387): When respiratory risks cannot be avoided or sufficiently limited by technical means of collective protection or by measures, methods or procedures of work organization, consider the use of certified respiratory protection equipment meeting EU requirements (89/656/EEC, 89/686/EEC), or equivalent, with filter type: A-P

Environmental exposure controls

General advice: Consider the provision of containment around storage vessels.

Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- Appearance: liquid
- Colour: clear, red
- Odour: odourless
- Flash point: > 100 °C
- pH: 5 - 7
- Odour Threshold: no data available
- Melting point/freezing point: no data available
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Initial boiling point and boiling range: 100 °C
Evaporation rate: no data available
Flammability (solid, gas): no data available
Upper explosion limit: no data available
Lower explosion limit: no data available
Vapour pressure: 1.8 hPawater
Relative vapour density: 0.62 (Air = 1.0)
Relative density: 1.03 - 1.07 (20 °C)
Density: 1.0282 - 1.0681 g/cm³

Solubility(ies)
Water solubility: soluble
Solubility in other solvents: no data available
Partition coefficient: n-octanol/water: no data available
Auto-ignition temperature: no data available
Thermal decomposition temperature: no data available

Viscosity
Viscosity, dynamic: 1.17 mPa.s (20 °C)
Viscosity, kinematic: no data available

Explosive properties: no data available
Oxidizing properties: no data available

9.2 Other information
no data available

Section: 10. STABILITY AND REACTIVITY

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

10.2 Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions
Hazardous reactions: No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid
Conditions to avoid: None known.

10.5 Incompatible materials

10.6 Hazardous decomposition products
Hazardous decomposition products: Decomposition products may include the following materials: Sulphur oxides

Section: 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Information on likely routes of exposure: Inhalation, Eye contact, Skin contact

Toxicity

Product

Acute oral toxicity: Acute toxicity estimate: > 2,000 mg/kg

Acute inhalation toxicity: There is no data available for this product.

Acute dermal toxicity: There is no data available for this product.

Skin corrosion/irritation: There is no data available for this product.

Serious eye damage/eye irritation: There is no data available for this product.

Respiratory or skin sensitization: There is no data available for this product.

Carcinogenicity: There is no data available for this product.

Reproductive effects: There is no data available for this product.

Germ cell mutagenicity: There is no data available for this product.

Teratogenicity: There is no data available for this product.

STOT - single exposure: There is no data available for this product.

STOT - repeated exposure: There is no data available for this product.

Aspiration toxicity: There is no data available for this product.

Potential Health Effects

Eyes: Health injuries are not known or expected under normal use.

Skin: May cause allergic skin reaction.

Ingestion: Health injuries are not known or expected under normal use.

Inhalation: May cause allergic respiratory reaction.

Chronic Exposure: May cause cancer by inhalation. Suspected of causing genetic defects. May damage fertility.

Experience with human exposure
Eye contact : No symptoms known or expected.
Skin contact : Redness, Irritation, Allergic reactions.
Ingestion : No symptoms known or expected.
Inhalation : May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Further information : no data available

Section: 12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity

Product
Environmental Effects : Very toxic to aquatic life with long lasting effects.
Toxicity to fish : no data available
Toxicity to daphnia and other aquatic invertebrates : no data available
Toxicity to algae : no data available

12.2 Persistence and degradability

Product
no data available

Components
Biodegradability : Cobalt Sulphate Heptahydrate
Result: Not applicable - inorganic

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment

Product
Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects
Section: 13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with the European Directives on waste and hazardous waste. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

13.1 Waste treatment methods

Product: The product should not be allowed to enter drains, water courses or the soil. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.

Contaminated packaging: Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Section: 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

Land transport (ADR/ADN/RID)
14.1 UN number: UN 3082
14.2 UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Cobalt Sulfate)
14.3 Transport hazard class(es): 9
14.4 Packing group: III
14.5 Environmental hazards: Yes
14.6 Special precautions for user: Not applicable.

Air transport (IATA)
14.1 UN number: UN 3082
14.2 UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Cobalt Sulfate)
14.3 Transport hazard class(es): 9
14.4 Packing group: III
14.5 Environmental hazards: Yes
14.6 Special precautions for user: Not applicable.

Sea transport (IMDG/IMO)
14.1 UN number: UN 3082
14.2 UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Cobalt Sulfate)
14.3 Transport hazard class(es): 9
14.4 Packing group: III
14.5 Environmental hazards: Yes (Marine Pollutant)
14.6 Special precautions for user: Not applicable.
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable.
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Section: 15. REGULATORY INFORMATION

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

INTERNATIONAL CHEMICAL CONTROL LAWS

15.2 Chemical Safety Assessment:

No Chemical Safety Assessment has been carried out.

Section: 16. OTHER INFORMATION

Full text of H-Statements

H302 Harmful if swallowed.
H317 May cause an allergic skin reaction.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341 Suspected of causing genetic defects.
H350i May cause cancer by inhalation.
H360F May damage fertility.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECS - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Cooperation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data
Sources of key data used to compile the Safety Data Sheet:


The possible key literature references and data sources which may have been used in conjunction with the consideration of expert judgment to compile this Safety Data Sheet: European regulations/directives (including (EC) No. 1907/2006, (EC) No. 1272/2008, 67/548/EEC, 1999/45/EC), supplier data, inter-net, ESIS, IUCLID, ERlcards, Non European official regulatory data and other data sources.

Prepared By: Regulatory Affairs

Numbers quoted in the MSDS are given in the format: 1,000,000 = 1 million and 1,000 = 1 thousand. 0.1 = 1 tenth and 0.001 = 1 thousandth

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.