SAFETY DATA SHEETS

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Version: 1.0

Creation Date: Aug 10, 2017

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1. Identification

1.1 GHS Product identifier

Product name	2-naphthol

1.2 Other means of identification

Product number	-
Other names	2-Naphthalenol

1.3 Recommended use of the chemical and restrictions on use

Identified uses	For industry use only. Dyes
Uses advised against	no data available

2. Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Oral, Category 4

Acute toxicity - Inhalation, Category 4

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)

Signal word	Warning
Hazard statement(s)	H302 Harmful if swallowed
	H332 Harmful if inhaled
	H400 Very toxic to aquatic life
Precautionary statement(s)	
Prevention	P264 Wash ... thoroughly after handling.
	P270 Do not eat, drink or smoke when using this product.
	P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
	P271 Use only outdoors or in a well-ventilated area.
	P273 Avoid release to the environment.
Response	P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/…if you feel unwell.
	P330 Rinse mouth.
	P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
	P312 Call a POISON CENTER/doctor/…if you feel unwell.
	P391 Collect spillage.
Storage	none
Disposal	P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

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3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
2-naphthol	2-naphthol	135-19-3	none	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest.

In case of skin contact

Rinse and then wash skin with water and soap.

In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

If swallowed

Rinse mouth. Give one or two glasses of water to drink. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

no data available

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. /Phenols and related compounds/

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Specific hazards arising from the chemical

no data available

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

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6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Do NOT let this chemical enter the environment.

6.3 Methods and materials for containment and cleaning up

Accidental Release Measures. Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. Methods and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

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7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in an area without drain or sewer access.Conditions for safe storage, including any incompatibilities: Keep container tightly closed in a dry and well-ventilated place. Light sensitive.

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8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique(without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and

dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9. Physical and chemical properties

Physical state	broken white shiny flakes or white powder
Colour	White, lustrious, bulky leaflets or white powder. Darkens with age
Odour	Faint phenol-like odor
Melting point/ freezing point	220°C(lit.)
Boiling point or initial boiling point and boiling range	285-286°C(lit.)
Flammability	Combustible.
Lower and upper explosion limit / flammability limit	no data available
Flash point	153°C
Auto-ignition temperature	550°C
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	In water:1 g/L (20 °C)
Partition coefficient n-octanol/water (log value)	log Kow = 2.70
Vapour pressure	10 mm Hg (145.5 °C)
Density and/or relative density	1.28
Relative vapour density	4.97 (vs air)
Particle characteristics	no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Flammability potential is slight.Dust explosion possible if in powder or granular form, mixed with air.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Incompatible with antipyrine, camphor, phenol, ferric salts, menthol, potassium permanganate and other oxidizing materials, urethane.

10.6 Hazardous decomposition products

Special hazards arising from the substance or mixture: Carbon oxides.

11. Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 1960 mg/kg
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. Ecological information

12.1 Toxicity

- Toxicity to fish: LC50; Species: Micropterus salmoides (Largemouth Bass) eggs and larvae; Conditions: freshwater, flow through, 20.2-23.2°C, pH 7.41-8.10, hardness 86.8-116.3 mg/L CaCO3, dissolved oxygen 7.1-8.4 mg/L; Concentration: 1000 ug/L for 7 days (95% confidence interval: 290-2270 ug/L)
- Toxicity to daphnia and other aquatic invertebrates: LC50; Species: Daphnia magna (Water Flea) age 24 hr, juvenile, first instar; Conditions: freshwater, static, 19.5-20.5°C; Concentration: 3540 ug/L for 48 hr (95% confidence interval: 3170-3950 ug/L)
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: 2-Naphthol, present at 100 mg/L, reached 68.4% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(1). In an OECD 301C test, 2-naphthol achieved an observed BOD of 68%

after 28 days; the test substance is considered to be readily biodegradable under the conditions of the test(2). 2-Naphthol biodegraded 99.83, 99.98, 99.88, 99.90% after 100, 130, 150, 160 days, respectively, in a biodegradation study using activated sludge(3). Using adapted activated sludge as the inoculum, 2-naphthol degraded 89% based on COD removal at a biodegradation rate of 39.2 mg COD/g-hr(4). The biodegradation potential of 2-naphthol in diluted primary digested sludge was considered to be inhibitory to biodegradation after a lag period of more than 75 days(5). The 5-day BOD of 2-naphthol, present at 5 ppm, was 0.71 g/g or 27.8 of the Theoretical Oxygen Demand(6). In a Chernozem soil at 19°C, 2-naphthol existed for > 90 days at 500 mg/kg and for 30 days at 5 mg/kg(7). 2-Naphthol is considered to be recalcitrant in Chernozem soils(8).

12.3 Bioaccumulative potential

An estimated BCF of 28 was calculated in fish for 2-naphthol(SRC), using a log Kow of 2.7(1) and a regression-derived equation(2). According to a classification scheme(2), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

The Koc of 2-naphtol is estimated as 390(SRC), using a log Kow of 2.7(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that 2-naphthol is expected to have moderate mobility in soil. The pKa of 2-naphthol is 9.51(4), indicating that this compound will exist partially in the anion form in the environment and anions generally do not adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts(5).

12.5 Other adverse effects

no data available

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13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. Transport information

14.1 UN Number

ADR/RID: UN3077 IMDG: UN3077 IATA: UN3077

14.2 UN Proper Shipping Name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

14.3 Transport hazard class(es)

ADR/RID: 9 IMDG: 9 IATA: 9

14.4 Packing group, if applicable

ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards

ADR/RID: yes IMDG: yes IATA: yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15. Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number

2-naphthol	2-naphthol	135-19-3	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

16. Other information

Information on revision

Creation Date	Aug 10, 2017
Revision Date	Aug 10, 2017

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- ECHA - European Chemicals Agency, website: https://echa.europa.eu/
