



# DIOXIN&FURAN FOOD/FEED/QQQ EXTRACTION STANDARD SOLUTION (13C12, 99%) IN NONANE

## 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: 15/12/2016

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Supersedes: 05/12/2016

Version: 1.1

EDF-5555

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

### 1.1. Product identifier

Product form : Mixtures  
Product name : DIOXIN&FURAN FOOD/FEED/QQQ EXTRACTION STANDARD SOLUTION (13C12, 99%) IN NONANE  
Product code : EDF-5555

### 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) 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]

F; R11  
Xn; R65  
Xi; R38  
R67

Full text of R-phrases: see section 16

#### GHS-US classification

Flam. Liq. 3 H226  
Acute Tox. 4 (Inhalation:vapour) H332  
Skin Irrit. 2 H315  
Eye Irrit. 2A 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)



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 fume, mist, spray, vapors  
P264 - Wash Both hands 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)



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 fume, mist, spray, vapors  
P264 - Wash Both hands 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 poison center/doctor/...  
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 poison center/doctor/... if you feel unwell  
P321 - Specific treatment (see Hazard pictograms (CLP) on this label)  
P331 - Do NOT induce vomiting  
P332+P313 - If skin irritation occurs: Get medical advice/attention

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P337+P313 - If eye irritation persists: Get medical advice/attention  
P362 - Take off contaminated clothing and wash it before reuse  
P370+P378 - In case of fire: Use Alcohol resistant foam, Carbon dioxide, Dry chemical, Water spray to extinguish  
P403+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
N-NONANE UNLABELED	(CAS No) 111-84-2 (EC No) 203-913-4	99.986028	R10 Xn; R20 Xn; R65 Xi; R36/37/38
TOLUENE UNLABELED	(CAS No) 108-88-3 (EC No) 203-625-9 (EC Index No) 601-021-00-3 (REACH-no) 01-2119471310-51	0.013924	F; R11 Xi; R38 Xn; R65 Repr.Cat.3; R62 Repr.Cat.3; R63 R67 N; R51/53 Xn; R48/20
OCTACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 39001-02-0 (Unlabeled)	0.00000696	Xn; R22 Xi; R36 R53
OCTACHLORODIBENZO-P-DIOXIN (13C12, 99%)	(CAS No) 3268-87-9 (Unlabeled)	0.00000696	Xn; R22 Xn; R65 R53
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 70648-26-9 (Unlabeled)	0.00000279	Xn; R22 Xi; R36 R53
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 72918-21-9 (Unlabeled)	0.00000279	Xn; R22 Xi; R36 R53
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 60851-34-5 (Unlabeled)	0.00000279	Xn; R22 Xi; R36 R53
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 67562-39-4 (Unlabeled)	0.00000279	Xn; R22 Xi; R36 R53
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 57117-44-9 (Unlabeled)	0.00000279	Xn; R22 Xi; R36 R53
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN (13C12, 99%)	(CAS No) 39227-28-6 (Unlabeled)	0.00000279	Xn; R22 Xn; R65 R53
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN (13C12, 99%)	(CAS No) 19408-74-3 (Unlabeled)	0.00000279	Xn; R22 Xn; R65 R53
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN (13C12, 99%)	(CAS No) 57652-85-7 (Unlabeled)	0.00000279	Xn; R22 Xn; R65 R53

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Name	Product identifier	%	Classification according to Directive 67/548/EEC
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 55673-89-7 (Unlabeled)	0.00000279	Xn; R22 Xi; R36 R53
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN (13C12, 99%)	(CAS No) 35822-46-9 (Unlabeled)	0.00000279	Xn; R22 Xn; R65 R53
1,2,3,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 57117-46-6 (Unlabeled)	0.00000139	Xn; R22 Xi; R36 R53
2,3,4,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 57117-31-4 (Unlabeled)	0.00000139	Xn; R22 Xi; R36 R53
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN (13C12, 99%)	(CAS No) 40321-76-4 (Unlabeled)	0.00000139	Xn; R22 Xn; R65 R53
2,3,7,8-TETRACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 51207-31-9 (Unlabeled)	0.00000139	Xn; R22 Xi; R36 R53
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (13C12, 99%)	(CAS No) 1746-01-6 (Unlabeled)	0.00000139	Xn; R22 Xn; R65 R53

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
N-NONANE UNLABELED	(CAS No) 111-84-2 (EC No) 203-913-4	99.986028	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
TOLUENE UNLABELED	(CAS No) 108-88-3 (EC No) 203-625-9 (EC Index No) 601-021-00-3 (REACH-no) 01-2119471310-51	0.013924	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361 STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304
OCTACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 39001-02-0 (Unlabeled)	0.00000696	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Aquatic Chronic 4, H413
OCTACHLORODIBENZO-P-DIOXIN (13C12, 99%)	(CAS No) 3268-87-9 (Unlabeled)	0.00000696	Acute Tox. 4 (Oral), H302 Asp. Tox. 1, H304 Aquatic Chronic 4, H413
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 70648-26-9 (Unlabeled)	0.00000279	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Aquatic Chronic 4, H413
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 72918-21-9 (Unlabeled)	0.00000279	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Aquatic Chronic 4, H413
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 60851-34-5 (Unlabeled)	0.00000279	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Aquatic Chronic 4, H413
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 67562-39-4 (Unlabeled)	0.00000279	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Aquatic Chronic 4, H413
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 57117-44-9 (Unlabeled)	0.00000279	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Aquatic Chronic 4, H413
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN (13C12, 99%)	(CAS No) 39227-28-6 (Unlabeled)	0.00000279	Acute Tox. 4 (Oral), H302 Asp. Tox. 1, H304 Aquatic Chronic 4, H413
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN (13C12, 99%)	(CAS No) 19408-74-3 (Unlabeled)	0.00000279	Acute Tox. 4 (Oral), H302 Asp. Tox. 1, H304 Aquatic Chronic 4, H413
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN (13C12, 99%)	(CAS No) 57652-85-7 (Unlabeled)	0.00000279	Acute Tox. 4 (Oral), H302 Asp. Tox. 1, H304 Aquatic Chronic 4, H413

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1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN (13C12, 99%)	(CAS No) 35822-46-9 (Unlabeled)	0.00000279	Acute Tox. 4 (Oral), H302 Asp. Tox. 1, H304 Aquatic Chronic 4, H413
1,2,3,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 57117-46-6 (Unlabeled)	0.00000139	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Aquatic Chronic 4, H413
2,3,4,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 57117-31-4 (Unlabeled)	0.00000139	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Aquatic Chronic 4, H413
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN (13C12, 99%)	(CAS No) 40321-76-4 (Unlabeled)	0.00000139	Acute Tox. 4 (Oral), H302 Asp. Tox. 1, H304 Aquatic Chronic 4, H413
2,3,7,8-TETRACHLORODIBENZOFURAN (13C12, 99%)	(CAS No) 51207-31-9 (Unlabeled)	0.00000139	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Aquatic Chronic 4, H413
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (13C12, 99%)	(CAS No) 1746-01-6 (Unlabeled)	0.00000139	Acute Tox. 4 (Oral), H302 Asp. Tox. 1, H304 Aquatic Chronic 4, H413

Name	Product identifier	%	GHS-US classification
N-NONANE UNLABELED	(CAS No) 111-84-2	99.986028	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation:vapour), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H336 Asp. Tox. 1, H304

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

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general	: Call a physician immediately.
First-aid measures after inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
First-aid measures after skin contact	: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash with plenty of soap and water. Wash contaminated clothing before reuse.
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	: Immediately call a poison center or doctor/physician.

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

Symptoms/injuries	: May cause drowsiness or dizziness.
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 serious 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

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.
Explosion hazard	: May form flammable/explosive vapor-air mixture.
Reactivity	: Flammable liquid and vapor. vapors may form flammable mixture with air.

### 5.3. Advice for firefighters

Firefighting instructions : Wear self contained breathing apparatus for fire fighting if necessary.

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Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
Other information	: Use water spray to cool unopened containers.

### SECTION 6: Accidental release measures

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

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

##### 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.

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

Precautions for safe handling : No open flames. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. Use only outdoors or in a well-ventilated area.

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 : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving 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

DIOXIN&FURAN FOOD/FEED/QQQ EXTRACTION STANDARD SOLUTION (13C12, 99%) IN NONANE		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	200.00000000 ppm USA. ACGIH Threshold Limit Values (TLV)
Italy - Portugal - USA ACGIH	Remark (ACGIH)	CNS impair
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 Visual impairment, Female reproductive, Pregnancy loss
USA OSHA	OSHA PEL (TWA) (ppm)	100 ppm 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

### 8.2. Exposure controls

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

Personal protective equipment : Gloves. Protective clothing. Protective goggles. 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.

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

Environmental exposure controls : Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

## SECTION 9: Physical and chemical properties

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

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

Physical state	: Liquid
Appearance	: Liquid.
Molecular mass	: 128.3 g/mol
Color	: Colorless.
Odor	: No data available
Odor threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: Not applicable
Freezing point	: -53 °C (- 63 °F) - lit
Boiling point	: 151 °C (304 °F) - lit
Flash point	: 31 °C (87.8 °F) - closed cup
Auto-ignition temperature	: 205 °C (401 °F)
Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable liquid and vapor
Vapor pressure	: 5.69 hPa (4.27 mmHg) at 25 °C (77 °F)
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Specific gravity / density	: 0.718 g/ml at 25 °C (77 °F)
Solubility	: Water: 0.0002 % at 25 °C (77 °F) - slightly soluble
Log Pow	: 5.65
Log Kow	: No data available

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Viscosity, kinematic	: 1.008 mm <sup>2</sup> /s at 20 °C (68 °F)
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosion limits	: 0.87 - 2.9 % (V)

### 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 additional information available

### 10.4. Conditions to avoid

Open flame. Overheating. Direct sunlight. Heat. Sparks.

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

May release flammable gases.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Inhalation: Harmful if inhaled.

DIOXIN&FURAN FOOD/FEED/QQQ EXTRACTION STANDARD SOLUTION (13C12, 99%) IN NONANE	
LC50 inhalation rat (mg/l)	23760 mg/m <sup>3</sup> male - 4 h
ATE CLP (gases)	3200.000 ppmV/4h
ATE CLP (vapors)	11.000 mg/l/4h
ATE CLP (dust, mist)	1.500 mg/l/4h
Skin corrosion/irritation, Dermal, rat	Result: Skin Irritation (Draize Test)
Additional information	: S. Typhimurium Result: negative
N-NONANE UNLABELED (111-84-2)	
LC50 inhalation rat (mg/l)	23760 mg/m <sup>3</sup> male - 4 h
ATE CLP (gases)	3200.000 ppmV/4h
ATE CLP (vapors)	11.000 mg/l/4h
ATE CLP (dust, mist)	23.760 mg/l/4h
Skin corrosion/irritation, Dermal, rat	Result: Skin Irritation (Draize Test)
Additional information	: S. Typhimurium Result: negative
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 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
1,2,3,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%) (57117-46-6 (Unlabeled))	
ATE CLP (oral)	500.000 mg/kg body weight
2,3,4,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%) (57117-31-4 (Unlabeled))	
ATE CLP (oral)	500.000 mg/kg body weight
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN (13C12, 99%) (40321-76-4 (Unlabeled))	
ATE CLP (oral)	500.000 mg/kg body weight
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%) (70648-26-9 (Unlabeled))	
ATE CLP (oral)	500.000 mg/kg body weight



# DIOXIN&FURAN FOOD/FEED/QQQ EXTRACTION STANDARD SOLUTION (13C12, 99%) IN NONANE

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<b>1,2,3,7,8,9-HEXACHLORODIBENZOFURAN (13C12, 99%) (72918-21-9 (Unlabeled))</b>	
ATE CLP (oral)	500.000 mg/kg body weight
<b>2,3,4,6,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%) (60851-34-5 (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>1,2,3,6,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%) (57117-44-9 (Unlabeled))</b>	
ATE CLP (oral)	500.000 mg/kg body weight
<b>2,3,7,8-TETRACHLORODIBENZOFURAN (13C12, 99%) (51207-31-9 (Unlabeled))</b>	
ATE CLP (oral)	500.000 mg/kg body weight
<b>2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (13C12, 99%) (1746-01-6 (Unlabeled))</b>	
ATE CLP (oral)	500.000 mg/kg body weight
<b>1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN (13C12, 99%) (39227-28-6 (Unlabeled))</b>	
ATE CLP (oral)	500.000 mg/kg body weight
<b>1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN (13C12, 99%) (19408-74-3 (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>1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN (13C12, 99%) (55673-89-7 (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>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>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. May cause drowsiness or dizziness
Specific target organ toxicity – repeated exposure	: Not classified No data available

<b>DIOXIN&amp;FURAN FOOD/FEED/QQQ EXTRACTION STANDARD SOLUTION (13C12, 99%) IN NONANE</b>	
NOAEL (oral,rat,90 days)	100 mg/kg bodyweight/day female (OECD Test Guideline 408)
<b>N-NONANE UNLABELED (111-84-2)</b>	
NOAEL (oral,rat,90 days)	100 mg/kg bodyweight/day female (OECD Test Guideline 408)

Aspiration hazard	: May be fatal if swallowed and enters airways.
Potential Adverse human health effects and symptoms	: Harmful if inhaled.
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 serious eye irritation.
Symptoms/injuries after ingestion	: May be fatal if swallowed and enters airways.

## 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.
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# DIOXIN&FURAN FOOD/FEED/QQQ EXTRACTION STANDARD SOLUTION (13C12, 99%) IN NONANE

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<b>DIOXIN&amp;FURAN FOOD/FEED/QQQ EXTRACTION STANDARD SOLUTION (13C12, 99%) IN NONANE</b>	
EC50 Daphnia 1	0.2 mg/l static test EC50 - Daphnia magna (Water flea) - 48 h
<b>N-NONANE UNLABELED (111-84-2)</b>	
EC50 Daphnia 1	0.2 mg/l static test EC50 - Daphnia magna (Water flea) - 48 h
<b>TOLUENE UNLABELED (108-88-3)</b>	
LC50 fish 1	74 - 340 mg/l Lepomis macrochirus (Bluegill) - 96h
LC50 other aquatic organisms 1	10 mg/l Pseudokirchneriella subcapitata (Green algae) - 24 h
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
LOEC (chronic)	8.04 mg/l Pimephales promelas (Fathead minnow) - 7 d
NOEC (chronic)	5.44 mg/l Pimephales promelas (fathead minnow) - 7 d

### 12.2. Persistence and degradability

<b>1,2,3,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%) (57117-46-6 (Unlabeled))</b>	
Persistence and degradability	Not available.
<b>2,3,4,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%) (57117-31-4 (Unlabeled))</b>	
Persistence and degradability	Not available.
<b>1,2,3,4,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%) (70648-26-9 (Unlabeled))</b>	
Persistence and degradability	Not available.
<b>1,2,3,7,8,9-HEXACHLORODIBENZOFURAN (13C12, 99%) (72918-21-9 (Unlabeled))</b>	
Persistence and degradability	Not available.
<b>2,3,4,6,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%) (60851-34-5 (Unlabeled))</b>	
Persistence and degradability	Not available.
<b>1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN (13C12, 99%) (67562-39-4 (Unlabeled))</b>	
Persistence and degradability	Not available.
<b>1,2,3,6,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%) (57117-44-9 (Unlabeled))</b>	
Persistence and degradability	Not available.
<b>2,3,7,8-TETRACHLORODIBENZOFURAN (13C12, 99%) (51207-31-9 (Unlabeled))</b>	
Persistence and degradability	Not available.
<b>1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN (13C12, 99%) (55673-89-7 (Unlabeled))</b>	
Persistence and degradability	Not available.
<b>OCTACHLORODIBENZOFURAN (13C12, 99%) (39001-02-0 (Unlabeled))</b>	
Persistence and degradability	Not available.

### 12.3. Bioaccumulative potential

<b>DIOXIN&amp;FURAN FOOD/FEED/QQQ EXTRACTION STANDARD SOLUTION (13C12, 99%) IN NONANE</b>	
Log Pow	5.65
Bioaccumulative potential	Indication of bioaccumulation.
<b>N-NONANE UNLABELED (111-84-2)</b>	
Log Pow	5.65
Bioaccumulative potential	Indication of bioaccumulation.
<b>1,2,3,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%) (57117-46-6 (Unlabeled))</b>	
Bioaccumulative potential	Not available.
<b>2,3,4,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%) (57117-31-4 (Unlabeled))</b>	
Bioaccumulative potential	Not available.
<b>1,2,3,4,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%) (70648-26-9 (Unlabeled))</b>	
Bioaccumulative potential	Not available.
<b>1,2,3,7,8,9-HEXACHLORODIBENZOFURAN (13C12, 99%) (72918-21-9 (Unlabeled))</b>	
Bioaccumulative potential	Not available.
<b>2,3,4,6,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%) (60851-34-5 (Unlabeled))</b>	
Bioaccumulative potential	Not available.

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<b>1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN (13C12, 99%) (67562-39-4 (Unlabeled))</b>	
Bioaccumulative potential	Not available.
<b>1,2,3,6,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%) (57117-44-9 (Unlabeled))</b>	
Bioaccumulative potential	Not available.
<b>2,3,7,8-TETRACHLORODIBENZOFURAN (13C12, 99%) (51207-31-9 (Unlabeled))</b>	
Bioaccumulative potential	Not available.
<b>1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN (13C12, 99%) (55673-89-7 (Unlabeled))</b>	
Bioaccumulative potential	Not available.
<b>OCTACHLORODIBENZOFURAN (13C12, 99%) (39001-02-0 (Unlabeled))</b>	
Bioaccumulative potential	Not available.

### 12.4. Mobility in soil

<b>1,2,3,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%) (57117-46-6 (Unlabeled))</b>	
Ecology - soil	Not available.
<b>2,3,4,7,8-PENTACHLORODIBENZOFURAN (13C12, 99%) (57117-31-4 (Unlabeled))</b>	
Ecology - soil	Not available.
<b>1,2,3,4,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%) (70648-26-9 (Unlabeled))</b>	
Ecology - soil	Not available.
<b>1,2,3,7,8,9-HEXACHLORODIBENZOFURAN (13C12, 99%) (72918-21-9 (Unlabeled))</b>	
Ecology - soil	Not available.
<b>2,3,4,6,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%) (60851-34-5 (Unlabeled))</b>	
Ecology - soil	Not available.
<b>1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN (13C12, 99%) (67562-39-4 (Unlabeled))</b>	
Ecology - soil	Not available.
<b>1,2,3,6,7,8-HEXACHLORODIBENZOFURAN (13C12, 99%) (57117-44-9 (Unlabeled))</b>	
Ecology - soil	Not available.
<b>2,3,7,8-TETRACHLORODIBENZOFURAN (13C12, 99%) (51207-31-9 (Unlabeled))</b>	
Ecology - soil	Not available.
<b>1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN (13C12, 99%) (55673-89-7 (Unlabeled))</b>	
Ecology - soil	Not available.
<b>OCTACHLORODIBENZOFURAN (13C12, 99%) (39001-02-0 (Unlabeled))</b>	
Ecology - soil	Not available.

### 12.5. Results of PBT and vPvB assessment

No additional information available

### 12.6. Other adverse effects

Other adverse effects : Disposal must be done according to official regulations. Very toxic to aquatic life with long lasting effects.

## 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

# DIOXIN&FURAN FOOD/FEED/QQQ EXTRACTION STANDARD SOLUTION (13C12, 99%) IN NONANE

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Hazard labels (DOT) : 3 - Flammable liquid



Packing group (DOT) : III - Minor Danger

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.

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).

T2 - 1.5 178.274(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) : 203

DOT Packaging Bulk (49 CFR 173.xxx) : 242

### 14.3. Additional information

Other information : No supplementary information available.

### Overland transport

Packing group (ADR) : III

Class (ADR) : 3 - Flammable liquid

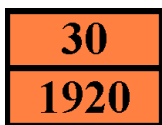
Hazard identification number (Kemler No.) : 30

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

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### 14.4. Environmental hazards

Other information : No supplementary information available.

### 14.5. Special precautions for user

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

Not applicable

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

DIOXIN&FURAN FOOD/FEED/QQQ EXTRACTION STANDARD SOLUTION (13C12, 99%) IN NONANE	
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 Immediate (acute) health hazard
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.
N-NONANE UNLABELED	
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 Immediate (acute) health hazard
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.

### 15.2. International regulations

#### CANADA

DIOXIN&FURAN FOOD/FEED/QQQ EXTRACTION STANDARD SOLUTION (13C12, 99%) IN NONANE	
Listed on the Canadian DSL (Domestic Substances List)	
N-NONANE UNLABELED	
Listed on the Canadian DSL (Domestic Substances List)	

#### 15.2.1. National regulations

N-NONANE UNLABELED	

### 15.3. US State regulations

DIOXIN&FURAN FOOD/FEED/QQQ EXTRACTION STANDARD SOLUTION (13C12, 99%) IN NONANE()				
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 U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances			
N-NONANE UNLABELED				
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)

# DIOXIN&FURAN FOOD/FEED/XXX EXTRACTION STANDARD SOLUTION (13C12, 99%) IN NONANE

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N-NONANE UNLABELED				
No	No	No	No	
N-NONANE UNLABELED				
State or local regulations				
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances				

## 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)	Acute toxicity (inhalation) Category 4
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
R22	Harmful if swallowed
R36	Irritating to eyes
R36/37/38	Irritating to eyes, respiratory system and skin
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

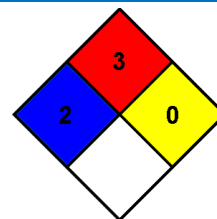
# DIOXIN&FURAN FOOD/FEED/QQQ EXTRACTION STANDARD SOLUTION (13C12, 99%) IN NONANE

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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

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.



### 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*