



# CARBON-13 QUANTIFYING COCKTAIL (2,3,7,8-PCDD/PCDF ISOMERS)

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 02/06/2021

Revision date:

Version: 1.0

EDF-957

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

### 1.1. Product identifier

Product form : Mixtures  
Product name : CARBON-13 QUANTIFYING COCKTAIL (2,3,7,8-PCDD/PCDF ISOMERS)  
Product code : EDF-957

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

### Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)  
International: 1-703-741-5970 (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. 3                     | H226 |
| Acute Tox. 4 (Inhalation:vapour) | H332 |
| Skin Irrit. 2                    | H315 |
| Eye Irrit. 2                     | H319 |
| STOT SE 3                        | H336 |
| Asp. Tox. 1                      | H304 |

Full text of hazard classes and H-statements : see section 16

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

R10  
Xn; R20  
Xn; R65  
Xi; R36/38  
R67

Full text of R-phrases: see section 16

#### GHS-US classification

|                           |      |
|---------------------------|------|
| Flam. Liq. 3              | H226 |
| Acute Tox. 4 (Inhalation) | H332 |
| Skin Irrit. 2             | H315 |
| Eye Irrit. 2              | H319 |
| STOT SE 3                 | H336 |
| Asp. Tox. 1               | H304 |

Full text of H statements : see section 16

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### Adverse physicochemical, human health and environmental effects

Central Nervous System. Flammable liquid and vapor. May cause drowsiness or dizziness. Harmful if inhaled. Causes skin irritation. Causes serious eye irritation. May be fatal if swallowed and enters airways.

## 2.2. Label elements

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

Hazard pictograms (CLP) :



GHS02

GHS08

GHS07

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H226 - 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

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  
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.  
P264 - Wash hands, forearms and face thoroughly after handling.  
P271 - Use only outdoors or in a well-ventilated area.  
P280 - Wear eye protection, face protection, protective clothing, protective gloves.

### GHS-US labeling

Hazard pictograms (GHS-US) :



GHS02

GHS08

GHS07

Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H226 - 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

Precautionary statements (GHS-US) :

P210 - Keep away from heat, hot surfaces, open flames, 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.  
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.  
P264 - Wash hands, forearms and face thoroughly after handling.  
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 doctor, a POISON CENTER  
P302+P352 - If on skin: Wash with plenty of water  
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - If inhaled: Remove person to fresh air and keep 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  
P312 - Call a doctor, a POISON CENTER if you feel unwell  
P321 - Specific treatment (see Hazardous component(s) for labeling on this label)  
P331 - Do NOT induce vomiting.  
P332+P313 - If skin irritation occurs: Get medical advice/attention.

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P337+P313 - If eye irritation persists: Get medical advice/attention.  
P362+P364 - Take off contaminated clothing and wash it before reuse.  
P370+P378 - In case of fire: Use alcohol resistant foam, carbon dioxide (CO<sub>2</sub>), dry extinguishing powder to extinguish.  
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 hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

### 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   |
|--|--|----------|--|
| N-NONANE UNLABELED                                     | (CAS-No.) 111-84-2<br>(EC-No.) 203-913-4   | 99.58345 | R10<br>Xn; R20<br>Xn; R65<br>Xi; R36/38<br>R67   |
| TOLUENE UNLABELED                                      | (CAS-No.) 108-88-3<br>(EC-No.) 203-625-9<br>(EC Index-No.) 601-021-00-3<br>(REACH-no) 01-2119471310-51 | 0.41516  | F; R11<br>Xi; R38<br>Xn; R65<br>Repr.Cat.3; R62<br>Repr.Cat.3; R63<br>R67<br>N; R51/53<br>Xn; R48/20 |
| 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (13C12, 99%)       | (CAS-No.) 76523-40-5   | 0.00014  | Xn; R65<br>R53<br>Xn; R20/22   |
| 1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN (13C12, 99%)     | (CAS-No.) 40321-76-4 (Unlabeled)   | 0.00014  | Xn; R22<br>Xn; R65<br>R53  |
| 1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN (13C12, 99%)    | (CAS-No.) 57652-85-7 (Unlabeled)   | 0.00014  | Xn; R22<br>Xn; R65<br>R53  |
| 1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN (13C12, 99%) | (CAS-No.) 35822-46-9 (Unlabeled)   | 0.00014  | Xn; R22<br>Xn; R65<br>R53  |
| 1,2,3,4,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%)        | (CAS-No.) 70648-26-9 (Unlabeled)   | 0.00014  | Xn; R22<br>Xi; R36<br>R53  |
| 1,2,3,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%)         | (CAS-No.) 57117-46-6 (Unlabeled)   | 0.00014  | Xn; R22<br>Xi; R36<br>R53  |
| OCTACHLORODIBENZOFURAN (13C12, 99%)                    | (CAS-No.) 39001-02-0 (Unlabeled)   | 0.00014  | Xn; R22<br>Xi; R36<br>R53  |
| 1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN (13C12, 99%)     | (CAS-No.) 67562-39-4 (Unlabeled)   | 0.00014  | Xn; R22<br>Xi; R36<br>R53  |
| 2,3,7,8-TETRACHLORODIBENZOFURAN (13C12, 99%)           | (CAS-No.) 89059-46-1   | 0.00014  | Xn; R22<br>Xi; R36<br>R53  |
| OCTACHLORODIBENZO-P-DIOXIN (13C12, 99%)                | (CAS-No.) 3268-87-9 (Unlabeled)  | 0.00014  | Xn; R22<br>Xn; R65<br>R53  |

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| Name   | Product identifier   | %        | Classification according to Regulation (EC) No. 1272/2008 [CLP]   |
|--|--|----------|---|
| N-NONANE UNLABELED                                     | (CAS-No.) 111-84-2<br>(EC-No.) 203-913-4   | 99.58345 | Flam. Liq. 3, H226<br>Acute Tox. 4 (Inhalation:vapour), H332<br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>STOT SE 3, H336<br>Asp. Tox. 1, H304 |
| TOLUENE UNLABELED                                      | (CAS-No.) 108-88-3<br>(EC-No.) 203-625-9<br>(EC Index-No.) 601-021-00-3<br>(REACH-no) 01-2119471310-51 | 0.41516  | Flam. Liq. 2, H225<br>Skin Irrit. 2, H315<br>Repr. 2, H361<br>STOT SE 3, H336<br>STOT RE 2, H373<br>Asp. Tox. 1, H304                             |
| 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (13C12, 99%)       | (CAS-No.) 76523-40-5   | 0.00014  | Acute Tox. 4 (Oral), H302<br>Asp. Tox. 1, H304<br>Aquatic Chronic 4, H413   |
| 1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN (13C12, 99%)     | (CAS-No.) 40321-76-4 (Unlabeled)   | 0.00014  | Acute Tox. 4 (Oral), H302<br>Asp. Tox. 1, H304<br>Aquatic Chronic 4, H413   |
| 1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN (13C12, 99%)    | (CAS-No.) 57652-85-7 (Unlabeled)   | 0.00014  | Acute Tox. 4 (Oral), H302<br>Asp. Tox. 1, H304<br>Aquatic Chronic 4, H413   |
| 1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN (13C12, 99%) | (CAS-No.) 35822-46-9 (Unlabeled)   | 0.00014  | Acute Tox. 4 (Oral), H302<br>Asp. Tox. 1, H304<br>Aquatic Chronic 4, H413   |
| 1,2,3,4,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%)        | (CAS-No.) 70648-26-9 (Unlabeled)   | 0.00014  | Acute Tox. 4 (Oral), H302<br>Eye Irrit. 2, H319<br>Aquatic Chronic 4, H413  |
| 1,2,3,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%)         | (CAS-No.) 57117-46-6 (Unlabeled)   | 0.00014  | Acute Tox. 4 (Oral), H302<br>Eye Irrit. 2, H319<br>Aquatic Chronic 4, H413  |
| OCTACHLORODIBENZOFURAN (13C12, 99%)                    | (CAS-No.) 39001-02-0 (Unlabeled)   | 0.00014  | Acute Tox. 4 (Oral), H302<br>Eye Irrit. 2, H319<br>Aquatic Chronic 4, H413  |
| 1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN (13C12, 99%)     | (CAS-No.) 67562-39-4 (Unlabeled)   | 0.00014  | Acute Tox. 4 (Oral), H302<br>Eye Irrit. 2, H319<br>Aquatic Chronic 4, H413  |
| 2,3,7,8-TETRACHLORODIBENZOFURAN (13C12, 99%)           | (CAS-No.) 89059-46-1   | 0.00014  | Acute Tox. 4 (Oral), H302<br>Eye Irrit. 2, H319<br>Aquatic Chronic 4, H413  |
| OCTACHLORODIBENZO-P-DIOXIN (13C12, 99%)                | (CAS-No.) 3268-87-9 (Unlabeled)  | 0.00014  | Acute Tox. 4 (Oral), H302<br>Asp. Tox. 1, H304<br>Aquatic Chronic 4, H413   |

| Name   | Product identifier               | %        | GHS-US classification  |
|--|----------------------------------|----------|--|
| N-NONANE UNLABELED                                     | (CAS-No.) 111-84-2               | 99.58345 | Flam. Liq. 3, H226<br>Acute Tox. 4 (Inhalation), H332<br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>STOT SE 3, H336<br>Asp. Tox. 1, H304     |
| TOLUENE UNLABELED                                      | (CAS-No.) 108-88-3               | 0.41516  | Flam. Liq. 2, H225<br>Skin Irrit. 2, H315<br>Repr. 2, H361<br>STOT SE 3, H336<br>STOT RE 2, H373<br>Asp. Tox. 1, H304<br>Aquatic Acute 2, H401 |
| 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (13C12, 99%)       | (CAS-No.) 76523-40-5             | 0.00014  | Acute Tox. 4 (Oral), H302<br>Asp. Tox. 1, H304<br>Aquatic Chronic 4, H413  |
| 1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN (13C12, 99%)     | (CAS-No.) 40321-76-4 (Unlabeled) | 0.00014  | Acute Tox. 4 (Oral), H302<br>Asp. Tox. 1, H304<br>Aquatic Chronic 4, H413  |
| 1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN (13C12, 99%)    | (CAS-No.) 57652-85-7 (Unlabeled) | 0.00014  | Acute Tox. 4 (Oral), H302<br>Asp. Tox. 1, H304<br>Aquatic Chronic 4, H413  |
| 1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN (13C12, 99%) | (CAS-No.) 35822-46-9 (Unlabeled) | 0.00014  | Acute Tox. 4 (Oral), H302<br>Asp. Tox. 1, H304<br>Aquatic Chronic 4, H413  |
| 1,2,3,4,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%)        | (CAS-No.) 70648-26-9 (Unlabeled) | 0.00014  | Acute Tox. 4 (Oral), H302<br>Eye Irrit. 2A, H319<br>Aquatic Chronic 4, H413  |

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| Name   | Product identifier               | %       | GHS-US classification   |
|--|----------------------------------|---------|---|
| 1,2,3,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%)     | (CAS-No.) 57117-46-6 (Unlabeled) | 0.00014 | Acute Tox. 4 (Oral), H302<br>Eye Irrit. 2A, H319<br>Aquatic Chronic 4, H413 |
| OCTACHLORODIBENZOFURAN (13C12, 99%)                | (CAS-No.) 39001-02-0 (Unlabeled) | 0.00014 | Acute Tox. 4 (Oral), H302<br>Eye Irrit. 2A, H319<br>Aquatic Chronic 4, H413 |
| 1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN (13C12, 99%) | (CAS-No.) 67562-39-4 (Unlabeled) | 0.00014 | Acute Tox. 4 (Oral), H302<br>Eye Irrit. 2A, H319<br>Aquatic Chronic 4, H413 |
| 2,3,7,8-TETRACHLORODIBENZOFURAN (13C12, 99%)       | (CAS-No.) 89059-46-1             | 0.00014 | Acute Tox. 4 (Oral), H302<br>Eye Irrit. 2A, H319<br>Aquatic Chronic 4, H413 |
| OCTACHLORODIBENZO-P-DIOXIN (13C12, 99%)            | (CAS-No.) 3268-87-9 (Unlabeled)  | 0.00014 | Acute Tox. 4 (Oral), H302<br>Asp. Tox. 1, H304<br>Aquatic Chronic 4, H413   |

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            | : Call a physician immediately.  |
| First-aid measures after inhalation   | : Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor/physician if you feel unwell. Give oxygen or artificial respiration if necessary.   |
| First-aid measures after skin contact | : Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. If skin irritation occurs: Get medical advice/attention.                                  |
| First-aid measures after eye contact  | : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. |
| First-aid measures after ingestion    | : Do not induce vomiting. Call a physician immediately.  |

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

|                                     |   |
|-------------------------------------|---|
| Symptoms/effects                    | : May cause drowsiness or dizziness.                                |
| Symptoms/effects after inhalation   | : Harmful if inhaled. May cause respiratory irritation.             |
| Symptoms/effects after skin contact | : Causes skin irritation. May be harmful in contact with skin.      |
| Symptoms/effects after eye contact  | : Causes serious eye irritation.                                    |
| Symptoms/effects after ingestion    | : May be fatal if swallowed and enters airways. Risk of lung edema. |

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

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide. Alcohol resistant foam.

### 5.2. Special hazards arising from the substance or mixture

|             |   |
|-------------|---|
| Fire hazard | : Flammable liquid and vapor.   |
| Reactivity  | : Flammable liquid and vapor. Vapors may form flammable mixture with air. |

### 5.3. Advice for firefighters

|                                |  |
|--------------------------------|--|
| Firefighting instructions      | : Do not enter fire area without proper protective equipment, including respiratory protection.  |
| Protection during firefighting | : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing. |

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

Emergency procedures : Wear personal protective equipment. Ventilate spillage area. No open flames, no sparks, and no smoking. Avoid breathing fume, gas, mist, spray, vapors. Avoid contact with skin and eyes.

#### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Avoid release to the environment.

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### 6.3. Methods and material for containment and cleaning up

- For containment : Dike and contain spill. Dispose as hazardous waste. Comply with local regulations for disposal.
- Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.
- Other information : Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Additional hazards when processed : Avoid all contact with skin, eyes, or clothing. Keep away from sources of ignition - No smoking. Do not breathe gas/fumes/vapor/spray (appropriate wording to be specified by the manufacturer). Take precautionary measures against static discharges.
- Precautions for safe handling : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapors may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Use only outdoors or in a well-ventilated area. Avoid breathing fume, gas, mist, spray, vapors. Avoid contact with skin and eyes.
- Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Store in a well-ventilated place. Keep container tightly closed. Keep dry. Ground/bond container and receiving equipment.
- Storage conditions : Store at room temperature away from light and moisture.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

| CARBON-13 QUANTIFYING COCKTAIL (2,3,7,8-PCDD/PCDF ISOMERS) |   |  |
|--|---|--|
| Italy - Portugal - USA ACGIH                               | ACGIH TWA (ppm)                         | 200.00000000 ppm USA. ACGIH Threshold Limit Values (TLV)                             |
| Italy - Portugal - USA ACGIH                               | Remark (ACGIH)                          | CNS impair   |
| USA NIOSH  | NIOSH REL (TWA) (mg/m <sup>3</sup> )    | 1050 mg/m <sup>3</sup> USA. NIOSH Recommended Exposure Limits                        |
| USA NIOSH  | NIOSH REL (TWA) (ppm)                   | 200 ppm USA. NIOSH Recommended Exposure Limits                                       |
| USA NIOSH  | Remark (NIOSH)                          | Central Nervous System impairment  |
| USA OSHA   | OSHA PEL (TWA) (mg/m <sup>3</sup> )     | 1050 mg/m <sup>3</sup> USA. OSHA - Table Z-1 Limits for Air Contaminants - 1910.1000 |
| USA OSHA   | OSHA PEL (TWA) (ppm)                    | 200 ppm USA. OSHA - Table Z-1 Limits for Air Contaminants - 1910.1000                |
| USA OSHA   | OSHA PEL (Ceiling) (mg/m <sup>3</sup> ) | 1050 California permissible exposure limits for chemical contaminants.               |
| USA OSHA   | OSHA PEL (Ceiling) (ppm)                | 200 ppm California permissible exposure limits for chemical contaminants.            |
| N-NONANE UNLABELED (111-84-2)                              |   |  |
| Italy - Portugal - USA ACGIH                               | ACGIH TWA (ppm)                         | 200.00000000 ppm USA. ACGIH Threshold Limit Values (TLV)                             |
| Italy - Portugal - USA ACGIH                               | Remark (ACGIH)                          | CNS impair   |
| USA NIOSH  | NIOSH REL (TWA) (mg/m <sup>3</sup> )    | 1050 mg/m <sup>3</sup> USA. NIOSH Recommended Exposure Limits                        |
| USA NIOSH  | NIOSH REL (TWA) (ppm)                   | 200 ppm USA. NIOSH Recommended Exposure Limits                                       |
| USA NIOSH  | Remark (NIOSH)                          | Central Nervous System impairment  |
| USA OSHA   | OSHA PEL (TWA) (mg/m <sup>3</sup> )     | 1050 mg/m <sup>3</sup> USA. OSHA - Table Z-1 Limits for Air Contaminants - 1910.1000 |

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| N-NONANE UNLABELED (111-84-2) |   |   |
|-------------------------------|---|---|
| USA OSHA                      | OSHA PEL (TWA) (ppm)                    | 200 ppm USA. OSHA - Table Z-1 Limits for Air Contaminants - 1910.1000   |
| USA OSHA                      | OSHA PEL (Ceiling) (mg/m <sup>3</sup> ) | 1050 California permissible exposure limits for chemical contaminants.  |
| USA OSHA                      | OSHA PEL (Ceiling) (ppm)                | 200 ppm California permissible exposure limits for chemical contaminants.   |
| TOLUENE UNLABELED (108-88-3)  |   |   |
| Italy - Portugal - USA ACGIH  | ACGIH TWA (ppm)                         | 20.00000000 ppm USA. ACGIH Threshold Limit Values (TLV)   |
| Italy - Portugal - USA ACGIH  | Remark (ACGIH)                          | Visual impairment. Female reproductive. Pregnancy loss. 2015 Adoption. Substances for which there is a Biological Exposure Index or Indices (see BEI® section). Not classifiable as a human carcinogen.; Component: Toluene CAS-No.: 108-88-3 Parameters: Toluene Value: 0.0300 mg/l Biological specimen: Urine Remarks: End of shift (As soon as possible after exposure ceases) Basis: ACGIH - Biological Exposure Indices (BEI); Component: Toluene CAS-No.: 108-88-3 Parameters: Toluene Value: 0.0200 mg/l Biological specimen: In blood Remarks: Prior to last shift of workweek Basis: ACGIH - Biological Exposure Indices (BEI); Component: Toluene CAS-No.: 108-88-3 Parameters: o-Cresol Value: 0.3000 mg/g Biological specimen: Urine Remarks: End of shift (As soon as possible after exposure ceases) Basis: ACGIH - Biological Exposure Indices (BEI) |
| USA NIOSH                     | NIOSH REL (TWA) (mg/m <sup>3</sup> )    | 375 mg/m <sup>3</sup> USA. NIOSH Recommended Exposure Limits  |
| USA NIOSH                     | NIOSH REL (TWA) (ppm)                   | 100 ppm USA. NIOSH Recommended Exposure Limits  |
| USA NIOSH                     | NIOSH REL (STEL) (mg/m <sup>3</sup> )   | 560 mg/m <sup>3</sup> USA. NIOSH Recommended Exposure Limits  |
| USA NIOSH                     | NIOSH REL (STEL) (ppm)                  | 150 ppm USA. NIOSH Recommended Exposure Limits  |
| USA OSHA                      | OSHA PEL (TWA) (mg/m <sup>3</sup> )     | 375 mg/m <sup>3</sup> USA. OSHA - TABLE Z-1 Limits for Air Contaminants 1910.1000   |
| USA OSHA                      | OSHA PEL (TWA) (ppm)                    | 100 ppm USA. OSHA - TABLE Z-1 Limits for Air Contaminants 1910.1000   |
| USA OSHA                      | OSHA PEL (STEL) (mg/m <sup>3</sup> )    | 560 mg/m <sup>3</sup> USA. OSHA - TABLE Z-1 Limits for Air Contaminants 1910.1000   |
| USA OSHA                      | OSHA PEL (STEL) (ppm)                   | 150 ppm USA. OSHA - TABLE Z-1 Limits for Air Contaminants 1910.1000   |
| USA OSHA                      | OSHA PEL (Ceiling) (ppm)                | 300 ppm USA. Occupational Exposure Limits (OSHA) - Table Z-2  |
| USA OSHA                      | Remark (OSHA)                           | OSHA PEL (TWA) - 200 ppm - USA. Occupational Exposure Limits (OSHA) - Table Z-2. Remarks: Z37.12-1967   |

### 8.2. Exposure controls

Appropriate engineering controls

: Ensure good ventilation of the work station.

Personal protective equipment

: Protective clothing. Protective goggles. Gloves. Self-contained breathing apparatus.



Materials for protective clothing

: Wear suitable protective clothing and gloves.

Hand protection

: protective gloves.

Eye protection

: Chemical goggles or face shield. Chemical goggles or safety glasses.

Skin and body protection

: Wear suitable protective clothing, gloves and eye/face protection.

# CARBON-13 QUANTIFYING COCKTAIL (2,3,7,8-PCDD/PCDF ISOMERS)

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Respiratory protection : Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. Approved respirator.

Environmental exposure controls : Avoid release to the environment.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state : Liquid

Appearance : Liquid

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 : Not applicable

Freezing point : No data available

Boiling point : No data available

Flash point : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : No data available

Vapor pressure : No data available

Relative vapor density at 20 °C : No data available

Relative density : No data available

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

Explosion limits : No data available

#### 9.2. Other information

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

Flammable liquid and vapor. Vapors may form flammable mixture with air.

#### 10.2. Chemical stability

See storage and expiration date on CoA.

#### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

#### 10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

#### 10.5. Incompatible materials

No additional information available

#### 10.6. Hazardous decomposition products

Carbon oxides (CO, CO<sub>2</sub>).

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity : Inhalation:vapour: Harmful if inhaled.

| CARBON-13 QUANTIFYING COCKTAIL (2,3,7,8-PCDD/PCDF ISOMERS) |                                       |
|--|---------------------------------------|
| LC50 inhalation rat (mg/l)                                 | 23760 mg/m <sup>3</sup> male - 4 h    |
| ATE CLP (vapors)   | 11.000 mg/l/4h                        |
| Skin corrosion/irritation, Dermal, rat                     | Result: Skin Irritation (Draize Test) |



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| <b>CARBON-13 QUANTIFYING COCKTAIL (2,3,7,8-PCDD/PCDF ISOMERS)</b>                      |   |
|--|---|
| Additional information   | : S. Typhimurium Result: negative       |
| <b>N-NONANE UNLABELED (111-84-2)</b>   |   |
| LC50 inhalation rat (mg/l)   | 23760 mg/m <sup>3</sup> male - 4 h      |
| ATE CLP (vapors)   | 11.000 mg/l/4h                          |
| Skin corrosion/irritation, Dermal, rat   | Result: Skin Irritation (Draize Test)   |
| Additional information   | : S. Typhimurium Result: negative       |
| <b>TOLUENE UNLABELED (108-88-3)</b>  |   |
| LD50 oral rat  | > 5580 mg/kg                            |
| LD50 dermal rabbit   | 12196 mg/kg                             |
| LC50 inhalation rat (mg/l)   | 12,500 - 28,800 mg/m <sup>3</sup> - 4 h |
| ATE CLP (dermal)   | 12196.000 mg/kg body weight             |
| ATE CLP (vapors)   | 12.500 mg/l/4h                          |
| ATE CLP (dust, mist)   | 12.500 mg/l/4h                          |
| <b>2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (13C12, 99%) (76523-40-5)</b>                   |   |
| ATE CLP (oral)   | 500.000 mg/kg body weight               |
| <b>1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN (13C12, 99%) (40321-76-4 (Unlabeled))</b>     |   |
| ATE CLP (oral)   | 500.000 mg/kg body weight               |
| <b>1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN (13C12, 99%) (57652-85-7 (Unlabeled))</b>    |   |
| ATE CLP (oral)   | 500.000 mg/kg body weight               |
| <b>1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN (13C12, 99%) (35822-46-9 (Unlabeled))</b> |   |
| ATE CLP (oral)   | 500.000 mg/kg body weight               |
| <b>2,3,7,8-TETRACHLORODIBENZOFURAN (13C12, 99%) (89059-46-1)</b>                       |   |
| ATE CLP (oral)   | 500.000 mg/kg body weight               |
| <b>1,2,3,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%) (57117-46-6 (Unlabeled))</b>         |   |
| ATE CLP (oral)   | 500.000 mg/kg body weight               |
| <b>1,2,3,4,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%) (70648-26-9 (Unlabeled))</b>        |   |
| ATE CLP (oral)   | 500.000 mg/kg body weight               |
| <b>1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN (13C12, 99%) (67562-39-4 (Unlabeled))</b>     |   |
| ATE CLP (oral)   | 500.000 mg/kg body weight               |
| <b>OCTACHLORODIBENZOFURAN (13C12, 99%) (39001-02-0 (Unlabeled))</b>                    |   |
| ATE CLP (oral)   | 500.000 mg/kg body weight               |
| <b>OCTACHLORODIBENZO-P-DIOXIN (13C12, 99%) (3268-87-9 (Unlabeled))</b>                 |   |
| ATE CLP (oral)   | 500.000 mg/kg body weight               |

|   |   |
|---|---|
| Skin corrosion/irritation                           | : Causes skin irritation.   |
| Serious eye damage/irritation                       | : Causes serious eye irritation.  |
| Respiratory or skin sensitization                   | : Not classified  |
| Germ cell mutagenicity                              | : Not classified  |
| Carcinogenicity                                     | : Not classified  |
| Reproductive toxicity                               | : Not classified  |
| Specific target organ toxicity – single exposure    | : May cause drowsiness or dizziness.  |
| Specific target organ toxicity – repeated exposure  | : Not classified  |
| Aspiration hazard                                   | : May be fatal if swallowed and enters airways.   |
| Potential Adverse human health effects and symptoms | : 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. |
| Symptoms/effects after inhalation                   | : Harmful if inhaled. May cause respiratory irritation.   |
| Symptoms/effects after skin contact                 | : Causes skin irritation. May be harmful in contact with skin.  |
| Symptoms/effects after eye contact                  | : Causes serious eye irritation.  |
| Symptoms/effects after ingestion                    | : May be fatal if swallowed and enters airways. Risk of lung edema.   |

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### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

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

#### 12.2. Persistence and degradability

| TOLUENE UNLABELED (108-88-3)  |                        |
|-------------------------------|------------------------|
| Persistence and degradability | Readily biodegradable. |

#### 12.3. Bioaccumulative potential

| CARBON-13 QUANTIFYING COCKTAIL (2,3,7,8-PCDD/PCDF ISOMERS) |                                |
|--|--------------------------------|
| Bioaccumulative potential                                  | Indication of bioaccumulation. |

| N-NONANE UNLABELED (111-84-2) |                                |
|-------------------------------|--------------------------------|
| Log Pow                       | 5.65                           |
| Bioaccumulative potential     | Indication of bioaccumulation. |

| TOLUENE UNLABELED (108-88-3)        |  |
|-------------------------------------|--|
| BCF fish 1                          | 0.05 mg/l Leuciscus idus (Golden orfe) - 3 d |
| Bioconcentration factor (BCF REACH) | 90   |

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Results of PBT and vPvB assessment

| TOLUENE UNLABELED (108-88-3)                 |  |
|--|--|
| PBT: not relevant – no registration required |  |

#### 12.6. Other adverse effects

Other adverse effects : Disposal must be done according to official regulations.

### 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.

Product/Packaging 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.

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) : 1920  
DOT NA no. : UN1920

#### 14.2. UN proper shipping name

Proper Shipping Name (DOT) : Nonanes  
Class (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120  
Hazard labels (DOT) : 3 - Flammable liquid



Packing group (DOT) : III - Minor Danger

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|   |   |  |
|---|---|--|
| DOT Special Provisions (49 CFR 172.102)   | : | B1 - If the material has a flash point at or above 38 C (100 F) and below 93 C (200 F), then the bulk packaging requirements of 173.241 of this subchapter are applicable. If the material has a flash point of less than 38 C (100 F), then the bulk packaging requirements of 173.242 of this subchapter are applicable.<br>IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). 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, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).<br>T2 - 1.5 178.274(d)(2) Normal..... 178.275(d)(3)<br>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)   | : | 203  |
| DOT Packaging Bulk (49 CFR 173.xxx)       | : | 242  |
| Marine pollutant                          | : | No   |

### 14.3. Additional information

|                                       |   |   |
|---------------------------------------|---|---|
| Emergency Response Guide (ERG) Number | : | 128                                     |
| Other information                     | : | No supplementary information available. |

#### Overland transport

|   |   |                       |
|---|---|-----------------------|
| Packing group (ADR)                       | : | III                   |
| Class (ADR)                               | : | 3 - Flammable liquid  |
| Hazard identification number (Kemler No.) | : | 30                    |
| Classification code (ADR)                 | : | F1                    |
| Hazard labels (ADR)                       | : | 3 - Flammable liquids |



|               |   |  |
|---------------|---|--|
| Orange plates | : |  |
|---------------|---|--|

|                               |   |     |
|-------------------------------|---|-----|
| Tunnel restriction code (ADR) | : | D/E |
| Limited quantities (ADR)      | : | 5l  |
| EAC                           | : | 3Y  |
| Excepted quantities (ADR)     | : | E1  |

#### Transport by sea

|                             |   |   |
|-----------------------------|---|---|
| DOT Vessel Stowage Location | : | A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel. |
| MFAG-No                     | : | 128   |

#### Air transport

|  |   |                   |
|--|---|-------------------|
| DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) | : | 60 L              |
| DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)     | : | 220 L             |
| Civil Aeronautics Law  | : | Flammable liquids |

### 14.4. Environmental hazards

|                   |   |   |
|-------------------|---|---|
| Other information | : | No supplementary information available. |
|-------------------|---|---|

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### 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

#### CARBON-13 QUANTIFYING COCKTAIL (2,3,7,8-PCDD/PCDF ISOMERS)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

|                          |  |
|--------------------------|--|
| EPA TSCA Regulatory Flag | T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA. |
|--------------------------|--|

|  |  |
|--|--|
| SARA Section 302 Threshold Planning Quantity (TPQ) | Not subject to reporting requirements of the United States SARA Section 302. |
|--|--|

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

|                                       |  |
|---------------------------------------|--|
| SARA Section 313 - Emission Reporting | Not subject to reporting requirements of the United States SARA Section 313. |
|---------------------------------------|--|

#### N-NONANE UNLABELED (111-84-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

|                          |  |
|--------------------------|--|
| EPA TSCA Regulatory Flag | T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA. |
|--------------------------|--|

|  |  |
|--|--|
| SARA Section 302 Threshold Planning Quantity (TPQ) | Not subject to reporting requirements of the United States SARA Section 302. |
|--|--|

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

|                                       |  |
|---------------------------------------|--|
| SARA Section 313 - Emission Reporting | Not subject to reporting requirements of the United States SARA Section 313. |
|---------------------------------------|--|

#### TOLUENE UNLABELED (108-88-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

|           |         |
|-----------|---------|
| CERCLA RQ | 1000 lb |
|-----------|---------|

|  |  |
|--|--|
| SARA Section 302 Threshold Planning Quantity (TPQ) | SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302 |
|--|--|

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

|                                       |   |
|---------------------------------------|---|
| SARA Section 313 - Emission Reporting | Subject to reporting requirements of United States SARA Section 313 |
|---------------------------------------|---|

#### 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (13C12, 99%) (76523-40-5)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

|  |  |
|--|--|
| SARA Section 302 Threshold Planning Quantity (TPQ) | Not subject to reporting requirements of the United States SARA Section 302. |
|--|--|

|                                       |  |
|---------------------------------------|--|
| SARA Section 313 - Emission Reporting | Not subject to reporting requirements of the United States SARA Section 313. |
|---------------------------------------|--|

#### 1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN (13C12, 99%) (40321-76-4 (Unlabeled))

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

|  |  |
|--|--|
| SARA Section 302 Threshold Planning Quantity (TPQ) | Not subject to reporting requirements of the United States SARA Section 302. |
|--|--|

|                                       |  |
|---------------------------------------|--|
| SARA Section 313 - Emission Reporting | Not subject to reporting requirements of the United States SARA Section 313. |
|---------------------------------------|--|

#### 1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN (13C12, 99%) (57652-85-7 (Unlabeled))

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

|  |  |
|--|--|
| SARA Section 302 Threshold Planning Quantity (TPQ) | Not subject to reporting requirements of the United States SARA Section 302. |
|--|--|

|                                       |  |
|---------------------------------------|--|
| SARA Section 313 - Emission Reporting | Not subject to reporting requirements of the United States SARA Section 313. |
|---------------------------------------|--|

#### 1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN (13C12, 99%) (35822-46-9 (Unlabeled))

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

|  |  |
|--|--|
| SARA Section 302 Threshold Planning Quantity (TPQ) | Not subject to reporting requirements of the United States SARA Section 302. |
|--|--|

|                                       |  |
|---------------------------------------|--|
| SARA Section 313 - Emission Reporting | Not subject to reporting requirements of the United States SARA Section 313. |
|---------------------------------------|--|

#### 2,3,7,8-TETRACHLORODIBENZOFURAN (13C12, 99%) (89059-46-1)

|  |   |
|--|---|
| SARA Section 302 Threshold Planning Quantity (TPQ) | SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302. |
|--|---|

|                                       |   |
|---------------------------------------|---|
| SARA Section 313 - Emission Reporting | Not subject to reporting requirements of the United States SARA Section 313 |
|---------------------------------------|---|

#### 1,2,3,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%) (57117-46-6 (Unlabeled))

|  |  |
|--|--|
| SARA Section 302 Threshold Planning Quantity (TPQ) | Not subject to reporting requirements of the United States SARA Section 302. |
|--|--|

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|  |  |
|--|--|
| <b>1,2,3,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%) (57117-46-6 (Unlabeled))</b>     |  |
| SARA Section 313 - Emission Reporting  | Not subject to reporting requirements of the United States SARA Section 313. |
| <b>1,2,3,4,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%) (70648-26-9 (Unlabeled))</b>    |  |
| SARA Section 302 Threshold Planning Quantity (TPQ)                                 | Not subject to reporting requirements of the United States SARA Section 302. |
| SARA Section 313 - Emission Reporting  | Not subject to reporting requirements of the United States SARA Section 313. |
| <b>1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN (13C12, 99%) (67562-39-4 (Unlabeled))</b> |  |
| SARA Section 302 Threshold Planning Quantity (TPQ)                                 | Not subject to reporting requirements of the United States SARA Section 302. |
| SARA Section 313 - Emission Reporting  | Not subject to reporting requirements of the United States SARA Section 313. |
| <b>OCTACHLORODIBENZOFURAN (13C12, 99%) (39001-02-0 (Unlabeled))</b>                |  |
| SARA Section 302 Threshold Planning Quantity (TPQ)                                 | Not subject to reporting requirements of the United States SARA Section 302. |
| SARA Section 313 - Emission Reporting  | Not subject to reporting requirements of the United States SARA Section 313. |
| <b>OCTACHLORODIBENZO-P-DIOXIN (13C12, 99%) (3268-87-9 (Unlabeled))</b>             |  |
| Not listed on the United States TSCA (Toxic Substances Control Act) inventory      |  |
| SARA Section 302 Threshold Planning Quantity (TPQ)                                 | Not subject to reporting requirements of the United States SARA Section 302. |
| SARA Section 313 - Emission Reporting  | Not subject to reporting requirements of the United States SARA Section 313. |

## 15.2. International regulations

### CANADA

|  |  |
|--|--|
| <b>CARBON-13 QUANTIFYING COCKTAIL (2,3,7,8-PCDD/PCDF ISOMERS)</b>    |  |
| Listed on the Canadian DSL (Domestic Substances List)                |  |
| <b>N-NONANE UNLABELED (111-84-2)</b>                                 |  |
| Listed on the Canadian DSL (Domestic Substances List)                |  |
| <b>TOLUENE UNLABELED (108-88-3)</b>                                  |  |
| Listed on the Canadian DSL (Domestic Substances List)                |  |
| <b>2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (13C12, 99%) (76523-40-5)</b> |  |
| Not listed on the Canadian DSL (Domestic Substances List)            |  |

### 15.2.1. National regulations

|   |  |
|---|--|
| <b>1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN (13C12, 99%) (40321-76-4 (Unlabeled))</b>            |  |
| Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List) |  |
| <b>1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN (13C12, 99%) (57652-85-7 (Unlabeled))</b>           |  |
| Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List) |  |
| <b>1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN (13C12, 99%) (35822-46-9 (Unlabeled))</b>        |  |
| Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List) |  |
| <b>OCTACHLORODIBENZO-P-DIOXIN (13C12, 99%) (3268-87-9 (Unlabeled))</b>                        |  |
| Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List) |  |

## 15.3. US State regulations

|   |  |
|---|--|
| <b>CARBON-13 QUANTIFYING COCKTAIL (2,3,7,8-PCDD/PCDF ISOMERS)()</b> |  |
| U.S. - California - Proposition 65 - Carcinogens List               | No   |
| U.S. - California - Proposition 65 - Developmental Toxicity         | No   |
| U.S. - California - Proposition 65 - Reproductive Toxicity - Female | No   |
| U.S. - California - Proposition 65 - Reproductive Toxicity - Male   | No   |
| State or local regulations  | U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations<br>U.S. - New Jersey - Right to Know Hazardous Substance List<br>U.S. - Massachusetts - Right To Know List<br>U.S. - Pennsylvania - RTK (Right to Know) List<br>U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances |

# CARBON-13 QUANTIFYING COCKTAIL (2,3,7,8-PCDD/PCDF ISOMERS)

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according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

| <b>N-NONANE UNLABELED (111-84-2)</b>   |   |   |   |                                  |
|--|---|---|---|----------------------------------|
| U.S. - California - Proposition 65 - Carcinogens List                                  | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significant risk level (NSRL) |
| No   | No  | No  | No  |                                  |
| <b>TOLUENE UNLABELED (108-88-3)</b>  |   |   |   |                                  |
| U.S. - California - Proposition 65 - Carcinogens List                                  | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significant risk level (NSRL) |
| No   | Yes   | No  | No  |                                  |
| <b>2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (13C12, 99%) (76523-40-5)</b>                   |   |   |   |                                  |
| U.S. - California - Proposition 65 - Carcinogens List                                  | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significant risk level (NSRL) |
| Yes  | Yes   | Yes   | Yes   |                                  |
| <b>1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN (13C12, 99%) (40321-76-4 (Unlabeled))</b>     |   |   |   |                                  |
| U.S. - California - Proposition 65 - Carcinogens List                                  | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significant risk level (NSRL) |
| Yes  | No  | No  | No  |                                  |
| <b>1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN (13C12, 99%) (57652-85-7 (Unlabeled))</b>    |   |   |   |                                  |
| U.S. - California - Proposition 65 - Carcinogens List                                  | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significant risk level (NSRL) |
| Yes  | No  | No  | No  |                                  |
| <b>1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN (13C12, 99%) (35822-46-9 (Unlabeled))</b> |   |   |   |                                  |
| U.S. - California - Proposition 65 - Carcinogens List                                  | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significant risk level (NSRL) |
| Yes  | No  | No  | No  |                                  |
| <b>2,3,7,8-TETRACHLORODIBENZOFURAN (13C12, 99%) (89059-46-1)</b>                       |   |   |   |                                  |
| U.S. - California - Proposition 65 - Carcinogens List                                  | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significant risk level (NSRL) |
| Yes  | No  | No  | No  |                                  |
| <b>1,2,3,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%) (57117-46-6 (Unlabeled))</b>         |   |   |   |                                  |
| U.S. - California - Proposition 65 - Carcinogens List                                  | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significant risk level (NSRL) |
| Yes  | No  | No  | No  |                                  |
| <b>1,2,3,4,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%) (70648-26-9 (Unlabeled))</b>        |   |   |   |                                  |
| U.S. - California - Proposition 65 - Carcinogens List                                  | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significant risk level (NSRL) |
| Yes  | No  | No  | No  |                                  |
| <b>1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN (13C12, 99%) (67562-39-4 (Unlabeled))</b>     |   |   |   |                                  |
| U.S. - California - Proposition 65 - Carcinogens List                                  | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significant risk level (NSRL) |
| Yes  | No  | No  | No  |                                  |

# CARBON-13 QUANTIFYING COCKTAIL (2,3,7,8-PCDD/PCDF ISOMERS)

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according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

| <b>1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN (13C12, 99%) (67562-39-4 (Unlabeled))</b>   |   |   |   |                                  |
|--|---|---|---|----------------------------------|
|  |   | Female  | Male  |                                  |
| Yes  | No  | No  | No  |                                  |
| <b>OCTACHLORODIBENZOFURAN (13C12, 99%) (39001-02-0 (Unlabeled))</b>  |   |   |   |                                  |
| U.S. - California - Proposition 65 - Carcinogens List  | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significant risk level (NSRL) |
| Yes  | No  | No  | No  |                                  |
| <b>OCTACHLORODIBENZO-P-DIOXIN (13C12, 99%) (3268-87-9 (Unlabeled))</b>   |   |   |   |                                  |
| U.S. - California - Proposition 65 - Carcinogens List  | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significant risk level (NSRL) |
| Yes  | No  | No  | No  |                                  |
| <b>N-NONANE UNLABELED (111-84-2)</b>   |   |   |   |                                  |
| <b>State or local regulations</b>  |   |   |   |                                  |
| U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations<br>U.S. - New Jersey - Right to Know Hazardous Substance List<br>U.S. - Massachusetts - Right To Know List<br>U.S. - Pennsylvania - RTK (Right to Know) List<br>U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances |   |   |   |                                  |
| <b>TOLUENE UNLABELED (108-88-3)</b>  |   |   |   |                                  |
| <b>State or local regulations</b>  |   |   |   |                                  |
| U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities<br>U.S. - New Jersey - Right to Know Hazardous Substance List<br>U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances<br>U.S. - Pennsylvania - RTK (Right to Know) List<br>U.S. - Massachusetts - Right To Know List               |   |   |   |                                  |
| <b>2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (13C12, 99%) (76523-40-5)</b>   |   |   |   |                                  |
| <b>State or local regulations</b>  |   |   |   |                                  |
| U.S. - Pennsylvania - RTK (Right to Know) List<br>U.S. - New Jersey - Right to Know Hazardous Substance List   |   |   |   |                                  |
| <b>1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN (13C12, 99%) (40321-76-4 (Unlabeled))</b>   |   |   |   |                                  |
| <b>State or local regulations</b>  |   |   |   |                                  |
| U.S. - Pennsylvania - RTK (Right to Know) List<br>U.S. - New Jersey - Right to Know Hazardous Substance List   |   |   |   |                                  |
| <b>1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN (13C12, 99%) (57652-85-7 (Unlabeled))</b>  |   |   |   |                                  |
| <b>State or local regulations</b>  |   |   |   |                                  |
| U.S. - Pennsylvania - RTK (Right to Know) List<br>U.S. - New Jersey - Right to Know Hazardous Substance List   |   |   |   |                                  |
| <b>1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN (13C12, 99%) (35822-46-9 (Unlabeled))</b>   |   |   |   |                                  |
| <b>State or local regulations</b>  |   |   |   |                                  |
| U.S. - Pennsylvania - RTK (Right to Know) List<br>U.S. - New Jersey - Right to Know Hazardous Substance List   |   |   |   |                                  |
| <b>2,3,7,8-TETRACHLORODIBENZOFURAN (13C12, 99%) (89059-46-1)</b>   |   |   |   |                                  |
| <b>State or local regulations</b>  |   |   |   |                                  |
| 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  |   |   |   |                                  |
| <b>1,2,3,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%) (57117-46-6 (Unlabeled))</b>   |   |   |   |                                  |
| <b>State or local regulations</b>  |   |   |   |                                  |
| U.S. - Massachusetts - Right To Know List<br>U.S. - Pennsylvania - RTK (Right to Know) List  |   |   |   |                                  |

# CARBON-13 QUANTIFYING COCKTAIL (2,3,7,8-PCDD/PCDF ISOMERS)

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according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

|   |
|---|
| <b>1,2,3,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%) (57117-46-6 (Unlabeled))</b>  |
| U.S. - New Jersey - Right to Know Hazardous Substance List  |
| <b>1,2,3,4,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%) (70648-26-9 (Unlabeled))</b>   |
| <b>State or local regulations</b>   |
| 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 |
| <b>1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN (13C12, 99%) (67562-39-4 (Unlabeled))</b>  |
| <b>State or local regulations</b>   |
| 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 |
| <b>OCTACHLORODIBENZOFURAN (13C12, 99%) (39001-02-0 (Unlabeled))</b>   |
| <b>State or local regulations</b>   |
| 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 |
| <b>OCTACHLORODIBENZO-P-DIOXIN (13C12, 99%) (3268-87-9 (Unlabeled))</b>  |
| <b>State or local regulations</b>   |
| U.S. - Pennsylvania - RTK (Right to Know) List<br>U.S. - New Jersey - Right to Know Hazardous Substance List  |

## 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. 4 (Inhalation:vapour) | Acute toxicity (inhalation:vapour) Category 4                     |
| Acute Tox. 4 (Oral)              | Acute toxicity (oral) Category 4                                  |
| Aquatic Chronic 4                | Hazardous to the aquatic environment - Chronic Hazard Category 4  |
| Asp. Tox. 1                      | Aspiration hazard Category 1                                      |
| Eye Irrit. 2                     | Serious eye damage/eye irritation Category 2                      |
| Flam. Liq. 2                     | Flammable liquids Category 2                                      |
| Flam. Liq. 3                     | Flammable liquids Category 3                                      |
| 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 3                        | Specific target organ toxicity (single exposure) Category 3       |
| H225                             | Highly flammable liquid and vapor                                 |
| H226                             | Flammable liquid and vapor  |
| H302                             | Harmful if swallowed  |
| 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                                 |
| H361                             | Suspected of damaging fertility or the unborn child               |
| H373                             | May cause damage to organs through prolonged or repeated exposure |
| H413                             | May cause long lasting harmful effects to aquatic life            |
| R10                              | Flammable   |
| R11                              | Highly flammable  |
| R20                              | Harmful by inhalation   |
| R20/22                           | Harmful by inhalation and if swallowed                            |
| R22                              | Harmful if swallowed  |
| R36                              | Irritating to eyes  |
| R36/38                           | Irritating to eyes and skin                                       |



# CARBON-13 QUANTIFYING COCKTAIL (2,3,7,8-PCDD/PCDF ISOMERS)

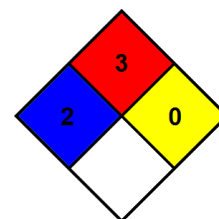
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|        |  |
|--------|--|
| R38    | Irritating to skin   |
| R48/20 | Harmful: danger of serious damage to health by prolonged exposure through inhalation       |
| R51/53 | Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment |
| R53    | 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  |
| R67    | Vapors may cause drowsiness and dizziness  |
| F      | Highly flammable   |
| N      | Dangerous for the environment  |
| Xi     | Irritant   |
| Xn     | Harmful  |

- NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.
- NFPA fire hazard : 3 - Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature conditions.
- NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



### Hazard Rating

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

### CIL Multi-Solvent 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*