

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: 26/08/2014

Revision date:

Version: 1.0

PCB-99-CS

SECTION 1: Identification of the sub	ostance/mixture and of the company/undertaking
1.1. Product identifier	
Product form	: Mixture
Product name.	: 2,2',4,4',5-PENTACB 100 UG/ML IN ISOOCTANE UNLABELED CERTIFIED STANDARD
Product code	: PCB-99-CS
1.2. Relevant identified uses of the subs	stance or mixture and uses advised against
1.2.1. Relevant identified uses	
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	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 n	nixture
Classification according to Regulation (EC)	No. 1272/2008 [CLP]
Flam. Liq. 1	H224
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 according to Directive 67/548/	EEC or 1999/45/EC
F; R11 Xn; R65	
Xi; R38	
N; R50/53	
R67	
Full text of R-phrases: see section 16	
GHS-US classification	
Flam. Liq. 1	H224
Skin Irrit. 2	H315
STOT SE 3 Asp. Tox. 1	H336 H304
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Adverse physicochemical, human health and environmental effects

Liver, Kidney.

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



- 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
- P362 Take off contaminated clothing and wash before reuse
- P370+P378 In case of fire: Use Alcohol resistant foam, Carbon dioxide., Dry chemical, Water spray for extinction
- P391 Collect spillage
- P403+P233 Store in a well-ventilated place. Keep container tightly closed
- P403+P235 Store in a well-ventilated place. Keep cool

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 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. Mixture

Name	Product identifier	%	Classification according to Directive 67/548/EEC
ISOOCTANE UNLABELED	(CAS No)540-84-1 (EC no)208-759-1 (EC index no)601-009-00-8	99.9855	F; R11 Xn; R65 Xi; R38 N; R50/53 R67
2,2',4,4',5-PENTACB UNLABELED	(CAS No)38380-01-7 (EC index no)602-039-00-4	0.0145	R33
Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
ISOOCTANE UNLABELED	(CAS No)540-84-1 (EC no)208-759-1 (EC index no)601-009-00-8	99.9855	Flam. Liq. 1, H224 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
2,2',4,4',5-PENTACB UNLABELED	(CAS No)38380-01-7 (EC index no)602-039-00-4	0.0145	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Name	Product identifier	%	GHS-US classification
ISOOCTANE UNLABELED	(CAS No)540-84-1	99.9855	Flam. Liq. 1, H224 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	: 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	: Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water. Wash contaminated clothing before reuse. Get medical advice/attention. If skin irritation occurs: Wash with plenty of soap and water. 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	: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/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 fatal if swallowed and enters airways.
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 measures	
5.1. Extinguishing media	
Suitable extinguishing media	: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.
Unsuitable extinguishing media	: Do not use a heavy water stream.
5.2. Special hazards arising from the s	substance or mixture
Fire hazard	: Extremely flammable liquid and vapour.
Explosion hazard	: May form flammable/explosive vapour-air mixture.
5.3. Advice for firefighters	
Firefighting instructions	: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any
	chemical fire. Avoid (reject) fire-fighting water to enter environment.
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	
Emergency procedures	: Evacuate unnecessary personnel.
6.1.2. For emergency responders	
Protective equipment	: Avoid breathing dust, mist or spray.
Emergency procedures	: Ventilate area.
6.2. Environmental precautions	
Prevent further leakage or spillage if safe to do	o so. Do not let product enter drains. Discharge into the environment must be avoided.
6.3. Methods and material for containr	nent and cleaning up
Methods for cleaning up	: Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store aways from other materials.
6.4. Reference to other sections	
See Heading 8. Exposure controls and person	al protection.
SECTION 7: Handling and storage	
7.1. Precautions for safe handling	
Additional hazards when processed	: Handle empty containers with care because residual vapours are flammable.
Precautions for safe handling	: Wash hands and other exposed areas with mild soap and water before eat, drink or smoke and when leaving work. Provide good ventilation in process area to prevent formation of vapour. No naked lights. No smoking. Take precautionary measures against static discharge. Use only non sparking tools. Avoid breathing dust, mist or spray. Use only outdoors or in a well-ventilated area.
Hygiene measures	: Wash Both hands thoroughly after handling.
7.2. Conditions for safe storage, include	ding any incompatibilities
Technical measures	: Ground/bond container and receiving equipment. Use explosion-proof electrical equipment.
Storage conditions	: Store at room temperature away from light and moisture.
Incompatible products	: Strong bases. strong acids.
Incompatible materials	: Sources of ignition. Direct sunlight. Heat sources.
7.3. Specific end use(s)	
No additional information available	
SECTION & Expecting controls/por	nonal exercise

SECTION 8: E	xposure control	s/personal protec	tion

8.1. Control parameters

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

Exposure controls 8.2. : Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus. Personal protective equipment Hand protection : Wear suitable protective clothing and gloves. Wear safety glasses with side shields (or goggles) and a face shield. Eye protection : Skin and body protection Wear suitable protective clothing. Other information : When using, do not eat, drink or smoke. SECTION 9: Physical and chemical properties Information on basic physical and chemical properties 9.1. The properties listed below are for the solvent, the main component of this mixture. Physical state : Liquid : Liquid. Appearance Molecular mass : 114.23 Colour : Colourless. Odour · characteristic. Odour threshold : No data available pН : No data available Relative evaporation rate (butylacetate=1) : No data available Melting point : -107 °C (- 161 °F) : No data available Freezing point Boiling point : 98 - 99 °C (208 - 210 °F) Flash point : -12 °C (10 °F) - closed cup Self ignition temperature : 396 °C (745 °F) Decomposition temperature : No data available Flammability (solid, gas) : Extremely flammable liquid and vapour : 55 hPa (41 mmHg) at 21 °C (70 °F) Vapour pressure Relative vapour density at 20 °C : 3.94 - (Air = 1.0) Relative density : No data available Solubility : Water: 0 % : No data available Log Pow Log Kow : No data available : No data available Viscosity, kinematic Viscosity, dynamic : No data available Explosive properties : No data available Oxidising properties : No data available Explosive limits : 1 - 6 % (V) 92 Other information No additional information available SECTION 10: Stability and reactivity 10.1. Reactivity

No additional information available

10.2. Chemical stability

See storage and expiration date on CoA.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Sparks. Heat. Overheating. Open flame.

10.5. Incompatible materials

strong acids. Strong bases.

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 fume. Carbon monoxide. Carbon dioxide. May re			
SECTION 11: Toxicological informat	ion		
11.1. Information on toxicological effects			
Acute toxicity	: Not classified		
Skin corrosion/irritation	: Causes skin irritation.		
Serious eye damage/irritation	: Not classified		
	Based on available data, the classification criteria are not met		
Respiratory or skin sensitisation	: Not classified		
	Based on available data, the classification criteria are not met		
Germ cell mutagenicity	: Not classified		
Careiraganiaitu	Based on available data, the classification criteria are not met : Not classified		
Carcinogenicity	Based on available data, the classification criteria are not met		
Reproductive toxicity	: Not classified		
Specific target argen toxicity (cingle expective)	Based on available data, the classification criteria are not met		
Specific target organ toxicity (single exposure)	: May cause drowsiness or dizziness.		
Specific target organ toxicity (repeated	: Not classified		
exposure)	Based on available data, the classification criteria are not met		
Aspiration hazard	: May be fatal if swallowed and enters airways.		
Potential Adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.		
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.		

SECTIO	ON 12: Ecological informatior	
12.1.	Toxicity	
Ecology -	water	: Very toxic to aquatic life with long lasting effects.
12.2.	Persistence and degradability	

·	
2,2',4,4',5-PENTACB 100 UG/ML IN ISOOCTAN	NE UNLABELED CERTIFIED STANDARD
Persistence and degradability	May cause long-term adverse effects in the environment.
ISOOCTANE UNLABELED (540-84-1)	
Persistence and degradability	Not available.
2,2',4,4',5-PENTACB UNLABELED (38380-01-7)
Persistence and degradability	Not available.
12.3. Bioaccumulative potential	
2,2',4,4',5-PENTACB 100 UG/ML IN ISOOCTAN	NE UNLABELED CERTIFIED STANDARD
Bioaccumulative potential	Not established.
ISOOCTANE UNLABELED (540-84-1)	
Bioaccumulative potential	Not available.
2,2',4,4',5-PENTACB UNLABELED (38380-01-7)
Bioaccumulative potential	Not available.
12.4. Mobility in soil	
ISOOCTANE UNLABELED (540-84-1)	
Ecology - soil	Not available.
2,2',4,4',5-PENTACB UNLABELED (38380-01-7	
Ecology - soil	Not available.
10/09/2014	EN (English) 6/10

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

12.5. Results of PBT and vPvB assessme	ent
No additional information available	
12.6. Other adverse effects	
Other information	: Avoid release to the 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. Dispose of contents/container to Comply with applicable regulations.
Additional information	: Handle empty containers with care because residual vapours are flammable.
Ecology - waste materials	: Avoid release to the environment. Hazardous waste due to toxicity.
SECTION 14: Transport information	
In accordance with ADR / RID / ADNR / IMDG /	
14.1. UN number	
UN-No.(DOT)	: 1262
DOT NA no.	UN1262
14.2. UN proper shipping name	
DOT Proper Shipping Name	: Octanes
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)	: II - Medium Danger
DOT Special Provisions (49 CFR 172.102)	 IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). 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. T4 - 2.65 178.274(d)(2) Normal
DOT Packaging Exceptions (49 CFR 173.xxx)	: 150
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 202
DOT Packaging Bulk (49 CFR 173.xxx)	: 242
14.3. Additional information	
Other information	: No supplementary 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

Overland transport	
Packing group (ADR)	: 11
Class (ADR)	: 3 - Flammable liquids
Hazard identification number (Kemler No.)	: 33
Classification code (ADR)	: F1
Danger labels (ADR)	: 3 - Flammable liquids
Orange plates	33 1262
Tunnel restriction code	: D/E
Limited quantities (ADR)	1L
EAC code	: 3YE
Excepted quantities (ADR)	: E2
Transport by sea	
DOT Vessel Stowage Location	: B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
MFAG-No	: 128
Air transport	
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 5L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 60 L
Civil Aeronautics Law	: Flammable liquids(Hazardous materials notice Appended Table 1 Article 194 of the Enforcement Regulations)
44.4 Environmental harmada	
14.4. Environmental hazards Dangerous for the environment	
	₩22
Other information	: No supplementary information available.
14.5. Special precautions for user	
14.6. Transport in bulk according to Annex	x II of MARPOL 73/78 and the IBC Code
Not applicable	
SECTION 15: Regulatory information	
15.1. US Federal regulations	
2,2',4,4',5-PENTACB 100 UG/ML IN ISOOCTA	NE UNLABELED CERTIFIED STANDARD
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) 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

45 0 110 04

2,2',4,4',5-PENTACB 100 UG/ML IN ISOOCTANE UNLABELED CERTIFIED STANDARD

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

15.2.1. National regulations

No additional information available

2,2',4,4',5-PENTACB 100 UG/ML IN ISOOCTANE UNLABELED CERTIFIED STANDARD() State or local regulations ULS - Massachusetts - Right To Know List	15.3. US State regulations		
State or local regulations ULS - Massachusetts - Right To Know List	2,2',4,4',5-PENTACB 100 UG/ML IN ISOOCTANE UNLABELED CERTIFIED STANDARD()		
U.S Pennsylvania - RTK (Right to Know) List U.S New Jersey - Right to Know Hazardous Substance List	State or local regulations	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,	

ISOOCTANE UNLABELED (540-84-1)

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	
-------------------------------	--

Data sources

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information

: None.

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

Aquatic Acute 1	Hazardous to the aquatic environment — AcuteHazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Asp. Tox. 1	Aspiration hazard, Category 1
Flam. Liq. 1	Flammable liquids, Category 1
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
H224	Extremely flammable liquid and vapour
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
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
R11	Highly flammable
R33	Danger of cumulative effects
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
R67	Vapours may cause drowsiness and dizziness
F	Highly flammable
N	Dangerous for the environment
Xi	Irritant
Xn	Harmful

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

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