

# SAFETY DATA SHEET



Sample kit for Xsens, Part Number 94906561

## Section 1. Identification

This product is considered an article. This Material Safety Data Sheet is written based on the encapsulated substance or mixture in this article.

- Product name** : Sample kit for Xsens, Part Number 94906561
- Part No. (Chemical Kit)** : 94906561
- Part No.** :
 

13C S/N ASTM	96812069
1H S/N	96812070
1H Lineshape	96812089
13C S/N ASTM doped	96812091
4Hz 1% H2O/D2O	190185501
- Validation date** : 11/05/2013.

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

- Material uses** : Analytical chemistry.
 

13C S/N ASTM	860 µl
1H S/N	860 µl
1H Lineshape	860 µl
13C S/N ASTM doped	860 µl
4Hz 1% H2O/D2O	860 µl

- Supplier/Manufacturer** : Agilent Technologies, Inc.  
 Logistics Center - Americas  
 500 Ships Landing Way  
 New Castle, Delaware 19720  
 800-227-9770

- In case of emergency** : CHEMTREC®: 1-800-424-9300

## Section 2. Hazards identification

This article, when used under reasonable conditions and in accordance with the directions for use, should not present a health hazard. The substance or mixture is encapsulated in the article. Only if released due to use or processing of the article in a manner not in accordance with the product's directions for use it may present potential health and safety hazards.

- OSHA/HCS status** :
 

13C S/N ASTM	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
1H S/N	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
1H Lineshape	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
13C S/N ASTM doped	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
4Hz 1% H2O/D2O	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this

## Section 2. Hazards identification

**Classification of the substance or mixture**

: 13C S/N ASTM

product.  
 FLAMMABLE LIQUIDS - Category 2  
 ACUTE TOXICITY (oral) - Category 4  
 SKIN CORROSION/IRRITATION - Category 2  
 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A  
 GERM CELL MUTAGENICITY - Category 1B  
 CARCINOGENICITY - Category 1A  
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation and Narcotic effects) - Category 3  
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1  
 ASPIRATION HAZARD - Category 1  
 ACUTE TOXICITY (oral) - Category 4  
 SKIN CORROSION/IRRITATION - Category 2  
 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A  
 CARCINOGENICITY - Category 2  
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation and Narcotic effects) - Category 3  
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2  
 ASPIRATION HAZARD - Category 1  
 FLAMMABLE LIQUIDS - Category 2  
 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A  
 CARCINOGENICITY - Category 2  
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3  
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2  
 ASPIRATION HAZARD - Category 1  
 FLAMMABLE LIQUIDS - Category 2  
 ACUTE TOXICITY (oral) - Category 4  
 SKIN CORROSION/IRRITATION - Category 2  
 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A  
 GERM CELL MUTAGENICITY - Category 1B  
 CARCINOGENICITY - Category 1A  
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation and Narcotic effects) - Category 3  
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1  
 ASPIRATION HAZARD - Category 1  
 Not classified.

1H S/N

1H Lineshape

13C S/N ASTM doped

4Hz 1% H2O/D2O

**GHS label elements**

**Hazard pictograms**



## Section 2. Hazards identification

<b>Signal word</b>	: 13C S/N ASTM 1H S/N 1H Lineshape 13C S/N ASTM doped 4Hz 1% H2O/D2O	Danger Danger Danger Danger No signal word.
<b>Hazard statements</b>	: 13C S/N ASTM  1H S/N  1H Lineshape  13C S/N ASTM doped  4Hz 1% H2O/D2O	Highly flammable liquid and vapor. Harmful if swallowed. Causes serious eye irritation. Causes skin irritation. May cause genetic defects. May cause cancer. May be fatal if swallowed and enters airways. May cause respiratory irritation. May cause drowsiness and dizziness. Causes damage to organs through prolonged or repeated exposure. Harmful if swallowed. Causes serious eye irritation. Causes skin irritation. Suspected of causing cancer. May be fatal if swallowed and enters airways. May cause respiratory irritation. May cause drowsiness and dizziness. May cause damage to organs through prolonged or repeated exposure. Highly flammable liquid and vapor. Causes serious eye irritation. Suspected of causing cancer. May be fatal if swallowed and enters airways. May cause drowsiness and dizziness. May cause damage to organs through prolonged or repeated exposure. Highly flammable liquid and vapor. Harmful if swallowed. Causes serious eye irritation. Causes skin irritation. May cause genetic defects. May cause cancer. May be fatal if swallowed and enters airways. May cause respiratory irritation. May cause drowsiness and dizziness. Causes damage to organs through prolonged or repeated exposure. No known significant effects or critical hazards.

### Precautionary statements

#### **Prevention**

- : P201 - Obtain special instructions before use.
- P202 - Do not handle until all safety precautions have been read and understood.
- P281 - Use personal protective equipment as required.
- P280 - Wear protective gloves. Wear eye or face protection.
- P210 - Keep away from heat, sparks, open flames and hot surfaces. - No smoking.
- P241 - Use explosion-proof electrical, ventilating, lighting and all material-handling equipment.
- P242 - Use only non-sparking tools.
- P243 - Take precautionary measures against static discharge.
- P233 - Keep container tightly closed.
- P271 - Use only outdoors or in a well-ventilated area.
- P260 - Do not breathe vapor.
- P270 - Do not eat, drink or smoke when using this product.



## Section 3. Composition/information on ingredients

Ingredient name	%	CAS number
<b>13C S/N ASTM</b>		
( <sup>2</sup> H <sub>6</sub> )Benzene	30 - 60	1076-43-3
1,4-Dioxane	30 - 60	123-91-1
<b>1H S/N</b>		
( <sup>2</sup> H)Chloroform	60 - 100	865-49-6
Ethylbenzene	< 0.1	100-41-4
<b>1H Lineshape</b>		
( <sup>2</sup> H <sub>6</sub> )Acetone	60 - 100	666-52-4
Trichloromethane	0.1 - 1	67-66-3
<b>13C S/N ASTM doped</b>		
( <sup>2</sup> H <sub>6</sub> )Benzene	30 - 60	1076-43-3
1,4-Dioxane	30 - 60	123-91-1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### Description of necessary first aid measures

<b>Eye contact</b>	: 13C S/N ASTM	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
	1H S/N	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
	1H Lineshape	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
	13C S/N ASTM doped	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
	4Hz 1% H <sub>2</sub> O/D <sub>2</sub> O	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
<b>Inhalation</b>	: 13C S/N ASTM	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the

## Section 4. First aid measures

1H S/N	<p>person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.</p> <p>Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.</p>
1H Lineshape	<p>In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.</p> <p>Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.</p>
13C S/N ASTM doped	<p>In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.</p> <p>Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.</p>
4Hz 1% H2O/D2O	<p>Remove victim to fresh air and keep at rest in a</p>

## Section 4. First aid measures

<b>Skin contact</b>	: 13C S/N ASTM
	1H S/N
	1H Lineshape
	13C S/N ASTM doped
	4Hz 1% H2O/D2O

position comfortable for breathing. Get medical attention if symptoms occur.

Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

**Ingestion** : 13C S/N ASTM

Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention

## Section 4. First aid measures

1H Lineshape

immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

13C S/N ASTM doped

4Hz 1% H<sub>2</sub>O/D<sub>2</sub>O

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

<b>Eye contact</b>	:	13C S/N ASTM	Causes serious eye irritation.
		1H S/N	Causes serious eye irritation.
		1H Lineshape	Causes serious eye irritation.
		13C S/N ASTM doped	Causes serious eye irritation.
		4Hz 1% H <sub>2</sub> O/D <sub>2</sub> O	No known significant effects or critical hazards.
<b>Inhalation</b>	:	13C S/N ASTM	Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation.
		1H S/N	Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation. Exposure to decomposition products may cause a health hazard.
		1H Lineshape	Serious effects may be delayed following exposure. Can cause central nervous system (CNS)

## Section 4. First aid measures

		depression. May cause drowsiness and dizziness. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
	13C S/N ASTM doped	Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation.
<b>Skin contact</b>	4Hz 1% H2O/D2O	No known significant effects or critical hazards.
	: 13C S/N ASTM	Causes skin irritation. Defatting to the skin.
	1H S/N	Causes skin irritation.
	1H Lineshape	Defatting to the skin. May cause skin dryness and irritation.
<b>Ingestion</b>	13C S/N ASTM doped	Causes skin irritation. Defatting to the skin.
	4Hz 1% H2O/D2O	No known significant effects or critical hazards.
	: 13C S/N ASTM	Harmful if swallowed. Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach.
	1H S/N	Harmful if swallowed. Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach.
	1H Lineshape	Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach.
	13C S/N ASTM doped	Harmful if swallowed. Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach.
	4Hz 1% H2O/D2O	No known significant effects or critical hazards.
<b><u>Over-exposure signs/symptoms</u></b>		
<b>Eye contact</b>	: 13C S/N ASTM	Adverse symptoms may include the following: pain or irritation watering redness
	1H S/N	Adverse symptoms may include the following: pain or irritation watering redness
	1H Lineshape	Adverse symptoms may include the following: pain or irritation watering redness
	13C S/N ASTM doped	Adverse symptoms may include the following: pain or irritation watering redness
<b>Inhalation</b>	4Hz 1% H2O/D2O	No specific data.
	: 13C S/N ASTM	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
	1H S/N	Adverse symptoms may include the following: respiratory tract irritation

## Section 4. First aid measures

		coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
	1H Lineshape	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
	13C S/N ASTM doped	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
<b>Skin contact</b>	4Hz 1% H2O/D2O	No specific data.
	: 13C S/N ASTM	Adverse symptoms may include the following: irritation redness dryness cracking
	1H S/N	Adverse symptoms may include the following: irritation redness
	1H Lineshape	Adverse symptoms may include the following: irritation dryness cracking
	13C S/N ASTM doped	Adverse symptoms may include the following: irritation redness dryness cracking
<b>Ingestion</b>	4Hz 1% H2O/D2O	No specific data.
	: 13C S/N ASTM	Adverse symptoms may include the following: nausea or vomiting
	1H S/N	Adverse symptoms may include the following: nausea or vomiting
	1H Lineshape	Adverse symptoms may include the following: nausea or vomiting
	13C S/N ASTM doped	Adverse symptoms may include the following: nausea or vomiting
	4Hz 1% H2O/D2O	No specific data.

### Indication of immediate medical attention and special treatment needed, if necessary

<b>Notes to physician</b>	: 13C S/N ASTM	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	1H S/N	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
	1H Lineshape	In case of inhalation of decomposition products in a

## Section 4. First aid measures

fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

<b>Specific treatments</b>	:	13C S/N ASTM	No specific treatment.
		1H S/N	No specific treatment.
		1H Lineshape	No specific treatment.
		13C S/N ASTM doped	No specific treatment.
		4Hz 1% H2O/D2O	No specific treatment.
<b>Protection of first-aiders</b>	:	13C S/N ASTM	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
		1H S/N	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
		1H Lineshape	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
		13C S/N ASTM doped	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
		4Hz 1% H2O/D2O	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

<b>Suitable extinguishing media</b>	:	13C S/N ASTM	Use dry chemical, CO <sub>2</sub> , water spray (fog) or foam.
		1H S/N	Use an extinguishing agent suitable for the surrounding fire.
		1H Lineshape	Use dry chemical, CO <sub>2</sub> , water spray (fog) or foam.
		13C S/N ASTM doped	Use dry chemical, CO <sub>2</sub> , water spray (fog) or foam.
		4Hz 1% H2O/D2O	Use an extinguishing agent suitable for the surrounding fire.



## Section 5. Fire-fighting measures

	4Hz 1% H2O/D2O	without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
<b>Special protective equipment for fire-fighters</b>	: 13C S/N ASTM	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	1H S/N	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	1H Lineshape	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	13C S/N ASTM doped	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	4Hz 1% H2O/D2O	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

<b>Environmental precautions</b>	: 13C S/N ASTM	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	1H S/N	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	1H Lineshape	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	13C S/N ASTM doped	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 6. Accidental release measures

4Hz 1% H2O/D2O

Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

13C S/N ASTM

Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

1H S/N

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

1H Lineshape

Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

13C S/N ASTM doped

Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

4Hz 1% H2O/D2O

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

### Precautions for safe handling

**Protective measures** : 13C S/N ASTM

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

## Section 7. Handling and storage

1H S/N

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

1H Lineshape

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

13C S/N ASTM doped

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

4Hz 1% H<sub>2</sub>O/D<sub>2</sub>O

Put on appropriate personal protective equipment (see Section 8).

## Section 7. Handling and storage

<b>Advice on general occupational hygiene</b>	: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.										
<b>Conditions for safe storage, including any incompatibilities</b>	<table border="0"> <tr> <td data-bbox="454 388 925 787">: 13C S/N ASTM</td> <td data-bbox="925 388 1526 787">Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.</td> </tr> <tr> <td data-bbox="454 787 925 1123">1H S/N</td> <td data-bbox="925 787 1526 1123">Store in accordance with local regulations. 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Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.</td> </tr> <tr> <td data-bbox="454 1512 925 1900">13C S/N ASTM doped</td> <td data-bbox="925 1512 1526 1900">Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.</td> </tr> <tr> <td data-bbox="454 1900 925 1995">4Hz 1% H2O/D2O</td> <td data-bbox="925 1900 1526 1995">Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from</td> </tr> </table>	: 13C S/N ASTM	Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. 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## Section 7. Handling and storage

incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

## Section 8. Exposure controls/personal protection

Since the hazardous ingredient in this article is encapsulated, the risk of exposure by inhalation, ingestion, skin contact and eyes contact is minimum.

### [Control parameters](#)

#### [Occupational exposure limits](#)

Ingredient name	Exposure limits
<b>13C S/N ASTM</b> <sup>(2)H<sub>6</sub></sup> Benzene	<b>ACGIH TLV (United States, 3/2012).</b> <b>Absorbed through skin.</b> TWA: 0.5 ppm 8 hours. TWA: 1.6 mg/m <sup>3</sup> 8 hours. STEL: 2.5 ppm 15 minutes. STEL: 8 mg/m <sup>3</sup> 15 minutes. <b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 1 ppm 8 hours. STEL: 5 ppm 15 minutes. <b>OSHA PEL Z2 (United States, 11/2006).</b> TWA: 10 ppm 8 hours. CEIL: 25 ppm AMP: 50 ppm 10 minutes. <b>NIOSH REL (United States, 6/2009).</b> TWA: 0.1 ppm 10 hours. STEL: 1 ppm 15 minutes. <b>OSHA PEL (United States, 6/2010).</b> TWA: 1 ppm 8 hours. STEL: 5 ppm 15 minutes.
1,4-Dioxane	<b>OSHA PEL 1989 (United States, 3/1989).</b> <b>Absorbed through skin.</b> TWA: 25 ppm 8 hours. TWA: 90 mg/m <sup>3</sup> 8 hours. <b>NIOSH REL (United States, 1/2013).</b> CEIL: 1 ppm 30 minutes. CEIL: 3.6 mg/m <sup>3</sup> 30 minutes. <b>ACGIH TLV (United States, 3/2012).</b> <b>Absorbed through skin.</b> TWA: 20 ppm 8 hours. <b>OSHA PEL (United States, 6/2010).</b> <b>Absorbed through skin.</b> TWA: 100 ppm 8 hours. TWA: 360 mg/m <sup>3</sup> 8 hours.
<b>1H S/N</b> <sup>(2)H</sup> Chloroform	<b>ACGIH TLV (United States, 3/2012).</b> TWA: 10 ppm 8 hours. TWA: 49 mg/m <sup>3</sup> 8 hours. <b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 2 ppm 8 hours.

## Section 8. Exposure controls/personal protection

Ethylbenzene

TWA: 9.78 mg/m<sup>3</sup> 8 hours.  
**NIOSH REL (United States, 6/2009).**  
 STEL: 2 ppm 60 minutes.  
 STEL: 9.78 mg/m<sup>3</sup> 60 minutes.  
**OSHA PEL (United States, 6/2010).**  
 CEIL: 50 ppm  
 CEIL: 240 mg/m<sup>3</sup>

**ACGIH TLV (United States, 3/2012).**

TWA: 20 ppm 8 hours.

**NIOSH REL (United States, 1/2013).**

STEL: 545 mg/m<sup>3</sup> 15 minutes.

STEL: 125 ppm 15 minutes.

TWA: 435 mg/m<sup>3</sup> 10 hours.

TWA: 100 ppm 10 hours.

**OSHA PEL (United States, 6/2010).**

TWA: 435 mg/m<sup>3</sup> 8 hours.

TWA: 100 ppm 8 hours.

**OSHA PEL 1989 (United States, 3/1989).**

STEL: 545 mg/m<sup>3</sup> 15 minutes.

STEL: 125 ppm 15 minutes.

TWA: 435 mg/m<sup>3</sup> 8 hours.

TWA: 100 ppm 8 hours.

**1H Lineshape**  
 (<sup>2</sup>H<sub>6</sub>)Acetone

**ACGIH TLV (United States, 3/2012).**

TWA: 500 ppm 8 hours.

TWA: 1188 mg/m<sup>3</sup> 8 hours.

STEL: 750 ppm 15 minutes.

STEL: 1782 mg/m<sup>3</sup> 15 minutes.

**OSHA PEL 1989 (United States, 3/1989).**

TWA: 750 ppm 8 hours.

TWA: 1800 mg/m<sup>3</sup> 8 hours.

STEL: 1000 ppm 15 minutes.

STEL: 2400 mg/m<sup>3</sup> 15 minutes.

**NIOSH REL (United States, 6/2009).**

TWA: 250 ppm 10 hours.

TWA: 590 mg/m<sup>3</sup> 10 hours.

**OSHA PEL (United States, 6/2010).**

TWA: 1000 ppm 8 hours.

TWA: 2400 mg/m<sup>3</sup> 8 hours.

Trichloromethane

**ACGIH TLV (United States, 3/2012).**

TWA: 49 mg/m<sup>3</sup> 8 hours.

TWA: 10 ppm 8 hours.

**NIOSH REL (United States, 1/2013).**

STEL: 9.78 mg/m<sup>3</sup> 60 minutes.

STEL: 2 ppm 60 minutes.

**OSHA PEL (United States, 6/2010).**

CEIL: 240 mg/m<sup>3</sup>

CEIL: 50 ppm

**OSHA PEL 1989 (United States, 3/1989).**

TWA: 9.78 mg/m<sup>3</sup> 8 hours.

TWA: 2 ppm 8 hours.

**13C S/N ASTM doped**  
 (<sup>2</sup>H<sub>6</sub>)Benzene

**ACGIH TLV (United States, 3/2012).**

Absorbed through skin.

## Section 8. Exposure controls/personal protection

1,4-Dioxane

TWA: 0.5 ppm 8 hours.  
 TWA: 1.6 mg/m<sup>3</sup> 8 hours.  
 STEL: 2.5 ppm 15 minutes.  
 STEL: 8 mg/m<sup>3</sup> 15 minutes.  
**OSHA PEL 1989 (United States, 3/1989).**  
 TWA: 1 ppm 8 hours.  
 STEL: 5 ppm 15 minutes.  
**OSHA PEL Z2 (United States, 11/2006).**  
 TWA: 10 ppm 8 hours.  
 CEIL: 25 ppm  
 AMP: 50 ppm 10 minutes.  
**NIOSH REL (United States, 6/2009).**  
 TWA: 0.1 ppm 10 hours.  
 STEL: 1 ppm 15 minutes.  
**OSHA PEL (United States, 6/2010).**  
 TWA: 1 ppm 8 hours.  
 STEL: 5 ppm 15 minutes.  
**OSHA PEL 1989 (United States, 3/1989).**  
**Absorbed through skin.**  
 TWA: 25 ppm 8 hours.  
 TWA: 90 mg/m<sup>3</sup> 8 hours.  
**NIOSH REL (United States, 1/2013).**  
 CEIL: 1 ppm 30 minutes.  
 CEIL: 3.6 mg/m<sup>3</sup> 30 minutes.  
**ACGIH TLV (United States, 3/2012).**  
**Absorbed through skin.**  
 TWA: 20 ppm 8 hours.  
**OSHA PEL (United States, 6/2010).**  
**Absorbed through skin.**  
 TWA: 100 ppm 8 hours.  
 TWA: 360 mg/m<sup>3</sup> 8 hours.

### Appropriate engineering controls

: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

### Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

#### Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

#### Eye/face protection

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

#### Skin protection

## Section 8. Exposure controls/personal protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## Section 9. Physical and chemical properties

### Appearance

<b>Physical state</b>	: 13C S/N ASTM	Liquid.
	1H S/N	Liquid.
	1H Lineshape	Liquid.
	13C S/N ASTM doped	Liquid.
	4Hz 1% H2O/D2O	Liquid.
<b>Color</b>	: 13C S/N ASTM	Colorless.
	1H S/N	Not available.
	1H Lineshape	Not available.
	13C S/N ASTM doped	Colorless.
	4Hz 1% H2O/D2O	Not available.
<b>Odor</b>	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	1H Lineshape	Not available.
	13C S/N ASTM doped	Not available.
	4Hz 1% H2O/D2O	Not available.
<b>Odor threshold</b>	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	1H Lineshape	Not available.
	13C S/N ASTM doped	Not available.
	4Hz 1% H2O/D2O	Not available.
<b>pH</b>	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	1H Lineshape	Not available.
	13C S/N ASTM doped	Not available.
	4Hz 1% H2O/D2O	Not available.
<b>Melting point</b>	: 13C S/N ASTM	6.8°C (44.2°F)
	1H S/N	-64°C (-83.2°F)
	1H Lineshape	-95°C (-139°F)
	13C S/N ASTM doped	6.8°C (44.2°F)
	4Hz 1% H2O/D2O	Not available.

## Section 9. Physical and chemical properties

<b>Boiling point</b>	: 13C S/N ASTM	79.1°C (174.4°F)
	1H S/N	60.9°C (141.6°F)
	1H Lineshape	55.5°C (131.9°F)
	13C S/N ASTM doped	79.1°C (174.4°F)
	4Hz 1% H2O/D2O	101.4°C (214.5°F)
<b>Flash point</b>	: 13C S/N ASTM	Closed cup: -18 to 23°C (-0.4 to 73.4°F)
	1H S/N	Not available.
	1H Lineshape	Closed cup: -17°C (1.4°F)
	13C S/N ASTM doped	Closed cup: 21.1°C (70°F)
	4Hz 1% H2O/D2O	Not available.
<b>Evaporation rate</b>	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	1H Lineshape	Not available.
	13C S/N ASTM doped	Not available.
	4Hz 1% H2O/D2O	Not available.
<b>Flammability (solid, gas)</b>	: 13C S/N ASTM	Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
	1H S/N	Not available.
	1H Lineshape	Not available.
	13C S/N ASTM doped	Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
	4Hz 1% H2O/D2O	Keep away from heat. Not available.
<b>Lower and upper explosive (flammable) limits</b>	: 13C S/N ASTM	Lower: 1.3% Upper: 8%
	1H S/N	Not available.
	1H Lineshape	Not available.
	13C S/N ASTM doped	Not available.
	4Hz 1% H2O/D2O	Not available.
<b>Vapor pressure</b>	: 13C S/N ASTM	22.1 kPa (166 mm Hg) [room temperature]
	1H S/N	Not available.
	1H Lineshape	Not available.
	13C S/N ASTM doped	22.1 kPa (166 mm Hg) [room temperature]
	4Hz 1% H2O/D2O	Not available.
<b>Vapor density</b>	: 13C S/N ASTM	>1 [Air = 1]
	1H S/N	Not available.
	1H Lineshape	Not available.
	13C S/N ASTM doped	2.77 [Air = 1]
	4Hz 1% H2O/D2O	Not available.
<b>Relative density</b>	: 13C S/N ASTM	0.95
	1H S/N	1.5
	1H Lineshape	0.872
	13C S/N ASTM doped	0.98
	4Hz 1% H2O/D2O	1.107
<b>Solubility</b>	: 13C S/N ASTM	Easily soluble in the following materials: cold water and hot water.
	1H S/N	Very slightly soluble in the following materials: cold water and hot water.
	1H Lineshape	Easily soluble in the following materials: cold water, hot water and acetone.
	13C S/N ASTM doped	Easily soluble in the following materials: cold water and hot water.
	4Hz 1% H2O/D2O	Easily soluble in the following materials: cold water and hot water.

## Section 9. Physical and chemical properties

<b>Solubility in water</b>	: Not available.	
<b>Partition coefficient: n-octanol/water</b>	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	1H Lineshape	Not available.
	13C S/N ASTM doped	Not available.
	4Hz 1% H2O/D2O	Not available.
<b>Auto-ignition temperature</b>	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	1H Lineshape	Not available.
	13C S/N ASTM doped	Not available.
	4Hz 1% H2O/D2O	Not available.
<b>Decomposition temperature</b>	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	1H Lineshape	Not available.
	13C S/N ASTM doped	Not available.
	4Hz 1% H2O/D2O	Not available.
<b>Viscosity</b>	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	1H Lineshape	Not available.
	13C S/N ASTM doped	Not available.
	4Hz 1% H2O/D2O	Not available.

## Section 10. Stability and reactivity

<b>Reactivity</b>	: 13C S/N ASTM	No specific test data related to reactivity available for this product or its ingredients.
	1H S/N	No specific test data related to reactivity available for this product or its ingredients.
	1H Lineshape	No specific test data related to reactivity available for this product or its ingredients.
	13C S/N ASTM doped	No specific test data related to reactivity available for this product or its ingredients.
	4Hz 1% H2O/D2O	No specific test data related to reactivity available for this product or its ingredients.
<b>Chemical stability</b>	: 13C S/N ASTM	The product is stable.
	1H S/N	The product is stable.
	1H Lineshape	The product is stable.
	13C S/N ASTM doped	The product is stable.
	4Hz 1% H2O/D2O	The product is stable.
<b>Possibility of hazardous reactions</b>	: 13C S/N ASTM	Under normal conditions of storage and use, hazardous reactions will not occur.
	1H S/N	Under normal conditions of storage and use, hazardous reactions will not occur.
	1H Lineshape	Under normal conditions of storage and use, hazardous reactions will not occur.
	13C S/N ASTM doped	Under normal conditions of storage and use, hazardous reactions will not occur.
	4Hz 1% H2O/D2O	Under normal conditions of storage and use, hazardous reactions will not occur.

## Section 10. Stability and reactivity

<b>Conditions to avoid</b>	: 13C S/N ASTM  1H S/N 1H Lineshape  13C S/N ASTM doped  4Hz 1% H2O/D2O	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas. No specific data. Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas. No specific data.
<b>Incompatible materials</b>	: 13C S/N ASTM  1H S/N 1H Lineshape  13C S/N ASTM doped  4Hz 1% H2O/D2O	Reactive or incompatible with the following materials: oxidizing materials No specific data. Reactive or incompatible with the following materials: oxidizing materials Reactive or incompatible with the following materials: oxidizing materials No specific data.
<b>Hazardous decomposition products</b>	: 13C S/N ASTM  1H S/N  1H Lineshape  13C S/N ASTM doped  4Hz 1% H2O/D2O	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### [Information on toxicological effects](#)

#### [Acute toxicity](#)

## Section 11. Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
<b>13C S/N ASTM</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	LD50 Oral	Rat	930 mg/kg	-
1,4-Dioxane	LD50 Oral	Rat	4200 mg/kg	-
<b>1H S/N</b> ( <sup>2</sup> H)Chloroform	LC50 Inhalation Vapor	Rat	47702 mg/m <sup>3</sup>	4 hours
	LD50 Dermal	Rabbit	>20 g/kg	-
	LD50 Oral	Rat	300 mg/kg	-
Ethylbenzene	LC50 Inhalation Gas.	Rat	4000 ppm	4 hours
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
<b>1H Lineshape</b> ( <sup>2</sup> H <sub>6</sub> )Acetone	LD50 Oral	Rat	5800 mg/kg	-
Trichloromethane	LC50 Inhalation Vapor	Rat	47702 mg/m <sup>3</sup>	4 hours
	LD50 Dermal	Rabbit	>20 g/kg	-
	LD50 Oral	Rat	300 mg/kg	-
<b>13C S/N ASTM doped</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	LD50 Oral	Rat	930 mg/kg	-
1,4-Dioxane	LD50 Oral	Rat	4200 mg/kg	-

### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
<b>13C S/N ASTM</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	Eyes - Moderate irritant	Rabbit	-	88 milligrams	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 milligrams	-
	Skin - Mild irritant	Rat	-	8 hours 60 microliters	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
1,4-Dioxane	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Skin - Mild irritant	Rabbit	-	515 milligrams	-
<b>1H S/N</b> ( <sup>2</sup> H)Chloroform	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Ethylbenzene	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams	-
<b>1H Lineshape</b> ( <sup>2</sup> H <sub>6</sub> )Acetone	Eyes - Mild irritant	Human	-	186300 parts per million	-
	Eyes - Mild irritant	Rabbit	-	10 microliters	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Eyes - Severe irritant	Rabbit	-	20 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

## Section 11. Toxicological information

Trichloromethane	Skin - Mild irritant	Rabbit	-	395 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
<b>13C S/N ASTM doped</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	Eyes - Moderate irritant	Rabbit	-	88 milligrams	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 milligrams	-
	Skin - Mild irritant	Rat	-	8 hours 60 microliters	-
1,4-Dioxane	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Skin - Mild irritant	Rabbit	-	515 milligrams	-

### Sensitization

Not available.

### Mutagenicity

Not available.

### Carcinogenicity

Not available.

### Classification

Product/ingredient name	OSHA	IARC	NTP
<b>13C S/N ASTM</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	+	1	Known to be a human carcinogen.
1,4-Dioxane	-	2B	Reasonably anticipated to be a human carcinogen.
<b>1H S/N</b> ( <sup>2</sup> H)Chloroform	-	2B	Reasonably anticipated to be a human carcinogen.
Ethylbenzene	-	2B	-
<b>1H Lineshape</b> Trichloromethane	-	2B	Reasonably anticipated to be a human carcinogen.
<b>13C S/N ASTM doped</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	+	1	Known to be a human carcinogen.
1,4-Dioxane	-	2B	Reasonably anticipated to be a human carcinogen.

### Reproductive toxicity

Not available.

### Teratogenicity

Not available.

### Specific target organ toxicity (single exposure)

## Section 11. Toxicological information

Name	Category	Route of exposure	Target organs
<b>13C S/N ASTM</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
1,4-Dioxane	Category 3	Not applicable.	Respiratory tract irritation
<b>1H S/N</b> ( <sup>2</sup> H)Chloroform	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Ethylbenzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
<b>1H Lineshape</b> ( <sup>2</sup> H <sub>6</sub> )Acetone	Category 3	Not applicable.	Narcotic effects
Trichloromethane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
<b>13C S/N ASTM doped</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
1,4-Dioxane	Category 3	Not applicable.	Respiratory tract irritation

### Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
<b>13C S/N ASTM</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	Category 1	Oral Inhalation	blood system blood system
1,4-Dioxane	Category 1	Oral	kidneys and liver
<b>1H S/N</b> ( <sup>2</sup> H)Chloroform	Category 2	Not determined	kidneys and liver
<b>1H Lineshape</b> Trichloromethane	Category 2	Not determined	heart, kidneys and liver
<b>13C S/N ASTM doped</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	Category 1	Oral Inhalation	blood system blood system
1,4-Dioxane	Category 1	Oral	kidneys and liver

### Aspiration hazard

## Section 11. Toxicological information

Name	Result
<b>13C S/N ASTM</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	ASPIRATION HAZARD - Category 1
<b>1H S/N</b> ( <sup>2</sup> H)Chloroform Ethylbenzene	ASPIRATION HAZARD - Category 1 ASPIRATION HAZARD - Category 1
<b>13C S/N ASTM doped</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	ASPIRATION HAZARD - Category 1

**Information on the likely routes of exposure** : Not available.

### Potential acute health effects

<b>Eye contact</b>	: 13C S/N ASTM 1H S/N 1H Lineshape 13C S/N ASTM doped 4Hz 1% H <sub>2</sub> O/D <sub>2</sub> O	Causes serious eye irritation. Causes serious eye irritation. Causes serious eye irritation. Causes serious eye irritation. No known significant effects or critical hazards.
<b>Inhalation</b>	: 13C S/N ASTM  1H S/N  1H Lineshape  13C S/N ASTM doped  4Hz 1% H <sub>2</sub> O/D <sub>2</sub> O	Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation. Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure. Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure. Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation. No known significant effects or critical hazards.
<b>Skin contact</b>	: 13C S/N ASTM 1H S/N 1H Lineshape  13C S/N ASTM doped 4Hz 1% H <sub>2</sub> O/D <sub>2</sub> O	Causes skin irritation. Defatting to the skin. Causes skin irritation. Defatting to the skin. May cause skin dryness and irritation. Causes skin irritation. Defatting to the skin. No known significant effects or critical hazards.
<b>Ingestion</b>	: 13C S/N ASTM  1H S/N  1H Lineshape  13C S/N ASTM doped	Harmful if swallowed. Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach. Harmful if swallowed. Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach. Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach. Harmful if swallowed. Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth,

## Section 11. Toxicological information

4Hz 1% H2O/D2O throat and stomach.  
No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

<b>Eye contact</b>	: 13C S/N ASTM	Adverse symptoms may include the following: pain or irritation watering redness
	1H S/N	Adverse symptoms may include the following: pain or irritation watering redness
	1H Lineshape	Adverse symptoms may include the following: pain or irritation watering redness
	13C S/N ASTM doped	Adverse symptoms may include the following: pain or irritation watering redness
	4Hz 1% H2O/D2O	No specific data.
<b>Inhalation</b>	: 13C S/N ASTM	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
	1H S/N	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
	1H Lineshape	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
	13C S/N ASTM doped	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
	4Hz 1% H2O/D2O	No specific data.

## Section 11. Toxicological information

<b>Skin contact</b>	: 13C S/N ASTM	Adverse symptoms may include the following: irritation redness dryness cracking
	1H S/N	Adverse symptoms may include the following: irritation redness
	1H Lineshape	Adverse symptoms may include the following: irritation dryness cracking
	13C S/N ASTM doped	Adverse symptoms may include the following: irritation redness dryness cracking
	4Hz 1% H2O/D2O	No specific data.
<b>Ingestion</b>	: 13C S/N ASTM	Adverse symptoms may include the following: nausea or vomiting
	1H S/N	Adverse symptoms may include the following: nausea or vomiting
	1H Lineshape	Adverse symptoms may include the following: nausea or vomiting
	13C S/N ASTM doped	Adverse symptoms may include the following: nausea or vomiting
	4Hz 1% H2O/D2O	No specific data.

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Potential chronic health effects

Not available.

<b>General</b>	: 13C S/N ASTM	Causes damage to organs through prolonged or repeated exposure. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
	1H S/N	May cause damage to organs through prolonged or repeated exposure.
	1H Lineshape	May cause damage to organs through prolonged or repeated exposure. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
	13C S/N ASTM doped	Causes damage to organs through prolonged or repeated exposure. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
	4Hz 1% H2O/D2O	No known significant effects or critical hazards.

## Section 11. Toxicological information

<b>Carcinogenicity</b>	: 13C S/N ASTM 1H S/N 1H Lineshape 13C S/N ASTM doped 4Hz 1% H2O/D2O	May cause cancer. Risk of cancer depends on duration and level of exposure. Suspected of causing cancer. Risk of cancer depends on duration and level of exposure. Suspected of causing cancer. Risk of cancer depends on duration and level of exposure. May cause cancer. Risk of cancer depends on duration and level of exposure. No known significant effects or critical hazards.
<b>Mutagenicity</b>	: 13C S/N ASTM 1H S/N 1H Lineshape 13C S/N ASTM doped 4Hz 1% H2O/D2O	May cause genetic defects. No known significant effects or critical hazards. No known significant effects or critical hazards. May cause genetic defects. No known significant effects or critical hazards.
<b>Teratogenicity</b>	: 13C S/N ASTM 1H S/N 1H Lineshape 13C S/N ASTM doped 4Hz 1% H2O/D2O	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Developmental effects</b>	: 13C S/N ASTM 1H S/N 1H Lineshape 13C S/N ASTM doped 4Hz 1% H2O/D2O	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Fertility effects</b>	: 13C S/N ASTM 1H S/N 1H Lineshape 13C S/N ASTM doped 4Hz 1% H2O/D2O	No known significant effects or critical hazards. No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Route	ATE value
<b>13C S/N ASTM</b> Oral	1356.8 mg/kg
<b>1H S/N</b> Oral	300.3 mg/kg
<b>1H Lineshape</b> Oral	30000 mg/kg
<b>13C S/N ASTM doped</b> Oral	1360.7 mg/kg

<b>Other information</b>	: 13C S/N ASTM 1H S/N 1H Lineshape 13C S/N ASTM doped 4Hz 1% H2O/D2O	Not available. Not available. Not available. Not available. Not available.
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## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure	
<b>13C S/N ASTM</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	Acute EC50 29000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours	
	Acute EC50 1360000 µg/l Fresh water	Algae - Scenedesmus abundans	96 hours	
	Acute EC50 9230 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours	
	Acute LC50 21000 µg/l Marine water	Crustaceans - Artemia salina - Nauplii	48 hours	
	Acute LC50 5.28 ul/L Fresh water	Fish - Oncorhynchus gorbuscha - Fry	96 hours	
1,4-Dioxane	Chronic NOEC 1.5 to 5.4 ul/L Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	4 weeks	
	Acute LC50 6700000 µg/l Marine water	Fish - Menidia beryllina	96 hours	
<b>1H S/N</b> ( <sup>2</sup> H)Chloroform	Acute EC50 13.3 mg/l Fresh water	Algae - Chlamydomonas reinhardtii - Exponential growth phase	72 hours	
	Acute LC50 81.5 mg/l Marine water	Crustaceans - Penaeus duorarum	48 hours	
	Acute LC50 29000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours	
	Acute LC50 13300 µg/l Fresh water	Fish - Lepomis macrochirus	96 hours	
	Chronic EC10 3.61 mg/l Fresh water	Algae - Chlamydomonas reinhardtii - Exponential growth phase	72 hours	
	Chronic NOEC 6300 µg/l Fresh water	Daphnia - Daphnia magna	21 days	
	Acute EC50 4600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours	
	Acute EC50 3600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours	
	Acute EC50 2970 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours	
	Acute LC50 5200 µg/l Marine water	Crustaceans - Americamysis bahia	48 hours	
Ethylbenzene	Acute LC50 4200 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours	
	Chronic NOEC 1000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours	
	<b>1H Lineshape</b> ( <sup>2</sup> H <sub>6</sub> )Acetone	Acute EC50 20.565 mg/l Marine water	Algae - Ulva pertusa	96 hours
		Acute LC50 6000000 µg/l Fresh water	Crustaceans - Gammarus pulex	48 hours
		Acute LC50 10000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
		Acute LC50 100000 µg/l Fresh water	Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Trichloromethane	Chronic NOEC 4.95 mg/l Marine water	Algae - Ulva pertusa	96 hours
		Chronic NOEC 0.1 ml/L Fresh water	Daphnia - Daphnia magna - Neonate	21 days
		Acute EC50 13.3 mg/l Fresh water	Algae - Chlamydomonas reinhardtii - Exponential growth phase	72 hours
		Acute EC50 2.803 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
Acute LC50 63800 µg/l Fresh water		Daphnia - Daphnia magna - Neonate	48 hours	
Acute LC50 13.3 ppm Fresh water		Fish - Lepomis macrochirus	96 hours	
Chronic EC10 3.61 mg/l Fresh water	Algae - Chlamydomonas	72 hours		

## Section 12. Ecological information

<b>13C S/N ASTM doped</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	Chronic NOEC 6300 µg/l Fresh water	reinhardtii - Exponential growth phase Daphnia - Daphnia magna	21 days
	Acute EC50 29000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 1360000 µg/l Fresh water	Algae - Scenedesmus abundans	96 hours
	Acute EC50 9230 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 21000 µg/l Marine water	Crustaceans - Artemia salina - Nauplii	48 hours
	Acute LC50 5.28 ul/L Fresh water	Fish - Oncorhynchus gorbuscha - Fry	96 hours
	Chronic NOEC 1.5 to 5.4 ul/L Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	4 weeks
1,4-Dioxane	Acute LC50 6700000 µg/l Marine water	Fish - Menidia beryllina	96 hours

### Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
<b>1H S/N</b> Ethylbenzene	-	-	Readily

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
<b>13C S/N ASTM</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	2.13	11	low
1,4-Dioxane	-0.42	0.3 to 0.7	low
<b>1H S/N</b> ( <sup>2</sup> H)Chloroform	1.97	690	high
Ethylbenzene	3.6	-	low
<b>1H Lineshape</b> ( <sup>2</sup> H <sub>6</sub> )Acetone	-0.23	-	low
Trichloromethane	1.97	690	high
<b>13C S/N ASTM doped</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	2.13	11	low
1,4-Dioxane	-0.42	0.3 to 0.7	low

### Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

### Other adverse effects

: 13C S/N ASTM  
1H S/N  
1H Lineshape  
13C S/N ASTM doped  
4Hz 1% H<sub>2</sub>O/D<sub>2</sub>O

No known significant effects or critical hazards.  
No known significant effects or critical hazards.

## Section 13. Disposal considerations

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.**

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## Section 14. Transport information

This Material Safety Data Sheet is written based on the encapsulated substance or mixture in this article. Since the hazardous ingredient is encapsulated, the risk of exposure by inhalation, ingestion, skin contact and eyes contact is minimum.

### Regulatory information

**Additional information** : **Remarks**  
De minimis quantities

**DOT / IMDG / IATA /** : Not regulated.

## Section 15. Regulatory information

**U.S. Federal regulations** : **United States inventory (TSCA 8b)**: All components are listed or exempted.  
**Clean Water Act (CWA) 307**: Chromium(III) 4-oxopent-2-ene-2-olate; Trichloromethane; (<sup>2</sup>H)Chloroform; Ethylbenzene  
**Clean Water Act (CWA) 311**: Trichloromethane; (<sup>2</sup>H)Chloroform; Ethylbenzene

**Clean Air Act (CAA) 112 regulated toxic substances**: (<sup>2</sup>H)Chloroform

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Listed

## Section 15. Regulatory information

### SARA 302/304

#### Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
<b>1H S/N</b> ( <sup>2</sup> H)Chloroform	60 - 100	Yes.	-	-	-	-
<b>1H Lineshape</b> Trichloromethane	0.1 - 1	Yes.	-	-	-	-

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : Fire hazard  
 Immediate (acute) health hazard  
 Delayed (chronic) health hazard

#### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
<b>13C S/N ASTM</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	30 - 60	Yes.	No.	No.	Yes.	Yes.
1,4-Dioxane	30 - 60	Yes.	No.	No.	Yes.	Yes.
<b>1H S/N</b> ( <sup>2</sup> H)Chloroform	60 - 100	No.	No.	No.	Yes.	Yes.
Ethylbenzene	< 0.1	Yes.	No.	No.	Yes.	Yes.
<b>1H Lineshape</b> ( <sup>2</sup> H <sub>6</sub> )Acetone	60 - 100	Yes.	No.	No.	Yes.	No.
Trichloromethane	0.1 - 1	No.	No.	No.	Yes.	Yes.
<b>13C S/N ASTM doped</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	30 - 60	Yes.	No.	No.	Yes.	Yes.
1,4-Dioxane	30 - 60	Yes.	No.	No.	Yes.	Yes.

### SARA 313

	Product name	CAS number	%
<b>Form R - Reporting requirements</b>	<b>13C S/N ASTM</b>		
	( <sup>2</sup> H <sub>6</sub> )Benzene	1076-43-3	30 - 60
	1,4-Dioxane	123-91-1	30 - 60
	<b>1H S/N</b>		
	( <sup>2</sup> H)Chloroform	865-49-6	60 - 100
	Ethylbenzene	100-41-4	0.1 - 1
	<b>1H Lineshape</b>		
	Trichloromethane	67-66-3	0.1 - 1
	<b>13C S/N ASTM doped</b>		
	( <sup>2</sup> H <sub>6</sub> )Benzene	1076-43-3	30 - 60
1,4-Dioxane	123-91-1	15 - 40	

## Section 15. Regulatory information

Supplier notification	13C S/N ASTM		
	( <sup>2</sup> H <sub>6</sub> )Benzene	1076-43-3	30 - 60
	1,4-Dioxane	123-91-1	30 - 60
	<b>1H S/N</b>		
	( <sup>2</sup> H)Chloroform	865-49-6	60 - 100
	Ethylbenzene	100-41-4	<0.1
	<b>1H Lineshape</b>		
	Trichloromethane	67-66-3	0.1 - 1
	<b>13C S/N ASTM doped</b>		
	( <sup>2</sup> H <sub>6</sub> )Benzene	1076-43-3	30 - 60
	1,4-Dioxane	123-91-1	15 - 40

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

### State regulations

#### Massachusetts

: The following components are listed: BENZENE; 1,4-DIOXANE; ACETONE; CHLOROFORM

#### New York

: The following components are listed: Benzene; 1,4-Dioxane; Acetone; 2-Propanone; Chloroform; Methane, trichloro-; Chloroform; Methane, trichloro-

#### New Jersey

: The following components are listed: BENZENE; 1,4-DIOXANE; 1,4-DIETHYLENE DIOXIDE; ACETONE; 2-PROPANONE; CHLOROFORM; METHANE, TRICHLORO-; CHLOROFORM; METHANE, TRICHLORO-

#### Pennsylvania

: The following components are listed: BENZENE; 1,4-DIOXANE; 2-PROPANONE; METHANE, TRICHLORO-; METHANE, TRICHLORO-

#### California Prop. 65

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
<b>13C S/N ASTM</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	Yes.	Yes.	6.4 µg/day (ingestion)	24 µg/day (ingestion)
1,4-Dioxane	Yes.	No.	13 µg/day (inhalation)	49 µg/day (inhalation)
<b>1H S/N</b> ( <sup>2</sup> H)Chloroform	Yes.	Yes.	Yes.	No.
Ethylbenzene	Yes.	No.	20 µg/day (ingestion)	No.
<b>1H Lineshape</b> Trichloromethane	Yes.	Yes.	40 µg/day (inhalation)	No.
<b>13C S/N ASTM doped</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	Yes.	Yes.	41 µg/day (ingestion)	No.
			54 µg/day (inhalation)	
			20 µg/day (ingestion)	
			40 µg/day (inhalation)	
			6.4 µg/day (ingestion)	24 µg/day (ingestion)
				49 µg/day

## Section 15. Regulatory information

1,4-Dioxane	Yes.	No.	13 µg/day (inhalation) Yes.	(inhalation) No.
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**Canada inventory** : At least one component is not listed in DSL but all such components are listed in NDSL.

### International regulations

**International lists** :

- Australia inventory (AICS)**: Not determined.
- China inventory (IECSC)**: Not determined.
- Japan inventory**: Not determined.
- Korea inventory**: Not determined.
- Malaysia Inventory (EHS Register)**: Not determined.
- New Zealand Inventory of Chemicals (NZIoC)**: Not determined.
- Philippines inventory (PICCS)**: Not determined.
- Taiwan inventory (CSNN)**: Not determined.

**Chemical Weapons Convention List Schedule I Chemicals** : Not listed

**Chemical Weapons Convention List Schedule I Chemicals**

**Chemical Weapons Convention List Schedule II Chemicals** : Not listed

**Chemical Weapons Convention List Schedule II Chemicals**

**Chemical Weapons Convention List Schedule III Chemicals** : Not listed

**Chemical Weapons Convention List Schedule III Chemicals**

## Section 16. Other information

### History

**Date of issue** : 11/05/2013.

**Date of previous issue** : 08/02/2011.

**Version** : 2

☑ Indicates information that has changed from previously issued version.

### Notice to reader

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