



# MIREX (13C8, 99%) 200 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: 03/04/2015

Revision date:

Version: 1.0

**CLM-2078-S**

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

#### 1.1. Product identifier

Product form : Mixtures  
Product name. : MIREX (13C8, 99%) 200 UG/ML IN TOLUENE  
Product code : CLM-2078-S

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

##### 1.2.1. Relevant identified uses

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](mailto:cilsales@isotope.com) [www.isotope.com](http://www.isotope.com)

#### Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)  
International: 1-202-483-7616 (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:dust,mist) | H332 |
| Skin Irrit. 2                       | H315 |
| Eye Irrit. 2                        | H319 |
| Carc. 2                             | H351 |
| Repr. 2                             | H361 |
| STOT SE 3                           | H336 |
| STOT SE 2                           | H371 |
| STOT RE 2                           | H373 |
| Asp. Tox. 1                         | H304 |
| Aquatic Acute 1                     | H400 |

Full text of H-phrases: see section 16

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

Carc.Cat.3; R40  
Repr.Cat.3; R62  
Repr.Cat.3; R63  
F; R11  
Xn; R20  
Xn; R65  
Xi; R36/38

Full text of R-phrases: see section 16

##### Classification (GHS-US)

|                                     |      |
|-------------------------------------|------|
| Flam. Liq. 2                        | H225 |
| Acute Tox. 4 (Inhalation:dust,mist) | H332 |
| Skin Irrit. 2                       | H315 |
| Eye Irrit. 2A                       | H319 |
| Carc. 2                             | H351 |
| Repr. 2                             | H361 |

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|                 |      |
|-----------------|------|
| STOT SE 3       | H336 |
| STOT SE 2       | H371 |
| STOT RE 2       | H373 |
| Asp. Tox. 1     | H304 |
| Aquatic Acute 1 | H400 |

### 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  
H336 - May cause drowsiness or dizziness  
H351 - Suspected of causing cancer  
H361 - Suspected of damaging fertility. Suspected of damaging the unborn child  
H371 - May cause damage to organs (brain, liver, kidneys, urinary bladder)  
H373 - May cause damage to organs (brain, liver, kidneys, urinary bladder) through prolonged or repeated exposure  
H400 - Very toxic to aquatic life

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 ventilating, lighting, electrical equipment  
P260 - Do not breathe vapors, mist, spray, gas, fume, dust  
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  
P307+P311 - IF exposed: Call a POISON CENTER or doctor/physician

### 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  
H336 - May cause drowsiness or dizziness  
H351 - Suspected of causing cancer (Inhalation, oral, Dermal)  
H361 - Suspected of damaging fertility or the unborn child (Dermal, oral, Inhalation)  
H371 - May cause damage to organs (brain, liver, kidneys, urinary bladder) (oral, Inhalation, Dermal)  
H373 - May cause damage to organs (brain, liver, kidneys, urinary bladder) through prolonged or repeated exposure (oral, Inhalation, Dermal)  
H400 - Very toxic to aquatic life

Precautionary statements (GHS-US)

: P201 - Obtain special instructions before use  
P202 - Do not handle until all safety precautions have been read and understood  
P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking  
P233 - Keep container tightly closed

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P240 - Ground/bond container and receiving equipment  
P241 - Use explosion-proof ventilating, lighting, electrical equipment  
P242 - Use only non-sparking tools  
P243 - Take precautionary measures against static discharge  
P260 - Do not breathe spray, vapors, mist, gas, dust, fume  
P261 - Avoid breathing vapors, spray, mist, gas, fume, dust  
P264 - Wash Both hands thoroughly after handling  
P270 - Do no eat, drink or smoke when using this product  
P271 - Use only outdoors or in a well-ventilated area  
P273 - Avoid release to the environment  
P280 - Wear protective gloves, protective clothing, face protection, eye protection  
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/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 - If swallowed, 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 before reuse  
P370+P378 - In case of fire: Use Alcohol resistant foam., Carbon dioxide., Dry chemical., Water spray for extinction  
P391 - Collect spillage  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed  
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. Substances

Not applicable

### 3.2. Mixtures

| Name              | Product identifier  | %       | Classification according to Directive 67/548/EEC   |
|-------------------|---|---------|--|
| TOLUENE UNLABELED | (CAS No) 108-88-3<br>(EC no) 203-625-9<br>(EC index no) 601-021-00-3              | 99.9769 | Repr.Cat.3; R62<br>Repr.Cat.3; R63<br>F; R11<br>Xi; R36/38<br>Carc.Cat.3; R40<br>N; R51<br>Xn; R20<br>R67<br>Xn; R65 |
| MIREX (13C8, 99%) | (CAS No) 2385-85-5 (Unlabeled)<br>(EC no) 219-196-6<br>(EC index no) 602-077-00-1 | 0.0231  | Carc.Cat.3; R40<br>Repr.Cat.3; R62<br>Repr.Cat.3; R63<br>T; R24/25<br>N; R50/53                                      |

| Name              | Product identifier   | %       | Classification according to Regulation (EC) No. 1272/2008 [CLP]  |
|-------------------|--|---------|--|
| TOLUENE UNLABELED | (CAS No) 108-88-3<br>(EC no) 203-625-9<br>(EC index no) 601-021-00-3 | 99.9769 | Flam. Liq. 2, H225<br>Acute Tox. 4 (Inhalation), H332<br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>Carc. 2, H351<br>Repr. 2, H361d<br>STOT SE 3, H336<br>STOT SE 2, H371<br>STOT RE 2, H373<br>Asp. Tox. 1, H304<br>Aquatic Acute 1, H400 |

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| Name              | Product identifier  | %      | Classification according to Regulation (EC) No. 1272/2008 [CLP]   |
|-------------------|---|--------|---|
| MIREX (13C8, 99%) | (CAS No) 2385-85-5 (Unlabeled)<br>(EC no) 219-196-6<br>(EC index no) 602-077-00-1 | 0.0231 | Acute Tox. 3 (Oral), H301<br>Acute Tox. 3 (Dermal), H311<br>Carc. 2, H351<br>Repr. 2, H361<br>Aquatic Acute 1, H400 (M=10)<br>Aquatic Chronic 1, H410 |

| Name              | Product identifier | %       | Classification (GHS-US)   |
|-------------------|--------------------|---------|---|
| TOLUENE UNLABELED | (CAS No) 108-88-3  | 99.9769 | Flam. Liq. 2, H225<br>Acute Tox. 4 (Inhalation), H332<br>Skin Irrit. 2, H315<br>Eye Irrit. 2A, H319<br>Carc. 2, H351<br>Repr. 2, H361<br>STOT SE 3, H336<br>STOT SE 2, H371<br>Asp. Tox. 1, H304<br>Aquatic Acute 1, H400 |

Full text of R-, H- and EUH-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 to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/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.
- First-aid measures after eye contact : Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for several minutes.
- First-aid measures after ingestion : Immediately call a POISON CENTER or doctor/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 fatal if swallowed and enters airways.

### 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.
- Reactivity : Vapors may form explosive mixture with air.

### 5.3. Advice for firefighters

- Firefighting instructions : Use water spray to cool unopened containers.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

## 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.

#### 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

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

### 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. Use explosion-proof electrical equipment.  
Storage conditions : Store at room temperature away from light and moisture.  
Incompatible materials : Heat sources.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

| 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. Wear respiratory protection.  
Other information : Do not eat, drink or smoke when using this product.

## 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.  
Color : Colourless.  
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

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|                                 |   |
|---------------------------------|---|
| Boiling point                   | : 110 - 111 °C (230 - 232 °F)               |
| Flash point                     | : 4.0 °C (39.2 °F) - closed cup             |
| Self ignition temperature       | : 535 °C (995 °F)                           |
| Decomposition temperature       | : No data available                         |
| Flammability (solid, gas)       | : Highly flammable liquid and vapor         |
| 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                         |
| 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

Vapors may form explosive mixture with air.

### 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

Strong oxidizing agents.

### 10.6. Hazardous decomposition products

May release flammable gases.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Harmful if inhaled.

| MIREX (13C8, 99%) 200 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 <sup>3</sup> 4 h |
| ATE (dermal)                           | 12196.000 mg/kg body weight         |
| ATE (gases)                            | 4500.000 ppmV/4h                    |
| ATE (vapors)                           | 12.500 mg/l/4h                      |
| ATE (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 <sup>3</sup> 4 h |
| ATE (dermal)                 | 12196.000 mg/kg body weight         |
| ATE (gases)                  | 4500.000 ppmV/4h                    |
| ATE (vapors)                 | 12.500 mg/l/4h                      |
| ATE (dust, mist)             | 1.500 mg/l/4h                       |

| MIREX (13C8, 99%) (2385-85-5 (Unlabeled)) |                           |
|---|---------------------------|
| LD50 oral rat                             | 235 mg/kg                 |
| ATE (oral)                                | 235.000 mg/kg body weight |

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| <b>MIREX (13C8, 99%) (2385-85-5 (Unlabeled))</b>    |   |
|---|---|
| ATE (dermal)  | 300.000 mg/kg body weight   |
| Skin corrosion/irritation                           | : Causes skin irritation.<br>Skin - rabbit - Skin irritation - 24 h   |
| Serious eye damage/irritation                       | : Causes serious eye irritation.<br>No data available   |
| Respiratory or skin sensitization                   | : Not available<br>No data available  |
| Germ cell mutagenicity                              | : Not classified  |
| Carcinogenicity                                     | : Suspected of causing cancer.  |
| Reproductive toxicity                               | : Experiments have shown reproductive toxicity effects in male and female laboratory animals.   |
| Specific target organ toxicity (single exposure)    | : May cause drowsiness or dizziness. May cause damage to organs (brain, liver, kidneys, urinary bladder).<br>No data available        |
| Specific target organ toxicity (repeated exposure)  | : May cause damage to organs (brain, liver, kidneys, urinary bladder) through prolonged or repeated exposure.<br>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 fatal if swallowed and enters airways.   |

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - water : Very toxic to aquatic life.

| <b>MIREX (13C8, 99%) 200 UG/ML IN TOLUENE</b> |   |
|---|---|
| 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         |

| <b>TOLUENE UNLABELED (108-88-3)</b> |   |
|-------------------------------------|---|
| 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         |

| <b>MIREX (13C8, 99%) (2385-85-5 (Unlabeled))</b> |   |
|--|---|
| LC50 fish 1                                      | 0.023 mg/l - 96 h, <i>Oncorhynchus mykiss</i> (rainbow trout) - |
| EC50 Daphnia 1                                   | 2.6 mg/l - 2.6 mg/l - 48 h, <i>Daphnia magna</i> (Water flea) - |

### 12.2. Persistence and degradability

| <b>MIREX (13C8, 99%) (2385-85-5 (Unlabeled))</b> |                |
|--|----------------|
| Persistence and degradability                    | Not available. |

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### 12.3. Bioaccumulative potential

| MIREX (13C8, 99%) 200 UG/ML IN TOLUENE    |                |
|---|----------------|
| Bioaccumulative potential                 | Not available. |
| TOLUENE UNLABELED (108-88-3)              |                |
| Bioaccumulative potential                 | Not available. |
| MIREX (13C8, 99%) (2385-85-5 (Unlabeled)) |                |
| Log Pow                                   | 5.28           |

### 12.4. Mobility in soil

| MIREX (13C8, 99%) 200 UG/ML IN TOLUENE    |                |
|---|----------------|
| Ecology - soil                            | Not available. |
| TOLUENE UNLABELED (108-88-3)              |                |
| Ecology - soil                            | Not available. |
| MIREX (13C8, 99%) (2385-85-5 (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 : Dispose of contents/container to Comply with applicable regulations.

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

Ecology - waste materials : Hazardous waste due to toxicity.

## SECTION 14: Transport information

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

### 14.1. UN number

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

### 14.2. UN proper shipping name

DOT Proper Shipping Name : Toluene  
Department of Transportation (DOT) Hazard Classes : 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

### 14.3. Additional information

Other information : No supplementary information available.



# MIREX (13C8, 99%) 200 UG/ML IN TOLUENE CLM-2078-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

### Overland transport

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



Orange plates :

Tunnel restriction code : D/E  
Limited quantities (ADR) : 1L  
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

### 14.4. Environmental hazards

Dangerous for the environment :

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

#### MIREX (13C8, 99%) 200 UG/ML IN TOLUENE

Listed on SARA Section 313 (Specific toxic chemical listings)

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

# MIREX (13C8, 99%) 200 UG/ML IN TOLUENE CLM-2078-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

### 15.2. International regulations

#### CANADA

##### MIREX (13C8, 99%) 200 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

#### MIREX (13C8, 99%) 200 UG/ML IN TOLUENE()

|                            |  |
|----------------------------|--|
| State or local regulations | U.S. - Massachusetts - Right To Know List<br>U.S. - Pennsylvania - RTK (Right to Know) List<br>U.S. - New Jersey - Right to Know Hazardous Substance List<br>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.

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

|                                     |  |
|-------------------------------------|--|
| Acute Tox. 3 (Dermal)               | Acute toxicity (dermal) Category 3                               |
| Acute Tox. 3 (Oral)                 | Acute toxicity (oral) Category 3                                 |
| Acute Tox. 4 (Inhalation)           | Acute toxicity (inhalation) Category 4                           |
| Acute Tox. 4 (Inhalation:dust,mist) | Acute toxicity (inhalation:dust,mist) Category 4                 |
| Aquatic Acute 1                     | Hazardous to the aquatic environment - Acute Hazard Category 1   |
| Aquatic Chronic 1                   | Hazardous to the aquatic environment - Chronic Hazard Category 1 |
| Asp. Tox. 1                         | Aspiration hazard Category 1                                     |
| Carc. 2                             | Carcinogenicity Category 2                                       |
| 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      |
| H225                                | Highly flammable liquid and vapor                                |
| H301                                | Toxic if swallowed   |
| H304                                | May be fatal if swallowed and enters airways                     |
| H311                                | Toxic in contact with skin                                       |
| H315                                | Causes skin irritation   |
| H319                                | Causes serious eye irritation                                    |
| H332                                | Harmful if inhaled   |
| 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                                       |

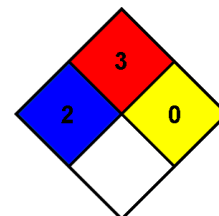
# MIREX (13C8, 99%) 200 UG/ML IN TOLUENE CLM-2078-S

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|        |   |
|--------|---|
| H373   | May cause damage to organs through prolonged or repeated exposure                               |
| H400   | Very toxic to aquatic life  |
| H410   | Very toxic to aquatic life with long lasting effects  |
| R11    | Highly flammable  |
| R20    | Harmful by inhalation   |
| R24/25 | Toxic in contact with skin and if swallowed   |
| R36/38 | Irritating to eyes and skin   |
| R40    | Limited evidence of a carcinogenic effect   |
| R50/53 | Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment |
| R51    | Toxic to aquatic organisms  |
| R62    | Possible risk of impaired fertility   |
| R63    | Possible risk of harm to the unborn child   |
| R65    | Harmful: may cause lung damage if swallowed   |
| R67    | Vapors may cause drowsiness and dizziness   |
| 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.
- 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*