

Section 2. Hazards identification

Classification of the substance or mixture

: 13C S/N ASTM

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
 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
 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
 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

1H S/N

19F S/N

1H Lineshape

29Si S/N

GHS label elements

Section 2. Hazards identification

Hazard pictograms :



Signal word

: 13C S/N ASTM
 1H S/N
 19F S/N
 1H Lineshape
 29Si S/N

Danger
 Danger
 Danger
 Danger
 Danger

Hazard statements

<p>: 13C S/N ASTM</p>	<p>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.</p>
<p>1H S/N</p>	<p>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.</p>
<p>19F S/N</p>	<p>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.</p>
<p>1H Lineshape</p>	<p>Highly flammable liquid and vapor. Causes serious eye irritation. Suspected of causing cancer. May cause drowsiness and dizziness. May cause damage to organs through prolonged or repeated exposure.</p>
<p>29Si S/N</p>	<p>Highly flammable liquid and vapor. Harmful if swallowed. Causes serious eye irritation. Causes skin irritation. May cause genetic defects. May cause cancer. May cause respiratory irritation. May cause drowsiness and dizziness. Causes damage to organs through prolonged or repeated exposure.</p>

Precautionary statements

Section 2. Hazards identification

Prevention	<ul style="list-style-type: none"> : 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. 		
Response	<ul style="list-style-type: none"> : 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 + P312 + P330 - IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. 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. 		
Storage	<ul style="list-style-type: none"> : P405 - Store locked up. P403 - Store in a well-ventilated place. P235 - Keep cool. 		
Disposal	<ul style="list-style-type: none"> : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. 		
Supplemental label elements	<table border="0"> <tr> <td style="vertical-align: top;"> <ul style="list-style-type: none"> : 13C S/N ASTM 1H S/N 19F S/N 1H Lineshape 29Si S/N </td> <td style="vertical-align: top; padding-left: 20px;"> <ul style="list-style-type: none"> Avoid contact with skin and clothing. Wash thoroughly after handling. None known. Avoid contact with skin and clothing. Wash thoroughly after handling. Avoid contact with skin and clothing. Wash thoroughly after handling. Avoid contact with skin and clothing. Wash thoroughly after handling. </td> </tr> </table>	<ul style="list-style-type: none"> : 13C S/N ASTM 1H S/N 19F S/N 1H Lineshape 29Si S/N 	<ul style="list-style-type: none"> Avoid contact with skin and clothing. Wash thoroughly after handling. None known. Avoid contact with skin and clothing. Wash thoroughly after handling. Avoid contact with skin and clothing. Wash thoroughly after handling. Avoid contact with skin and clothing. Wash thoroughly after handling.
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Hazards not otherwise classified	<table border="0"> <tr> <td style="vertical-align: top;"> <ul style="list-style-type: none"> : 13C S/N ASTM 1H S/N 19F S/N 1H Lineshape 29Si S/N </td> <td style="vertical-align: top; padding-left: 20px;"> <ul style="list-style-type: none"> Defatting to the skin. Prolonged or repeated contact may dry skin and cause irritation. None known. Defatting to the skin. Prolonged or repeated contact may dry skin and cause irritation. Prolonged or repeated contact may dry skin and cause irritation. Prolonged or repeated contact may dry skin and cause irritation. </td> </tr> </table>	<ul style="list-style-type: none"> : 13C S/N ASTM 1H S/N 19F S/N 1H Lineshape 29Si S/N 	<ul style="list-style-type: none"> Defatting to the skin. Prolonged or repeated contact may dry skin and cause irritation. None known. Defatting to the skin. Prolonged or repeated contact may dry skin and cause irritation. Prolonged or repeated contact may dry skin and cause irritation. Prolonged or repeated contact may dry skin and cause irritation.
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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
	1H S/N	Mixture
	19F S/N	Mixture
	1H Lineshape	Mixture
	29Si S/N	Mixture

Ingredient name	%	CAS number
13C S/N ASTM		
(² H ₆)Benzene	30 - 60	1076-43-3
1,4-Dioxane	30 - 60	123-91-1
1H S/N		
(² H)Chloroform	60 - 100	865-49-6
Ethylbenzene	< 0.1	100-41-4
19F S/N		
(² H ₆)Benzene	60 - 100	1076-43-3
1H Lineshape		
(² H ₆)Acetone	60 - 100	666-52-4
Trichloromethane	5 - 10	67-66-3
29Si S/N		
(² H ₆)Benzene	60 - 100	1076-43-3
Hexamethyldisiloxane	10 - 30	107-46-0

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

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.
	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.
	19F 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.

Section 4. First aid measures

	29Si S/N	Continue to rinse for at least 10 minutes. Get medical attention. 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.
	1H S/N	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. 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.
	19F S/N	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.
	1H Lineshape	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-

Section 4. First aid measures

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. 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. 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.

29Si S/N

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. 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.

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Skin contact

: 13C S/N ASTM

1H S/N

19F S/N

1H Lineshape

29Si S/N

Section 4. First aid measures

Ingestion

: 13C S/N ASTM

Clean shoes thoroughly before reuse.

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.

1H S/N
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.

19F S/N
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.

1H Lineshape
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. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If

Section 4. First aid measures

29Si S/N

necessary, call a poison center or physician. 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 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. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. 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.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: 13C S/N ASTM	Causes serious eye irritation.
	1H S/N	Causes serious eye irritation.
	19F S/N	Causes serious eye irritation.
	1H Lineshape	Causes serious eye irritation.
	29Si S/N	Causes serious eye irritation.
Inhalation	: 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. Serious effects may be delayed following exposure.
	19F S/N	Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation.
	1H Lineshape	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.
	29Si S/N	Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation.
Skin contact	: 13C S/N ASTM	Causes skin irritation. Defatting to the skin.
	1H S/N	Causes skin irritation.
	19F S/N	Causes skin irritation. Defatting to the skin.
	1H Lineshape	Defatting to the skin. May cause skin dryness and irritation.
	29Si S/N	Causes skin irritation. Defatting to the skin.

Section 4. First aid measures

Ingestion	: 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.
	19F 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. Irritating to mouth, throat and stomach.
	29Si S/N	Harmful if swallowed. Can cause central nervous system (CNS) depression. Irritating to mouth, throat and stomach.
<u>Over-exposure signs/symptoms</u>		
Eye contact	: 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
	19F 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
	29Si S/N	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	: 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
	19F S/N	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting

Section 4. First aid measures

		headache drowsiness/fatigue dizziness/vertigo unconsciousness
	1H Lineshape	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
	29Si S/N	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
Skin contact	: 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
	19F S/N	Adverse symptoms may include the following: irritation redness dryness cracking
	1H Lineshape	Adverse symptoms may include the following: irritation dryness cracking
	29Si S/N	Adverse symptoms may include the following: irritation redness dryness cracking
Ingestion	: 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
	19F S/N	Adverse symptoms may include the following: nausea or vomiting
	1H Lineshape	No specific data.
	29Si S/N	No specific data.

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

Notes to physician	: 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.
	19F S/N	Treat symptomatically. Contact poison treatment

Section 4. First aid measures

	1H Lineshape	specialist immediately if large quantities have been ingested or inhaled. 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.
	29Si S/N	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: 13C S/N ASTM 1H S/N 19F S/N 1H Lineshape 29Si S/N	No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment.
Protection of first-aiders	: 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.
	19F 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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
	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.
	29Si 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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	: 13C S/N ASTM 1H S/N 19F S/N 1H Lineshape 29Si S/N	Use dry chemical, CO ₂ , water spray (fog) or foam. Use an extinguishing agent suitable for the surrounding fire. Use dry chemical, CO ₂ , water spray (fog) or foam. Use dry chemical, CO ₂ , water spray (fog) or foam. Use dry chemical, CO ₂ , water spray (fog) or foam.
Unsuitable extinguishing media	: 13C S/N ASTM 1H S/N 19F S/N 1H Lineshape 29Si S/N	Do not use water jet. None known. Do not use water jet. Do not use water jet. Do not use water jet.
Specific hazards arising from the chemical	: 13C S/N ASTM 1H S/N 19F S/N 1H Lineshape 29Si S/N	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. In a fire or if heated, a pressure increase will occur and the container may burst. 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. 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. 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.
Hazardous thermal decomposition products	: Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds carbonyl halides metal oxide/oxides	

Section 5. Fire-fighting measures

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

1H S/N

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.

19F S/N

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.

1H Lineshape

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.

29Si S/N

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

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.

19F 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.

29Si 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.

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.

Section 6. Accidental release measures

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".

Environmental precautions : 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).
19F 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).
29Si 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).

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.
19F S/N	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 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.
29Si S/N	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

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.

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.

19F 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. 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.

1H Lineshape

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special

Section 7. Handling and storage

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 ingest. 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.

29Si 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 ingest. 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.

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

Section 7. Handling and storage

1H S/N

environmental contamination.

Store in accordance with local regulations. 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. 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.

19F S/N

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.

1H Lineshape

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.

29Si S/N

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.

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
13C S/N ASTM ^{(2)H₆} Benzene	ACGIH TLV (United States, 3/2012). Absorbed through skin. TWA: 0.5 ppm 8 hours. TWA: 1.6 mg/m ³ 8 hours. STEL: 2.5 ppm 15 minutes. STEL: 8 mg/m ³ 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.
1,4-Dioxane	OSHA PEL 1989 (United States, 3/1989). Absorbed through skin. TWA: 25 ppm 8 hours. TWA: 90 mg/m ³ 8 hours. NIOSH REL (United States, 1/2013). CEIL: 1 ppm 30 minutes. CEIL: 3.6 mg/m ³ 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 ³ 8 hours.
1H S/N ^{(2)H} Chloroform	ACGIH TLV (United States, 3/2012). TWA: 10 ppm 8 hours. TWA: 49 mg/m ³ 8 hours. OSHA PEL 1989 (United States, 3/1989). TWA: 2 ppm 8 hours. TWA: 9.78 mg/m ³ 8 hours. NIOSH REL (United States, 6/2009). STEL: 2 ppm 60 minutes. STEL: 9.78 mg/m ³ 60 minutes. OSHA PEL (United States, 6/2010). CEIL: 50 ppm CEIL: 240 mg/m ³
Ethylbenzene	ACGIH TLV (United States, 3/2012). TWA: 20 ppm 8 hours.

Section 8. Exposure controls/personal protection

19F S/N
(²H₆)Benzene

NIOSH REL (United States, 1/2013).

STEL: 545 mg/m³ 15 minutes.

STEL: 125 ppm 15 minutes.

TWA: 435 mg/m³ 10 hours.

TWA: 100 ppm 10 hours.

OSHA PEL (United States, 6/2010).

TWA: 435 mg/m³ 8 hours.

TWA: 100 ppm 8 hours.

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

STEL: 545 mg/m³ 15 minutes.

STEL: 125 ppm 15 minutes.

TWA: 435 mg/m³ 8 hours.

TWA: 100 ppm 8 hours.

ACGIH TLV (United States, 3/2012).

Absorbed through skin.

TWA: 0.5 ppm 8 hours.

TWA: 1.6 mg/m³ 8 hours.

STEL: 2.5 ppm 15 minutes.

STEL: 8 mg/m³ 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.

1H Lineshape
(²H₆)Acetone

ACGIH TLV (United States, 3/2012).

TWA: 500 ppm 8 hours.

TWA: 1188 mg/m³ 8 hours.

STEL: 750 ppm 15 minutes.

STEL: 1782 mg/m³ 15 minutes.

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

TWA: 750 ppm 8 hours.

TWA: 1800 mg/m³ 8 hours.

STEL: 1000 ppm 15 minutes.

STEL: 2400 mg/m³ 15 minutes.

NIOSH REL (United States, 6/2009).

TWA: 250 ppm 10 hours.

TWA: 590 mg/m³ 10 hours.

OSHA PEL (United States, 6/2010).

TWA: 1000 ppm 8 hours.

TWA: 2400 mg/m³ 8 hours.

Trichloromethane

ACGIH TLV (United States, 3/2012).

TWA: 49 mg/m³ 8 hours.

TWA: 10 ppm 8 hours.

NIOSH REL (United States, 1/2013).

STEL: 9.78 mg/m³ 60 minutes.

Section 8. Exposure controls/personal protection

29Si S/N
(²H₆)Benzene

STEL: 2 ppm 60 minutes.
OSHA PEL (United States, 6/2010).
 CEIL: 240 mg/m³
 CEIL: 50 ppm
OSHA PEL 1989 (United States, 3/1989).
 TWA: 9.78 mg/m³ 8 hours.
 TWA: 2 ppm 8 hours.

ACGIH TLV (United States, 3/2012).
Absorbed through skin.
 TWA: 0.5 ppm 8 hours.
 TWA: 1.6 mg/m³ 8 hours.
 STEL: 2.5 ppm 15 minutes.
 STEL: 8 mg/m³ 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.

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

Physical state	: 13C S/N ASTM	Liquid.
	1H S/N	Liquid.
	19F S/N	Liquid.
	1H Lineshape	Liquid.
	29Si S/N	Liquid.
Color	: 13C S/N ASTM	Colorless.
	1H S/N	Not available.
	19F S/N	Not available.
	1H Lineshape	Not available.
	29Si S/N	Colorless.
Odor	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	19F S/N	Not available.
	1H Lineshape	Not available.
	29Si S/N	Not available.
Odor threshold	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	19F S/N	Not available.
	1H Lineshape	Not available.
	29Si S/N	Not available.
pH	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	19F S/N	Not available.
	1H Lineshape	Not available.
	29Si S/N	Not available.
Melting point	: 13C S/N ASTM	6.8°C (44.2°F)
	1H S/N	-64°C (-83.2°F)
	19F S/N	5°C (41°F)
	1H Lineshape	Not available.
	29Si S/N	6.8°C (44.2°F)

Section 9. Physical and chemical properties

Boiling point	: 13C S/N ASTM	79.1°C (174.4°F)
	1H S/N	60.9°C (141.6°F)
	19F S/N	80°C (176°F)
	1H Lineshape	55.5°C (131.9°F)
	29Si S/N	79.1°C (174.4°F)
Flash point	: 13C S/N ASTM	Closed cup: -18 to 23°C (-0.4 to 73.4°F)
	1H S/N	Not available.
	19F S/N	Closed cup: -11.11°C (12°F)
	1H Lineshape	Closed cup: -17°C (1.4°F)
	29Si S/N	Closed cup: -18 to 23°C (-0.4 to 73.4°F)
Evaporation rate	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	19F S/N	Not available.
	1H Lineshape	Not available.
	29Si S/N	Not available.
Flammability (solid, gas)	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	19F S/N	Not available.
	1H Lineshape	Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
	29Si S/N	Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat. Emits toxic fumes when heated to decomposition.
Lower and upper explosive (flammable) limits	: 13C S/N ASTM	Lower: 1.3%
	1H S/N	Upper: 8%
	19F S/N	Not available.
	1H Lineshape	Not available.
	29Si S/N	Lower: 1.3% Upper: 8%
Vapor pressure	: 13C S/N ASTM	22.1 kPa (166 mm Hg) [room temperature]
	1H S/N	Not available.
	19F S/N	Not available.
	1H Lineshape	Not available.
	29Si S/N	22.1 kPa (166 mm Hg) [room temperature]
Vapor density	: 13C S/N ASTM	>1 [Air = 1]
	1H S/N	Not available.
	19F S/N	Not available.
	1H Lineshape	Not available.
	29Si S/N	2.77 [Air = 1]
Relative density	: 13C S/N ASTM	0.95
	1H S/N	1.5
	19F S/N	Not available.
	1H Lineshape	0.872
	29Si S/N	0.95
Solubility	: 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.
	19F S/N	Insoluble in the following materials: cold water and hot water.
	1H Lineshape	Easily soluble in the following materials: cold water and hot water.
	29Si S/N	Insoluble in the following materials: cold water and hot water.

Section 9. Physical and chemical properties

Solubility in water	: Not available.	
Partition coefficient: n-octanol/water	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	19F S/N	Not available.
	1H Lineshape	Not available.
	29Si S/N	Not available.
Auto-ignition temperature	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	19F S/N	Not available.
	1H Lineshape	Not available.
	29Si S/N	Not available.
Decomposition temperature	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	19F S/N	Not available.
	1H Lineshape	Not available.
	29Si S/N	Not available.
Viscosity	: 13C S/N ASTM	Not available.
	1H S/N	Not available.
	19F S/N	Not available.
	1H Lineshape	Not available.
	29Si S/N	Not available.

Section 10. Stability and reactivity

Reactivity	: 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.
	19F 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.
	29Si S/N	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: 13C S/N ASTM	The product is stable.
	1H S/N	The product is stable.
	19F S/N	The product is stable.
	1H Lineshape	The product is stable.
	29Si S/N	The product is stable.
Possibility of hazardous reactions	: 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.
	19F 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.
	29Si S/N	Under normal conditions of storage and use, hazardous reactions will not occur.

Section 10. Stability and reactivity

Conditions to avoid	: 13C S/N ASTM	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.
	1H S/N 19F S/N	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.
	1H Lineshape	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.
	29Si S/N	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.
Incompatible materials	: 13C S/N ASTM	Reactive or incompatible with the following materials: oxidizing materials
	1H S/N 19F S/N	No specific data. Reactive or incompatible with the following materials: oxidizing materials
	1H Lineshape	Reactive or incompatible with the following materials: oxidizing materials
	29Si S/N	Reactive or incompatible with the following materials: oxidizing materials
Hazardous decomposition products	: 13C S/N ASTM	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	1H S/N	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	19F S/N	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	1H Lineshape	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	29Si S/N	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
13C S/N ASTM (² H ₆)Benzene 1,4-Dioxane	LD50 Oral	Rat	930 mg/kg	-
	LD50 Oral	Rat	4200 mg/kg	-
1H S/N (² H)Chloroform Ethylbenzene	LC50 Inhalation Vapor	Rat	47702 mg/m ³	4 hours
	LD50 Dermal	Rabbit	>20 g/kg	-
	LD50 Oral	Rat	300 mg/kg	-
	LC50 Inhalation Gas.	Rat	4000 ppm	4 hours
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
19F S/N (² H ₆)Benzene	LD50 Oral	Rat	930 mg/kg	-
1H Lineshape (² H ₆)Acetone Trichloromethane	LD50 Oral	Rat	5800 mg/kg	-
	LC50 Inhalation Vapor	Rat	47702 mg/m ³	4 hours
	LD50 Dermal	Rabbit	>20 g/kg	-
	LD50 Oral	Rat	300 mg/kg	-
29Si S/N (² H ₆)Benzene Hexamethyldisiloxane	LD50 Oral	Rat	930 mg/kg	-
	LC50 Inhalation Gas.	Rat	15956 ppm	4 hours

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
13C S/N ASTM (² H ₆)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	-
	Skin - Mild irritant	Rabbit	-	515 milligrams	-
1H S/N (² H)Chloroform Ethylbenzene	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams	-
19F S/N (² H ₆)Benzene	Eyes - Moderate irritant	Rabbit	-	88 milligrams	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 milligrams	-

Section 11. Toxicological information

1H Lineshape (² H ₆)Acetone	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 - 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	-
Trichloromethane	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	395 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
29Si S/N (² H ₆)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	-
Hexamethyldisiloxane	Eyes - Mild irritant	Rabbit	-	24 hours 100 microliters	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
13C S/N ASTM (² H ₆)Benzene	+	1	Known to be a human carcinogen. Reasonably anticipated to be a human carcinogen.
1,4-Dioxane	-	2B	
1H S/N (² H)Chloroform	-	2B	Reasonably anticipated to be a human carcinogen.
Ethylbenzene	-	2B	
19F S/N			-

Section 11. Toxicological information

(² H ₆)Benzene	+	1	Known to be a human carcinogen.
1H Lineshape Trichloromethane	-	2B	Reasonably anticipated to be a human carcinogen.
29Si S/N (² H ₆)Benzene	+	1	Known 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
13C S/N ASTM (² H ₆)Benzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
1,4-Dioxane	Category 3	Not applicable.	Respiratory tract irritation
1H S/N (² H)Chloroform	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Ethylbenzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
19F S/N (² H ₆)Benzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
1H Lineshape (² H ₆)Acetone Trichloromethane	Category 3 Category 3	Not applicable. Not applicable.	Narcotic effects Respiratory tract irritation and Narcotic effects
29Si S/N (² H ₆)Benzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs

Section 11. Toxicological information

13C S/N ASTM (² H ₆)Benzene	Category 1	Oral Inhalation	blood system blood system
1,4-Dioxane	Category 1	Oral	kidneys and liver
1H S/N (² H)Chloroform	Category 2	Not determined	kidneys and liver
19F S/N (² H ₆)Benzene	Category 1	Oral Inhalation	blood system blood system
1H Lineshape Trichloromethane	Category 2	Not determined	heart, kidneys and liver
29Si S/N (² H ₆)Benzene	Category 1	Oral Inhalation	blood system blood system

Aspiration hazard

Name	Result
13C S/N ASTM (² H ₆)Benzene	ASPIRATION HAZARD - Category 1
1H S/N (² H)Chloroform Ethylbenzene	ASPIRATION HAZARD - Category 1 ASPIRATION HAZARD - Category 1
19F S/N (² H ₆)Benzene	ASPIRATION HAZARD - Category 1
29Si S/N (² H ₆)Benzene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact	: 13C S/N ASTM 1H S/N 19F S/N 1H Lineshape 29Si S/N	Causes serious eye irritation. Causes serious eye irritation. Causes serious eye irritation. Causes serious eye irritation. Causes serious eye irritation.
Inhalation	: 13C S/N ASTM 1H S/N 19F S/N 1H Lineshape	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. May cause respiratory irritation. Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. Exposure to decomposition products may cause a

Section 11. Toxicological information

	29Si S/N	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.
Skin contact	: 13C S/N ASTM 1H S/N 19F S/N 1H Lineshape	Causes skin irritation. Defatting to the skin. Causes skin irritation. Causes skin irritation. Defatting to the skin. Defatting to the skin. May cause skin dryness and irritation.
Ingestion	: 29Si S/N : 13C S/N ASTM	Causes skin irritation. Defatting to the skin. 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.
	19F 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. Irritating to mouth, throat and stomach.
	29Si S/N	Harmful if swallowed. Can cause central nervous system (CNS) depression. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: 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
	19F 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
	29Si S/N	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	: 13C S/N ASTM	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness

Section 11. Toxicological information

1H S/N	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
19F 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
29Si S/N	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
Skin contact	
: 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
19F S/N	Adverse symptoms may include the following: irritation redness dryness cracking
1H Lineshape	Adverse symptoms may include the following: irritation dryness cracking
29Si S/N	Adverse symptoms may include the following: irritation redness dryness cracking

Section 11. Toxicological information

Ingestion	: 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
	19F S/N	Adverse symptoms may include the following: nausea or vomiting
	1H Lineshape	No specific data.
	29Si S/N	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.

General	: 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.
	19F S/N	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 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.
	29Si S/N	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.
Carcinogenicity	: 13C S/N ASTM	May cause cancer. Risk of cancer depends on duration and level of exposure.
	1H S/N	Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
	19F S/N	May cause cancer. Risk of cancer depends on duration and level of exposure.
	1H Lineshape	Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
	29Si S/N	May cause cancer. Risk of cancer depends on duration and level of exposure.
Mutagenicity	: 13C S/N ASTM	May cause genetic defects.
	1H S/N	No known significant effects or critical hazards.
	19F S/N	May cause genetic defects.
	1H Lineshape	No known significant effects or critical hazards.
	29Si S/N	May cause genetic defects.

Section 11. Toxicological information

Teratogenicity	: 13C S/N ASTM 1H S/N 19F S/N 1H Lineshape 29Si S/N	No known significant effects or critical hazards. No known significant effects or critical hazards.
Developmental effects	: 13C S/N ASTM 1H S/N 19F S/N 1H Lineshape 29Si S/N	No known significant effects or critical hazards. No known significant effects or critical hazards.
Fertility effects	: 13C S/N ASTM 1H S/N 19F S/N 1H Lineshape 29Si S/N	No known significant effects or critical hazards. No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
13C S/N ASTM Oral	1356.8 mg/kg
1H S/N Oral	500.5 mg/kg
19F S/N Oral	930.5 mg/kg
1H Lineshape Oral	5714.3 mg/kg
29Si S/N Oral Inhalation (gases)	1240 mg/kg 63824 ppm

Other information	: 13C S/N ASTM 1H S/N 19F S/N 1H Lineshape 29Si S/N	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
13C S/N ASTM (² H ₆)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 -	96 hours

Section 12. Ecological information

1,4-Dioxane	Chronic NOEC 1.5 to 5.4 ul/L Marine water Acute LC50 6700000 µg/l Marine water	Fry Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling) Fish - Menidia beryllina	4 weeks 96 hours
1H S/N (² H)Chloroform	Acute EC50 13.3 mg/l Fresh water Acute LC50 81.5 mg/l Marine water Acute LC50 29000 µg/l Fresh water Acute LC50 13300 µg/l Fresh water Chronic EC10 3.61 mg/l Fresh water	Algae - Chlamydomonas reinhardtii - Exponential growth phase Crustaceans - Penaeus duorarum Daphnia - Daphnia magna Fish - Lepomis macrochirus Algae - Chlamydomonas reinhardtii - Exponential growth phase	72 hours 48 hours 48 hours 96 hours 72 hours
Ethylbenzene	Chronic NOEC 6300 µg/l Fresh water Acute EC50 4600 µg/l Fresh water Acute EC50 3600 µg/l Fresh water Acute EC50 2970 µg/l Fresh water Acute LC50 5200 µg/l Marine water Acute LC50 4200 µg/l Fresh water Chronic NOEC 1000 µg/l Fresh water	Daphnia - Daphnia magna Algae - Pseudokirchneriella subcapitata Algae - Pseudokirchneriella subcapitata Daphnia - Daphnia magna - Neonate Crustaceans - Americamysis bahia Fish - Oncorhynchus mykiss Algae - Pseudokirchneriella subcapitata	21 days 72 hours 96 hours 48 hours 48 hours 96 hours 96 hours
19F S/N (² H ₆)Benzene	Acute EC50 29000 µg/l Fresh water Acute EC50 1360000 µg/l Fresh water Acute EC50 9230 µg/l Fresh water Acute LC50 21000 µg/l Marine water Acute LC50 5.28 ul/L Fresh water Chronic NOEC 1.5 to 5.4 ul/L Marine water	Algae - Pseudokirchneriella subcapitata Algae - Scenedesmus abundans Daphnia - Daphnia magna - Neonate Crustaceans - Artemia salina - Nauplii Fish - Oncorhynchus gorbuscha - Fry Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	72 hours 96 hours 48 hours 48 hours 96 hours 4 weeks
1H Lineshape (² H ₆)Acetone	Acute EC50 20.565 mg/l Marine water Acute LC50 6000000 µg/l Fresh water Acute LC50 10000 µg/l Fresh water Acute LC50 100000 µg/l Fresh water Chronic NOEC 4.95 mg/l Marine water Chronic NOEC 0.1 ml/L Fresh water	Algae - Ulva pertusa Crustaceans - Gammarus pulex Daphnia - Daphnia magna Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling) Algae - Ulva pertusa Daphnia - Daphnia magna - Neonate	96 hours 48 hours 48 hours 96 hours 96 hours 21 days
Trichloromethane	Acute EC50 13.3 mg/l Fresh water Acute EC50 2.803 mg/l Fresh water Acute LC50 63800 µg/l Fresh water Acute LC50 13.3 ppm Fresh water Chronic EC10 3.61 mg/l Fresh water	Algae - Chlamydomonas reinhardtii - Exponential growth phase Crustaceans - Cypris subglobosa Daphnia - Daphnia magna - Neonate Fish - Lepomis macrochirus Algae - Chlamydomonas	72 hours 48 hours 48 hours 96 hours 72 hours

Section 12. Ecological information

29Si S/N (² H ₆)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
Hexamethyldisiloxane	Chronic NOEC 1.5 to 5.4 ul/L Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	4 weeks
	LC50 3.02 mg/l	Fish	96 hours
	NOEC 0.28 mg/l	Fish	96 hours

Persistence and degradability

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

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
13C S/N ASTM (² H ₆)Benzene 1,4-Dioxane	2.13	11	low
	-0.42	0.3 to 0.7	low
1H S/N (² H)Chloroform Ethylbenzene	1.97	690	high
	3.6	-	low
19F S/N (² H ₆)Benzene	2.13	11	low
1H Lineshape (² H ₆)Acetone Trichloromethane	-0.23	-	low
	1.97	690	high
29Si S/N (² H ₆)Benzene Hexamethyldisiloxane	2.13	11	low
	5.3	1290 to 2410	high

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Section 12. Ecological information

Other adverse effects	: 13C S/N ASTM	No known significant effects or critical hazards.
	1H S/N	No known significant effects or critical hazards.
	19F S/N	No known significant effects or critical hazards.
	1H Lineshape	No known significant effects or critical hazards.
	29Si S/N	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 : **TSCA 8(a) PAIR:** Hexamethyldisiloxane
United States inventory (TSCA 8b): All components are listed or exempted.
Clean Water Act (CWA) 307: Trichloromethane; (²H)Chloroform; Ethylbenzene
Clean Water Act (CWA) 311: Trichloromethane; (²H)Chloroform; Ethylbenzene

Clean Air Act (CAA) 112 regulated toxic substances: Trichloromethane; (²H) Chloroform

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

Section 15. Regulatory information

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

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
1H S/N (² H)Chloroform	60 - 100	Yes.	-	-	-	-
1H Lineshape Trichloromethane	5 - 10	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
13C S/N ASTM (² H ₆)Benzene	30 - 60	Yes.	No.	No.	Yes.	Yes.
1,4-Dioxane	30 - 60	Yes.	No.	No.	Yes.	Yes.
1H S/N (² H)Chloroform	60 - 100	No.	No.	No.	Yes.	Yes.
Ethylbenzene	< 0.1	Yes.	No.	No.	Yes.	Yes.
19F S/N (² H ₆)Benzene	60 - 100	Yes.	No.	No.	Yes.	Yes.
1H Lineshape (² H ₆)Acetone	60 - 100	Yes.	No.	No.	Yes.	No.
Trichloromethane	5 - 10	No.	No.	No.	Yes.	Yes.
29Si S/N (² H ₆)Benzene	60 - 100	Yes.	No.	No.	Yes.	Yes.
Hexamethyldisiloxane	10 - 30	Yes.	No.	No.	Yes.	No.

SARA 313

Section 15. Regulatory information

	Product name	CAS number	%
Form R - Reporting requirements	13C S/N ASTM (² H ₆)Benzene	1076-43-3	30 - 60
	1,4-Dioxane	123-91-1	30 - 60
	1H S/N (² H)Chloroform	865-49-6	60 - 100
	Ethylbenzene	100-41-4	0.1 - 1
	19F S/N (² H ₆)Benzene	1076-43-3	60 - 100
Supplier notification	1H Lineshape Trichloromethane	67-66-3	3 - 7
	29Si S/N (² H ₆)Benzene	1076-43-3	60 - 100
	13C S/N ASTM (² H ₆)Benzene	1076-43-3	30 - 60
	1,4-Dioxane	123-91-1	30 - 60
	1H S/N (² H)Chloroform	865-49-6	60 - 100
Ethylbenzene	100-41-4	<0.1	
19F S/N (² H ₆)Benzene	1076-43-3	60 - 100	
1H Lineshape Trichloromethane	67-66-3	3 - 7	
29Si S/N (² H ₆)Benzene	1076-43-3	60 - 100	

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; 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.

Section 15. Regulatory information

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
13C S/N ASTM (² H ₆)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.
1H S/N (² H)Chloroform	Yes.	Yes.	20 µg/day (ingestion) 40 µg/day (inhalation)	No.
Ethylbenzene	Yes.	No.	41 µg/day (ingestion) 54 µg/day (inhalation)	No.
19F S/N (² H ₆)Benzene	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)
1H Lineshape Trichloromethane	Yes.	Yes.	20 µg/day (ingestion) 40 µg/day (inhalation)	No.
29Si S/N (² H ₆)Benzene	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)

- 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):** All components are listed or exempted.
 - 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 II Chemicals** : Not listed
- Chemical Weapons Convention List Schedule III Chemicals** : Not listed

Section 16. Other information

History

Date of issue : 12/06/2013.

Date of previous issue : 11/15/2011.

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.