

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: 01/10/2015

Revision date:

Version: 1.0

OHBDE-5212

1.1. Product ide	ntifier	
Product form		: Mixtures
Product name.		: 4'-HYDROXY-2,2',4,5'-TETRABDE UNLABELED 50 UG/ML IN NONANE
Product code		: OHBDE-5212
1.2. Relevant id	entified uses of the subs	tance or mixture and uses advised against
1.2.1. Relevant id	entified uses	
Industrial/Professional	use spec	: For professional use only.
1.2.2. Uses advise	d against	
No additional informat		
1.3. Details of the	e supplier of the safety of	data sheet
Cambridge Isotope La 50 Frontage Road Andover, MA 01810 USA	poratories, Inc.	
USA: 1-800-322-1174 cilsales@isotope.com	Int: 1-978-749-8000 www.isotope.com	
Emergency	telephone number	
Emergency numbers:		
Chemtrec: 1-800-424 International: 1-703-7		
SECTION 2: Haza	rds identification	
2.1. Classificati	on of the substance or m	ixture
Classification accord	ing to Regulation (EC) N	lo. 1272/2008 [CLP]
Flam. Liq. 3	H226	
Acute Tox. 4 (Inhalatio	n:vapour) H332	
Skin Irrit. 2	H315	
STOT SE 3	H336	
Asp. Tox. 1	H304	
Aquatic Acute 1	H400	
Aquatic Chronic 1	H410	
Full text of H-phrases:	see section 16	
Classification accord	ing to Directive 67/548/E	EC or 1999/45/EC
Xn; R20 Xn; R65 Xi; R38 N; R50/53 R10		
Full text of R-phrases:	see section 16	
Classification (GHS-	JS)	
Flam. Liq. 3 H2	26	

 Flam. Liq. 3
 H22b

 Skin Irrit. 2
 H315

 STOT SE 3
 H336

 Asp. Tox. 1
 H304

 Aquatic Acute 1
 H400

 Aquatic Chronic 1
 H410

Adverse physicochemical, human health and environmental effects

Central Nervous System.

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



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

P501 - Dispose of contents/container to Dispose in a safe manner in accordance with local/national 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	99.993	R10 Xn; R20 Xn; R65 R67 Xi; R38 N; R50/53
4'-HYDROXY-2,2',4,5'-TETRABDE UNLABELED	(CAS No) 602326-23-8 (Unlabeled)	0.007	Xn; R20/21/22 Xi; R36/37/38
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 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
4'-HYDROXY-2,2',4,5'-TETRABDE UNLABELED	(CAS No) 602326-23-8 (Unlabeled)	0.007	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335
Name	Product identifier	%	Classification (GHS-US)
N-NONANE UNLABELED	(CAS No) 111-84-2	99.993	Flam. Liq. 3, H226 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

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	: 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	: Rinse skin with water/shower. 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	: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
4.2. Most important symptoms and effect	ts, 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 harmful if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage.
4.3. Indication of any immediate medica	attention and special treatment needed

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

SECTION 5: Firefighting	010 and according to Federal Register / Vol. 77, No. 58 / I	
5.1. Extinguishing media		
suitable extinguishing media	: Alcohol resistant foam. Carbon	dioxide. Dry chemical. Foam. Water spray.
	ng from the substance or mixture	
Fire hazard	: Highly flammable liquid and va	oor
Explosion hazard	: May form flammable/explosive	
Reactivity	: Vapor is explosive with air abov	
5.3. Advice for firefighters Firefighting instructions		ing exposed containers. Wear self-contained breathing apparatus
Protection during firefighting	when entering area unless atm	
		oper protective equipment, including respiratory protection.
SECTION 6: Accidental r		
	, protective equipment and emergency procedu	
General measures	: Remove ignition sources. Use s smoking.	special care to avoid static electric charges. No naked lights. No
6.1.1. For non-emergency p	ersonnel	
Emergency procedures	ventilation. Remove all sources	nent. Avoid breathing vapors, mist or gas. Ensure adequate of ignition. Evacuate personnel to safe areas. Beware of vapours concentrations. Vapours can accumulate in low areas.
6.1.2. For emergency respo	nders	
Protective equipment	: Ensure adequate ventilation.	
6.2. Environmental precau	utions	
Prevent entry to sewers and publ		
For containment	for containment and cleaning up	ith non-combustible absorbent material. Disposal should be in
r or containment		deral, State and local regulations.
Methods for cleaning up	: Small quantities of liquid spill: ta container for disposal.	ake up in non-combustible absorbent material and shovel into
6.4. Reference to other se	ctions	
No additional information available	e	
SECTION 7: Handling and	d storage	
7.1. Precautions for safe h		
Additional hazards when process	•	are because residual vapors are flammable.
Precautions for safe handling		Jse only non-sparking tools. Use only outdoors or in a well-
		d inhalation of mist/vapor, all spraying must be done wearing
Hygiene measures	: Handle in accordance with goo breaks and at the end of workd	d industrial hygiene and safety practice. Wash hands before ay.
7.2. Conditions for safe st	orage, including any incompatibilities	
Technical measures		
Storage conditions	: Store at room temperature awa	y from light and moisture.
Incompatible materials	: Heat sources.	
7.3. Specific end use(s)		
No additional information available	e	
SECTION & Exposure of	ntrols/norsonal protection	
	ontrols/personal protection	
8.1. Control parameters		
	BDE UNLABELED 50 UG/ML IN NONANE	
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	200.0000000000 ppm Central Nervous System impairment.
N-NONANE UNLABELED (111	-84-2)	
	ACGIH TWA (ppm)	200.0000000000 ppm Central Nervous System impairment.
		· · · · ·

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

8.2. Exposure controls Personal protective equipment

: Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.



Hand protection		
Eye protection		
Skin and body protection		
Respiratory protection		

: protective 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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and c	hemical properties		
The properties listed below are for the solvent, the main component of this mixture.			
Physical state	: Liquid		
Appearance	: Liquid.		
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)	: Highly 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

0507		
SECT	TION 10: Stability and reactivity	
10.1.	Reactivity	
Vapor is	r is explosive with air above.	
10.2.	Chemical stability	
See sto	torage and expiration date on CoA.	
10.3.	Possibility of hazardous reactions	
No add	ditional information available	
10.4.	Conditions to avoid	
Open fl	flame. Direct sunlight.	
10.5.	Incompatible materials	
Strong	g oxidizing agents.	

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

10.6. Hazardous decomposition products	
May release flammable gases. carbon oxides.	
SECTION 11: Toxicological information	on
11.1. Information on toxicological effects	
Acute toxicity	: Harmful if inhaled.
4'-HYDROXY-2,2',4,5'-TETRABDE UNLABELE	ED 50 UG/ML IN NONANE
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 (vapors)	11.000 mg/l/4h
ATE (dust, mist)	23.760 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 (vapors)	23.760 mg/l/4h
ATE (dust, mist)	23.760 mg/l/4h
4'-HYDROXY-2,2',4,5'-TETRABDE UNLABELE	ED (602326-23-8 (Unlabeled))
ATE (oral)	500.000 mg/kg body weight
ATE (dermal)	1100.000 mg/kg body weight
ATE (dust, mist)	1.500 mg/l/4h
Skin corrosion/irritation	: Causes skin irritation.
	Causes skin irritation
Serious eye damage/irritation	: Not classified
	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 harmful if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage.

SECTION 12: Ecological information			
12.1. Toxicity			
4'-HYDROXY-2,2',4,5'-TETRABDE UNLABELED) 50 LIG/ML IN NONANE		
4 IIIDROAT 2,2,4,0 TEIRABBE OREABEEEE			
EC50 Daphnia 1	0.2 mg/l Daphnia magna (Water flea) - 48 h static test		
N-NONANE UNLABELED (111-84-2)			
EC50 Daphnia 1	0.2 mg/l Daphnia magna (Water flea) - 48 h static test		
· · · · ·			
12.2. Persistence and degradability			

4'-HYDROXY-2,2',4,5'-TETRABDE UNLABELED (602326-23-8 (Unlabeled)) Persistence and degradability Not 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

12.3. Bioaccumulative potential	
4'-HYDROXY-2,2',4,5'-TETRABDE UNLABE	LED 50 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.
4'-HYDROXY-2,2',4,5'-TETRABDE UNLABE	LED (602326-23-8 (Unlabeled))
Bioaccumulative potential	Not available.
12.4. Mobility in soil	
4'-HYDROXY-2,2',4,5'-TETRABDE UNLABE	I FD (602326-23-8 (Unlabeled))
Ecology - soil	Not available.
12.5. Results of PBT and vPvB assessm	
No additional information available	Cit
12.6. Other adverse effects Other adverse effects	: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal
Other adverse enects	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
SECTION 42. Dispessel consideration	
SECTION 13: Disposal consideration 13.1. Waste treatment methods	
13.1. Waste treatment methods Regional legislation (waste) Image: Comparison of the second	: Waste materials should be disposed of under conditions which meet Federal, State, and Local
Regional registation (waste)	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.
SECTION 14: Transport information	
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)	: 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

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

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
Danger labels (ADR)	: 3 - Flammable liquids
Drange plates	30 1920
Funnel restriction code	: D/E
imited quantities (ADR)	5L
EAC	: 3Y
Excepted quantities (ADR)	: E1
Fransport 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	
Dangerous for the environment	
Other information	: No supplementary information available.
14.5. Special precautions for user	
I4.6. Transport in bulk according to Anne Not applicable	x II of MARPOL 73/78 and the IBC Code
SECTION 15: Regulatory information	
15.1. US Federal regulations	
4'-HYDROXY-2,2',4,5'-TETRABDE UNLABEL	ED 50 UG/ML IN NONANE
SARA Section 311/312 Hazard Classes	Fire hazard

N-NONANE UNLABELED (111-84-2) SARA Section 311/312 Hazard Classes

Fire hazard

Immediate (acute) health hazard

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

15.2. International regulations

CANADA

4'-HYDROXY-2,2',4,5'-TETRABDE UNLABELED 50 UG/ML IN NONANE
4 HTURUXT-77745 HEIRABUE UNI ABELED 50 UG/ML IN NUNANE

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

15.2.1. National regulations

No additional information available

15.3. US State regulations		
4'-HYDROXY-2,2',4,5'-TETRABDE UNLABELED 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)

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 (Dermal)	Acute toxicity (dermal) Category 4
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) 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 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
H312	Harmful in contact with skin
H315	Causes skin irritation
H319	Causes serious eye irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
R10	Flammable
R20	Harmful by inhalation
R20/21/22	Harmful by inhalation, in contact with skin and if swallowed
R36/37/38	Irritating to eyes, respiratory system and skin
R38	Irritating to skin
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

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

	R67	Vapors may cause drowsiness and dizziness
	N	Dangerous for the environment
	Xi	Irritant
	Xn	Harmful
NFP	A health hazard	: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.
NFP	A fire hazard	: 3 - Liquids and solids that can be ignited under almost all ambient conditions.
NFP	A reactivity	: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.
нміз	S III Rating	
Heal	th	: 2 Moderate Hazard - Temporary or minor injury may occur
Flam	mability	: 3 Serious Hazard
Phys	ical	: 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