

SAFETY DATA SHEET



NMR Sample Kit - Direct Detect, Part Number 190350513

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

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	: NMR Sample Kit - Direct Detect, Part Number 190350513		
Part No. (Kit)	: 190350513		
Part No.	: 19F S/N	190350682	
	: 15N S/N	190350683	
	: 31P S/N	190350687	
	: 13C Sensitivity	190350616	

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

Identified uses	
Analytical chemistry.	
4 x 250 µl	
19F S/N	250 µl
15N S/N	250 µl
31P S/N	250 µl
13C Sensitivity	250 µl

1.3 Details of the supplier of the safety data sheet

Agilent Technologies Manufacturing GmbH & Co. KG
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000

e-mail address of person responsible for this SDS : pdl-msds_author@agilent.com

1.4 Emergency telephone number

Emergency telephone number (with hours of operation) : CHEMTREC®: +(44)-870-8200418

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

Product definition	: 19F S/N	Mixture (encapsulated in article)
	: 15N S/N	Mixture (encapsulated in article)
	: 31P S/N	Mixture (encapsulated in article)
	: 13C Sensitivity	Mixture (encapsulated in article)

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

19F S/N

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

Date of issue/Date of revision : 25/02/2014

SECTION 2: Hazards identification

H372 irritation and Narcotic effects) - Category 3
 H304 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
 H411 ASPIRATION HAZARD - Category 1
 LONG-TERM AQUATIC HAZARD - Category 2

15N S/N

H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
 H360D TOXIC TO REPRODUCTION (Unborn child) - Category 1B
 H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

31P S/N

H302 ACUTE TOXICITY (oral) - Category 4
 H315 SKIN CORROSION/IRRITATION - Category 2
 H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
 H351 CARCINOGENICITY - Category 2
 H335 and H336 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation and Narcotic effects) - Category 3
 H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
 H412 LONG-TERM AQUATIC HAZARD - Category 3

13C Sensitivity

H225 FLAMMABLE LIQUIDS - Category 2
 H302 ACUTE TOXICITY (oral) - Category 4
 H315 SKIN CORROSION/IRRITATION - Category 2
 H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
 H351 CARCINOGENICITY - Category 2
 H335 and H336 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation and Narcotic effects) - Category 3
 H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
 H412 LONG-TERM AQUATIC HAZARD - Category 3

Ingredients of unknown ecotoxicity : 19F S/N Not applicable.
 15N S/N Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 90%
 31P S/N Not applicable.
 13C Sensitivity Not applicable.

Classification according to Directive 1999/45/EC [DPD]

19F S/N The product is classified as dangerous according to Directive 1999/45/EC and its amendments.
 15N S/N The product is classified as dangerous according to Directive 1999/45/EC and its amendments.
 31P S/N The product is classified as dangerous according to Directive 1999/45/EC and its amendments.
 13C Sensitivity The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : 19F S/N F; R11
 Carc. Cat. 1; R45
 Muta. Cat. 2; R46
 T; R48/23/24/25
 Xn; R65
 Xi; R36/38
 15N S/N Repr. Cat. 2; R61
 31P S/N Carc. Cat. 3; R40
 Xn; R22, R48/20/22
 Xi; R38
 R52/53
 13C Sensitivity F; R11
 Carc. Cat. 3; R40
 Xn; R22, R48/20/22
 Xi; R38

Physical/chemical hazards : 19F S/N Highly flammable.
 15N S/N Not applicable.
 31P S/N Not applicable.
 13C Sensitivity Highly flammable.

SECTION 2: Hazards identification

Human health hazards	: 19F S/N 15N S/N 31P S/N 13C Sensitivity	May cause cancer. May cause heritable genetic damage. Also toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. Also harmful: may cause lung damage if swallowed. Irritating to eyes and skin. May cause harm to the unborn child. Limited evidence of a carcinogenic effect. Harmful if swallowed. Harmful: danger of serious damage to health in case of prolonged exposure through inhalation and if swallowed. Irritating to skin. Limited evidence of a carcinogenic effect. Harmful if swallowed. Harmful: danger of serious damage to health in case of prolonged exposure through inhalation and if swallowed. Irritating to skin.
Environmental hazards	: 19F S/N 15N S/N 31P S/N 13C Sensitivity	Not applicable. Not applicable. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Not applicable.

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms	:	
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Signal word	: 19F S/N 15N S/N 31P S/N 13C Sensitivity	Danger Danger Warning Danger
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Hazard statements	: 19F S/N 15N S/N 31P S/N	<p>GHS02 - Highly flammable liquid and vapour.</p> <p>GHS07 - Harmful if swallowed. Causes skin irritation. May cause respiratory irritation. Causes serious eye irritation. May cause drowsiness or dizziness.</p> <p>GHS08 - May cause genetic defects. May cause cancer. Causes damage to organs through prolonged or repeated exposure.</p> <p>GHS09 - Toxic to aquatic life with long lasting effects.</p> <p>GHS07 - Causes serious eye irritation.</p> <p>GHS08 - May damage the unborn child. May cause damage to organs through prolonged or repeated exposure.</p> <p>GHS07 - Harmful if swallowed. Causes skin irritation. May cause respiratory irritation. Causes serious eye irritation. May cause drowsiness or dizziness.</p> <p>GHS08 - Suspected of causing cancer. May cause damage to organs through prolonged or</p>
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SECTION 2: Hazards identification

13C Sensitivity	repeated exposure. Harmful to aquatic life with long lasting effects. GHS02 - Highly flammable liquid and vapour. GHS07 - Harmful if swallowed. Causes skin irritation. May cause respiratory irritation. Causes serious eye irritation. May cause drowsiness or dizziness. GHS08 - Suspected of causing cancer. May cause damage to organs through prolonged or repeated exposure. Harmful to aquatic life with long lasting effects.
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Precautionary statements

Prevention	:	
Response	:	
Storage	:	
Disposal	:	
Hazardous ingredients	:	19F S/N (² H ₆)Benzene
		15N S/N Formamide di[(² H ₃)Methyl] sulphoxide
		31P S/N (² H)Chloroform

Supplemental label elements	:	13C Sensitivity (² H)Chloroform	
		19F S/N	Not applicable.
		15N S/N	Not applicable.
		31P S/N	Not applicable.
		13C Sensitivity	Not applicable.

Special packaging requirements

Tactile warning of danger	:	19F S/N	Not applicable.
		15N S/N	Not applicable.
		31P S/N	Not applicable.
		13C Sensitivity	Not applicable.

2.3 Other hazards

Other hazards which do not result in classification	:	19F S/N	Defatting to the skin. Prolonged or repeated contact may dry skin and cause irritation.
		15N S/N	None known.
		31P S/N	None known.
		13C Sensitivity	Prolonged or repeated contact may dry skin and cause irritation.

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	:	19F S/N	Mixture (encapsulated in article)
		15N S/N	Mixture (encapsulated in article)
		31P S/N	Mixture (encapsulated in article)
		13C Sensitivity	Mixture (encapsulated in article)

SECTION 3: Composition/information on ingredients

Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
19F S/N (² H ₆)Benzene	EC: 214-061-8 CAS: 1076-43-3 Index: 601-020-00-8	>=90	F; R11 Carc. Cat. 1; R45 Muta. Cat. 2; R46 T; R48/23/24/25 Xn; R65 Xi; R36/38	Flam. Liq. 2, H225 Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Muta. 1B, H340 Carc. 1A, H350 STOT SE 3, H335 and H336 (Respiratory tract irritation and Narcotic effects) STOT RE 1, H372 (blood system) (oral) STOT RE 1, H372 (blood system) (inhalation) Asp. Tox. 1, H304 Aquatic Chronic 2, H411	[1] [2]
15N S/N Formamide	EC: 200-842-0 CAS: 75-12-7 Index: 616-052-00-8	>=90	Repr. Cat. 2; R61	Eye Irrit. 2, H319 Repr. 1B, H360D (Unborn child)	[1]
di[(² H ₃)Methyl] sulphoxide	EC: 200-664-3 CAS: 2206-27-1	>=10 - <15	Not classified.	STOT RE 2, H373 (kidneys and liver) (oral)	[1]
31P S/N (² H)Chloroform	EC: 200-663-8 CAS: 865-49-6 Index: 602-006-00-4	>=90	Carc. Cat. 3; R40 Xn; R22, R48/20/22 Xi; R38	Acute Tox. 3, H301 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Carc. 2, H351 STOT SE 3, H335 and H336 (Respiratory tract irritation and Narcotic effects) STOT RE 2, H373 (kidneys and liver) Asp. Tox. 1, H304 Aquatic Chronic 3, H412	[1] [2]
Triphenyl phosphate	EC: 204-112-2 CAS: 115-86-6	>=0.25 - <2.5	N; R50/53	STOT RE 2, H373 (nervous system) Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]
13C Sensitivity (² H)Chloroform	EC: 200-663-8 CAS: 865-49-6 Index: 602-006-00-4	>=75 - <90	Carc. Cat. 3; R40 Xn; R22, R48/20/22 Xi; R38	Acute Tox. 3, H301 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Carc. 2, H351 STOT SE 3, H335 and H336 (Respiratory tract irritation and Narcotic effects) STOT RE 2, H373 (kidneys and liver) Asp. Tox. 1, H304 Aquatic Chronic 3, H412	[1] [2]
Ethylbenzene	EC: 202-849-4 CAS: 100-41-4 Index: 601-023-00-4	>=7 - <25	F; R11 Xn; R20	Flam. Liq. 3, H226 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319	[1] [2]

SECTION 3: Composition/information on ingredients

				STOT SE 3, H335 and H336 (Respiratory tract irritation and Narcotic effects) Asp. Tox. 1, H304 Aquatic Chronic 3, H412 See Section 16 for the full text of the H statements declared above.
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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.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern

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

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact	: 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.
	15N 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.
	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.
	13C Sensitivity	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	: 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.
	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

SECTION 4: First aid measures

	31P S/N	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. 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.
	13C Sensitivity	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	: 19F S/N	Wash skin thoroughly with soap and water or use recognised 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 least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	31P S/N	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.
	13C Sensitivity	Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	: 19F S/N	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

SECTION 4: First aid measures

15N S/N	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.
31P S/N	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.
13C Sensitivity	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.
Protection of first-aiders : 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.
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 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.
13C Sensitivity	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

SECTION 4: First aid measures

or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact	: 19F S/N	Causes serious eye irritation.
	15N S/N	Causes serious eye irritation.
	31P S/N	Causes serious eye irritation.
	13C Sensitivity	Causes serious eye irritation.
Inhalation	: 19F S/N	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.
	15N S/N	Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
	31P S/N	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
	13C Sensitivity	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Skin contact	: 19F S/N	Causes skin irritation. Defatting to the skin.
	15N S/N	No known significant effects or critical hazards.
	31P S/N	Causes skin irritation.
	13C Sensitivity	Causes skin irritation. Defatting to the skin.
Ingestion	: 19F S/N	Harmful if swallowed. Can cause central nervous system (CNS) depression. Irritating to mouth, throat and stomach.
	15N S/N	Irritating to mouth, throat and stomach.
	31P S/N	Harmful if swallowed. Can cause central nervous system (CNS) depression. Irritating to mouth, throat and stomach.
	13C Sensitivity	Harmful if swallowed. Can cause central nervous system (CNS) depression. Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact	: 19F S/N	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
	13C Sensitivity	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	: 19F S/N	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:

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		reduced foetal weight increase in foetal deaths skeletal malformations
	31P S/N	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo
	13C Sensitivity	unconsciousness Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
Skin contact	: 19F S/N	Adverse symptoms may include the following: irritation redness dryness cracking
	15N S/N	Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations
	31P S/N	Adverse symptoms may include the following: irritation redness
	13C Sensitivity	Adverse symptoms may include the following: irritation redness dryness cracking
Ingestion	: 19F S/N	No specific data.
	15N S/N	Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations
	31P S/N	No specific data.
	13C Sensitivity	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	: 19F S/N	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.
	13C Sensitivity	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	: 19F S/N	No specific treatment.
	15N S/N	No specific treatment.
	31P S/N	No specific treatment.
	13C Sensitivity	No specific treatment.

SECTION 5: Firefighting measures**5.1 Extinguishing media**

Suitable extinguishing media	: 19F S/N	Use dry chemical, CO ₂ , water spray (fog) or foam.
	15N S/N	Use an extinguishing agent suitable for the surrounding fire.
	31P S/N	Use an extinguishing agent suitable for the surrounding fire.
	13C Sensitivity	Use dry chemical, CO ₂ , water spray (fog) or foam.
Unsuitable extinguishing media	: 19F S/N	Do not use water jet.
	15N S/N	None known.
	31P S/N	None known.
	13C Sensitivity	Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	: 19F S/N	Highly flammable liquid and vapour. 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. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
	15N S/N	In a fire or if heated, a pressure increase will occur and the container may burst.
	31P S/N	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
	13C Sensitivity	Highly flammable liquid and vapour. 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. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous combustion products	: 19F S/N	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	15N S/N	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides
	31P S/N	Decomposition products may include the following materials: carbon dioxide carbon monoxide phosphorus oxides halogenated compounds carbonyl halides
	13C Sensitivity	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds carbonyl halides

5.3 Advice for firefighters

Special precautions for fire-fighters	: 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
	15N 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

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	31P S/N	taken involving any personal risk or without suitable training. 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.
	13C Sensitivity	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	: 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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
	15N 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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
	31P 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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
	13C Sensitivity	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: 19F 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 spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	15N 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 spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	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 spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	13C Sensitivity	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 spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard

SECTION 6: Accidental release measures

		area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	: 19F S/N	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".
	15N S/N	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".
	31P S/N	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".
	13C Sensitivity	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
6.2 Environmental precautions	: 19F S/N	Avoid dispersal of spilt 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). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.
	15N S/N	Avoid dispersal of spilt 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).
	31P S/N	Avoid dispersal of spilt 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). Water polluting material. May be harmful to the environment if released in large quantities.
	13C Sensitivity	Avoid dispersal of spilt 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). Water polluting material. May be harmful to the environment if released in large quantities.
6.3 Methods and materials for containment and cleaning up		
Methods for cleaning up	: 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.
	15N 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.
	31P 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.
	13C Sensitivity	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,

SECTION 6: Accidental release measures

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.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

Protective measures : 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 vapour or mist. Do not ingest. Avoid release to the environment. 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 breathe vapour or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. 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.

31P 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 vapour or mist. Do not ingest. Avoid release to the environment. 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.

13C Sensitivity

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 vapour or mist. Do not ingest. Avoid release to the environment. 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

SECTION 7: Handling and storage

		(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	: 19F S/N 15N S/N 31P S/N 13C Sensitivity	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. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
7.2 Conditions for safe storage, including any incompatibilities	: 19F S/N 15N S/N 31P S/N 13C Sensitivity	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 unlabelled 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 unlabelled 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 unlabelled 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.

SECTION 7: Handling and storage

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 unlabelled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations	: 19F S/N	Industrial applications, Professional applications.
	15N S/N	Industrial applications, Professional applications.
	31P S/N	Industrial applications, Professional applications.
	13C Sensitivity	Industrial applications, Professional applications.
Industrial sector specific solutions	: Not applicable.	

SECTION 8: Exposure controls/personal protection

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

8.1 Control parametersOccupational exposure limits

Product/ingredient name	Exposure limit values
19F S/N (² H ₆)Benzene	EU OEL (Europe, 12/2009). Absorbed through skin. TWA: 1 ppm 8 hours. TWA: 3.25 mg/m ³ 8 hours.
31P S/N (² H)Chloroform	EU OEL (Europe, 12/2009). Absorbed through skin. Notes: list of indicative occupational exposure limit values TWA: 2 ppm 8 hours. TWA: 10 mg/m ³ 8 hours.
13C Sensitivity (² H)Chloroform	EU OEL (Europe, 12/2009). Absorbed through skin. Notes: list of indicative occupational exposure limit values TWA: 2 ppm 8 hours. TWA: 10 mg/m ³ 8 hours.
Ethylbenzene	EU OEL (Europe, 12/2009). Absorbed through skin. Notes: list of indicative occupational exposure limit values STEL: 884 mg/m ³ 15 minutes. STEL: 200 ppm 15 minutes. TWA: 442 mg/m ³ 8 hours. TWA: 100 ppm 8 hours.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Derived effect levels

No DNELs available.

Predicted effect concentrations

No PNECs available.

SECTION 8: Exposure controls/personal protection**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.

Individual protection measures

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

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

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.

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.

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

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties****Appearance**

Physical state	: 19F S/N	Liquid.
	15N S/N	Liquid.
	31P S/N	Liquid.
	13C Sensitivity	Liquid.
Colour	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Colourless.
Odour	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Pleasant. / Sweet.
Odour threshold	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Not available.

SECTION 9: Physical and chemical properties

pH	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Not available.
Melting point/freezing point	: 19F S/N	5°C
	15N S/N	Not available.
	31P S/N	-64°C
	13C Sensitivity	-64°C
Initial boiling point and boiling range	: 19F S/N	80°C
	15N S/N	Not available.
	31P S/N	62°C
	13C Sensitivity	60.9°C
Flash point	: 19F S/N	Closed cup: -11.11°C
	15N S/N	Closed cup: 87.8°C
	31P S/N	Not available.
	13C Sensitivity	Closed cup: 15°C [(Ethylbenzene)]
Evaporation rate	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Not available.
Flammability (solid, gas)	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Not available.
Upper/lower flammability or explosive limits	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Not available.
Vapour pressure	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Not available.
Vapour density	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Not available.
Relative density	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	1.5
Solubility(ies)	: 19F S/N	Insoluble 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.
	13C Sensitivity	Very slightly soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Not available.
Auto-ignition temperature	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Not available.
Decomposition temperature	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Not available.

SECTION 9: Physical and chemical properties

Viscosity	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Not available.
Explosive properties	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	: 19F S/N	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.
	13C Sensitivity	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: 19F S/N	The product is stable.
	15N S/N	The product is stable.
	31P S/N	The product is stable.
	13C Sensitivity	The product is stable.
10.3 Possibility of hazardous reactions	: 19F S/N	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.
	13C Sensitivity	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: 19F S/N	Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
	15N S/N	No specific data.
	31P S/N	No specific data.
	13C Sensitivity	Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
10.5 Incompatible materials	: 19F S/N	Reactive or incompatible with the following materials: oxidizing materials
	15N S/N	No specific data.
	31P S/N	No specific data.
	13C Sensitivity	Reactive or incompatible with the following materials: oxidizing materials
10.6 Hazardous decomposition products	: 19F S/N	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	15N S/N	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	31P S/N	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	13C Sensitivity	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
19F S/N (² H ₆)Benzene	LD50 Oral	Rat	930 mg/kg	-
15N S/N Formamide	LD50 Dermal	Rabbit	17 g/kg	-
di[(² H ₃)Methyl] sulphoxide	LD50 Oral	Rat	4000 mg/kg	-
	LD50 Dermal	Rat	40000 mg/kg	-
	LD50 Oral	Rat	14500 mg/kg	-
31P S/N (² H)Chloroform	LC50 Inhalation Vapour	Rat	47702 mg/m ³	4 hours
Triphenyl phosphate	LD50 Dermal	Rabbit	>20 g/kg	-
	LD50 Oral	Rat	300 mg/kg	-
	LD50 Dermal	Rabbit	>7900 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
13C Sensitivity (² H)Chloroform	LC50 Inhalation Vapour	Rat	47702 mg/m ³	4 hours
Ethylbenzene	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	-

Acute toxicity estimates

Route	ATE value
19F S/N Oral	930.5 mg/kg
31P S/N Oral	303.2 mg/kg
13C Sensitivity Oral Inhalation (gases)	333.4 mg/kg 40000 ppm

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation	
19F 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	-	
15N S/N Formamide	Eyes - Severe irritant	Rabbit	-	100 milligrams	-	
	di[(² H ₃)Methyl] sulphoxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
		Eyes - Mild irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-	
	Skin - Mild irritant	Rabbit	-	100 milligrams	-	

SECTION 11: Toxicological information

31P S/N (² H)Chloroform	Eyes - Moderate irritant	Rabbit	-	milligrams 24 hours 20	-
	Skin - Mild irritant	Rabbit	-	milligrams 24 hours 500	-
13C Sensitivity (² H)Chloroform	Eyes - Moderate irritant	Rabbit	-	milligrams 24 hours 20	-
	Skin - Mild irritant	Rabbit	-	milligrams 24 hours 500	-
Ethylbenzene	Skin - Mild irritant	Rabbit	-	milligrams 24 hours 15	-

Sensitiser

Conclusion/Summary : Not available.

Chronic toxicity / Carcinogenicity / Mutagenicity / Teratogenicity / Reproductive toxicity

Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
19F S/N (² H ₆)Benzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
31P S/N (² H)Chloroform	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
13C Sensitivity (² H)Chloroform	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Ethylbenzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
19F S/N (² H ₆)Benzene	Category 1	Oral Inhalation	blood system blood system
15N S/N di[(² H ₃)Methyl] sulphoxide	Category 2	Oral	kidneys and liver
31P S/N (² H)Chloroform Triphenyl phosphate	Category 2 Category 2	Not determined Not determined	kidneys and liver nervous system
13C Sensitivity (² H)Chloroform	Category 2	Not determined	kidneys and liver

Aspiration hazard

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Product/ingredient name	Result
19F S/N (² H ₆)Benzene	ASPIRATION HAZARD - Category 1
31P S/N (² H)Chloroform	ASPIRATION HAZARD - Category 1
13C Sensitivity (² H)Chloroform Ethylbenzene	ASPIRATION HAZARD - Category 1 ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Not available.

Potential acute health effects

Inhalation	: 19F S/N	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.
	15N S/N	Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
	31P S/N	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
	13C Sensitivity	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	: 19F S/N	Harmful if swallowed. Can cause central nervous system (CNS) depression. Irritating to mouth, throat and stomach.
	15N S/N	Irritating to mouth, throat and stomach.
	31P S/N	Harmful if swallowed. Can cause central nervous system (CNS) depression. Irritating to mouth, throat and stomach.
	13C Sensitivity	Harmful if swallowed. Can cause central nervous system (CNS) depression. Irritating to mouth, throat and stomach.
Skin contact	: 19F S/N	Causes skin irritation. Defatting to the skin.
	15N S/N	No known significant effects or critical hazards.
	31P S/N	Causes skin irritation.
	13C Sensitivity	Causes skin irritation. Defatting to the skin.
Eye contact	: 19F S/N	Causes serious eye irritation.
	15N S/N	Causes serious eye irritation.
	31P S/N	Causes serious eye irritation.
	13C Sensitivity	Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation	: 19F S/N	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 foetal weight increase in foetal deaths skeletal malformations
	31P S/N	Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue

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		13C Sensitivity	dizziness/vertigo unconsciousness Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
Ingestion	:	19F S/N 15N S/N	No specific data. Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations
		31P S/N 13C Sensitivity	No specific data. No specific data.
Skin contact	:	19F S/N	Adverse symptoms may include the following: irritation redness dryness cracking
		15N S/N	Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations
		31P S/N	Adverse symptoms may include the following: irritation redness
		13C Sensitivity	Adverse symptoms may include the following: irritation redness dryness cracking
Eye contact	:	19F S/N	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
		13C Sensitivity	Adverse symptoms may include the following: pain or irritation watering redness

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

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General	: 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.
	15N S/N	May cause damage to organs through prolonged or repeated exposure.
	31P S/N	May cause damage to organs through prolonged or repeated exposure.
	13C Sensitivity	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.
Carcinogenicity	: 19F S/N	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.
	13C Sensitivity	Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
Mutagenicity	: 19F S/N	May cause genetic defects.
	15N S/N	No known significant effects or critical hazards.
	31P S/N	No known significant effects or critical hazards.
	13C Sensitivity	No known significant effects or critical hazards.
Teratogenicity	: 19F S/N	No known significant effects or critical hazards.
	15N S/N	May damage the unborn child.
	31P S/N	No known significant effects or critical hazards.
	13C Sensitivity	No known significant effects or critical hazards.
Developmental effects	: 19F S/N	No known significant effects or critical hazards.
	15N S/N	No known significant effects or critical hazards.
	31P S/N	No known significant effects or critical hazards.
	13C Sensitivity	No known significant effects or critical hazards.
Fertility effects	: 19F S/N	No known significant effects or critical hazards.
	15N S/N	No known significant effects or critical hazards.
	31P S/N	No known significant effects or critical hazards.
	13C Sensitivity	No known significant effects or critical hazards.
<u>Toxicokinetics</u>		
Absorption	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Not available.
Distribution	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Not available.
Metabolism	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Not available.
Elimination	: 19F S/N	Not available.
	15N S/N	Not available.
	31P S/N	Not available.
	13C Sensitivity	Not available.
Other information	: Not available.	

SECTION 12: Ecological information**12.1 Toxicity**

SECTION 12: Ecological information

Product/ingredient name	Result	Species	Exposure
19F S/N (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 - Fry	96 hours
15N S/N di[(² H ₃)Methyl] sulphoxide	Chronic NOEC 1.5 to 5.4 ul/L Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	4 weeks
	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
31P S/N (² H)Chloroform	Acute LC50 34000000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute EC50 13.3 mg/l Fresh water	Algae - Chlamydomonas reinhardtii - Exponential growth phase	72 hours
Triphenyl phosphate	Acute LC50 81.5 mg/l Marine water	Crustaceans - Penaeus duorarum	48 hours
	Acute LC50 29000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 13300 µg/l Fresh water	Fish - Lepomis macrochirus	96 hours
	Chronic EC10 3.61 mg/l Fresh water	Algae - Chlamydomonas reinhardtii - Exponential growth phase	72 hours
	Chronic NOEC 6300 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Acute EC50 2000 µg/l	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 1000 µg/l Acute EC50 225 µg/l Fresh water	Daphnia - Daphnia magna Fish - Oncorhynchus mykiss - Fingerling	48 hours 96 hours
13C Sensitivity (² H)Chloroform	Chronic NOEC 55 µg/l Fresh water	Fish - Oncorhynchus mykiss - Fingerling	30 days
	Acute EC50 13.3 mg/l Fresh water	Algae - Chlamydomonas reinhardtii - Exponential growth phase	72 hours
Ethylbenzene	Acute LC50 81.5 mg/l Marine water	Crustaceans - Penaeus duorarum	48 hours
	Acute LC50 29000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 13300 µg/l Fresh water	Fish - Lepomis macrochirus	96 hours
	Chronic EC10 3.61 mg/l Fresh water	Algae - Chlamydomonas reinhardtii - Exponential growth phase	72 hours
	Chronic NOEC 6300 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Acute EC50 4600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 3600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 2970 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 5200 µg/l Marine water	Crustaceans - Americamysis bahia	48 hours
	Acute LC50 4200 µg/l Fresh water Chronic NOEC 1000 µg/l Fresh water	Fish - Oncorhynchus mykiss Algae - Pseudokirchneriella subcapitata	96 hours 96 hours

SECTION 12: Ecological information**12.2 Persistence and degradability**

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
13C Sensitivity Ethylbenzene	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
19F S/N (² H ₆)Benzene	2.13	11	low
15N S/N Formamide	-0.82	-	low
di[(² H ₃)Methyl] sulphoxide	-1.35	3.16	low
31P S/N (² H)Chloroform	1.97	690	high
Triphenyl phosphate	4.63	144	low
13C Sensitivity (² H)Chloroform	1.97	690	high
Ethylbenzene	3.6	-	low

12.4 Mobility in soil

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

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations**13.1 Waste treatment methods****Product**

Methods of disposal : The generation of waste should be avoided or minimised 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.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : 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. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

This Safety Data Sheet (EU_English) 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

ADR/RID / IMDG / IATA : Not regulated.

Additional information : **Remarks**
De minimis quantities

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****EU Regulation (EC) No. 1907/2006 (REACH)****Annex XIV - List of substances subject to authorisation****Substances of very high concern**

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : For use in industrial installations only.

Other EU regulations

Europe inventory : All components are listed or exempted.

Black List Chemicals : Not listed

Priority List Chemicals : Listed

Integrated pollution prevention and control list (IPPC) - Air : Listed

Integrated pollution prevention and control list (IPPC) - Water : Not listed

Product/ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
19F S/N (² H ₆)Benzene	Carc. 1A, H350	Muta. 1B, H340	-	-
15N S/N Formamide	-	-	Repr. 1B, H360D (Unborn child)	-
31P S/N (² H)Chloroform	Carc. 2, H351	-	-	-
13C Sensitivity (² H)Chloroform	Carc. 2, H351	-	-	-

15.2 Chemical Safety Assessment : This product contains substances for which Chemical Safety Assessments might still be required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

- : ATE = Acute Toxicity Estimate
- CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- DNEL = Derived No Effect Level
- EUH statement = CLP-specific Hazard statement
- PNEC = Predicted No Effect Concentration
- RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
<p>19F S/N Flam. Liq. 2, H225 Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Muta. 1B, H340 Carc. 1A, H350 STOT SE 3, H335 and H336 (Respiratory tract irritation and Narcotic effects) STOT RE 1, H372 Asp. Tox. 1, H304 Aquatic Chronic 2, H411</p>	<p>On basis of test data Calculation method Expert judgment Calculation method</p>
<p>15N S/N Eye Irrit. 2, H319 Repr. 1B, H360D (Unborn child) STOT RE 2, H373</p>	<p>Calculation method Calculation method Calculation method</p>
<p>31P S/N Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Carc. 2, H351 STOT SE 3, H335 and H336 (Respiratory tract irritation and Narcotic effects) STOT RE 2, H373 Aquatic Chronic 3, H412</p>	<p>Calculation method Calculation method</p>
<p>13C Sensitivity Flam. Liq. 2, H225 Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Carc. 2, H351 STOT SE 3, H335 and H336 (Respiratory tract irritation and Narcotic effects) STOT RE 2, H373 Aquatic Chronic 3, H412</p>	<p>On basis of test data Calculation method Calculation method</p>

Full text of abbreviated H statements

- : **19F S/N**
- H225 Highly flammable liquid and vapour.
- H302 (oral) Harmful if swallowed.
- H304 May be fatal if swallowed and enters airways.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H335 and H336 (Respiratory tract irritation and Narcotic effects) May cause respiratory irritation. May cause drowsiness or dizziness. (Respiratory tract irritation and Narcotic effects)
- H340 May cause genetic defects.
- H350 May cause cancer.
- H372 Causes damage to organs through prolonged or repeated exposure.
- H372 (blood system) Causes damage to organs through prolonged or repeated

SECTION 16: Other information

(inhalation)	exposure if inhaled. (blood system)
H372 (blood system)	Causes damage to organs through prolonged or repeated exposure if swallowed. (blood system)
(oral)	
H411	Toxic to aquatic life with long lasting effects.

15N S/N

H319	Causes serious eye irritation.
H360D (Unborn child)	May damage the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H373 (kidneys and liver)	May cause damage to organs through prolonged or repeated exposure if swallowed. (kidneys and liver)
(oral)	

31P S/N

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335 and H336 (Respiratory tract irritation and Narcotic effects)	May cause respiratory irritation. May cause drowsiness or dizziness. (Respiratory tract irritation and Narcotic effects)
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
H373 (kidneys and liver)	May cause damage to organs through prolonged or repeated exposure. (kidneys and liver)
H373 (nervous system)	May cause damage to organs through prolonged or repeated exposure. (nervous system)
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

13C Sensitivity

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
H302 (oral)	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332 (inhalation)	Harmful if inhaled.
H335 and H336 (Respiratory tract irritation and Narcotic effects)	May cause respiratory irritation. May cause drowsiness or dizziness. (Respiratory tract irritation and Narcotic effects)
H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure.
H373 (kidneys and liver)	May cause damage to organs through prolonged or repeated exposure. (kidneys and liver)
H412	Harmful to aquatic life with long lasting effects.

**Full text of classifications
[CLP/GHS]**

: 19F S/N

Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4
Aquatic Chronic 2, H411	LONG-TERM AQUATIC HAZARD - Category 2
Asp. Tox. 1, H304	ASPIRATION HAZARD - Category 1
Carc. 1A, H350	CARCINOGENICITY - Category 1A
Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Flam. Liq. 2, H225	FLAMMABLE LIQUIDS - Category 2
Muta. 1B, H340	GERM CELL MUTAGENICITY - Category 1B
Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION - Category 2
STOT RE 1, H372	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
STOT RE 1, H372	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1

SECTION 16: Other information

(blood system) (inhalation) STOT RE 1, H372 (blood system) (oral) STOT SE 3, H335 and H336 (Respiratory tract irritation and Narcotic effects)	EXPOSURE) (blood system) (inhalation) - Category 1 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (blood system) (oral) - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation and Narcotic effects) - Category 3
15N S/N Eye Irrit. 2, H319 Repr. 1B, H360D (Unborn child) STOT RE 2, H373 STOT RE 2, H373 (kidneys and liver) (oral)	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 TOXIC TO REPRODUCTION (Unborn child) - Category 1B SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (kidneys and liver) (oral) - Category 2
31P S/N Acute Tox. 3, H301 Acute Tox. 4, H302 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Aquatic Chronic 3, H412 Asp. Tox. 1, H304 Carc. 2, H351 Eye Irrit. 2, H319 Skin Irrit. 2, H315 STOT RE 2, H373 STOT RE 2, H373 (kidneys and liver) STOT RE 2, H373 (nervous system) STOT SE 3, H335 and H336 (Respiratory tract irritation and Narcotic effects)	ACUTE TOXICITY (oral) - Category 3 ACUTE TOXICITY (oral) - Category 4 ACUTE AQUATIC HAZARD - Category 1 LONG-TERM AQUATIC HAZARD - Category 1 LONG-TERM AQUATIC HAZARD - Category 3 ASPIRATION HAZARD - Category 1 CARCINOGENICITY - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 SKIN CORROSION/IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (kidneys and liver) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (nervous system) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation and Narcotic effects) - Category 3
13C Sensitivity Acute Tox. 3, H301 Acute Tox. 4, H302 Acute Tox. 4, H332 Aquatic Chronic 3, H412 Asp. Tox. 1, H304 Carc. 2, H351 Eye Irrit. 2, H319 Flam. Liq. 2, H225 Flam. Liq. 3, H226 Skin Irrit. 2, H315 STOT RE 2, H373 STOT RE 2, H373 (kidneys and liver) STOT SE 3, H335 and H336 (Respiratory tract irritation and Narcotic effects)	ACUTE TOXICITY (oral) - Category 3 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 LONG-TERM AQUATIC HAZARD - Category 3 ASPIRATION HAZARD - Category 1 CARCINOGENICITY - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 FLAMMABLE LIQUIDS - Category 2 FLAMMABLE LIQUIDS - Category 3 SKIN CORROSION/IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (kidneys and liver) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation and Narcotic effects) - Category 3

Full text of abbreviated R phrases : 19F S/N

R11- Highly flammable.
R45- May cause cancer.
R46- May cause heritable genetic damage.
R48/23/24/25- Also toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.
R65- Also harmful: may cause lung damage if swallowed.

SECTION 16: Other information

15N S/N 31P S/N	R36/38- Irritating to eyes and skin. R61- May cause harm to the unborn child. R40- Limited evidence of a carcinogenic effect. R22- Harmful if swallowed. R48/20/22- Harmful: danger of serious damage to health in case of prolonged exposure through inhalation and if swallowed. R38- Irritating to skin. R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
13C Sensitivity	R11- Highly flammable. R40- Limited evidence of a carcinogenic effect. R20- Harmful by inhalation. R22- Harmful if swallowed. R48/20/22- Harmful: danger of serious damage to health in case of prolonged exposure through inhalation and if swallowed. R38- Irritating to skin.
19F S/N	F - Highly flammable Carc. Cat. 1 - Carcinogen category 1 Muta. Cat. 2 - Mutagen category 2 T - Toxic Xn - Harmful Xi - Irritant
15N S/N 31P S/N	Repr. Cat. 2 - Toxic to reproduction category 2 Carc. Cat. 3 - Carcinogen category 3 Xn - Harmful Xi - Irritant
13C Sensitivity	N - Dangerous for the environment F - Highly flammable Carc. Cat. 3 - Carcinogen category 3 Xn - Harmful Xi - Irritant

Full text of classifications [DSD/DPD] :

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