

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

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Revision date:

Version: 1.0

ECN-2661

SECTION 1: Identification of the su	bstance/mixture and of the company/undertaking
1.1. Product identifier	
Product form	: Mixtures
Product name.	: 1,2,4,5,7,8-HEXACN (93% CHEM PURITY) (PCN-72) UNLABELED 100 UG/ML IN NONANE
Product code	: ECN-2661
	ostance or mixture and uses advised against
1.2.1. Relevant identified uses Industrial/Professional use spec	
Industrial/Professional use spec	: For professional use only.
1.2.2. Uses advised against	
No additional information available	
1.3. Details of the supplier of the safety	y data sheet
Cambridge Isotope Laboratories, Inc.	
50 Frontage Road	
Andover, MA 01810 USA	
USA: 1-800-322-1174 Int: 1-978-749-8000	
cilsales@isotope.com www.isotope.com	
Emergency telephone number	
Emergency numbers:	
Chemtrec: 1-800-424-9300 (24 hours)	
International: 1-202-483-7616 (24 hours)	
SECTION 2: Hazards identification	
2.1. Classification of the substance or	mixture
Classification according to Regulation (EC)	No. 1272/2008 [CLP]
Flam. Liq. 3	H226
Acute Tox. 4 (Inhalation:dust,mist)	H332
Skin Irrit. 2	H315
Eye Irrit. 2	H319
STOT SE 3	H336
Asp. Tox. 1	H304
Full text of H-phrases: see section 16	
Classification according to Directive 67/548/	/EEC or 1999/15/EC
Xn; R20	
Xn; R65	
R10	
Full text of R-phrases: see section 16	
Classification (GHS-US)	
Flam. Lig. 3	H226
Acute Tox. 4 (Inhalation:dust,mist)	H332
Skin Irrit. 2	H315
Eye Irrit. 2A	H319 H336
STOT SE 3	

Adverse physicochemical, human health and environmental effects

Central Nervous System.

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2.2. Label elements	
Labeling according to Regulation (EC) N	lo. 1272/2008 [CLP]
Hazard pictograms (CLP)	
	GHS02 GHS07 GHS08
Signal word (CLP)	: Danger
Hazardous ingredients	: N-NONANE UNLABELED
Hazard statements (CLP)	: 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
Precautionary statements (CLP)	: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No
	smoking
	P233 - Keep container tightly closed P240 - Ground/bond container and receiving equipment
	P241 - Use explosion-proof ventilating, lighting, electrical equipment
	P261 - Avoid breathing vapors, spray, mist, gas, fume, dust
	P264 - Wash Both hands thoroughly after handling P271 - Use only outdoors or in a well-ventilated area
	P280 - Wear protective clothing, protective gloves
CHS US lobaling	
GHS-US labeling	
Hazard pictograms (GHS-US)	
Signal word (GHS-US)	GHS02 GHS07 GHS08 : Danger
Hazard statements (GHS-US)	: 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
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Precautionary statements (GHS-US)	: P210 - Keep away from sparks, open flames, hot surfaces, heat No smoking
<b>,</b> , , , , , , , , , , , , , , , , , ,	P233 - Keep container tightly closed
	P240 - Ground/bond container and receiving equipment
	P241 - Use explosion-proof ventilating, lighting, electrical equipment P242 - Use only non-sparking tools
	P243 - Take precautionary measures against static discharge
	P261 - Avoid breathing vapors, spray, mist, fume, dust, gas
	P264 - Wash both hands thoroughly after handling P271 - Use only outdoors or in a well-ventilated area
	P280 - Wear protective gloves, protective clothing
	P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
	P302+P352 - IF ON SKIN: Wash with plenty of soap and water P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated
	clothing. Rinse skin with water/shower
	P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable
	for breathing
	P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
	P312 - Call a POISON CENTER/doctor/physician if you feel unwell
	P321 - Specific treatment (see Hazard pictograms (CLP) on this label)
	P331 - If swallowed, do NOT induce vomiting P332+P313 - If skin irritation occurs: Get medical advice/attention
	P337+P313 - If eye irritation persists: Get medical advice/attention
	P362 - Take off contaminated clothing and wash before reuse
	P370+P378 - In case of fire: Use Alcohol resistant foam., Carbon dioxide., Dry chemical., Wate
	spray for extinction P403+P233 - Store in a well-ventilated place. Keep container tightly closed
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P403+P235 - Store in a well-ventilated place. Keep cool

P405 - Store locked up

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. Wixtures			
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
1,2,4,5,7,8-HEXACN UNLABELED	(CAS No)103426-92-2 (Unlabeled)	0.0139	Xn; R22 Xi; R41 Xi; R36/37 N; R51/53
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
1,2,4,5,7,8-HEXACN UNLABELED	(CAS No)103426-92-2 (Unlabeled)	0.0139	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Chronic 2, H411
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 measures	
First-aid measures general	: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
First-aid measures after inhalation	: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.
First-aid measures after skin contact	: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Wash with plenty of soap and water. Get medical advice/attention. Specific treatment (see Hazard pictograms (CLP) on this label).
First-aid measures after eye contact	: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
First-aid measures after ingestion	: Immediately call a POISON CENTER or doctor/physician.
4.2. Most important symptoms and effe	cts, both acute and delayed
Symptoms/injuries after inhalation	: Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled. 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.

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4.3. Indication of any immediate medic	cal attention and special treatment needed
No additional information available	
SECTION 5: Firefighting measures	
5.1. Extinguishing media	
suitable extinguishing media	: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.
5.2. Special hazards arising from the s	ubstance or mixture
Fire hazard	: Flammable liquid and vapor.
Explosion hazard	: May form flammable/explosive vapor-air mixture.
5.3. Advice for firefighters	
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection.
SECTION 6: Accidental release me	asures
6.1. Personal precautions, protective e	equipment and emergency procedures
General measures	: Remove ignition sources. Use special care to avoid static electric charges. No naked lights. No smoking.
6.1.1. For non-emergency personnel No additional information available	
6.1.2. For emergency responders	
Protective equipment	: Avoid breathing dust, mist or spray.
6.2. Environmental precautions	
Prevent further leakage or spillage if safe to do	so. Do not let product enter drains. Discharge into the environment must be avoided.
6.3. Methods and material for containing	nent and cleaning up
No additional information available	
6.4. Reference to other sections	
No additional information available	
SECTION 7: Handling and storage	
7.1. Precautions for safe handling	
Additional hazards when processed	: Handle empty containers with care because residual vapors are flammable.
Precautions for safe handling	<ul> <li>No naked lights. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. Use only outdoors or in a well-ventilated area. Avoid breathing dust, mist or spray.</li> </ul>
Hygiene measures	: Wash Both hands thoroughly after handling.
7.2. Conditions for safe storage, include	ding any incompatibilities
Technical measures	<ul> <li>Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical equipment.</li> </ul>
Storage conditions	: Store at room temperature away from light and moisture.
Incompatible materials	: Heat sources.
7.3. Specific end use(s)	
No additional information available	
SECTION 8: Exposure controls/per	sonal protection

#### 8.1. Control parameters

N-NONANE UNLABELED (11	1-84-2)	
Italy - Portugal- USA ACGIH	ACGIH TWA (ppm)	200.0000000000 ppm Central Nervous System
		impairment.

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# 8.2. Exposure controls Personal protective equipment : Gloves. Protective goggles. Protective clothing. Self-contained breathing apparatus.



Hand protection
Eye protection
Skin and body protection
Respiratory protection

: Wear suitable protective clothing and gloves.

- : Wear safety glasses with side shields (or goggles) and a face shield.
- : Wear suitable protective clothing.
  - : Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. Wear respiratory protection.

# SECTION 9: Physical and chemical properties

9.1.	Information on basic physical an	d chemical properties
The proper	ties listed below are for the solvent. the main corr	ponent of this mixture.

The properties listed below are for the solvent, the main comp	Joneni ol unis mixiure.
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	: -53 °C (- 63 °F) - lit
Freezing point	: No data available
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

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No additional information available
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SECTIO	DN 10: Stability and reactivity
10.1.	Reactivity
No additio	onal information available
10.2.	Chemical stability
See stora	ge and expiration date on CoA.
10.3.	Possibility of hazardous reactions
No additio	onal information available
10.4.	Conditions to avoid
Open flar	ne. Overheating. Direct sunlight. Heat. Sparks.
10.5.	Incompatible materials
No additio	onal information available

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10.6.         Hazardous decomposition products           May release flammable gases.	
SECTION 11: Toxicological information	on
11.1. Information on toxicological effects	
Acute toxicity	: Harmful if inhaled.
1,2,4,5,7,8-HEXACN (93% CHEM PURITY) (PC	N-72) UNLABELED 100 UG/ML IN NONANE
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
1,2,4,5,7,8-HEXACN UNLABELED (103426-92-	2 (Unlabeled))
ATE (oral)	500.000 mg/kg body weight
Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: May cause drowsiness or dizziness.
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: May be fatal if swallowed and enters airways.
Potential Adverse human health effects and symptoms	: Harmful if inhaled.
Symptoms/injuries after inhalation	: Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled. 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.

SECTION	12. Ecolor	ical information	

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12.1. Toxicity
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No additional information available

#### 12.2. Persistence and degradability

N-NONANE UNLABELED (111-84-2)		
Persistence and degradability	Not available.	
1,2,4,5,7,8-HEXACN UNLABELED (103426-92-2 (Unlabeled))		
Persistence and degradability	Not available.	
12.3. Bioaccumulative potential		
1,2,4,5,7,8-HEXACN (93% CHEM PURITY) (PCN-72) UNLABELED 100 UG/ML IN NONANE		
Log Pow	5.65	
N-NONANE UNLABELED (111-84-2)		
Log Pow	5.65	
Bioaccumulative potential	Indication of bioaccumulation.	
1,2,4,5,7,8-HEXACN UNLABELED (103426-92-2 (Unlabeled))		
Bioaccumulative potential	Not available.	
12.4. Mobility in soil		
N-NONANE UNLABELED (111-84-2)		
Ecology - soil	Not available.	

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Ecology - soil	Not available.
2.5 Deputto of DDT and vDvD approxim	
2.5. Results of PBT and vPvB assessm lo additional information available	ient
2.6. Other adverse effects	
lo additional information available	
ECTION 13: Disposal consideration	bns
3.1. Waste treatment methods	
egional legislation (waste)	: Waste materials should be disposed of under conditions which meet Federal, State, and Loca environmental control regulations.
laste disposal recommendations	: Dispose of contents/container to Comply with applicable regulations.
dditional information	: Handle empty containers with care because residual vapors are flammable.
cology - waste materials	: Hazardous waste due to toxicity.
ECTION 14: Transport information	n
accordance with ADR / RID / ADNR / IMDG	
4.1. UN number	
N-No.(DOT)	: 1920
OT NA no.	UN1920
4.2. UN proper shipping name	
OT Proper Shipping Name	: Nonanes
epartment of Transportation (DOT) Hazard lasses	: 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
lazard labels (DOT)	: 3 - Flammable liquid
	3
acking group (DOT)	: III - Minor Danger
OT Special Provisions (49 CFR 172.102)	<ul> <li>B1 - If the material has a flash point at or above 38 C (100 F) and below 93 C (200 F), then th bulk packaging requirements of 173.241 of this subchapter are applicable. If the material has 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 liquid with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 52 (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Tab 2 for UN2672).</li> <li>T2 - 1.5 178.274(d)(2) Normal</li></ul>
	following: Degree of filling = $97 / 1 + a$ (tr - tf) Where: tr is the maximum mean bulk temperatur during transport, and tf is the temperature in degrees celsius of the liquid during filling.
OT Packaging Exceptions (49 CFR 173.xxx)	
OT Packaging Exceptions (49 CFR 173.xxx) OT Packaging Non Bulk (49 CFR 173.xxx)	during transport, and tf is the temperature in degrees celsius of the liquid during filling.

# 14.3. Additional information

Other information

: No supplementary information available.

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Overland transport	
Packing group (ADR)	: III
Class (ADR)	: 3 - Flammable liquid
Hazard identification number (Kemler No.)	: 30
Classification code (ADR)	: F1
Danger labels (ADR)	: 3 - Flammable liquids
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	
	CN-72) UNLABELED 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	

### 15.2. International regulations

CANADA

1,2,4,5,7,8-HEXACN (93% CHEM PURITY) (PCN-72) UNLABELED 100 UG/ML IN NONANE

Listed on the Canadian DSL (Domestic Substances List) inventory.

### 15.2.1. National regulations

No additional information available

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15.3. US State regulations 1,2,4,5,7,8-HEXACN (93% CHEM PURITY) (PCN-72) UNLABELED 100 UG/ML IN NONANE()		

### 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::

Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Asp. Tox. 1	Aspiration hazard Category 1
Eye Dam. 1	Serious eye damage/eye irritation 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
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H226	Flammable liquid and vapor
H302	Harmful if swallowed
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H411	Toxic to aquatic life with long lasting effects
R10	Flammable
R20	Harmful by inhalation
R22	Harmful if swallowed
R36/37	Irritating to eyes and respiratory system
R41	Risk of serious damage to eyes
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R65	Harmful: may cause lung damage if swallowed
R67	Vapors may cause drowsiness and dizziness
Ν	Dangerous for the environment
N Xi	Dangerous for the environment Irritant

NFPA health hazard

: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

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NFPA fire hazard	: 3 - Liquids and solids that can be ignited under almost all ambient conditions.
NFPA reactivity	: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.
HMIS III Rating	
Health	: 2 Moderate Hazard - Temporary or minor injury may occur
Flammability	: 3 Serious Hazard
Physical	: 0 Minimal Hazard

#### CIL Mixture SDS

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