



# MULTI-ANALYTE RECOVERY SPIKING STD. IN HEXANE (13C12,99%)CONT. 2% DODECANE/10% NONANE

## Safety Data Sheet

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

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:

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**ES-5321**

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

### 1.1. Product identifier

Product form : Mixture  
Product name. : MULTI-ANALYTE RECOVERY SPIKING STD. IN HEXANE (13C12,99%)CONT. 2% DODECANE/10% NONANE  
Product code : ES-5321

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

#### 1.2.1. Relevant identified uses

Industrial/Professional use spec : For professional use only.

#### 1.2.2. Uses advised against

No additional information available

### 1.3. Details of the supplier of the safety data sheet

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

USA: 1-800-322-1174 Int: 1-978-749-8000  
[cilsales@isotope.com](mailto:cilsales@isotope.com) [www.isotope.com](http://www.isotope.com)

### Emergency telephone number

Emergency numbers:

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

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

Flam. Liq. 2 H225  
Skin Irrit. 2 H315  
Eye Irrit. 2 H319  
Repr. 2 H361  
STOT SE 3 H336  
STOT SE 2 H371  
Asp. Tox. 1 H304  
Aquatic Acute 1 H400  
Aquatic Chronic 1 H410

Full text of H-phrases: see section 16

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

F; R11  
Xn; R65  
N; R51/53

Full text of R-phrases: see section 16

#### GHS-US classification

Flam. Liq. 2 H225  
Skin Irrit. 2 H315  
Eye Irrit. 2A H319  
Repr. 2 H361  
STOT SE 3 H336  
STOT SE 2 H371  
Asp. Tox. 1 H304

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Aquatic Acute 1 H400  
Aquatic Chronic 1 H410

### Adverse physicochemical, human health and environmental effects

Peripheral nervous system., Kidney, Testes.

## 2.2. Label elements

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

Hazard pictograms (CLP) :



Signal word (CLP) :

Danger

Hazard statements (CLP) :

H225 - Highly flammable liquid and vapour  
H304 - May be fatal if swallowed and enters airways  
H315 - Causes skin irritation  
H319 - Causes serious eye irritation  
H336 - May cause drowsiness or dizziness  
H361 - Suspected of damaging fertility. Suspected of damaging the unborn child  
H371 - May cause damage to organs (kidneys, peripheral nervous system, testis)  
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (CLP) :

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
P233 - Keep container tightly closed  
P240 - Ground/bond container and receiving equipment  
P241 - Use explosion-proof electrical, lighting, ventilating equipment  
P260 - Do not breathe dust, fume, gas, mist, spray, vapours  
P264 - Wash Both hands thoroughly after handling  
P270 - Do no eat, drink or smoke when using this product  
P271 - Use only outdoors or in a well-ventilated area  
P307+P311 - IF exposed: Call a POISON CENTER or doctor/physician  
P308+P313 - IF exposed or concerned: Get medical advice/attention

### GHS-US labelling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H225 - Highly flammable liquid and vapour  
H304 - May be fatal if swallowed and enters airways  
H315 - Causes skin irritation  
H319 - Causes serious eye irritation  
H336 - May cause drowsiness or dizziness  
H361 - Suspected of damaging fertility or the unborn child (Dermal, Inhalation, oral)  
H371 - May cause damage to organs (kidneys, peripheral nervous system, testis) (Dermal, Inhalation, oral)  
H400 - Very toxic to aquatic life  
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) :

P201 - Obtain special instructions before use  
P202 - Do not handle until all safety precautions have been read and understood  
P210 - Keep away from hot surfaces, heat, 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  
P260 - Do not breathe fume, dust, gas, mist, spray, vapours  
P261 - Avoid breathing dust, fume, gas, mist, spray, vapours  
P264 - Wash Both hands thoroughly after handling  
P270 - Do no eat, drink or smoke when using this product  
P271 - Use only outdoors or in a well-ventilated area

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P273 - Avoid release to the environment  
P280 - Wear eye protection, face protection, protective clothing, protective gloves  
P301+P310 - IF SWALLOWED: immediately call a POISON CENTER or doctor/physician  
P302+P352 - IF ON SKIN: Wash with plenty of soap and water  
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P308+P313 - IF exposed or concerned: Get medical advice/attention  
P312 - Call a POISON CENTER/doctor/physician if you feel unwell  
P321 - Specific treatment (see Hazard pictograms (CLP) on this label)  
P331 - If swallowed, do NOT induce vomiting  
P332+P313 - If skin irritation occurs: Get medical advice/attention  
P337+P313 - If eye irritation persists: Get medical advice/attention  
P362 - Take off contaminated clothing and wash before reuse  
P370+P378 - In case of fire: Use Alcohol resistant foam, Carbon dioxide., Dry chemical, Water spray for extinction  
P391 - Collect spillage  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed  
P403+P235 - Store in a well-ventilated place. Keep cool  
P405 - Store locked up  
P501 - Dispose of contents/container to Comply with applicable regulations.

### 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixture

Name	Product identifier	%	Classification according to Directive 67/548/EEC
N-HEXANE UNLABELED	(CAS No) 110-54-3 (EC no) 203-777-6 (EC index no) 601-037-00-0	86.98103793	F; R11 N; R51/53
N-NONANE UNLABELED	(CAS No) 111-84-2 (EC no) 203-913-4	10.76913802	R10 Xn; R20 Xn; R65 R67 Xi; R38
DODECANE UNLABELED	(CAS No) 112-40-3 (EC no) 203-967-9	2.24981992	Xn; R65
2,2',3,3',4,5,5',6,6'-NONACB (PCB-208) (13C12, 99%)	(CAS No) 52663-77-1 (Unlabeled) (EC index no) 602-039-00-4	0.0000015	Xn; R48/20/21/22 N; R50/53 R33
3,3',4,4'-TETRABDE (BDE-77) (13C12, 99%)	(CAS No) 93703-48-1 (Unlabeled)	0.00000112	Carc.Cat.1; R45 Carc.Cat.1; R49 Xn; R22 Xi; R41 Xi; R37 Xi; R38 N; R51/53
2,2',3,4,4',6-HEXABDE (BDE-139) (13C12, 99%)	(CAS No) 488710-25-4	0.00000112	Carc.Cat.1; R45 Carc.Cat.1; R49 Xn; R22 Xi; R41 Xi; R37 Xi; R38 N; R51/53
1,2,3,4-TETRACHLORODIBENZO-P-DIOXIN (13C6, 99%)	(CAS No) 30746-58-8 (Unlabeled)	0.00000037	Carc.Cat.1; R45 Carc.Cat.1; R49 Xn; R20 Xn; R21 Xn; R22

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
N-HEXANE UNLABELED	(CAS No) 110-54-3 (EC no) 203-777-6 (EC index no) 601-037-00-0	86.98103793	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Repr. 2, H361fd STOT SE 3, H336 STOT SE 2, H371 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
N-NONANE UNLABELED	(CAS No) 111-84-2 (EC no) 203-913-4	10.76913802	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
DODECANE UNLABELED	(CAS No) 112-40-3 (EC no) 203-967-9	2.24981992	Asp. Tox. 1, H304
2,2',3,3',4,5,5',6,6'-NONACB (PCB-208) (13C12, 99%)	(CAS No) 52663-77-1 (Unlabeled) (EC index no) 602-039-00-4	0.0000015	Carc. 1B, H350 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
3,3',4,4'-TETRABDE (BDE-77) (13C12, 99%)	(CAS No) 93703-48-1 (Unlabeled)	0.00000112	Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Carc. 1A, H350 STOT SE 3, H336 Aquatic Chronic 2, H411
2,2',3,4,4',6-HEXABDE (BDE-139) (13C12, 99%)	(CAS No) 488710-25-4	0.00000112	Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Carc. 1A, H350 STOT SE 3, H336 Aquatic Chronic 2, H411
1,2,3,4-TETRACHLORODIBENZO-P-DIOXIN (13C6, 99%)	(CAS No) 30746-58-8 (Unlabeled)	0.00000037	Carc. 1A, H350 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 Acute Tox. 4 (Dermal), H312

Name	Product identifier	%	GHS-US classification
N-HEXANE UNLABELED	(CAS No) 110-54-3	86.98103793	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Repr. 2, H361 STOT SE 3, H336 STOT SE 2, H371 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
N-NONANE UNLABELED	(CAS No) 111-84-2	10.76913802	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
DODECANE UNLABELED	(CAS No) 112-40-3	2.24981992	Flam. Liq. 4, H227 Asp. Tox. 1, H304

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

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general	: IF exposed or concerned: Get medical advice/attention.
First-aid measures after inhalation	: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.
First-aid measures after skin contact	: Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Wash with plenty of soap and water. Get medical advice/attention. Specific treatment (see Hazard pictograms (CLP) on this label). Gently wash with plenty of soap and water.
First-aid measures after eye contact	: Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for several minutes.

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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 : Suspected of damaging fertility. Suspected of damaging the unborn child (Inhalation, dermal, oral). May cause damage to organs (kidneys, brain, Suspected of damaging fertility) (Inhalation, dermal, oral).

Symptoms/injuries after inhalation : May cause drowsiness or dizziness.

Symptoms/injuries after skin contact : Causes skin irritation.

Symptoms/injuries after eye contact : Causes eye irritation.

Symptoms/injuries after ingestion : May be fatal if swallowed and enters airways.

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

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

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

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

Fire hazard : Highly flammable liquid and vapour.

Explosion hazard : May form flammable/explosive vapour-air mixture.

Reactivity : Vapors may form explosive mixture with air.

### 5.3. Advice for firefighters

Firefighting instructions : Use water spray to cool unopened containers.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: Accidental release measures

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

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

#### 6.1.1. For non-emergency personnel

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

#### 6.1.2. For emergency responders

Protective equipment : Avoid breathing dust, mist or spray.

### 6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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

For containment : Contain spillage, then collect with non-combustible absorbent material. Disposal should be in accordance with applicable Federal, State and local regulations.

### 6.4. Reference to other sections

No additional information available

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapours are flammable.

Precautions for safe handling : No naked lights. No smoking. Use only non-sparking tools. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Avoid breathing dust, mist or spray.

Hygiene measures : Wash Both hands thoroughly after handling.

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

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical equipment.

Storage conditions : Store at room temperature away from light and moisture.

Incompatible materials : Heat sources.

### 7.3. Specific end use(s)

No additional information available

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### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

MULTI-ANALYTE RECOVERY SPIKING STD. IN HEXANE (13C12,99%)CONT. 2% DODECANE/10% NONANE		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	50.0000000000 ppm Central Nervous System impairment Eye irritation Peripheral neuropathy.
N-NONANE UNLABELED (111-84-2)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	200.0000000000 ppm Central Nervous System impairment.
N-HEXANE UNLABELED (110-54-3)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	50.0000000000 ppm Central Nervous System impairment Eye irritation Peripheral neuropathy.
USA OSHA	OSHA PEL (TWA) (ppm)	50.0000000000 ppm

#### 8.2. Exposure controls

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



Hand protection : Wear suitable protective clothing and gloves.  
Eye protection : Wear safety glasses with side shields (or goggles) and a face shield.  
Skin and body protection : Wear suitable protective clothing.  
Respiratory protection : Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. Wear respiratory protection.  
Other information : Do not eat, drink or smoke when using this product.

### SECTION 9: Physical and chemical properties

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

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

Physical state : Liquid  
Appearance : Liquid.  
Molecular mass : 86.18 g/mol  
Colour : Colourless.  
Odour : No data available  
Odour threshold : No data available  
pH : 7.0  
Relative evaporation rate (butylacetate=1) : 15.8  
Melting point : -95 °C (-139 °F)  
Freezing point : No data available  
Boiling point : 69 °C (156 °F)  
Flash point : -26.0 °C (-14.8 °F) - closed cup  
Self ignition temperature : 234 °C (453 °F)  
Decomposition temperature : No data available  
Flammability (solid, gas) : Highly flammable liquid and vapour  
Vapour pressure : 341.3 hPa (256.0 mmHg) at 37.7 °C (99.9 °F). 176.0 hPa (132.0 mmHg) at 20 °C  
Relative vapour density at 20 °C : No data available  
Relative density : No data available  
Density : 0.659 g/ml at 25 °C (77 °F)  
Solubility : Water: 0 %  
Log Pow : 3.9 - 4.11  
Log Kow : No data available  
Viscosity, kinematic : No data available  
Viscosity, dynamic : No data available  
Explosive properties : No data available  
Oxidising properties : No data available

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Explosive limits : 1.2 - 7.7 % (V)

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Vapors may form explosive mixture with air.

### 10.2. Chemical stability

See storage and expiration date on CoA.

### 10.3. Possibility of hazardous reactions

No additional information available

### 10.4. Conditions to avoid

Open flame. Direct sunlight.

### 10.5. Incompatible materials

Oxidizing agents.

### 10.6. Hazardous decomposition products

May release flammable gases.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Not classified

MULTI-ANALYTE RECOVERY SPIKING STD. IN HEXANE (13C12,99%)CONT. 2% DODECANE/10% NONANE	
LD50 oral rat	25000 mg/kg
LC50 inhalation rat (ppm)	48000 ppm 4 h
ATE (oral)	25000.000 mg/kg bodyweight

N-NONANE UNLABELED (111-84-2)	
LC50 inhalation rat (mg/l)	23760 mg/m <sup>3</sup> male - 4 h
LC50 inhalation rat (ppm)	3200 ppm/4h
ATE (gases)	3200.000 ppmV/4h
ATE (vapours)	11.000 mg/l/4h
ATE (dust,mist)	23.760 mg/l/4h

DODECANE UNLABELED (112-40-3)	
LC50 inhalation rat (ppm)	> 142 ppm 8 h

N-HEXANE UNLABELED (110-54-3)	
LD50 oral rat	25000 mg/kg
LC50 inhalation rat (ppm)	48000 ppm 4 h
ATE (oral)	25000.000 mg/kg bodyweight

Skin corrosion/irritation	: Causes skin irritation. No data available pH: 7.0
Serious eye damage/irritation	: Causes serious eye irritation. Eyes - rabbit - Mild eye irritation pH: 7.0
Respiratory or skin sensitisation	: Not available May be fatal if swallowed and enters airways.
Germ cell mutagenicity	: Not available
Carcinogenicity	: Not classified
Reproductive toxicity	: Suspected reproductive toxicant. Laboratory experiments have shown teratogenic effects. Overexposure may cause reproductive disorders with laboratory animals. Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.
Specific target organ toxicity (single exposure)	: May cause drowsiness or dizziness. May cause damage to organs (kidneys, peripheral nervous system, testis). May cause damage to organs.
Specific target organ toxicity (repeated exposure)	: Not classified No data available

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Aspiration hazard	: May be fatal if swallowed and enters airways.
Potential Adverse human health effects and symptoms	: Defatting. Dermatitis. Blurred vision. Redness in the eyes. Provokes tears. Gastrointestinal discomfort. Central nervous system depression. Lung irritation. Chest pain. Pulmonary edema. Giddiness. Slowed reaction time. Slurred speech. Headache. Dizziness. Drowsiness. Unconsciousness.
Symptoms/injuries after inhalation	: May cause drowsiness or dizziness.
Symptoms/injuries after skin contact	: Causes skin irritation.
Symptoms/injuries after eye contact	: Causes eye irritation.
Symptoms/injuries after ingestion	: May be fatal if swallowed and enters airways.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - water : Very toxic to aquatic life with long lasting effects.

<b>MULTI-ANALYTE RECOVERY SPIKING STD. IN HEXANE (13C12,99%)CONT. 2% DODECANE/10% NONANE</b>	
LC50 fishes 1	>= 2.5 mg/l Pimephales promelas (fathead minnow) - 96.0 h
EC50 Daphnia 1	>= 3878.00 mg/l Daphnia magna (Water flea) - 48 h
ErC50 (algae)	>= 1284.00 mg/l Chlorella vulgaris (Fresh water algae) - 3 h.
<b>N-HEXANE UNLABELED (110-54-3)</b>	
LC50 fishes 1	>= 2.5 mg/l Pimephales promelas (fathead minnow) - 96.0 h
EC50 Daphnia 1	>= 3878.00 mg/l Daphnia magna (Water flea) - 48 h
ErC50 (algae)	>= 1284.00 mg/l Chlorella vulgaris (Fresh water algae) - 3 h.

### 12.2. Persistence and degradability

<b>MULTI-ANALYTE RECOVERY SPIKING STD. IN HEXANE (13C12,99%)CONT. 2% DODECANE/10% NONANE</b>	
Persistence and degradability	May cause long-term adverse effects in the environment.
<b>DODECANE UNLABELED (112-40-3)</b>	
Persistence and degradability	Not available.
<b>N-HEXANE UNLABELED (110-54-3)</b>	
Persistence and degradability	Not available.
<b>1,2,3,4-TETRACHLORODIBENZO-P-DIOXIN (13C6, 99%) (30746-58-8 (Unlabeled))</b>	
Persistence and degradability	Not available.
<b>3,3',4,4'-TETRABDE (BDE-77) (13C12, 99%) (93703-48-1 (Unlabeled))</b>	
Persistence and degradability	Not available.
<b>2,2',3,4,4',6-HEXABDE (BDE-139) (13C12, 99%) (488710-25-4)</b>	
Persistence and degradability	Not available.

### 12.3. Bioaccumulative potential

<b>MULTI-ANALYTE RECOVERY SPIKING STD. IN HEXANE (13C12,99%)CONT. 2% DODECANE/10% NONANE</b>	
Log Pow	3.9 - 4.11
Bioaccumulative potential	Not available.
<b>N-NONANE UNLABELED (111-84-2)</b>	
Log Pow	5.65
Bioaccumulative potential	Indication of bioaccumulation.
<b>N-HEXANE UNLABELED (110-54-3)</b>	
Log Pow	3.9 - 4.11
Bioaccumulative potential	Not available.
<b>1,2,3,4-TETRACHLORODIBENZO-P-DIOXIN (13C6, 99%) (30746-58-8 (Unlabeled))</b>	
Bioaccumulative potential	Not available.
<b>3,3',4,4'-TETRABDE (BDE-77) (13C12, 99%) (93703-48-1 (Unlabeled))</b>	
Bioaccumulative potential	Not available.
<b>2,2',3,4,4',6-HEXABDE (BDE-139) (13C12, 99%) (488710-25-4)</b>	
Bioaccumulative potential	Not available.



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### 12.4. Mobility in soil

MULTI-ANALYTE RECOVERY SPIKING STD. IN HEXANE (13C12,99%)CONT. 2% DODECANE/10% NONANE	
Ecology - soil	Not available.
DODECANE UNLABELED (112-40-3)	
Ecology - soil	Not available.
N-HEXANE UNLABELED (110-54-3)	
Ecology - soil	Not available.
1,2,3,4-TETRACHLORODIBENZO-P-DIOXIN (13C6, 99%) (30746-58-8 (Unlabeled))	
Ecology - soil	Not available.
3,3',4,4'-TETRABDE (BDE-77) (13C12, 99%) (93703-48-1 (Unlabeled))	
Ecology - soil	Not available.
2,2',3,4,4',6-HEXABDE (BDE-139) (13C12, 99%) (488710-25-4)	
Ecology - soil	Not available.

### 12.5. Results of PBT and vPvB assessment

No additional information available

### 12.6. Other adverse effects

Other adverse effects : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

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

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

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

Ecology - waste materials : Hazardous waste due to toxicity.

## SECTION 14: Transport information

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

### 14.1. UN number

UN-No.(DOT) : 1208  
DOT NA no. UN1208

### 14.2. UN proper shipping name

DOT Proper Shipping Name : Hexanes

Department of Transportation (DOT) Hazard Classes : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120

Hazard labels (DOT) : 3 - Flammable liquid



Packing group (DOT) : II - Medium Danger

DOT Special Provisions (49 CFR 172.102) : IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.  
T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)  
TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling =  $97 / (1 + a (tr - tf))$  Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.

DOT Packaging Exceptions (49 CFR 173.xxx) : 150

DOT Packaging Non Bulk (49 CFR 173.xxx) : 202

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

### 14.3. Additional information

Other information : No supplementary information available.

# MULTI-ANALYTE RECOVERY SPIKING STD. IN HEXANE (13C12,99%)CONT. 2% DODECANE/10% NONANE ES-5321

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### Overland transport

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



Orange plates :

Tunnel restriction code : D/E  
Limited quantities (ADR) : 1L  
EAC code : 3YE  
Excepted quantities (ADR) : E2

### Transport by sea

DOT Vessel Stowage Location : E - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length, but is prohibited from carriage on passenger vessels in which the limiting number of passengers is exceeded.  
MFAG-No : 128

### Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L  
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L  
Civil Aeronautics Law : Flammable liquids(Hazardous materials notice Appended Table 1 Article 194 of the Enforcement Regulations)

### 14.4. Environmental hazards

Dangerous for the environment :



Other information : No supplementary information available.

### 14.5. Special precautions for user

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

Not applicable

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### MULTI-ANALYTE RECOVERY SPIKING STD. IN HEXANE (13C12,99%)CONT. 2% DODECANE/10% NONANE

Listed on SARA Section 313 (Specific toxic chemical listings)

SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard
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#### N-NONANE UNLABELED (111-84-2)

SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard
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### DODECANE UNLABELED (112-40-3)

SARA Section 311/312 Hazard Classes	Fire hazard
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### N-HEXANE UNLABELED (110-54-3)

Listed on SARA Section 313 (Specific toxic chemical listings)

SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard
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## 15.2. International regulations

### CANADA

#### MULTI-ANALYTE RECOVERY SPIKING STD. IN HEXANE (13C12,99%)CONT. 2% DODECANE/10% NONANE

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

#### N-HEXANE UNLABELED (110-54-3)

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

### 15.2.1. National regulations

No additional information available

## 15.3. US State regulations

### MULTI-ANALYTE RECOVERY SPIKING STD. IN HEXANE (13C12,99%)CONT. 2% DODECANE/10% NONANE()

State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
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### N-NONANE UNLABELED (111-84-2)

U.S. - Massachusetts - Right To Know List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - New Jersey - Right to Know Hazardous Substance List  
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

### DODECANE UNLABELED (112-40-3)

U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - New Jersey - Right to Know Hazardous Substance List  
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

### N-HEXANE UNLABELED (110-54-3)

U.S. - Massachusetts - Right To Know List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - New Jersey - Right to Know Hazardous Substance List  
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

## SECTION 16: Other information

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

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

Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 4

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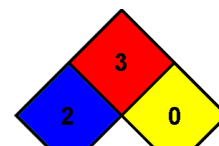
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment — AcuteHazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2
Asp. Tox. 1	Aspiration hazard, Category 1
Carc. 1A	Carcinogenicity, Category 1A
Carc. 1B	Carcinogenicity, Category 1B
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
Repr. 2	Reproductive toxicity, Category 2
Repr. 2	Reproductive toxicity, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Sensitisation — Skin, category 1
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
STOT SE 2	Specific target organ toxicity — Single exposure, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
H225	Highly flammable liquid and vapour
H226	Flammable liquid and vapour
H302	Harmful if swallowed
H304	May be fatal if swallowed and enters airways
H312	Harmful in contact with skin
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H332	Harmful if inhaled
H336	May cause drowsiness or dizziness
H350	May cause cancer
H361	Suspected of damaging fertility or the unborn child
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child
H371	May cause damage to organs
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
R10	Flammable
R11	Highly flammable
R20	Harmful by inhalation
R21	Harmful in contact with skin
R22	Harmful if swallowed
R33	Danger of cumulative effects
R37	Irritating to respiratory system
R38	Irritating to skin
R41	Risk of serious damage to eyes
R45	May cause cancer
R48/20/21/22	Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed
R49	May cause cancer by inhalation
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R65	Harmful: may cause lung damage if swallowed
R67	Vapours may cause drowsiness and dizziness
F	Highly flammable
N	Dangerous for the environment
Xi	Irritant
Xn	Harmful

NFPA health hazard

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

NFPA fire hazard

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



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

### HMIS III Rating

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

### CIL Mixture SDS

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*