

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: 06/04/2016

Revision date:

Version: 1.0

OHCB-5115

SECTION 1: Identif	ication of the substance/mixture and of the company/undertaking
1.1. Product identi	
Product form	: Mixture
Product name.	: 4-OH-2,3,3',4',5-PENTACB (13C12, 99%) 50 UG/ML IN NONANE
Product code	: OHCB-5115
	tified uses of the substance or mixture and uses advised against
1.2.1. Relevant ident	
Industrial/Professional us	
1.2.2. Uses advised	against
No additional information	available
1.3. Details of the s	supplier of the safety data sheet
Cambridge Isotope Labor	ratories, Inc.
50 Frontage Road Andover, MA 01810	
USA	
USA: 1-800-322-1174 li cilsales@isotope.com	Int: 1-978-749-8000 www.isotope.com
Emergency tel	lephone number
Emergency numbers:	
Chemtrec: 1-800-424-93 International: 1-703-741-	
SECTION 2: Hazard	ds identification
2.1. Classification	of the substance or mixture
Classification according	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 Xi; R38 R10 Xi; R36/37	
Full text of R-phrases: se	e section 16
GHS-US classification	
Flam. Liq. 3 Acute Tox. 4 (Inhalation) Skin Irrit. 2 Eye Irrit. 2A STOT SE 3	H226 H332 H315 H319 H336
Asp. Tox 1	

Adverse physicochemical, human health and environmental effects

H304

Central Nervous System.

Asp. Tox. 1

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

2.2. Label elements



Signal word (CLP)
Hazard statements (CLP)

Precautionary statements (CLP)

- : Danger

GHS02

- : H226 Flammable liquid and vapour
 - H304 May be fatal if swallowed and enters airways

GHS08

- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H332 Harmful if inhaled H336 - May cause drowsiness or dizziness
- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No

GHS07

- smoking
- P233 Keep container tightly closed
- P240 Ground/bond container and receiving equipment
- P241 Use explosion-proof electrical equipment
- P261 Avoid breathing dust, fume, gas, mist, spray, vapours
- P264 Wash Both hands thoroughly after handling
- P271 Use only outdoors or in a well-ventilated area
- P280 Wear protective clothing, protective gloves

GHS-US labelling

Signal word (GHS-US)

Hazard pictograms (GHS-US)

Hazard statements (GHS-US)

Precautionary statements (GHS-US)

:			
	GHS02	GHS08	GHS07

: Danger

- : H226 Flammable liquid and vapour
- 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
- : P210 Keep away from heat, hot surfaces, open flames, sparks. No smoking
- P233 Keep container tightly closed
- P240 Ground/bond container and receiving equipment
- P241 Use explosion-proof electrical equipment
- P242 Use only non-sparking tools
- P243 Take precautionary measures against static discharge
- P261 Avoid breathing dust, fume, gas, mist, spray, vapours
- P264 Wash Both hands thoroughly after handling
- P271 Use only outdoors or in a well-ventilated area
- P280 Wear protective clothing, protective gloves
- 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 Use personal protective equipment as required for extinction
- P403+P233 Store in a well-ventilated place. Keep container tightly closed
- P403+P235 Store in a well-ventilated place. Keep cool P405 - Store locked up

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

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

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

Name	Product identifier	%	Classification according to
Name		70	Directive 67/548/EEC
N-NONANE UNLABELED	(CAS No) 111-84-2 (EC no) 203-913-4	99.993	R10 Xn; R20 Xn; R65 R67 Xi; R38
4-OH-2,3,3',4',5-PENTACB (13C12, 99%)	(CAS No) 152969-11-4 (EC index no) 602-039-00-4	0.007	R33
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	99.993	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation:vapour), H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H336 Asp. Tox. 1, H304
4-OH-2,3,3',4',5-PENTACB (13C12, 99%)	(CAS No) 152969-11-4 (EC index no) 602-039-00-4	0.007	STOT RE 2, H373
Name	Product identifier	%	GHS-US classification
N-NONANE UNLABELED	(CAS No) 111-84-2	99.993	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation:vapour), 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 measured	res
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	: Wash with soap and plenty of water. Consult a physician.
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	l 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 m	edical attention and special treatment needed
No additional information available	
SECTION 5: Firefighting measu	res
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.

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

5.2. Special hazards aris	ing from the substance or mixture		
Fire hazard	: Flammable liquid and vap	our.	
Explosion hazard	: May form flammable/expl	osive vapour-air mixture.	
Reactivity	: Vapors may form explosiv	ve mixture with air.	
5.3. Advice for firefighter	S		
Firefighting instructions	: Use water spray to cool u	nopened containers.	
Protection during firefighting		nout proper protective equipment, including respiratory protection.	
SECTION 6: Accidental	release measures s, protective equipment and emergency pro	and uros	
General measures	smoking.	Use special care to avoid static electric charges. No naked lights. No	
6.1.1. For non-emergency	personnel		
Emergency procedures	ventilation. Remove all sc	equipment. Avoid breathing vapors, mist or gas. Ensure adequate surces of ignition. Evacuate personnel to safe areas. Beware of vapours losive concentrations. Vapours can accumulate in low areas.	
6.1.2. For emergency resp	onders		
No additional information available	ble		
6.2. Environmental preca	utions		
		ains. Discharge into the environment must be avoided.	
6.3. Methods and materia	al for containment and cleaning up		
For containment	: Contain spillage, then col	 Contain spillage, then collect with non-combustible absorbent material. Disposal should be in accordance with applicable Federal, State and local regulations. 	
6.4. Reference to other s	ections		
No additional information availab	ble		
SECTION 7: Handling ar	nd storage		
7.1. Precautions for safe	-		
Additional hazards when proces		with care because residual vapours are flammable.	
Hygiene measures		h good industrial hygiene and safety practice. Wash hands before	
7.2. Conditions for safe s	storage, including any incompatibilities		
Storage conditions	: Store at room temperatur	: Store at room temperature away from light and moisture.	
Incompatible materials	: Heat sources.		
7.3. Specific end use(s)			
No additional information availab	ble		
	entrole/nergenel protection		
	ontrols/personal protection		
8.1. Control parameters			
· · · · ·	3C12, 99%) 50 UG/ML IN NONANE		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	200.0000000000 ppm Central Nervous System impairment.	
N-NONANE UNLABELED (11	1-84-2)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	200.0000000000 ppm Central Nervous System impairment.	
8.2. Exposure controls			
Personal protective equipment	· Protective clothing. Prote	ctive goggles. Self-contained breathing apparatus. Gloves.	
Hand protection	: Wear suitable protective of	clothing and gloves.	
Eye protection	•	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 resp	piratory protection	

07/04/2016

recommended. Wear respiratory protection.

Safety Data Sheet

d according to Federal Register / Vol. 77 No. 58 / Monday, March 26, 2012 / Rules and Regulations a

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations			
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 compo	nent of this mixture.		
Physical state	: Liquid		
Appearance	: Liquid.		
Molecular mass	: 128.3 g/mol		
Colour	: Colourless.		
Odour	: No data available		
Odour threshold	: No data available		
рН	: No data available		
Relative evaporation rate (butylacetate=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 vapour		
Vapour pressure	: 12.4 hPa (9.3 mmHg) at 37.7 °C (99.9 °F)		
Relative vapour density at 20 °C	: No data available		
Relative density	: No data available		
Density	: 0.718 g/ml at 25 °C (77 °F)		
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		
Oxidising 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.			
10.2. Chemical stability			
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.			
SECTION 11: Toxicological information			
11.1. Information on toxicological effects			
Acute toxicity : Harmful if inhaled.			
4-OH-2,3,3',4',5-PENTACB (13C12, 99%) 50 UG/ML IN NONANE			
LC50 inhalation rat (mg/l)	23760 mg/m ³ male - 4 h		

LC50 inhalation rat (ppm)

ATE (gases)

ATE (vapours)

3200 ppm/4h

11.000 mg/l/4h

4500.000 ppmV/4h

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

4-OH-2,3,3',4',5-PENTACB (13C12, 99%) 50 U	JG/ML IN NONANE		
ATE (dust,mist)	1.500 mg/l/4h		
N-NONANE UNLABELED (111-84-2)			
LC50 inhalation rat (mg/l)	23760 mg/m ³ male - 4 h		
LC50 inhalation rat (ppm)	3200 ppm/4h		
ATE (gases)	3200.000 ppmV/4h		
ATE (vapours)	11.000 mg/l/4h		
ATE (dust,mist)	23.760 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 sensitisation	: 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

Persistence and degradability 12.2.

4-OH-2,3,3',4',5-PENTACB (13C12, 99%) (152969-11-4)		
Persistence and degradability	Not available.	
12.3. Bioaccumulative potential		
4-OH-2,3,3',4',5-PENTACB (13C12, 99%) 50 UG/ML IN NONANE		
Log Pow	5.65	
Bioaccumulative potential	Indication of bioaccumulation.	
4-OH-2,3,3',4',5-PENTACB (13C12, 99%) (1529	69-11-4)	
Bioaccumulative potential	Not available.	
N-NONANE UNLABELED (111-84-2)		
Log Pow	5.65	
Bioaccumulative potential	Indication of bioaccumulation.	
12.4. Mobility in soil		
4-OH-2,3,3',4',5-PENTACB (13C12, 99%) (152969-11-4)		
Ecology - soil	Not available.	
12.5. Results of PBT and vPvB assessment		

No additional information available

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

12.6. Other adverse effects	
Other adverse effects	: An environmental hazard cannot be excluded in the event of unprofessional handling or dispose 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 of contents/container to
Additional information	: Handle empty containers with care because residual vapours are flammable.
Ecology - waste materials	: Hazardous waste due to toxicity.
SECTION 14: Transport information	
In accordance with ADR / RID / ADNR / IMDG /	ICAO / IATA
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)	: III - Minor Danger
DOT Special Provisions (49 CFR 172.102)	 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. 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). T2 - 1.5 178.274(d)(2) Normal
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
Marine pollutant	: No
14.3. Additional information	
Other information	: No supplementary information available.
Other Information	: No supplementary information available.
Overland transport	
Packing group (ADR)	: III
Class (ADR)	: 3 - Flammable liquids
Hazard identification number (Kemler No.)	: 30
Classification code (ADR)	: F1
Danger labels (ADR)	: 3 - Flammable liquids

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

Orange plates	30 1920	
Tunnel restriction code	: D/E	
Limited quantities (ADR)	5L	
EAC code	: 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	
14.4. Environmental hazards		
Other information	: No supplementary information available.	
14.5. Special precautions for user		
14.6. Transport in bulk according to Annex	II of MARPOL 73/78 and the IBC Code	
Not applicable		
SECTION 15: Regulatory information		
15.1. US Federal regulations		
4-OH-2,3,3',4',5-PENTACB (13C12, 99%) 50 U	G/ML IN NONANE	
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard	
N-NONANE UNLABELED (111-84-2)		

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

15.2. International regulations		
CANADA		
4-OH-2,3,3',4',5-PENTACB (13C12, 99%) 50 UG/ML IN NONANE		
Listed on the Canadian DSL (Domestic Sustances List) inventory.		

15.2.1. National regulations

No additional information available

15.3. US State regulations				
4-OH-2,3,3',4',5-PENTACB (13C12, 99%) 50 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)

110	Manage and strategy of the	Disht Ta Kaawulia

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

N-NONANE UNLABELED (111-84-2)

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 (inhal.), Category 4
Acute Tox. 4 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) 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 RE 2	Specific target organ toxicity — Repeated exposure, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
H226	Flammable liquid and vapour
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
H373	May cause damage to organs through prolonged or repeated exposure
R10	Flammable
R20	Harmful by inhalation
R33	Danger of cumulative effects
R36/37	Irritating to eyes and respiratory system
R38	Irritating to skin
R65	Harmful: may cause lung damage if swallowed
R67	Vapours 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.
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