

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Trade name

**Sodium deuteroxide, 40% w/w solution in D2O**

Stock number:

42346

CAS Number:

14014-06-3

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

Identified use:

SU24 Scientific research and development

**1.3 Details of the supplier of the safety data sheet**

Manufacturer/Supplier:

Alfa Aesar GmbH & Co.KG  
A Johnson Matthey Company  
Zeppelinstr. 7b  
76185 Karlsruhe / Germany  
Tel: +49 (0) 721 84007 280  
Fax: +49 (0) 721 84007 300  
Email: tech@alfa.com  
www.alfa.com

Informing department:

Product safety Tel + +049 (0) 7275 988687-0

1.4 Emergency telephone number:

Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)

Poison Information Center Mainz

www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008



GHS06 skull and crossbones

Acute Tox. 2 H300 Fatal if swallowed.



GHS05 corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

**Classification according to Directive 67/548/EEC or Directive 1999/45/EC**

C; Corrosive

R35: Causes severe burns.

**Information concerning particular hazards for human and environment:**

Not applicable

**Other hazards that do not result in classification**

No information known.

**2.2 Label elements****Labelling according to Regulation (EC) No 1272/2008**

Hazard pictograms

Signal word

Hazard statements

Precautionary statements

The substance is classified and labelled according to the CLP regulation.

GHS05, GHS06

Danger

H300 Fatal if swallowed.

H314 Causes severe skin burns and eye damage.

P260

Do not breathe dust/fume/gas/mist/vapours/spray.

P301+P310

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405

Store locked up.

P501

Dispose of contents/container in accordance with local/regional/national/international regulations.

**2.3 Other hazards**

Results of PBT and vPvB assessment

PBT:

Not applicable.

vPvB:

Not applicable.

**SECTION 3: Composition/information on ingredients****3.1 Substances**

CAS# Designation:

14014-06-3 Sodium deuteroxide, 40% w/w solution in D2O

**SECTION 4: First aid measures****4.1 Description of first aid measures**

General information

After inhalation

Instantly remove any clothing soiled by the product.

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

After skin contact

Seek immediate medical advice.

Instantly wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing

Seek medical treatment.

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

No further relevant information available.

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

No further relevant information available.

**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing agents

Use fire fighting measures that suit the environment.

**5.2 Special hazards arising from the substance or mixture**

If this product is involved in a fire, the following can be released:

**5.3 Advice for firefighters**

Protective equipment:

Wear self-contained breathing apparatus.

Wear full protective suit.

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

**6.2 Environmental precautions:**

Do not allow material to be released to the environment without proper governmental permits.

Do not allow product to reach sewage system or water bodies.

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**6.3 Methods and material for containment and cleaning up:**

Do not allow to enter the ground/soil.

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Use neutralizing agent.  
Dispose of contaminated material as waste according to item 13.  
Ensure adequate ventilation.

**Prevention of secondary hazards:  
6.4 Reference to other sections**

No special measures required.  
See Section 7 for information on safe handling  
See section 8 for information on personal protection equipment.  
See Section 13 for information on disposal.

**SECTION 7: Handling and storage**
**7.1 Precautions for safe handling**

Keep containers tightly sealed.  
Store in cool, dry place in tightly closed containers.  
Ensure good ventilation/exhaustion at the workplace.

**Information about protection against explosions and fires:**

The product is not flammable

**7.2 Conditions for safe storage, including any incompatibilities**
**Storage Requirements to be met by storerooms and containers:  
Information about storage in one common storage facility:**

No special requirements.

Store away from metals.  
Water reacts with many metals to give hydrogen, often violently. Water also reacts violently with many reactive organic and inorganic chemicals.

**Further information about storage conditions:**

Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.  
Store in a locked cabinet or with access restricted to technical experts or their assistants.

**7.3 Specific end use(s)**

No further relevant information available.

**SECTION 8: Exposure controls/personal protection**
**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**8.1 Control parameters**
**Components with critical values that require monitoring at the workplace:**

Sodium hydroxide  
mg/m<sup>3</sup>  
ACGIH TLV 2-CEILING  
Austria MAK 2  
Belgium 2-STEL  
Denmark TWA 2  
Finland TWA 2  
France VME 2  
Germany MAK 2  
Ireland TWA 2-STEL  
Japan OEL 2  
Korea TLV 2-Ceiling  
Netherlands MAC-TGG 2  
Norway TWA 2  
Poland TWA 0.5; 1-STEL  
Sweden TGV 2  
Switzerland MAK-W 2; 4-KZG-W  
United Kingdom TWA 2-STEL  
OSHA PEL 2

**Additional information:**

No data

**8.2 Exposure controls**
**Personal protective equipment  
General protective and hygienic measures**

The usual precautionary measures should be adhered to in handling the chemicals.  
Keep away from foodstuffs, beverages and food.  
Instantly remove any soiled and impregnated garments.  
Wash hands during breaks and at the end of the work.  
Avoid contact with the eyes and skin.  
Maintain an ergonomically appropriate working environment.

**Breathing equipment:**

Use breathing protection with high concentrations.

**Protection of hands:**

Check protective gloves prior to each use for their proper condition.  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Material of gloves**

Impervious gloves

**Penetration time of glove material**

Not determined

**Eye protection:**

Tightly sealed safety glasses.

Full face protection

**Body protection:**

Protective work clothing.

**SECTION 9: Physical and chemical properties**
**9.1 Information on basic physical and chemical properties**
**General Information**
**Appearance:**

Form: Solution  
Colour: Colourless  
Smell: Odourless  
Odour threshold: Not determined.

pH-value: Not determined.

**Change in condition**

Melting point/Melting range: Not determined  
Boiling point/Boiling range: Not determined  
Sublimation temperature / start: Not determined

Flash point: Not applicable

Inflammability (solid, gaseous): Not determined  
Product is not inflammable.

Ignition temperature: Not determined

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DE/E

**Safety data sheet**  
according to 1907/2006/EC, Article 31

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|   |  |
|---|--|
| <b>Decomposition temperature:</b>               | Not determined                             |
| <b>Self-inflammability:</b>                     | Not determined.                            |
| <b>Danger of explosion:</b>                     | Product is not explosive.                  |
| <b>Critical values for explosion:</b>           |  |
| <b>Lower:</b>                                   | Not determined                             |
| <b>Upper:</b>                                   | Not determined                             |
| <b>Steam pressure:</b>                          | Not determined                             |
| <b>Density at 20 °C</b>                         | 1,462 g/cm <sup>3</sup>                    |
| <b>Relative density</b>                         | Not determined.                            |
| <b>Vapour density</b>                           | Not determined.                            |
| <b>Evaporation rate</b>                         | Not determined.                            |
| <b>Solubility in / Miscibility with</b>         |  |
| <b>Water:</b>                                   | Fully miscible                             |
| <b>Partition coefficient (n-octanol/water):</b> | Not determined.                            |
| <b>Viscosity:</b>                               |  |
| <b>dynamic:</b>                                 | Not determined.                            |
| <b>kinematic:</b>                               | Not determined.                            |
| <b>9.2 Other information</b>                    | No further relevant information available. |

**SECTION 10: Stability and reactivity**

|  |  |
|--|--|
| <b>10.1 Reactivity</b>                                   | No information known.  |
| <b>10.2 Chemical stability</b>                           | Stable under recommended storage conditions.   |
| <b>Thermal decomposition / conditions to be avoided:</b> | No decomposition if used and stored according to specifications.   |
| <b>10.3 Possibility of hazardous reactions</b>           | Reacts with halogenated compounds<br>Reacts with acids<br>Exothermic reaction with water<br>Water reacts violently with alkali metals.                         |
| <b>10.5 Incompatible materials:</b>                      | Halocarbons<br>Water reacts with many metals to give hydrogen, often violently. Water is also incompatible with many reactive organic and inorganic chemicals. |
| <b>10.6 Hazardous decomposition products:</b>            | Metal oxide  |

**SECTION 11: Toxicological information**

|  |  |
|--|--|
| <b>11.1 Information on toxicological effects</b> |  |
| <b>Acute toxicity:</b>                           | Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach. |

**LD/LC50 values that are relevant for classification:**

Oral LD50 40 mg/kg (mouse)

|   |   |
|---|---|
| <b>Skin irritation or corrosion:</b>                              | Causes severe skin burns.   |
| <b>Eye irritation or corrosion:</b>                               | Irritant effect.<br>Causes serious eye damage.  |
| <b>Sensitization:</b>   | No sensitizing effect known.  |
| <b>Germ cell mutagenicity:</b>                                    | No effects known.   |
| <b>Carcinogenicity:</b>   | No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH. |
| <b>Reproductive toxicity:</b>                                     | No effects known.   |
| <b>Specific target organ system toxicity - repeated exposure:</b> | No effects known.   |
| <b>Specific target organ system toxicity - single exposure:</b>   | No effects known.   |
| <b>Aspiration hazard:</b>   | No effects known.   |
| <b>Additional toxicological information:</b>                      | To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.                       |

**SECTION 12: Ecological information**

|  |   |
|--|---|
| <b>12.1 Toxicity</b>                           |   |
| <b>Aquatic toxicity:</b>                       | No further relevant information available.  |
| <b>12.2 Persistence and degradability</b>      | No further relevant information available.  |
| <b>12.3 Bioaccumulative potential</b>          | No further relevant information available.  |
| <b>12.4 Mobility in soil</b>                   | No further relevant information available.  |
| <b>Additional ecological information:</b>      |   |
| <b>General notes:</b>                          | Do not allow material to be released to the environment without proper governmental permits.<br>Water hazard class 1 (Self-assessment): slightly hazardous for water.<br>Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.<br>Avoid transfer into the environment. |
| <b>12.5 Results of PBT and vPvB assessment</b> |   |
| <b>PBT:</b>                                    | Not applicable.   |
| <b>vPvB:</b>                                   | Not applicable.   |
| <b>12.6 Other adverse effects</b>              | No further relevant information available.  |

**SECTION 13: Disposal considerations**

|                                     |   |
|-------------------------------------|---|
| <b>13.1 Waste treatment methods</b> |   |
| <b>Recommendation</b>               | Hand over to disposers of hazardous waste.<br>Must be specially treated under adherence to official regulations.<br>Consult state, local or national regulations for proper disposal. |
| <b>Uncleaned packagings:</b>        |   |
| <b>Recommendation:</b>              | Disposal must be made according to official regulations.  |
| <b>Recommended cleaning agent:</b>  | Water, if necessary with cleaning agent.  |

**SECTION 14: Transport information**

|                                     |                                |
|-------------------------------------|--------------------------------|
| <b>UN-Number</b>                    |                                |
| <b>ADR, IMDG, IATA</b>              | UN1824                         |
| <b>14.2 UN proper shipping name</b> |                                |
| <b>ADR</b>                          | 1824 SODIUM HYDROXIDE SOLUTION |
| <b>IMDG, IATA</b>                   | SODIUM HYDROXIDE SOLUTION      |

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**14.3 Transport hazard class(es)**

**ADR**



**Class** 8 (C5) Corrosive substances.  
**Label** 8  
**IMDG, IATA**

**Class** 8 Corrosive substances.  
**Label** 8

**Packing group**  
**ADR, IMDG, IATA**

II

**14.5 Environmental hazards:**

Not applicable.

**14.6 Special precautions for user**

Warning: Corrosive substances.

**Kemler Number:**

80

**Segregation groups**

Alkalis

**14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC****Code** Not applicable.**Transport/Additional information:**

**ADR**

**Excepted quantities (EQ):** E2  
**Limited quantities (LQ)** 1L  
**Transport category** 2  
**Tunnel restriction code** E

**UN "Model Regulation":**

UN1824, SODIUM HYDROXIDE SOLUTION, 8, II

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Australian Inventory of Chemical Substances**

Substance is not listed.

**Standard for the Uniform Scheduling of Drugs and Poisons**

Substance is not listed.

**National regulations****Information about limitation of use:**

For use only by technically qualified individuals.

Employment restrictions concerning young persons must be observed.

**Water hazard class:**

Water hazard class 1 (Self-assessment): slightly hazardous for water.

**Other regulations, limitations and prohibitive regulations****ELINCS (European List of Notified Chemical Substances)**

Substance is not listed.

**Substances of very high concern (SVHC)****according to REACH, Article 57****REACH - Pre-registered substances**

Substance is not listed.

Substance is listed.

**15.2 Chemical safety assessment:**

A Chemical Safety Assessment has not been carried out.

**SECTION 16: Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing data specification sheet:** Health, Safety and Environmental Department.**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent

DE/E