

SAFETY DATA SHEET



10MM SAMPLE KIT, Part Number 94906513

Section 1. Identification

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

1.1 Product identifier

Product name : 10MM SAMPLE KIT, Part Number 94906513
Part No. (Chemical Kit) : 94906513
Part No. : 13C S/N ASTM 96812369
 15N S/N 96812383
 31P S/N 96812387
Validation date : 10/19/2016

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

Material uses : Analytical chemistry.
 13C S/N ASTM 3500 µl
 15N S/N 3500 µl
 31P S/N 3500 µl

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer : Agilent Technologies, Inc.
 5301 Stevens Creek Blvd
 Santa Clara, CA 95051, USA
 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).
 15N S/N This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
 31P S/N 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 IRRITATION - Category 2
 H319 EYE IRRITATION - Category 2A
 H340 GERM CELL MUTAGENICITY - Category 1
 H350 CARCINOGENICITY - Category 1A
 H335 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
 H336 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) -

Section 2. Hazards identification

H372	Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (blood system, kidneys, liver) - Category 1
H304	ASPIRATION HAZARD - Category 1
15N S/N	
H227	FLAMMABLE LIQUIDS - Category 4
H319	EYE IRRITATION - Category 2A
H360	TOXIC TO REPRODUCTION (Unborn child) - Category 1B
31P S/N	
H302	ACUTE TOXICITY (oral) - Category 4
H331	ACUTE TOXICITY (inhalation) - Category 3
H315	SKIN IRRITATION - Category 2
H319	EYE IRRITATION - Category 2A
H351	CARCINOGENICITY - Category 2
H361	TOXIC TO REPRODUCTION (Unborn child) - Category 2
H335	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
H336	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
H372	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (kidneys, liver) - Category 1

2.2 GHS label elements

Hazard pictograms



Signal word

: 3C S/N ASTM
 15N S/N
 31P S/N

Danger
 Danger
 Danger

Hazard statements

: 3C S/N ASTM

GHS SYMBOL - **Flame - Exclamation mark - Health hazard** -

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 or dizziness.
 H372 - Causes damage to organs through prolonged or repeated exposure. (blood system, kidneys, liver)

15N S/N

H227 - Combustible liquid.
 GHS SYMBOL - **Exclamation mark - Health hazard** -

H319 - Causes serious eye irritation.
 H360 - May damage the unborn child.

31P S/N

GHS SYMBOL - **Skull and crossbones - Exclamation mark - Health hazard** -
 H331 - Toxic if inhaled.
 H302 - Harmful if swallowed.

Section 2. Hazards identification

H319 - Causes serious eye irritation.
 H315 - Causes skin irritation.
 H361 - Suspected of damaging the unborn child.
 H351 - Suspected of causing cancer.
 H335 - May cause respiratory irritation.
 H336 - May cause drowsiness or dizziness.
 H372 - Causes damage to organs through prolonged or repeated exposure. (kidneys, liver)

Precautionary statements

Prevention

:  3C S/N ASTM

P201 - Obtain special instructions before use.
 P202 - Do not handle until all safety precautions have been read and understood.
 P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.
 P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. 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.

15N S/N

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.
 P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.
 P210 - Keep away from flames and hot surfaces. - No smoking.

31P S/N

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.
 P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.
 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.

Response

:  3C S/N ASTM

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 person to fresh air and keep 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.

Section 2. Hazards identification

		P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. P302 + P352 + P362+P364 - IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. 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. P308 + P313 - IF exposed or concerned: 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.
	15N S/N	P308 + P313 - IF exposed or concerned: 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.
	31P S/N	P314 - Get medical attention if you feel unwell. P308 + P313 - IF exposed or concerned: Get medical attention. P304 + P340 + P311 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician. P301 + P312 + P330 - IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. P302 + P352 + P362+P364 - IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. 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	: 13C S/N ASTM	P405 - Store locked up. P403 - Store in a well-ventilated place. P235 - Keep cool.
	15N S/N	P405 - Store locked up. P403 - Store in a well-ventilated place. P235 - Keep cool.
	31P S/N	P405 - Store locked up.
Disposal	: 13C S/N ASTM	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
	15N S/N	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
	31P S/N	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Section 2. Hazards identification

Supplemental label elements

: 13C S/N ASTM
15N S/N
31P S/N

Avoid contact with skin and clothing. Wash thoroughly after handling.
None known.
None known.

2.3 Other hazards

Hazards not otherwise classified

: 13C S/N ASTM
15N S/N
31P S/N

Prolonged or repeated contact may dry skin and cause irritation.
None known.
None known.

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
15N S/N
31P S/N

Mixture (encapsulated in article)
Mixture (encapsulated in article)
Mixture (encapsulated in article)

Ingredient name	%	CAS number
13C S/N ASTM (² H ₆)benzene 1,4-Dioxane	≥50 - ≤75 ≥25 - ≤50	1076-43-3 123-91-1
15N S/N Formamide	≥90	75-12-7
31P S/N (² H)Chloroform	≥90	865-49-6

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

15N S/N

31P 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.
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.
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.

Section 4. First aid measures

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.

15N S/N

Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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 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.

31P 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.

Skin contact : 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.

15N S/N

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at

Section 4. First aid measures

	31P S/N	<p>least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.</p> <p>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.</p>
Ingestion	: 73C S/N ASTM	<p>Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Wash out mouth with water. Remove 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. 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.</p>
	15N S/N	<p>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. 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.</p>
	31P S/N	<p>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.</p>

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Section 4. First aid measures

Eye contact	: 13C S/N ASTM 15N S/N 31P S/N	Causes serious eye irritation. Causes serious eye irritation. Causes serious eye irritation.
Inhalation	: 13C S/N ASTM 15N S/N 31P S/N	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation. No known significant effects or critical hazards. Toxic if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.
Skin contact	: 13C S/N ASTM 15N S/N 31P S/N	Causes skin irritation. Defatting to the skin. No known significant effects or critical hazards. Causes skin irritation.
Ingestion	: 13C S/N ASTM 15N S/N 31P S/N	Harmful if swallowed. Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. No known significant effects or critical hazards. Harmful if swallowed. Can cause central nervous system (CNS) depression.
<u>Over-exposure signs/symptoms</u>		
Eye contact	: 13C S/N ASTM 15N S/N 31P S/N	Adverse symptoms may include the following: pain or irritation watering redness Adverse symptoms may include the following: pain or irritation watering redness Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	: 13C S/N ASTM 15N S/N 31P S/N	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: reduced fetal weight increase in fetal deaths skeletal malformations Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness reduced fetal weight increase in fetal deaths skeletal malformations

Section 4. First aid measures

Skin contact	: 13C S/N ASTM	Adverse symptoms may include the following: irritation redness dryness cracking
	15N S/N	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
	31P S/N	Adverse symptoms may include the following: irritation redness reduced fetal weight increase in fetal deaths skeletal malformations
Ingestion	: 13C S/N ASTM	Adverse symptoms may include the following: nausea or vomiting
	15N S/N	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
	31P S/N	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations

4.3 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.
	15N 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.
	31P 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.
Specific treatments	: 13C S/N ASTM 15N S/N 31P S/N	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.
	15N 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.
	31P S/N	No action shall be taken involving any personal risk

Section 4. First aid measures

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.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media : 13C S/N ASTM
15N S/N
31P S/N

Use dry chemical, CO₂, water spray (fog) or foam.
Use dry chemical, CO₂, water spray (fog) or foam.
Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : 13C S/N ASTM
15N S/N
31P S/N

Do not use water jet.
Do not use water jet.
None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical : 13C S/N ASTM

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.
Combustible liquid. 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.
In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : 13C S/N ASTM

Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
sulfur oxides
Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
phosphorus oxides
halogenated compounds
carbonyl halides

15N S/N

31P S/N

15N S/N

31P S/N

5.3 Advice for firefighters

Section 5. Fire-fighting measures

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

15N S/N

31P S/N

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

15N S/N

31P 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.

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.

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.

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 : 13C S/N ASTM

15N S/N

31P S/N

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. 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. 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. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when

Section 6. Accidental release measures

<p>For emergency responders : 13C S/N ASTM</p> <p>15N S/N</p> <p>31P S/N</p>	<p>ventilation is inadequate. Put on appropriate personal protective equipment.</p> <p>If specialized 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".</p> <p>If specialized 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".</p> <p>If specialized 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".</p>
<p>6.2 Environmental precautions : 13C S/N ASTM</p> <p>15N S/N</p> <p>31P S/N</p>	<p>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).</p> <p>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).</p> <p>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).</p>
<p>6.3 Methods and materials for containment and cleaning up</p> <p>Methods for cleaning up : 13C S/N ASTM</p> <p>15N S/N</p> <p>31P S/N</p>	<p>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.</p> <p>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.</p> <p>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.</p>

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.

15N S/N

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. 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. Empty containers retain product residue and can be hazardous. Do not reuse container.

31P S/N

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. 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. 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.

Section 7. Handling and storage

Advice on general occupational hygiene	: 13C S/N ASTM	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. 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. 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.
	15N S/N	
	31P S/N	
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 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. 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.
	15N S/N	
	31P S/N	

Section 7. Handling and storage

7.3 Specific end use(s)

Recommendations	: 13C S/N ASTM 15N S/N 31P S/N	Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications.
Industrial sector specific solutions	: 13C S/N ASTM 15N S/N 31P S/N	Not applicable. Not applicable. 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
13C S/N ASTM (² H ₆)benzene	<p>ACGIH TLV (United States, 3/2016). 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.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 1 ppm 8 hours. STEL: 5 ppm 15 minutes.</p> <p>OSHA PEL Z2 (United States, 2/2013). TWA: 10 ppm 8 hours. CEIL: 25 ppm AMP: 50 ppm 10 minutes.</p> <p>NIOSH REL (United States, 10/2013). TWA: 0.1 ppm 10 hours. STEL: 1 ppm 15 minutes.</p> <p>OSHA PEL (United States, 2/2013). TWA: 1 ppm 8 hours. STEL: 5 ppm 15 minutes.</p>
1,4-Dioxane	<p>OSHA PEL 1989 (United States, 3/1989). Absorbed through skin. TWA: 25 ppm 8 hours. TWA: 90 mg/m³ 8 hours.</p> <p>NIOSH REL (United States, 10/2013). CEIL: 1 ppm 30 minutes. CEIL: 3.6 mg/m³ 30 minutes.</p> <p>ACGIH TLV (United States, 3/2016). Absorbed through skin. TWA: 20 ppm 8 hours.</p> <p>OSHA PEL (United States, 2/2013). Absorbed through skin. TWA: 100 ppm 8 hours. TWA: 360 mg/m³ 8 hours.</p>
15N S/N Formamide	<p>ACGIH TLV (United States, 3/2016). Absorbed through skin. TWA: 10 ppm 8 hours.</p>

Section 8. Exposure controls/personal protection

31P S/N
(²H)Chloroform

TWA: 18 mg/m³ 8 hours.
OSHA PEL 1989 (United States, 3/1989).

TWA: 20 ppm 8 hours.
TWA: 30 mg/m³ 8 hours.
STEL: 30 ppm 15 minutes.
STEL: 45 mg/m³ 15 minutes.

NIOSH REL (United States, 10/2013).
Absorbed through skin.

TWA: 10 ppm 10 hours.
TWA: 15 mg/m³ 10 hours.

ACGIH TLV (United States, 3/2016).

TWA: 10 ppm 8 hours.
TWA: 49 mg/m³ 8 hours.

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

TWA: 2 ppm 8 hours.
TWA: 9.78 mg/m³ 8 hours.

NIOSH REL (United States, 10/2013).

STEL: 2 ppm 60 minutes.
STEL: 9.78 mg/m³ 60 minutes.

OSHA PEL (United States, 2/2013).

CEIL: 50 ppm
CEIL: 240 mg/m³

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.

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.

Section 8. Exposure controls/personal protection

- 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** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	: 13C S/N ASTM 15N S/N 31P S/N	Liquid. Liquid. Liquid.
Color	: 13C S/N ASTM 15N S/N 31P S/N	Colorless. Not available. Not available.
Odor	: 13C S/N ASTM 15N S/N 31P S/N	Not available. Not available. Not available.
Odor threshold	: 13C S/N ASTM 15N S/N 31P S/N	Not available. Not available. Not available.
pH	: 13C S/N ASTM 15N S/N 31P S/N	Not available. Not available. Not available.
Melting point	: 13C S/N ASTM 15N S/N 31P S/N	6.8°C (44.2°F) Not available. -64°C (-83.2°F)
Boiling point	: 13C S/N ASTM 15N S/N 31P S/N	79.1°C (174.4°F) Not available. 62°C (143.6°F)
Flash point	: 13C S/N ASTM 15N S/N 31P S/N	Closed cup: -18 to 23°C (-0.4 to 73.4°F) Closed cup: 87.8°C (190°F) Not available.
Evaporation rate	: 13C S/N ASTM 15N S/N 31P S/N	Not available. Not available. Not available.
Flammability (solid, gas)	: 13C S/N ASTM 15N S/N 31P S/N	Not applicable. Not applicable. Not applicable.
Lower and upper explosive (flammable) limits	: 13C S/N ASTM 15N S/N 31P S/N	Lower: 1.3% Upper: 8% Not available. Not available.
Vapor pressure	: 13C S/N ASTM 15N S/N 31P S/N	22.1 kPa (166 mm Hg) [room temperature] Not available. Not available.
Vapor density	:	

Section 9. Physical and chemical properties

	13C S/N ASTM	>1 [Air = 1]
	15N S/N	Not available.
	31P S/N	Not available.
Relative density	: 13C S/N ASTM	0.95
	15N S/N	Not available.
	31P S/N	Not available.
Solubility	: 13C S/N ASTM	Easily soluble in the following materials: cold water and hot water.
	15N S/N	Soluble in the following materials: cold water and hot water.
	31P S/N	Very slightly soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: 13C S/N ASTM	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
Auto-ignition temperature	: 13C S/N ASTM	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
Decomposition temperature	: 13C S/N ASTM	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
Viscosity	: 13C S/N ASTM	Not available.
	15N S/N	Not available.
	31P S/N	Not available.

Section 10. Stability and reactivity

10.1 Reactivity	: 13C S/N ASTM	No specific test data related to reactivity available for this product or its ingredients.
	15N S/N	No specific test data related to reactivity available for this product or its ingredients.
	31P S/N	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: 13C S/N ASTM	The product is stable.
	15N S/N	The product is stable.
	31P S/N	The product is stable.
10.3 Possibility of hazardous reactions	: 13C S/N ASTM	Under normal conditions of storage and use, hazardous reactions will not occur.
	15N S/N	Under normal conditions of storage and use, hazardous reactions will not occur.
	31P S/N	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 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.
	15N 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.
	31P S/N	No specific data.

Section 10. Stability and reactivity

10.5 Incompatible materials : 13C S/N ASTM

15N S/N

31P S/N

Reactive or incompatible with the following materials:

oxidizing materials

Reactive or incompatible with the following materials:

oxidizing materials

May react or be incompatible with oxidizing materials.

10.6 Hazardous decomposition products : 13C S/N ASTM

15N S/N

31P S/N

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 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	-
15N S/N Formamide	LD50 Dermal	Rabbit	17 g/kg	-
	LD50 Oral	Rat	4000 mg/kg	-
31P S/N (² H)Chloroform	LC50 Inhalation Vapor	Rat	47702 mg/m ³	4 hours
	LD50 Dermal	Rabbit	>20 g/kg	-
	LD50 Oral	Rat	300 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
13C S/N ASTM 1,4-Dioxane	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Skin - Mild irritant	Rabbit	-	515 milligrams	-
15N S/N Formamide	Eyes - Severe irritant	Rabbit	-	100 milligrams	-
31P S/N (² H)Chloroform	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

Sensitization

Not available.

Section 11. Toxicological information

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
13C S/N ASTM (² H ₆)benzene 1,4-Dioxane	+ -	1 2B	Known to be a human carcinogen. Reasonably anticipated to be a human carcinogen.
31P S/N (² H)Chloroform	-	2B	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
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
31P S/N (² H)Chloroform	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
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
31P S/N (² H)Chloroform	Category 1	Not determined	kidneys and liver

Aspiration hazard

Name	Result
13C S/N ASTM 13C S/N ASTM (² H ₆)benzene	ASPIRATION HAZARD - Category 1 ASPIRATION HAZARD - Category 1

Section 11. Toxicological information

Information on the likely routes of exposure	: 13C S/N ASTM	Routes of entry anticipated: Oral, Dermal, Inhalation.
	15N S/N	Routes of entry anticipated: Oral, Dermal, Inhalation.
	31P S/N	Routes of entry anticipated: Oral, Dermal, Inhalation.
Potential acute health effects		
Eye contact	: 13C S/N ASTM	Causes serious eye irritation.
	15N S/N	Causes serious eye irritation.
	31P S/N	Causes serious eye irritation.
Inhalation	: 13C S/N ASTM	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.
	15N S/N	No known significant effects or critical hazards.
	31P S/N	Toxic if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.
Skin contact	: 13C S/N ASTM	Causes skin irritation. Defatting to the skin.
	15N S/N	No known significant effects or critical hazards.
	31P S/N	Causes skin irritation.
Ingestion	: 13C S/N ASTM	Harmful if swallowed. Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.
	15N S/N	No known significant effects or critical hazards.
	31P S/N	Harmful if swallowed. Can cause central nervous system (CNS) depression.

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
	15N S/N	Adverse symptoms may include the following: pain or irritation watering redness
	31P 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
	15N S/N	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
	31P S/N	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache

Section 11. Toxicological information

		drowsiness/fatigue dizziness/vertigo unconsciousness reduced fetal weight increase in fetal deaths skeletal malformations
Skin contact	: 13C S/N ASTM	Adverse symptoms may include the following: irritation redness dryness cracking
	15N S/N	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
	31P S/N	Adverse symptoms may include the following: irritation redness reduced fetal weight increase in fetal deaths skeletal malformations
Ingestion	: 13C S/N ASTM	Adverse symptoms may include the following: nausea or vomiting
	15N S/N	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
	31P S/N	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations

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

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.

15N S/N

No known significant effects or critical hazards.

31P S/N

Causes damage to organs through prolonged or repeated exposure.

Carcinogenicity : 13C S/N ASTM

May cause cancer. Risk of cancer depends on duration and level of exposure.

15N S/N

No known significant effects or critical hazards.

31P S/N

Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Section 11. Toxicological information

Mutagenicity	: 13C S/N ASTM 15N S/N 31P S/N	May cause genetic defects. No known significant effects or critical hazards. No known significant effects or critical hazards.
Teratogenicity	: <input checked="" type="checkbox"/> 13C S/N ASTM 15N S/N 31P S/N	No known significant effects or critical hazards. May damage the unborn child. Suspected of damaging the unborn child.
Developmental effects	: 13C S/N ASTM 15N S/N 31P S/N	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Fertility effects	: 13C S/N ASTM 15N S/N 31P S/N	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
<input checked="" type="checkbox"/> 13C S/N ASTM Oral	1356.8 mg/kg
15N S/N Oral	4444.4 mg/kg
31P S/N Oral Inhalation (vapors)	504.6 mg/kg 3.032 mg/l

Other information	: <input checked="" type="checkbox"/> 13C S/N ASTM 15N S/N 31P S/N	Adverse symptoms may include the following: Repeated exposure may cause skin dryness or cracking. Not available. Not available.
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Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<input checked="" type="checkbox"/> 13C S/N ASTM (² H ₆)benzene	Acute EC50 29000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 1600000 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute EC50 9230 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 21 mg/l Marine water	Crustaceans - Artemia salina	48 hours
	Acute LC50 5.28 ul/L Fresh water	Fish - Oncorhynchus gorbuscha - Fry	96 hours
	Chronic NOEC 98 mg/l Fresh water	Daphnia - Daphnia magna	21 days
	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
31P S/N (² H)Chloroform	Acute EC50 13.3 mg/l Fresh water	Algae - Chlamydomonas reinhardtii - Exponential growth phase	72 hours

Section 12. Ecological information

	Acute EC50 2.803 mg/l Fresh water Acute LC50 29000 µg/l Fresh water Acute LC50 13300 µg/l Fresh water Chronic EC10 3.61 mg/l Fresh water	Crustaceans - Cypris subglobosa Daphnia - Daphnia magna Fish - Lepomis macrochirus Algae - Chlamydomonas reinhardtii - Exponential growth phase Daphnia - Daphnia magna	48 hours 48 hours 96 hours 72 hours 21 days
	Chronic NOEC 1.8 mg/l Fresh water		

12.2 Persistence and degradability

Not available.

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
<input checked="" type="checkbox"/> 13C S/N ASTM (² H ₆)benzene 1,4-Dioxane	2.13 -0.42	11 0.3 to 0.7	low low
15N S/N Formamide	-0.82	-	low
31P S/N (² H)Chloroform	1.97	690	high

12.4 Mobility in soil

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

12.5 Other adverse effects : 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.

[United States - RCRA Toxic hazardous waste "U" List](#)

Section 13. Disposal considerations

Ingredient	CAS #	Status	Reference number
3C S/N ASTM 1,4-Dioxane; 1,4-Diethyleneoxide	123-91-1	Listed	U108
31P S/N Chloroform; Methane, trichloro-	865-49-6	Listed	U044

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 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.

Additional information : **Special provisions**
251, 340

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information

Section 14. Transport information

<p>DOT</p>	<p>UN3316</p>	<p>Chemical kits RQ ((²H)Chloroform, (²H₆ benzene)</p>	<p>9</p>		<p>Reportable quantity 30.321 lbs / 13.766 kg The classification of the product is due solely to the presence of one or more US DOT-listed 'Hazardous substances' that are subject to reportable quantity requirements and only applies to shipments of packages greater than, or equal to, the product reportable quantity. Package sizes less than the product reportable quantity are not regulated as hazardous materials.</p> <p>Limited quantity Yes.</p> <p>Packaging instruction Passenger aircraft Quantity limitation: 10 kg Cargo aircraft Quantity limitation: 10 kg</p> <p>Special provisions 15</p>

Section 14. Transport information

TGD	UN3316	CHEMICAL KIT. Marine pollutant (Triphenyl phosphate)	9		 	<p>Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.43-2.45 (Class 9), 2.7 (Marine pollutant mark).</p> <p>The marine pollutant mark is not required when transported by road or rail.</p> <p>Passenger Carrying Road or Rail Index 10</p> <p>Special provisions 65, 141</p>
Mexico	UN3316	EQUIPO QUIMICO	9			<p>Special provisions 251, 340</p>
IMDG	UN3316	CHEMICAL KIT. Marine pollutant (Triphenyl phosphate)	9		 	<p>The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> <p>Emergency schedules (EmS) F-A, _S-P_</p> <p>Special provisions 251, 340</p>

Section 14. Transport information

IATA	UN3316	Chemical kit	9	II		<p>The environmentally hazardous substance mark may appear if required by other transportation regulations.</p> <p><u>Passenger and Cargo Aircraft</u> Quantity limitation: 10 kg Packaging instructions: 960</p> <p><u>Cargo Aircraft Only</u> Quantity limitation: 10 kg Packaging instructions: 960</p> <p><u>Limited Quantities - Passenger Aircraft</u> Quantity limitation: 1 kg Packaging instructions: Y960</p> <p><u>Special provisions</u> A44, A163</p>
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PG* : Packing group

Section 15. Regulatory information

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

- U.S. Federal regulations** : TSCA 8(a) PAIR: Formamide
- United States inventory (TSCA 8b)**: Not determined.
- Clean Water Act (CWA) 307**: (2H)Chloroform
- Clean Water Act (CWA) 311**: (2H)Chloroform
- Clean Air Act (CAA) 112 regulated toxic substances**: (2H)Chloroform
- Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Listed
- Clean Air Act Section 602 Class I Substances** : Not listed
- Clean Air Act Section 602 Class II Substances** : Not listed
- DEA List I Chemicals (Precursor Chemicals)** : Not listed
- DEA List II Chemicals (Essential Chemicals)** : Not listed
- SARA 302/304**
[Composition/information on ingredients](#)

Section 15. Regulatory information

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
31P S/N (² H)Chloroform	≥90	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 1,4-Dioxane	≥50 - ≤75 ≥25 - ≤50	Yes. Yes.	No. No.	No. No.	Yes. Yes.	Yes. Yes.
15N S/N Formamide	≥90	No.	No.	No.	Yes.	Yes.
31P S/N (² H)Chloroform	≥90	No.	No.	No.	Yes.	Yes.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	13C S/N ASTM (² H ₆)benzene 1,4-Dioxane	1076-43-3 123-91-1	≥50 - ≤75 ≥25 - ≤50
	31P S/N (² H)Chloroform	865-49-6	≥90
Supplier notification	13C S/N ASTM (² H ₆)benzene 1,4-Dioxane	1076-43-3 123-91-1	≥50 - ≤75 ≥25 - ≤50
	31P S/N (² H)Chloroform	865-49-6	≥90

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: 1,4-DIOXANE; 1,4-DIETHYLENE DIOXIDE; CHLOROFORM; FORMAMIDE
- New York** : The following components are listed: 1,4-Dioxane; Chloroform; Methane, trichloro-
- New Jersey** : The following components are listed: 1,4-DIOXANE; 1,4-DIETHYLENE DIOXIDE; CHLOROFORM; METHANE, TRICHLORO-; FORMAMIDE
- Pennsylvania** : The following components are listed: 1,4-DIOXANE; METHANE, TRICHLORO-; FORMAMIDE; di[(²H₃)Methyl] sulphoxide

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
<input checked="" type="checkbox"/> 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.
<input checked="" type="checkbox"/> 31P S/N (² H)Chloroform	Yes.	Yes.	20 µg/day (ingestion) 40 µg/day (inhalation)	No.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	: Not determined.
Canada inventory	: At least one component is not listed in DSL but all such components are listed in NDSDL.
China	: <input checked="" type="checkbox"/> All components are listed or exempted.
Europe	: All components are listed or exempted.
Japan	: <input checked="" type="checkbox"/> Japan inventory (ENCS) : All components are listed or exempted. Japan inventory (ISHL) : All components are listed or exempted.
Malaysia	: <input checked="" type="checkbox"/> Not determined.
New Zealand	: <input checked="" type="checkbox"/> All components are listed or exempted.
Philippines	: <input checked="" type="checkbox"/> Not determined.
Republic of Korea	: <input checked="" type="checkbox"/> Not determined.
Taiwan	: <input checked="" type="checkbox"/> All components are listed or exempted.
Turkey	: <input checked="" type="checkbox"/> Not determined.

Section 16. Other information

History

Date of issue	: 10/19/2016
Date of previous issue	: 09/10/2014.
Version	: 4

Indicates information that has changed from previously issued version.

Notice to reader

Section 16. Other information

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