

Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations :

Date of issue: 19/03/2015

Revision date:

Version: 1.0

## CLM-9679-S

	fication of the substance/mixture and of the company/undertaking
1.1. Product identi	
Product form	: Mixtures
Product name.	: 1,1,1,3,10,12,12,12-OCTACHLORODODECANE (13C12, 99%) 100 UG/ML IN NONANE
Product code	: CLM-9679-S
1.2. Relevant ident	tified uses of the substance or mixture and uses advised against
1.2.1. Relevant ident	tified uses
Industrial/Professional us	se spec : For professional use only.
1.2.2. Uses advised	against
No additional information	
1.3. Details of the	supplier of the safety data sheet
Cambridge Isotope Labo	
50 Frontage Road	
Andover, MA 01810 USA	
USA: 1-800-322-1174	Int: 1-978-749-8000
	www.isotope.com
Emergency te	lephone number
Emergency numbers:	
Chemtrec: 1-800-424-93	
International: 1-202-483-	-7616 (24 hours)
<b>SECTION 2: Hazard</b>	ds identification
2.1. Classification	of the substance or mixture
<b>Classification according</b>	ig to Regulation (EC) No. 1272/2008 [CLP]
Flam. Liq. 3	H226
Acute Tox. 4 (Inhalation)	H332
Skin Irrit. 2	H315
Eye Irrit. 2	H319
STOT SE 3	H336
Asp. Tox. 1	H304
Full text of H-phrases: se	e section 16
Classification according	g to Directive 67/548/EEC or 1999/45/EC
Xn; R20	
Xn; R65	
R10	
Full text of R-phrases: se	e section 16
Classification (GHS-US	))
Flam. Lig. 3	H226
Acute Tox. 4 (Inhalation)	H332
Skin Irrit. 2	H315
Eye Irrit. 2A STOT SE 3	H319 H336
Asp. Tox. 1	H304

#### Adverse physicochemical, human health and environmental effects

Central Nervous System.

## Safety Data Sheet



P405 - Store locked up

P403+P233 - Store in a well-ventilated place. Keep container tightly closed

P403+P235 - Store in a well-ventilated place. Keep cool

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P501 - Dispose of contents/container to Comply with applicable regulations.

2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures			
Name	Product identifier	%	Classification according to Directive 67/548/EEC
N-NONANE UNLABELED	(CAS No) 111-84-2 (EC no) 203-913-4	99.9861	R10 Xn; R20 Xn; R65 R67
1,1,1,3,10,12,12,12-OCTACHLORODODECANE (13C12, 99%)	(CAS No) 601523-21-1 (Unlabeled)	0.0139	Xi; R38
Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
N-NONANE UNLABELED	(CAS No) 111-84-2 (EC no) 203-913-4	99.9861	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H336 Asp. Tox. 1, H304
1,1,1,3,10,12,12,12-OCTACHLORODODECANE (13C12, 99%)	(CAS No) 601523-21-1 (Unlabeled)	0.0139	Skin Irrit. 2, H315
Name	Product identifier	%	Classification (GHS-US)
N-NONANE UNLABELED	(CAS No) 111-84-2	99.9861	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H336 Asp. Tox. 1, H304

Full text of R-, H- and EUH-phrases: see section 16

SECTION 4: First aid measures	
4.1. Description of first aid measure	S
First-aid measures general	: Move out of dangerous area. Consult a physician and show this safety data sheet.
First-aid measures after inhalation	<ul> <li>Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.</li> </ul>
First-aid measures after skin contact	: Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water. Wash contaminated clothing before reuse.
First-aid measures after eye contact	: Immediately flush eyes with plenty of water for at least 15 minutes. Get immediate medical attention.
First-aid measures after ingestion	: Immediately call a POISON CENTER or doctor/physician.
4.2. Most important symptoms and	effects, both acute and delayed
Symptoms/injuries after inhalation	: May cause drowsiness or dizziness.
Symptoms/injuries after skin contact	: Causes skin irritation.
Symptoms/injuries after eye contact	: Causes eye irritation.
Symptoms/injuries after ingestion	: May be fatal if swallowed and enters airways.
4.3. Indication of any immediate me	dical attention and special treatment needed
No additional information available	
<b>SECTION 5: Firefighting measure</b>	es a la companya de l
5.1. Extinguishing media	
suitable extinguishing media	For small fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

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5.2. Special hazards arising fingering for a second	rom the substance or mixture : Flammable liquid and vapor.
Explosion hazard	: May form flammable/explosive vapor-air mixture.
Reactivity	: Vapors may form explosive mixture with air.
5.3. Advice for firefighters	
irefighting instructions	: Use water spray to cool unopened containers.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection.
SECTION 6: Accidental rele	ase measures
6.1. Personal precautions, pre	otective equipment and emergency procedures
General measures	: Remove ignition sources. Use special care to avoid static electric charges. No naked lights. smoking.
6.1.1. For non-emergency perso	
Emergency procedures	: Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vap accumulating to form explosive concentrations. Vapours can accumulate in low areas.
5.1.2. For emergency responde	rs
No additional information available	
6.2. Environmental precaution	ns
Prevent entry to sewers and public w	aters.
3.3. Methods and material for	containment and cleaning up
For containment	: Contain spillage, then collect with non-combustible absorbent material. Disposal should be in accordance with applicable Federal, State and local regulations.
.4. Reference to other section	ns
No additional information available	
SECTION 7: Handling and s	torage
7.1. Precautions for safe hand	dling
Additional hazards when processed	: Handle empty containers with care because residual vapors are flammable.
Precautions for safe handling	No naked lights. No smoking. Take precautionary measures against static discharge. Use or non-sparking tools. Use only outdoors or in a well-ventilated area.
Hygiene measures	: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
7.2. Conditions for safe stora	ge, including any incompatibilities
echnical measures	<ul> <li>Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.</li> </ul>
Storage conditions	: Store at room temperature away from light and moisture.
ncompatible materials	: Heat sources.
7.3. Specific end use(s)	
lo additional information available	
SECTION 8: Exposure contr	rols/personal protection
3.1. Control parameters	
	DDODECANE (13C12, 99%) 100 UG/ML IN NONANE
	GIH TWA (ppm)       200.000000000 ppm Central Nervous System impairment.
N-NONANE UNLABELED (111-84	-2)
	GIH TWA (ppm) 200.00000000 ppm Central Nervous System impairment.
3.2. Exposure controls	



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according to Regulation (EC) No. 455/2010 a	ind according to Federal Register / vol. //, No. 56 / Nonday, March 26, 2012 / Rules and Regulations
Hand protection	: Wear suitable protective clothing and gloves.
Eye protection	: Wear safety glasses with side shields (or goggles) and a face shield.
Skin and body protection	: Wear suitable protective clothing.
Respiratory protection	<ul> <li>Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. Wear respiratory protection.</li> </ul>

appreciation to Endered Register (Mel 77, No. 58 / Manday, March 26, 2012 / Rules and Regulations

<b>SECTION 9: Physical and chemica</b>	properties
9.1. Information on basic physical and	
The properties listed below are for the solvent, the main comp	• •
Physical state	: Liquid
Appearance	: Liquid.
Molecular mass	: 128.3
Color	: No data available.
Odor	: No data available
Odor threshold	: No data available
рН	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: No data available
Freezing point	: -53 °C (- 63 °F) - lit
Boiling point	: 151 °C (304 °F) - lit
Flash point	: 31.0 °C (87.8 °F) - closed cup
Self ignition temperature	: 205 °C (401 °F)
Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable liquid and vapor
Vapor pressure	: 12.4 hPa (9.3 mmHg) at 37.7 °C (99.9 °F)
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Solubility	: Water: 0 %
Log Pow	: 5.65
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: 0.87 - 2.9 % (V)
9.2. Other information	
No additional information available	
<b>SECTION 10: Stability and reactivit</b>	y .
10.1. Reactivity	
Vapors may form explosive mixture with air.	

# See storage and expiration date on CoA. 10.3. Possibility of hazardous reactions No additional information available 10.4. Conditions to avoid Open flame. Overheating. Direct sunlight. Heat. Sparks. 10.5. Incompatible materials Strong oxidizing agents. 10.6. Hazardous decomposition products

May release flammable gases.

**Chemical stability** 

## SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

10.2.

: Harmful if inhaled.

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Serious eye damage/irritationSkin - rat - Skin irritation - Draize testSerious eye damage/irritation: Causes serious eye irritation. No data availableRespiratory or skin sensitization: Not available No data availableGerm cell mutagenicity: Not availableCarcinogenicity: Not availableCarcinogenicity: Not availableRespiratory or skin sensitization: Not availableGerm cell mutagenicity: Not availableCarcinogenicity: Not availableCarcinogenicity: Not availableSpecific target organ toxicity (single exposure): May cause drowsiness or dizziness. May cause drowsiness or dizziness. May cause drowsiness or dizziness. May cause drowsiness or dizziness.Specific target organ toxicity (repeated exposure): Not classified No data availableAspiration hazard: May be fatal if swallowed and enters airways.Potential Adverse human health effects and symptoms: The chemical, physical, and toxicological properties have not been thoroughly investigated.	1,1,1,3,10,12,12,12-OCTACHLORODODECANE (13C12, 99%) 100 UG/ML IN NONANE		
ATE (vapors)       11.000 mg/l/4h         ATE (dust, mist)       1.500 mg/l/4h         N-NONANE UNLABELED (111-84-2)       1.500 mg/l/4h         LC50 inhalation rat (ppm)       3200 ppm/4h         ATE (dust, mist)       1.500 mg/l/4h         Skin corrosion/irritation       : Causes skin irritation. Skin - rat - Skin irritation - Draize test         Serious eye damage/irritation       : Causes serious eye irritation. No data available         Respiratory or skin sensitization       : Not available         Germ cell mutagenicity       : Not available         Carcinogenicity       : Not available         Specific target organ toxicity (single exposure)       : May cause drowsiness or dizziness. May cause drowsiness or dizziness.         Specific target organ toxicity (repeated exposure)       : Not classified No data available         Aspiration hazard       : May be fatal if swallowed and enters airways.         Potential Adverse human health effects and symptoms       : The chemical, physical, and toxicological properties have not been thoroughly investigated.	LC50 inhalation rat (ppm)	3200 ppm/4h	
ATE (dust, mist)       1.500 mg/l/4h         N-NONANE UNLABELED (111-84-2)         LC50 inhalation rat (ppm)       3200 ppm/4h         ATE (dust, mist)       1.500 mg/l/4h         Skin corrosion/irritation       Causes skin irritation. Skin - rat - Skin irritation - Draize test         Serious eye damage/irritation       Causes serious eye irritation. No data available         Respiratory or skin sensitization       Not available         Germ cell mutagenicity       Not available         Carcinogenicity       Not available         Specific target organ toxicity (single exposure)       May cause drowsiness or dizziness. May cause drowsiness or dizziness.         Specific target organ toxicity (repeated exposure)       Not classified No data available         Aspiration hazard       May be fatal if swallowed and enters airways.         Potential Adverse human health effects and symptoms       The chemical, physical, and toxicological properties have not been thoroughly investigated.	ATE (gases)	4500.000 ppmV/4h	
N-NONANE UNLABELED (111-84-2)         LC50 inhalation rat (ppm)       3200 ppm/4h         ATE (dust, mist)       1.500 mg/l/4h         Skin corrosion/irritation       : Causes skin irritation. Skin - rat - Skin irritation - Draize test         Serious eye damage/irritation       : Causes serious eye irritation. No data available         Respiratory or skin sensitization       : Not available No data available         Germ cell mutagenicity       : Not available         Carcinogenicity       : Not classified         Reproductive toxicity       : Not classified         Specific target organ toxicity (single exposure)       : May cause drowsiness or dizziness. May cause drowsiness or dizziness.         Specific target organ toxicity (repeated exposure)       : Not classified No data available         Aspiration hazard       : May be fatal if swallowed and enters airways.         Potential Adverse human health effects and symptoms       : The chemical, physical, and toxicological properties have not been thoroughly investigated.	ATE (vapors)	11.000 mg/l/4h	
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Specific target organ toxicity (repeated exposure)       : Not classified No data available         Aspiration hazard       : May be fatal if swallowed and enters airways.         Potential Adverse human health effects and symptoms       : The chemical, physical, and toxicological properties have not been thoroughly investigated.	Specific target organ toxicity (single exposure)	: May cause drowsiness or dizziness.	
Aspiration hazard       : May be fatal if swallowed and enters airways.         Potential Adverse human health effects and symptoms       : The chemical, physical, and toxicological properties have not been thoroughly investigated.		May cause drowsiness or dizziness.	
Aspiration hazard       : May be fatal if swallowed and enters airways.         Potential Adverse human health effects and symptoms       : The chemical, physical, and toxicological properties have not been thoroughly investigated.	Specific target organ toxicity (repeated	: Not classified	
Potential Adverse human health effects and : The chemical, physical, and toxicological properties have not been thoroughly investigated. symptoms	exposure)	No data available	
symptoms	Aspiration hazard	: May be fatal if swallowed and enters airways.	
	Potential Adverse human health effects and symptoms	: The chemical, physical, and toxicological properties have not been thoroughly investigated.	
Symptoms/injuries after inhalation : May cause drowsiness or dizziness.	Symptoms/injuries after inhalation	: May cause drowsiness or dizziness.	
Symptoms/injuries after skin contact : Causes skin irritation.	Symptoms/injuries after skin contact	: Causes skin irritation.	
Symptoms/injuries after eye contact : Causes eye irritation.	Symptoms/injuries after eye contact	: Causes eye irritation.	
Symptoms/injuries after ingestion : May be fatal if swallowed and enters airways.	Symptoms/injuries after ingestion	: May be fatal if swallowed and enters airways.	

<b>SECTION 12: Ecol</b>	logical information	

12.1. Toxicity

No additional information available

12.2. Persistence and degradability			
1,1,1,3,10,12,12,12-OCTACHLORODODECANE (13C12, 99%) 100 UG/ML IN NONANE			
Persistence and degradability	Not available.		
N-NONANE UNLABELED (111-84-2)			
Persistence and degradability	Not available.		
1,1,1,3,10,12,12,12-OCTACHLORODODECANE	1,1,1,3,10,12,12,12-OCTACHLORODODECANE (13C12, 99%) (601523-21-1 (Unlabeled))		
Persistence and degradability	No data available.		
12.3. Bioaccumulative potential			
1,1,1,3,10,12,12,12-OCTACHLORODODECANE (13C12, 99%) 100 UG/ML IN NONANE			
Log Pow	5.65		
Bioaccumulative potential	Indication of bioaccumulation.		
N-NONANE UNLABELED (111-84-2)			
Log Pow	5.65		
Bioaccumulative potential	Indication of bioaccumulation.		
1,1,1,3,10,12,12,12-OCTACHLORODODECANE (13C12, 99%) (601523-21-1 (Unlabeled))			
Bioaccumulative potential	No data available.		
12.4. Mobility in soil			
1,1,1,3,10,12,12,12-OCTACHLORODODECANE (13C12, 99%) 100 UG/ML IN NONANE			
Ecology - soil	Not available.		

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N-NONANE UNLABELED (111-84-2)	
Ecology - soil	Not available.
1,1,1,3,10,12,12,12-OCTACHLORODODECA	NE (13C12, 99%) (601523-21-1 (Unlabeled))
Ecology - soil	No data available.
12.5. Results of PBT and vPvB assessme	ent
No additional information available	
12.6. Other adverse effects	
Other adverse effects	: An environmental hazard cannot be excluded in the event of unprofessional handling or disposition
	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment
SECTION 13: Disposal consideratio	ns
13.1. Waste treatment methods	
Regional legislation (waste)	: Waste materials should be disposed of under conditions which meet Federal, State, and Local
	environmental control regulations.
Waste disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations.
Additional information	: Handle empty containers with care because residual vapors are flammable.
Ecology - waste materials	: Hazardous waste due to toxicity.
<b>SECTION 14: Transport information</b>	
In accordance with ADR / RID / ADNR / IMDG /	
14.1. UN number	
UN-No.(DOT)	: 1920
DOT NA no.	UN1920
14.2. UN proper shipping name	
DOT Proper Shipping Name	: Nonanes
Department of Transportation (DOT) Hazard Classes	: 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Hazard labels (DOT)	: 3 - Flammable liquid
Packing group (DOT) DOT Special Provisions (49 CFR 172.102)	<ul> <li>III - Minor Danger</li> <li>III - Minor Danger</li> <li>B1 - If the material has a flash point at or above 38 C (100 F) and below 93 C (200 F), then the bulk packaging requirements of 173.241 of this subchapter are applicable. If the material has a flash point of less than 38 C (100 F), then the bulk packaging requirements of 173.242 of this subchapter are applicable.</li> <li>IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).</li> <li>T2 - 1.5 178.274(d)(2) Normal</li></ul>
DOT Packaging Exceptions (49 CFR 173.xxx)	: 150
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 203
DOT Packaging Bulk (49 CFR 173.xxx)	: 242
14.2 Additional information	
14.3. Additional information Other information	: No supplementary information available.
Overland transport	
Packing group (ADR)	: 111
Class (ADR)	: 3 - Flammable liquid
Hazard identification number (Kemler No.)	: 30
Classification code (ADR)	: F1
20/03/2015	

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Danger labels (ADR)	: 3 - Flammable liquids
	3
Orange plates	<b>30</b> <b>1920</b>
Tunnel restriction code	: D/E
Limited quantities (ADR)	5L
EAC	: 3Y
Excepted quantities (ADR)	: E1
Transport by sea	
DOT Vessel Stowage Location	: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
MFAG-No	: 128
Air transport	
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 60 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 220 L
Civil Aeronautics Law	: Flammable liquids
14.4. Environmental hazards	
Other information	: No supplementary information available.
14.5. Special precautions for user	
14.6. Transport in bulk according to Anne	x II of MARPOL 73/78 and the IBC Code
Not applicable	
••	

SECTION 15: Regulatory information	
15.1. US Federal regulations	
1,1,1,3,10,12,12,12-OCTACHLORODODECANE	E (13C12, 99%) 100 UG/ML IN NONANE
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard
N-NONANE UNLABELED (111-84-2)	
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard

### 15.2. International regulations

## CANADA

1,1,1,3,10,12,12,12-OCTACHLORODODECANE (13C12, 99%) 100 UG/ML IN NONANE	
Listed on the Canadian DSL (Domestic Substances List) inventory.	

#### 15.2.1. National regulations

No additional information available

#### 15.3. US State regulations

1,1,1,3,10,12,12,12-OCTACHLORODODECANE (13C12, 99%) 100 UG/ML IN NONANE()		
State or local regulations	U.S Massachusetts - Right To Know List U.S Pennsylvania - RTK (Right to Know) List	
	U.S New Jersey - Right to Know Hazardous Substance List	

### Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

1,1,1,3,10,12,12,12-OCTACHLORODODECANE (13C12, 99%) 100 UG/ML IN NONANE()
This product does not contain any chemicals known to State of California to cause cancer,

birth defects, or any other reproductive harm.

#### N-NONANE UNLABELED (111-84-2)

U.S. - Massachusetts - Right To Know List

U.S. - Pennsylvania - RTK (Right to Know) List

U.S. - New Jersey - Right to Know Hazardous Substance List

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

#### **SECTION 16: Other information**

#### Other information

This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

#### Full text of R-, H- and EUH-phrases::

A auto Tau (Inhalation)	A suite terrisity (inclusion) Ostanomy (
Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Asp. Tox. 1	Aspiration hazard Category 1
Eye Irrit. 2	Serious eye damage/eye irritation Category 2
Flam. Liq. 3	Flammable liquids Category 3
Skin Irrit. 2	skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H226	Flammable liquid and vapor
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H319	Causes serious eye irritation
H332	Harmful if inhaled
H336	May cause drowsiness or dizziness
R10	Flammable
R20	Harmful by inhalation
R38	Irritating to skin
R65	Harmful: may cause lung damage if swallowed
R67	Vapors may cause drowsiness and dizziness
Xi	Irritant
Xn	Harmful

NFPA health hazard	: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.	
NFPA fire hazard	: 3 - Liquids and solids that can be ignited under almost all ambient conditions.	0
NFPA reactivity	: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.	$\mathbf{Y}$
HMIS III Rating		
Health	: 2 Moderate Hazard - Temporary or minor injury may occur	
Flammability	: 3 Serious Hazard	

#### **CIL Mixture SDS**

Physical

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

: 0 Minimal Hazard