



1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) 50 UG/ML IN TOLUENE

Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 20/05/2014

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Version: 2.0

CLM-7701-S

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

1.1. Product identifier

Product form : Mixture
Product name : 1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) 50 UG/ML IN TOLUENE
Product code : CLM-7701-S

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

1.2.1. Relevant identified uses

Main use category : Professional use
Industrial/Professional use spec : For professional use only.

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.
50 Frontage Road
Andover, MA 01810
USA

USA: 1-800-322-1174 Int: 1-978-749-8000
cilsales@isotope.com www.isotope.com

Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)
International: 1-703-741-5970 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

| | |
|---------------------------|------|
| Flam. Liq. 2 | H225 |
| Acute Tox. 4 (Inhalation) | H332 |
| Skin Irrit. 2 | H315 |
| Eye Irrit. 2 | H319 |
| Carc. 2 | H351 |
| Repr. 2 | H361 |
| STOT SE 2 | H371 |
| STOT RE 2 | H373 |
| Asp. Tox. 1 | H304 |

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Carc.Cat.3; R40
Repr.Cat.3; R62
Repr.Cat.3; R63
F; R11
Xi; R36/38
Xn; R20
Xn; R48/20
Muta.Cat.3; R68
R66

Full text of R-phrases: see section 16

1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) 50 UG/ML IN TOLUENE CLM-7701-S

Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Classification (GHS-US)

| | |
|---------------------------|------|
| Flam. Liq. 2 | H225 |
| Acute Tox. 4 (Inhalation) | H332 |
| Skin Irrit. 2 | H315 |
| Eye Irrit. 2A | H319 |
| Carc. 2 | H351 |
| Repr. 2 | H361 |
| STOT SE 2 | H371 |
| STOT RE 2 | H373 |
| Asp. Tox. 1 | H304 |

Adverse physicochemical, human health and environmental effects

Bladder, Liver, Kidney, Brain.

2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



Signal word (CLP)

: Danger

Hazardous ingredients

: TOLUENE UNLABELED

Hazard statements (CLP)

: H225 - Highly flammable liquid and vapor
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H351 - Suspected of causing cancer (in contact with skin, if inhaled, if swallowed)
H361 - Suspected of damaging fertility. Suspected of damaging the unborn child (in contact with skin, if inhaled, if swallowed)
H371 - May cause damage to organs (blood, liver) (if inhaled, if swallowed, in contact with skin)
H373 - May cause damage to organs (brain, liver, kidneys, urinary bladder) through prolonged or repeated exposure (in contact with skin, if inhaled, if swallowed)

Precautionary statements (CLP)

: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical, lighting, ventilating equipment
P260 - Do not breathe fume, mist, spray, vapors
P264 - Wash Both hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area

GHS-US labeling

Hazard pictograms (GHS-US)



Signal word (GHS-US)

: Danger

Hazard statements (GHS-US)

: H225 - Highly flammable liquid and vapor
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H351 - Suspected of causing cancer (Dermal, Inhalation, oral)
H361 - (Dermal, Inhalation, oral)
H371 - May cause damage to organs (blood, liver) (Dermal, Inhalation, oral)
H373 - May cause damage to organs (brain, kidneys, liver, urinary bladder) through prolonged or repeated exposure (Dermal, Inhalation, oral)

Precautionary statements (GHS-US)

: P201 - Obtain special instructions before use

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Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, open flames, hot surfaces, sparks. - No smoking
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical, lighting, ventilating equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P260 - Do not breathe fume, mist, spray, vapors
P261 - Avoid breathing fume, mist, spray, vapors
P264 - Wash Both hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear eye protection, face protection, protective clothing, protective gloves
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P352 - IF ON SKIN: Wash with plenty of soap and water
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P308+P313 - IF exposed or concerned: Get medical advice/attention
P312 - Call a POISON CENTER or doctor/physician if you feel unwell
P314 - Get medical advice and attention if you feel unwell
P321 - Specific treatment (see Hazard pictograms (CLP) on this label)
P331 - Do NOT induce vomiting
P332+P313 - If skin irritation occurs: Get medical advice/attention
P337+P313 - If eye irritation persists: Get medical advice/attention
P362 - Take off contaminated clothing and wash it before reuse
P370+P378 - In case of fire: Use Alcohol resistant foam., Carbon dioxide., Dry chemical., Water spray to extinguish
P403+P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up
P501 - Dispose of contents/container to Comply with applicable regulations.

2.3. Other hazards

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

| Name | Product identifier | % | Classification according to Directive 67/548/EEC |
|---|--|---------|--|
| TOLUENE UNLABELED | (CAS No)108-88-3 (EC no)203-625-9 (EC index no)601-021-00-3 | 99.9942 | Repr.Cat.3; R62 Repr.Cat.3; R63 F; R11 Xi; R36/38 Carc.Cat.3; R40 Xn; R20 R67 Xn; R65 |
| 1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) | (CAS No)90-15-3 (Unlabeled) (EC no)201-969-4 (EC index no)604-029-00-5 | 0.0058 | Xn; R21/22 N; R51/53 T; R24 Xi; R41 Xi; R37/38 |

| Name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|-------------------|---|---------|---|
| TOLUENE UNLABELED | (CAS No)108-88-3 (EC no)203-625-9 (EC index no)601-021-00-3 | 99.9942 | Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Carc. 2, H351 Repr. 2, H361d STOT SE 3, H336 STOT SE 2, H371 STOT RE 2, H373 Asp. Tox. 1, H304 |

1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) 50 UG/ML IN TOLUENE CLM-7701-S

Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

| Name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|---|--|--------|---|
| 1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) | (CAS No)90-15-3 (Unlabeled) (EC no)201-969-4 (EC index no)604-029-00-5 | 0.0058 | Acute Tox. 4 (Oral), H302 Acute Tox. 3 (Dermal), H311 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Chronic 2, H411 |

| Name | Product identifier | % | Classification (GHS-US) |
|-------------------|--------------------|---------|---|
| TOLUENE UNLABELED | (CAS No)108-88-3 | 99.9942 | Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Carc. 2, H351 Repr. 2, H361 STOT SE 3, H336 STOT SE 2, H371 STOT RE 2, H373 Asp. Tox. 1, H304 |

Full text of R- and H- phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

| | |
|---------------------------------------|---|
| First-aid measures general | : IF exposed or concerned: Get medical advice/attention. |
| First-aid measures after inhalation | : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. |
| First-aid measures after skin contact | : Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water. Wash contaminated clothing before reuse. Get medical advice/attention. |
| First-aid measures after eye contact | : Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. |
| First-aid measures after ingestion | : Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician. |

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

| | |
|--------------------------------------|---|
| Symptoms/injuries after inhalation | : Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled. May cause drowsiness or dizziness. |
| Symptoms/injuries after skin contact | : Causes skin irritation. |
| Symptoms/injuries after eye contact | : Causes eye irritation. |
| Symptoms/injuries after ingestion | : May be harmful if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage. |

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

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

5.2. Special hazards arising from the substance or mixture

| | |
|------------------|---|
| Fire hazard | : Highly flammable liquid and vapor. |
| Explosion hazard | : May form flammable/explosive vapor-air mixture. |

5.3. Advice for firefighters

| | |
|--------------------------------|---|
| Firefighting instructions | : Wear self contained breathing apparatus for fire fighting if necessary. |
| Protection during firefighting | : Do not enter fire area without proper protective equipment, including respiratory protection. |
| Other information | : Use water spray to cool unopened containers. |

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Remove ignition sources. Use special care to avoid static electric charges. No naked lights. No smoking.

1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) 50 UG/ML IN TOLUENE CLM-7701-S

Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

6.1.1. For non-emergency personnel

Emergency procedures : Use personal protective equipment, and ensure adequate ventilation. Avoid breathing vapors, mist, gas. Remove ignition sources, and move personnel to safe area. Vapors accumulate especially in low areas to form explosive concentrations.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapors are flammable.
Precautions for safe handling : No naked lights. No smoking. Use only non-sparking tools. Use only outdoors or in a well-ventilated area. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
Hygiene measures : Contaminated work clothing should not be allowed out of the workplace. Wash hands and other exposed areas with mild soap and water before eat, drink or smoke and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.
Storage conditions : Store refrigerated (-5 C to 5 C). Protect from light.
Incompatible materials : Heat sources.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| 1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) 50 UG/ML IN TOLUENE | | |
|---|-----------------------|--|
| Italy - Portugal- USA ACGIH | ACGIH TWA (ppm) | 20.0000000000 ppm Visual impairment, Female reproductive, Pregnancy loss |
| TOLUENE UNLABELED (108-88-3) | | |
| Italy - Portugal- USA ACGIH | ACGIH TWA (ppm) | 20.0000000000 ppm Visual impairment, Female reproductive, Pregnancy loss |
| USA OSHA | OSHA PEL (TWA) (ppm) | 100.0000000000 ppm USA. OSHA - TABLE Z-1 Limits for Air Contaminants 1910.1000 |
| USA OSHA | OSHA PEL (STEL) (ppm) | 150.0000000000 ppm USA. OSHA - TABLE Z-1 Limits for Air Contaminants 1910.1000 |

8.2. Exposure controls

Personal protective equipment : Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.



Hand protection : Wear suitable protective clothing and gloves.
Eye protection : Wear safety glasses with side shields (or goggles) and a face shield.
Skin and body protection : Wear suitable protective clothing.
Respiratory protection : Where exposure through inhalation may occur from use, respiratory protection equipment is recommended.

1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) 50 UG/ML IN TOLUENE CLM-7701-S

Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

The properties listed below are for the solvent, the main component of this mixture.

| | |
|---|---|
| Physical state | : Liquid |
| Appearance | : Liquid. |
| Molecular mass | : 92.14 g/mol |
| Color | : Colorless. |
| Odor | : No data available. |
| Odor threshold | : No data available |
| pH | : No data available |
| Relative evaporation rate (butyl acetate=1) | : No data available |
| Melting point | : -93 °C (-135 °F) |
| Freezing point | : No data available |
| Boiling point | : 110 - 111 °C (230 - 232 °F) |
| Flash point | : 4.0 °C (39.2 °F) - closed cup |
| Auto-ignition temperature | : 535 °C (995 °F) |
| Decomposition temperature | : No data available |
| Flammability (solid, gas) | : No data available |
| Vapor pressure | : 29.1 hPa (21.8 mmHg) at 20.0 °C (68.0 °F) |
| Relative vapor density at 20 °C | : No data available |
| Relative density | : No data available |
| Specific gravity / density | : 0.865 g/ml at 25 °C (77 °F) |
| Solubility | : No data available |
| Log Pow | : No data available |
| Log Kow | : No data available |
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : No data available |
| Explosive properties | : No data available |
| Oxidizing properties | : No data available |
| Explosive limits | : 1.2 - 7 % (V) |

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

See storage and expiration date on CoA.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Open flame. Direct sunlight.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

May release flammable gases.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Harmful if inhaled.

| 1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) 50 UG/ML IN TOLUENE | |
|---|-------------------------------------|
| LD50 oral rat | > 5580 mg/kg |
| LD50 dermal rabbit | 12196 mg/kg |
| LC50 inhalation rat (mg/l) | 12500 - 28800 mg/m ³ 4 h |

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Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

| 1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) 50 UG/ML IN TOLUENE | |
|---|-----------------------------|
| ATE CLP (dermal) | 12196.000 mg/kg body weight |
| ATE CLP (gases) | 4500.000 ppmV/4h |
| ATE CLP (vapors) | 12.500 mg/l/4h |
| ATE CLP (dust, mist) | 1.500 mg/l/4h |

| TOLUENE UNLABELED (108-88-3) | |
|------------------------------|-------------------------------------|
| LD50 oral rat | > 5580 mg/kg |
| LD50 dermal rabbit | 12196 mg/kg |
| LC50 inhalation rat (mg/l) | 12500 - 28800 mg/m ³ 4 h |
| ATE CLP (dermal) | 12196.000 mg/kg body weight |
| ATE CLP (gases) | 4500.000 ppmV/4h |
| ATE CLP (vapors) | 12.500 mg/l/4h |
| ATE CLP (dust, mist) | 1.500 mg/l/4h |

| 1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) (90-15-3 (Unlabeled)) | |
|---|----------------------------|
| LD50 oral rat | 1870 mg/kg |
| LD50 dermal rabbit | 880 mg/kg |
| ATE CLP (oral) | 1870.000 mg/kg body weight |
| ATE CLP (dermal) | 880.000 mg/kg body weight |

| | |
|---|---|
| Skin corrosion/irritation | : Causes skin irritation. Skin - rabbit - Skin irritation - 24 h |
| Serious eye damage/irritation | : Causes serious eye irritation. No data available |
| Respiratory or skin sensitization | : Not available No data available |
| Germ cell mutagenicity | : Not classified |
| Carcinogenicity | : Suspected of causing cancer (in contact with skin, if inhaled, if swallowed). |
| Reproductive toxicity | : Experiments have shown reproductive toxicity effects in male and female laboratory animals. |
| Specific target organ toxicity (single exposure) | : May cause damage to organs (blood, liver) (if inhaled, if swallowed, in contact with skin). No data available |
| Specific target organ toxicity (repeated exposure) | : May cause damage to organs (brain, liver, kidneys, urinary bladder) through prolonged or repeated exposure (in contact with skin, if inhaled, if swallowed). No data available |
| Aspiration hazard | : May be fatal if swallowed and enters airways. |
| Potential Adverse human health effects and symptoms | : Harmful if inhaled. |
| IARC group | : 3 |
| Symptoms/injuries after inhalation | : Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled. May cause drowsiness or dizziness. |
| Symptoms/injuries after skin contact | : Causes skin irritation. |
| Symptoms/injuries after eye contact | : Causes eye irritation. |
| Symptoms/injuries after ingestion | : May be harmful if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage. |

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Very toxic to aquatic life.

| 1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) 50 UG/ML IN TOLUENE | |
|---|---|
| LC50 fish 1 | 74 - 340 mg/l <i>Lepomis macrochirus</i> (Bluegill) - 96h |
| LC50 other aquatic organisms 1 | 10 mg/l <i>Pseudokirchneriella subcapitata</i> (Green algae) - 24 h |
| EC50 Daphnia 1 | 8 mg/l <i>Daphnia magna</i> (Water flea) - 24h |
| LC50 fish 2 | 7.63 mg/l <i>Oncorhynchus mykiss</i> (Rainbow trout) - 96 h |
| EC50 Daphnia 2 | 6 mg/l <i>Daphnia magna</i> (Water flea) - Immobilization - 48 h |
| ErC50 (algae) | 245 mg/l <i>Chlorella vulgaris</i> (Fresh water algae) - 24 h |
| LOEC (chronic) | 8.04 mg/l <i>Pimephales promelas</i> (Fathead minnow) - 7 d |
| NOEC (chronic) | 5.44 mg/l <i>Pimephales promelas</i> (fathead minnow) - 7 d |

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Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

| TOLUENE UNLABELED (108-88-3) | |
|-------------------------------------|---|
| LC50 fish 1 | 74 - 340 mg/l <i>Lepomis macrochirus</i> (Bluegill) - 96h |
| LC50 other aquatic organisms 1 | 10 mg/l <i>Pseudokirchneriella subcapitata</i> (Green algae) - 24 h |
| EC50 Daphnia 1 | 8 mg/l <i>Daphnia magna</i> (Water flea) - 24h |
| LC50 fish 2 | 7.63 mg/l <i>Oncorhynchus mykiss</i> (Rainbow trout) - 96 h |
| EC50 Daphnia 2 | 6 mg/l <i>Daphnia magna</i> (Water flea) - Immobilization - 48 h |
| ErC50 (algae) | 245 mg/l <i>Chlorella vulgaris</i> (Fresh water algae) - 24 h |
| LOEC (chronic) | 8.04 mg/l <i>Pimephales promelas</i> (Fathead minnow) - 7 d |
| NOEC (chronic) | 5.44 mg/l <i>Pimephales promelas</i> (fathead minnow) - 7 d |

| 1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) (90-15-3 (Unlabeled)) | |
|--|---|
| LC50 fish 1 | 4.1 - 4.7 mg/l <i>Pimephales promelas</i> (fathead minnow) - 96 h |

12.2. Persistence and degradability

| 1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) (90-15-3 (Unlabeled)) | |
|--|----------------|
| Persistence and degradability | Not available. |

12.3. Bioaccumulative potential

| 1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) (90-15-3 (Unlabeled)) | |
|--|----------------|
| Log Pow | 2.85 |
| Bioaccumulative potential | Not available. |

12.4. Mobility in soil

| 1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) (90-15-3 (Unlabeled)) | |
|--|----------------|
| Ecology - soil | Not available. |

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : Waste materials should be disposed of under conditions which meet Federal, State, and Local environmental control regulations.

Waste disposal recommendations : Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Additional information : Handle empty containers with care because residual vapors are flammable.

Ecology - waste materials : Dispose of as unused product.

SECTION 14: Transport information

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

14.1. UN number

UN-No.(DOT) : 1294
DOT NA no. UN1294

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Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Toluene
Transport hazard class(es) (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Hazard labels (DOT) : 3 - Flammable liquid



Packing group (DOT) : II - Medium Danger
DOT Special Provisions (49 CFR 172.102) : IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.
T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)
TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.
DOT Packaging Exceptions (49 CFR 173.xxx) : 150
DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
DOT Packaging Bulk (49 CFR 173.xxx) : 242
Marine pollutant : No

14.3. Additional information

Other information : No supplementary information available.

Overland transport

Packing group (ADR) : II
Class (ADR) : 3 - Flammable liquid
Hazard identification number (Kemler No.) : 33
Classification code (ADR) : F1
Hazard labels (ADR) : 3 - Flammable liquids



Orange plates : An orange rectangular label with a black border. It is divided into two horizontal sections. The top section contains the number '33' and the bottom section contains the number '1294'.

Tunnel restriction code : D/E
Limited quantities (ADR) : 11
EAC : 3YE
Excepted quantities (ADR) : E2

Transport by sea

DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
MFAG-No : 130

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L
Civil Aeronautics Law : Flammable liquids

1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) 50 UG/ML IN TOLUENE CLM-7701-S

Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

14.4. Environmental hazards

Other information : No supplementary information available.

14.5. Special precautions for user

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

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) 50 UG/ML IN TOLUENE

Listed on SARA Section 313 (Specific toxic chemical listings)

| | |
|-------------------------------------|---|
| SARA Section 311/312 Hazard Classes | Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard |
|-------------------------------------|---|

TOLUENE UNLABELED (108-88-3)

Listed on SARA Section 313 (Specific toxic chemical listings)

| | |
|-------------------------------------|---|
| SARA Section 311/312 Hazard Classes | Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard |
|-------------------------------------|---|

15.2. International regulations

CANADA

1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) 50 UG/ML IN TOLUENE

Listed on the Canadian DSL (Domestic Substances List) inventory.

TOLUENE UNLABELED (108-88-3)

Listed on the Canadian DSL (Domestic Substances List) inventory.

15.2.1. National regulations

No additional information available

15.3. US State regulations

1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) 50 UG/ML IN TOLUENE()

| | |
|----------------------------|--|
| State or local regulations | U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List WARNING! This product contains a chemical known by the state of California to cause birth defects or other reproductive harm. |
|----------------------------|--|

TOLUENE UNLABELED (108-88-3)

U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - New Jersey - Right to Know Hazardous Substance List
WARNING! This product contains a chemical known by the state of California to cause birth defects or other reproductive harm.

SECTION 16: Other information

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) 50 UG/ML IN TOLUENE CLM-7701-S

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according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Full text of R-, H- and EUH-phrases:

| | |
|---------------------------|--|
| Acute Tox. 3 (Dermal) | Acute toxicity (dermal) Category 3 |
| Acute Tox. 4 (Inhalation) | Acute toxicity (inhalation) Category 4 |
| Acute Tox. 4 (Oral) | Acute toxicity (oral) Category 4 |
| Aquatic Chronic 2 | Hazardous to the aquatic environment - Chronic Hazard Category 2 |
| Asp. Tox. 1 | Aspiration hazard Category 1 |
| Carc. 2 | Carcinogenicity Category 2 |
| Eye Dam. 1 | Serious eye damage/eye irritation Category 1 |
| Eye Irrit. 2 | Serious eye damage/eye irritation Category 2 |
| Flam. Liq. 2 | Flammable liquids Category 2 |
| Repr. 2 | Reproductive toxicity Category 2 |
| Repr. 2 | Reproductive toxicity Category 2 |
| Skin Irrit. 2 | Skin corrosion/irritation Category 2 |
| STOT RE 2 | Specific target organ toxicity (repeated exposure) Category 2 |
| STOT SE 2 | Specific target organ toxicity (single exposure) Category 2 |
| STOT SE 3 | Specific target organ toxicity (single exposure) Category 3 |
| STOT SE 3 | Specific target organ toxicity (single exposure) Category 3 |
| H225 | Highly flammable liquid and vapor |
| H302 | Harmful if swallowed |
| H304 | May be fatal if swallowed and enters airways |
| H311 | Toxic in contact with skin |
| H315 | Causes skin irritation |
| H318 | Causes serious eye damage |
| H319 | Causes serious eye irritation |
| H332 | Harmful if inhaled |
| H335 | May cause respiratory irritation |
| H336 | May cause drowsiness or dizziness |
| H351 | Suspected of causing cancer |
| H361 | Suspected of damaging fertility or the unborn child |
| H361d | Suspected of damaging the unborn child |
| H371 | May cause damage to organs |
| H373 | May cause damage to organs through prolonged or repeated exposure |
| H411 | Toxic to aquatic life with long lasting effects |
| R11 | Highly flammable |
| R20 | Harmful by inhalation |
| R21/22 | Harmful in contact with skin and if swallowed |
| R24 | Toxic in contact with skin |
| R36/38 | Irritating to eyes and skin |
| R37/38 | Irritating to respiratory system and skin |
| R40 | Limited evidence of a carcinogenic effect |
| R41 | Risk of serious damage to eyes |
| R48/20 | Harmful: danger of serious damage to health by prolonged exposure through inhalation |
| R51/53 | Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment |
| R62 | Possible risk of impaired fertility |
| R63 | Possible risk of harm to the unborn child |
| R65 | Harmful: may cause lung damage if swallowed |
| R66 | Repeated exposure may cause skin dryness or cracking |
| R67 | Vapors may cause drowsiness and dizziness |
| R68 | Possible risk of irreversible effects |
| F | Highly flammable |
| N | Dangerous for the environment |
| T | Toxic |
| Xi | Irritant |
| Xn | Harmful |

NFPA health hazard

: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard

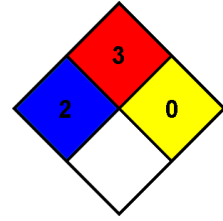
: 3 - Liquids and solids that can be ignited under almost all ambient conditions.

1-HYDROXYNAPHTHALENE (1-NAPHTHOL) (13C6, 99%) 50 UG/ML IN TOLUENE CLM-7701-S

Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur
Flammability : 3 Serious Hazard
Physical : 0 Minimal Hazard

CIL Mixture SDS

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