

# SAFETY DATA SHEET



ATS Sample Kit for X[H] Nano Probe, Part Number 190886901

## 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.

### 1.1 Product identifier

**Product name** : ATS Sample Kit for X[H] Nano Probe, Part Number 190886901  
**Part No. (Chemical Kit)** : 190886901  
**Part No.** : 13C S/N ASTM 190887069  
 : 13C S/N ASTM doped 190887091  
**Validation date** : 12/19/2013.

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

**Material uses** : Analytical chemistry.  
 : 13C S/N ASTM 42 µl  
 : 13C S/N ASTM doped 42 µl

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

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

### 1.4 Emergency telephone number

**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.

### 2.1 Classification of the substance or mixture

**OSHA/HCS status** : 13C S/N ASTM 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).

### Classification of the substance or mixture

**13C S/N ASTM**  
 H225 FLAMMABLE LIQUIDS - Category 2  
 H302 ACUTE TOXICITY (oral) - Category 4  
 H315 SKIN CORROSION/IRRITATION - Category 2  
 H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A  
 H340 GERM CELL MUTAGENICITY - Category 1B  
 H350 CARCINOGENICITY - Category 1A  
 H335 and H336 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation and Narcotic effects) - Category 3  
 H372 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1  
 H304 ASPIRATION HAZARD - Category 1

## Section 2. Hazards identification

### 13C S/N ASTM doped

H225	FLAMMABLE LIQUIDS - Category 2
H302	ACUTE TOXICITY (oral) - Category 4
H315	SKIN CORROSION/IRRITATION - Category 2
H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
H340	GERM CELL MUTAGENICITY - Category 1B
H350	CARCINOGENICITY - Category 1A
H335 and H336	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation and Narcotic effects) - Category 3
H372	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
H304	ASPIRATION HAZARD - Category 1

### 2.2 GHS label elements

#### Hazard pictograms



#### Signal word

: 13C S/N ASTM	Danger
13C S/N ASTM doped	Danger

#### Hazard statements

: 13C S/N ASTM	H225 - Highly flammable liquid and vapor. H302 - Harmful if swallowed. H319 - Causes serious eye irritation. H315 - Causes skin irritation. H340 - May cause genetic defects. H350 - May cause cancer. H304 - May be fatal if swallowed and enters airways. H335 - May cause respiratory irritation. H336 - May cause drowsiness and dizziness.
13C S/N ASTM doped	H372 - Causes damage to organs through prolonged or repeated exposure. H225 - Highly flammable liquid and vapor. H302 - Harmful if swallowed. H319 - Causes serious eye irritation. H315 - Causes skin irritation. H340 - May cause genetic defects. H350 - May cause cancer. H304 - May be fatal if swallowed and enters airways. H335 - May cause respiratory irritation. H336 - May cause drowsiness and dizziness. H372 - Causes damage to organs through prolonged or repeated exposure.

#### Precautionary statements

##### Prevention

: 13C S/N ASTM	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.
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## Section 2. Hazards identification

13C S/N ASTM doped

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.  
 P264 - Wash hands thoroughly after handling.  
 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.  
 P264 - Wash hands thoroughly after handling.  
 P314 - Get medical attention if you feel unwell.  
 P308 + P313 - IF exposed or concerned: Get medical attention.  
 P304 + P340 + P312 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.  
 P301 + P310 + P330 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting.  
 P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
 P302 + P352 + P362-2 - IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing.  
 P332 + P313 - If skin irritation occurs: Get medical attention.  
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P337 + P313 - If eye irritation persists: Get medical attention.  
 P314 - Get medical attention if you feel unwell.  
 P308 + P313 - IF exposed or concerned: Get medical attention.  
 P304 + P340 + P312 - IF INHALED: Remove

**Response**

: 13C S/N ASTM

13C S/N ASTM doped

## Section 2. Hazards identification

victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.  
 P301 + P310 + P330 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting.  
 P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
 P302 + P352 + P362-2 - IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing.  
 P332 + P313 - If skin irritation occurs: Get medical attention.  
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P337 + P313 - If eye irritation persists: Get medical attention.  
 P405 - Store locked up.  
 P403 - Store in a well-ventilated place.  
 P235 - Keep cool.  
 P405 - Store locked up.  
 P403 - Store in a well-ventilated place.  
 P235 - Keep cool.  
 P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.  
 P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.  
 Avoid contact with skin and clothing. Wash thoroughly after handling.  
 Avoid contact with skin and clothing. Wash thoroughly after handling.  
 Defatting to the skin. Prolonged or repeated contact may dry skin and cause irritation.  
 Defatting to the skin. Prolonged or repeated contact may dry skin and cause irritation.

**Storage** : 13C S/N ASTM  
 13C S/N ASTM doped

**Disposal** : 13C S/N ASTM  
 13C S/N ASTM doped

**Supplemental label elements** : 13C S/N ASTM  
 13C S/N ASTM doped

### 2.3 Other hazards

**Hazards not otherwise classified** : 13C S/N ASTM  
 13C S/N ASTM doped

## Section 3. Composition/information on ingredients

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.

**Substance/mixture** : 13C S/N ASTM Mixture  
 13C S/N ASTM doped Mixture

## 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>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

### 4.1 Description of necessary first aid measures

**Eye contact** : 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.

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.

**Inhalation** : 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 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.

13C S/N ASTM doped

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.

## Section 4. First aid measures

<b>Skin contact</b>	: 13C S/N ASTM	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.
	13C S/N ASTM doped	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.
<b>Ingestion</b>	: 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 immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	13C S/N ASTM doped	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.

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

#### Potential acute health effects

<b>Eye contact</b>	: 13C S/N ASTM 13C S/N ASTM doped	Causes serious eye irritation. Causes serious eye irritation.
<b>Inhalation</b>	: 13C S/N ASTM  13C S/N ASTM doped	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.

## Section 4. First aid measures

<b>Skin contact</b>	: 13C S/N ASTM 13C S/N ASTM doped	Causes skin irritation. Defatting to the skin. Causes skin irritation. Defatting to the skin.
<b>Ingestion</b>	: 13C S/N ASTM  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.
<b><u>Over-exposure signs/symptoms</u></b>		
<b>Eye contact</b>	: 13C S/N ASTM  13C S/N ASTM doped	Adverse symptoms may include the following: pain or irritation watering redness Adverse symptoms may include the following: pain or irritation watering redness
<b>Inhalation</b>	: 13C S/N ASTM  13C S/N ASTM doped	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
<b>Skin contact</b>	: 13C S/N ASTM  13C S/N ASTM doped	Adverse symptoms may include the following: irritation redness dryness cracking Adverse symptoms may include the following: irritation redness dryness cracking
<b>Ingestion</b>	: 13C S/N ASTM  13C S/N ASTM doped	Adverse symptoms may include the following: nausea or vomiting Adverse symptoms may include the following: nausea or vomiting

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

<b>Notes to physician</b>	: 13C S/N ASTM  13C S/N ASTM doped	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.
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## Section 4. First aid measures

<b>Specific treatments</b>	: 13C S/N ASTM 13C S/N ASTM doped	No specific treatment. No specific treatment.
<b>Protection of first-aiders</b>	: 13C S/N ASTM  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.  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.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media

<b>Suitable extinguishing media</b>	: 13C S/N ASTM 13C S/N ASTM doped	Use dry chemical, CO <sub>2</sub> , water spray (fog) or foam. Use dry chemical, CO <sub>2</sub> , water spray (fog) or foam.
<b>Unsuitable extinguishing media</b>	: 13C S/N ASTM 13C S/N ASTM doped	Do not use water jet. Do not use water jet.

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

<b>Specific hazards arising from the chemical</b>	: 13C S/N ASTM  13C S/N ASTM doped	Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.  Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.
<b>Hazardous thermal decomposition products</b>	: Decomposition products may include the following materials: carbon dioxide carbon monoxide	

### 5.3 Advice for firefighters



## Section 5. Fire-fighting measures

**Special protective actions for fire-fighters** : 13C S/N ASTM  
13C S/N ASTM doped

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. 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

**Special protective equipment for fire-fighters** : 13C S/N ASTM  
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.

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

### 6.1 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".

**6.2 Environmental precautions** : 13C S/N ASTM  
13C S/N ASTM doped

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).

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).

### 6.3 Methods and materials for containment and cleaning up

13C S/N ASTM  
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.

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.

## Section 7. Handling and storage

### 7.1 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.

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.

**Advice on general occupational hygiene**

: 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.

**7.2 Conditions for safe storage, including any incompatibilities**

: 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

## Section 7. Handling and storage

13C S/N ASTM doped

must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.  
 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.

### 7.3 Specific end use(s)

**Recommendations** : 13C S/N ASTM Industrial applications, Professional applications.  
 13C S/N ASTM doped Industrial applications, Professional applications.

**Industrial sector specific solutions** : Not applicable.

## 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.

### 8.1 Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
<p><b>13C S/N ASTM</b> (<sup>2</sup>H<sub>6</sub>)Benzene</p>	<p><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.</p> <p><b>OSHA PEL 1989 (United States, 3/1989).</b>                      TWA: 1 ppm 8 hours.                      STEL: 5 ppm 15 minutes.</p> <p><b>OSHA PEL Z2 (United States, 11/2006).</b>                      TWA: 10 ppm 8 hours.                      CEIL: 25 ppm                      AMP: 50 ppm 10 minutes.</p> <p><b>NIOSH REL (United States, 6/2009).</b>                      TWA: 0.1 ppm 10 hours.                      STEL: 1 ppm 15 minutes.</p> <p><b>OSHA PEL (United States, 6/2010).</b>                      TWA: 1 ppm 8 hours.                      STEL: 5 ppm 15 minutes.</p>
<p>1,4-Dioxane</p>	<p><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></p>

## Section 8. Exposure controls/personal protection

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

1,4-Dioxane

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.

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

### 8.2 Exposure controls

#### 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.

## Section 8. Exposure controls/personal protection

### 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**
- 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

### 9.1 Information on basic physical and chemical properties

#### Appearance

<b>Physical state</b>	: 13C S/N ASTM 13C S/N ASTM doped	Liquid. Liquid.
<b>Color</b>	: 13C S/N ASTM 13C S/N ASTM doped	Colorless. Not available.
<b>Odor</b>	: 13C S/N ASTM 13C S/N ASTM doped	Not available. Not available.
<b>Odor threshold</b>	: 13C S/N ASTM 13C S/N ASTM doped	Not available. Not available.
<b>pH</b>	: 13C S/N ASTM 13C S/N ASTM doped	Not available. Not available.
<b>Melting point</b>	: 13C S/N ASTM 13C S/N ASTM doped	6.8°C (44.2°F) Not available.
<b>Boiling point</b>	: 13C S/N ASTM 13C S/N ASTM doped	79.1°C (174.4°F) 90°C (194°F)
<b>Flash point</b>	: 13C S/N ASTM 13C S/N ASTM doped	Closed cup: -18 to 23°C (-0.4 to 73.4°F) Closed cup: 21.1°C (70°F)
<b>Evaporation rate</b>	: 13C S/N ASTM 13C S/N ASTM doped	Not available. Not available.

## Section 9. Physical and chemical properties

<b>Flammability (solid, gas)</b>	: 13C S/N ASTM 13C S/N ASTM doped	Not available. Not available.
<b>Lower and upper explosive (flammable) limits</b>	: 13C S/N ASTM 13C S/N ASTM doped	Lower: 1.3% Upper: 8% Not available.
<b>Vapor pressure</b>	: 13C S/N ASTM 13C S/N ASTM doped	22.1 kPa (166 mm Hg) [room temperature] Not available.
<b>Vapor density</b>	: 13C S/N ASTM 13C S/N ASTM doped	>1 [Air = 1] Not available.
<b>Relative density</b>	: 13C S/N ASTM 13C S/N ASTM doped	0.95 0.98
<b>Solubility</b>	: 13C S/N ASTM 13C S/N ASTM doped	Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water.
<b>Solubility in water</b>	: Not available.	
<b>Partition coefficient: n-octanol/water</b>	: 13C S/N ASTM 13C S/N ASTM doped	Not available. Not available.
<b>Auto-ignition temperature</b>	: 13C S/N ASTM 13C S/N ASTM doped	Not available. Not available.
<b>Decomposition temperature</b>	: 13C S/N ASTM 13C S/N ASTM doped	Not available. Not available.
<b>Viscosity</b>	: 13C S/N ASTM 13C S/N ASTM doped	Not available. Not available.

## Section 10. Stability and reactivity

<b>10.1 Reactivity</b>	: 13C S/N ASTM 13C S/N ASTM doped	No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients.
<b>10.2 Chemical stability</b>	: 13C S/N ASTM 13C S/N ASTM doped	The product is stable. The product is stable.
<b>10.3 Possibility of hazardous reactions</b>	: 13C S/N ASTM 13C S/N ASTM doped	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
<b>10.4 Conditions to avoid</b>	: 13C S/N ASTM 13C S/N ASTM doped	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. 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.

## Section 10. Stability and reactivity

### 10.5 Incompatible materials : 13C S/N ASTM

13C S/N ASTM doped

Reactive or incompatible with the following materials:

oxidizing materials

Reactive or incompatible with the following materials:

oxidizing materials

### 10.6 Hazardous decomposition products : 13C S/N ASTM

13C S/N ASTM doped

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

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<b>13C S/N ASTM</b> ( <sup>2</sup> H <sub>6</sub> )Benzene 1,4-Dioxane	LD50 Oral	Rat	930 mg/kg	-
	LD50 Oral	Rat	4200 mg/kg	-
<b>13C S/N ASTM doped</b> ( <sup>2</sup> H <sub>6</sub> )Benzene 1,4-Dioxane	LD50 Oral	Rat	930 mg/kg	-
	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  1,4-Dioxane	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	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
<b>13C S/N ASTM doped</b> ( <sup>2</sup> H <sub>6</sub> )Benzene  1,4-Dioxane	Skin - Mild irritant	Rabbit	-	515 milligrams	-
	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	-



**Section 11. Toxicological information**

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 1,4-Dioxane	+ -	1 2B	Known to be a human carcinogen. Reasonably anticipated to be a human carcinogen.
<b>13C S/N ASTM doped</b> ( <sup>2</sup> H <sub>6</sub> )Benzene 1,4-Dioxane	+ -	1 2B	Known to be a human carcinogen. Reasonably anticipated to be a human carcinogen.

**Reproductive toxicity**

Not available.

**Teratogenicity**

Not available.

**Specific target organ toxicity (single exposure)**

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>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>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>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 13C S/N ASTM doped	Causes serious eye irritation. Causes serious eye irritation.
<b>Inhalation</b>	: 13C S/N ASTM  13C S/N ASTM doped	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.
<b>Skin contact</b>	: 13C S/N ASTM 13C S/N ASTM doped	Causes skin irritation. Defatting to the skin. Causes skin irritation. Defatting to the skin.
<b>Ingestion</b>	: 13C S/N ASTM  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.

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

<b>Eye contact</b>	: 13C S/N ASTM  13C S/N ASTM doped	Adverse symptoms may include the following: pain or irritation watering redness Adverse symptoms may include the following: pain or irritation watering redness
<b>Inhalation</b>	: 13C S/N ASTM  13C S/N ASTM doped	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness

## Section 11. Toxicological information

<b>Skin contact</b>	: 13C S/N ASTM	Adverse symptoms may include the following: irritation redness dryness cracking
	13C S/N ASTM doped	Adverse symptoms may include the following: irritation redness dryness cracking
<b>Ingestion</b>	: 13C S/N ASTM	Adverse symptoms may include the following: nausea or vomiting
	13C S/N ASTM doped	Adverse symptoms may include the following: nausea or vomiting

### 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.
	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.
<b>Carcinogenicity</b>	: 13C S/N ASTM	May cause cancer. Risk of cancer depends on duration and level of exposure.
	13C S/N ASTM doped	May cause cancer. Risk of cancer depends on duration and level of exposure.
<b>Mutagenicity</b>	: 13C S/N ASTM	May cause genetic defects.
	13C S/N ASTM doped	May cause genetic defects.
<b>Teratogenicity</b>	: 13C S/N ASTM	No known significant effects or critical hazards.
	13C S/N ASTM doped	No known significant effects or critical hazards.
<b>Developmental effects</b>	: 13C S/N ASTM	No known significant effects or critical hazards.
	13C S/N ASTM doped	No known significant effects or critical hazards.
<b>Fertility effects</b>	: 13C S/N ASTM	No known significant effects or critical hazards.
	13C S/N ASTM doped	No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

**Section 11. Toxicological information**

Route	ATE value
<b>13C S/N ASTM</b> Oral	1356.8 mg/kg
<b>13C S/N ASTM doped</b> Oral	1360.7 mg/kg

**Other information** : 13C S/N ASTM Not available.  
13C S/N ASTM doped Not available.

**Section 12. Ecological information****12.1 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	
	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	
	<b>13C S/N ASTM doped</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
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	

**12.2 Persistence and degradability**

Not available.

**12.3 Bioaccumulative potential**

## Section 12. Ecological information

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>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

### 12.4 Mobility in soil

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

**12.5 Other adverse effects** : 13C S/N ASTM No known significant effects or critical hazards.  
13C S/N ASTM doped No known significant effects or critical hazards.

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

**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

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

**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

**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)** : Not listed

#### SARA 302/304

##### Composition/information on ingredients

No products were found.

**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>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>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

<b>Supplier notification</b>	<b>13C S/N ASTM</b> ( <sup>2</sup> H <sub>6</sub> )Benzene 1,4-Dioxane	1076-43-3 123-91-1	30 - 60 30 - 60
	<b>13C S/N ASTM doped</b> ( <sup>2</sup> H <sub>6</sub> )Benzene 1,4-Dioxane	1076-43-3 123-91-1	30 - 60 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
- New York** : The following components are listed: Benzene; 1,4-Dioxane
- New Jersey** : The following components are listed: BENZENE; 1,4-DIOXANE; 1,4-DIETHYLENE DIOXIDE
- Pennsylvania** : The following components are listed: BENZENE; 1,4-DIOXANE
- 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) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)
1,4-Dioxane	Yes.	No.	Yes.	No.
<b>13C S/N ASTM doped</b> ( <sup>2</sup> H <sub>6</sub> )Benzene	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)
1,4-Dioxane	Yes.	No.	Yes.	No.

**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):** All components are listed or exempted.
  - 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**



## Section 15. Regulatory information

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

## Section 16. Other information

### History

**Date of issue** : 12/19/2013.  
**Date of previous issue** : No previous validation.  
**Version** : 2

✔ Indicates information that has changed from previously issued version.

### Notice to reader

**Disclaimer:** The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.