

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: 12/09/2014 Revision date:

ECN-2669

Version: 1.0

<b>SECTION 1: Identif</b>	fication of the substance/mixture and of the company/undertaking
1.1. Product identi	ifier
Product form	: Mixtures
Product name.	: 1,2,3,4,5,7-HEXACN (PCN-64) UNLABELED 100 UG/ML IN NONANE
Product code	: ECN-2669
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 Labor 50 Frontage Road Andover, MA 01810 USA	ratories, Inc.
USA: 1-800-322-1174 I cilsales@isotope.com	Int: 1-978-749-8000 www.isotope.com
Emergency tel	lephone number
Emergency numbers:	
Chemtrec: 1-800-424-93 International: 1-202-483-	
<b>SECTION 2: Hazard</b>	ds identification
2.1. Classification	of the substance or mixture
<b>Classification according</b>	g 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. Liq. 3	7 H226
Acute Tox. 4 (Inhalation)	
Skin Irrit. 2	H315
Eye Irrit. 2A	H319
STOT SE 3 Asp. Tox. 1	H336 H304

### Adverse physicochemical, human health and environmental effects

H304

Central Nervous System.

Asp. Tox. 1

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#### 2.3. Other hazards

### No additional information available

### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

Not applicable

.2. Mixtures			
Name	Product identifier	%	Classification according to Directive 67/548/EEC
N-NONANE UNLABELED	(CAS No) 111-84-2 (Unlabeled) (EC no) 203-913-4	99.9861	R10 Xn; R20 Xn; R65 R67
1,2,3,4,5,7-HEXACN UNLABELED	(CAS No) 67922-27-4 (Unlabeled)	0.0139	Xn; R22 Xi; R41 Xi; R38 N; R50/53 R48
Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
N-NONANE UNLABELED	(CAS No) 111-84-2 (Unlabeled) (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
1,2,3,4,5,7-HEXACN UNLABELED	(CAS No) 67922-27-4 (Unlabeled)	0.0139	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Name	Product identifier	%	Classification (GHS-US)
N-NONANE UNLABELED	(CAS No) 111-84-2 (Unlabeled)	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

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	: 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	<ul> <li>Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash with plenty of soap and water. Wash contaminated clothing before reuse. Get medical advice/attention.</li> </ul>
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 medical attention and special treatment needed

No additional information available

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SECTION 5: Firefighting measure	S	
5.1. Extinguishing media		
suitable extinguishing media	fires, apply water from as far as po	"alcohol" foam, dry chemical, or carbon dioxide. For large ossible. Use very large quantities (flooding) of water applied a ater may be ineffective. Cool all affected containers with
5.2. Special hazards arising from the	e substance or mixture	
Fire hazard	: Flammable liquid and vapor.	
Explosion hazard	: May form flammable/explosive vap	por-air mixture.
Reactivity	: Vapors may form explosive mixtur	e with air.
5.3. Advice for firefighters		
Firefighting instructions	: Use water spray to cool unopened	containers.
Protection during firefighting	: Do not enter fire area without prop	er protective equipment, including respiratory protection.
SECTION 6: Accidental release m	easures	
	e equipment and emergency procedures	5
General measures		cial care to avoid static electric charges. No naked lights. No
6.1.1. For non-emergency personnel		
Emergency procedures	ventilation. Remove all sources of	t. Avoid breathing vapors, mist or gas. Ensure adequate ignition. Evacuate personnel to safe areas. Beware of vapou ncentrations. Vapours can accumulate in low areas.
6.1.2. For emergency responders		
Protective equipment	: Avoid breathing dust, mist or spray	<i>ų</i> .
6.2. Environmental precautions		
Prevent entry to sewers and public waters.		
6.3. Methods and material for contai	nment and cleaning up	
For containment		non-combustible absorbent material. Disposal should be in al, State and local regulations.
6.4. Reference to other sections		
No additional information available		
SECTION 7: Handling and storage	e	
7.1. Precautions for safe handling	-	
Additional hazards when processed	: Handle empty containers with care	e because residual vapors are flammable.
Precautions for safe handling	: No naked lights. No smoking. Take	e precautionary measures against static discharge. Use only pors or in a well-ventilated area. Avoid breathing dust, mist or
Hygiene measures	: Wash Both hands thoroughly after	handling.
7.2. Conditions for safe storage, incl	luding any incompatibilities	
Technical measures		void static electricity should be followed. Ground/bond t. Use explosion-proof electrical equipment.
Storage conditions	: Store at room temperature away fr	rom light and moisture.
Incompatible materials	: Heat sources.	
7.3. Specific end use(s)		
No additional information available		
SECTION 8: Exposure controls/p	ersonal protection	
8.1. Control parameters		
1,2,3,4,5,7-HEXACN (PCN-64) UNLABEL	ED 100 UG/ML IN NONANE	
Italy - Portugal - USA ACGIH ACGIH TM		200.0000000000 ppm Central Nervous System impairment.
N-NONANE UNLABELED (111-84-2 (Unla	abeled))	
Italy - Portugal - USA ACGIH ACGIH TW	"	200.000000000 ppm Central Nervous System
, , ,	··· /	impairment

impairment.

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#### 8.2. **Exposure controls** Personal protective equipment

: Protective clothing. Protective goggles. Self-contained breathing apparatus. 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	: 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 and chemical properties The properties listed below are for the solvent, the main component of this mixture. Physical state : Liquid : Liquid. Appearance : 334.8 Molecular mass Color : No data available. Odor : No data available Odor threshold : No data available pН : No data available Relative evaporation rate (butyl acetate=1) : No data available Melting point : -53 °C (- 63 °F) - lit Freezing point : No data available : 151 °C (304 °F) - lit Boiling point Flash point : 31.0 °C (87.8 °F) - closed cup Self ignition temperature : 205 °C (401 °F) Decomposition temperature : No data available : Flammable liquid and vapor Flammability (solid, gas) 12.4 hPa (9.3 mmHg) at 37.7 °C (99.9 °F) Vapor pressure Relative vapor density at 20 °C : No data available Relative density : No data available Solubility : Water: 0 % Log Pow : 5.65 : No data available Log Kow Viscosity, kinematic : No data available : No data available Viscosity, dynamic 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

SECTION 10: Stability and reactivity 10.1. Reactivity Vapors may form explosive mixture with air. **Chemical stability** 10.2. See storage and expiration date on CoA. 10.3. Possibility of hazardous reactions No additional information available **Conditions to avoid** 10.4. Open flame. Overheating. Direct sunlight. Heat. Sparks. 10.5. **Incompatible materials** Strong oxidizing agents.

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10.6. Hazardous decomposition products			
May release flammable gases.			
<b>SECTION 11: Toxicological information</b>	on		
11.1. Information on toxicological effects			
Acute toxicity	: Harmful if inhaled.		
1,2,3,4,5,7-HEXACN (PCN-64) UNLABELED 10	00 UG/ML IN NONANE		
LC50 inhalation rat (ppm)	3200 ppm/4h		
ATE (gases)	4500.000 ppmV/4h		
ATE (vapors)	11.000 mg/l/4h		
ATE (dust, mist)	1.500 mg/l/4h		
N-NONANE UNLABELED (111-84-2 (Unlabele			
LC50 inhalation rat (ppm)	3200 ppm/4h		
ATE (dust, mist)	1.500 mg/l/4h		
1,2,3,4,5,7-HEXACN UNLABELED (67922-27-4	l (Unlabeled))		
ATE (oral)	500.000 mg/kg body weight		
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 available		
Specific target organ toxicity (single exposure)	: May cause drowsiness or dizziness.		
	May cause drowsiness or dizziness.		
Specific target organ toxicity (repeated	: Not classified		
exposure)	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.		
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.		

SECTION 12: Ecological information		
12.1. Toxicity		
No additional information available		
12.2. Persistence and degradability		
1,2,3,4,5,7-HEXACN (PCN-64) UNLABELED 10	0 UG/ML IN NONANE	
Persistence and degradability	Not available.	
N-NONANE UNLABELED (111-84-2 (Unlabeled	(1)	
Persistence and degradability	Not available.	
1,2,3,4,5,7-HEXACN UNLABELED (67922-27-4	(Unlabeled))	
Persistence and degradability	Not available.	
12.3. Bioaccumulative potential		
1,2,3,4,5,7-HEXACN (PCN-64) UNLABELED 10	0 UG/ML IN NONANE	
Log Pow	5.65	
Bioaccumulative potential	Indication of bioaccumulation.	

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N-NONANE UNLABELED (111-84-2 (Unlabeled))		
Log Pow	5.65	
Bioaccumulative potential	Indication of bioaccumulation.	
1,2,3,4,5,7-HEXACN UNLABELED (67922-27-	////inisheled))	
Bioaccumulative potential	Not available.	
•		
12.4. Mobility in soil		
1,2,3,4,5,7-HEXACN (PCN-64) UNLABELED 1		
Ecology - soil	Not available.	
N-NONANE UNLABELED (111-84-2 (Unlabele	ed))	
Ecology - soil	Not available.	
1,2,3,4,5,7-HEXACN UNLABELED (67922-27-	4 (Unlabeled))	
Ecology - soil	Not available.	
12.5. Results of PBT and vPvB assessme	nt	
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 disposal. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.	
SECTION 13: Disposal consideration	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 of contents/container to Comply with applicable regulations.	
Additional information	: Handle empty containers with care because residual vapors are flammable.	
Ecology - waste materials	: Hazardous waste due to toxicity.	
SECTION 14. Transport information		
SECTION 14: Transport information		
In accordance with ADR / RID / ADNR / IMDG / I	CAO / IATA	
14.1. UN number	. 4000	
UN-No.(DOT) DOT NA no.	: 1920 UN1920	
DOT NATIO.	011920	
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	
	3	
Packing group (DOT)	: III - Minor Danger	
DOT 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 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, 31HD2, 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	

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14.3. Additional information	
Other information	: No supplementary information available.
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
	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 45. Dogulatory information	
SECTION 15: Regulatory information 15.1. US Federal regulations	
1,2,3,4,5,7-HEXACN (PCN-64) UNLABELED 1	
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard
N-NONANE LINI ABELED (111-84-2 (Lipiabel	

N-NONANE UNLABELED (111-84-2 (Unlabeled))		
SARA Section 311/312 Hazard Classes	Fire hazard	
	Immediate (acute) health hazard	

### 15.2. International regulations

### CANADA

1,2,3,4,5,7-HEXACN (PCN-64) UNLABELED 100 UG/ML IN NONANE	
Listed on the Canadian DSL (Domestic Substances List) inventory.	

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### 15.2.1. National regulations

No additional information available

15.3. US State regulations	
1,2,3,4,5,7-HEXACN (PCN-64) UNLABELED 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 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 (Unlabeled))

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 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
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 RE 2	Specific target organ toxicity (repeated exposure) Category 2
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
H336	May cause drowsiness or dizziness
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
R10	Flammable
R20	Harmful by inhalation
R22	Harmful if swallowed
R38	Irritating to skin
R41	Risk of serious damage to eyes
R48	Danger of serious damage to health by prolonged exposure
R50/53	Very 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
Xi	Irritant
Xn	Harmful

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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.
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