



EN-1948-4 MARKER PCB CALIBRATION SERIES CS3 (UNLABELED/¹³C12, 99%) IN ISOOCTANE:NONANE

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Issue date: 1/25/2016 Revision date: 9/18/2023 Supersedes: 1/25/2016 Version: 2.0

SECTION 1: Identification

1.1. Identification

Product form : Mixture
Product name : EN-1948-4 MARKER PCB CALIBRATION SERIES CS3 (UNLABELED/¹³C12, 99%) IN ISOOCTANE:NONANE
Product code : EC-5385-CS3

1.2. Recommended use and restrictions on use

No additional information available

1.3. Supplier

Cambridge Isotope Laboratories, Inc.
50 Frontage Rd
01810
ANDOVER, MA, 01810
USA
T 1-800-322-1174
cilsales@isotope.com - www.isotope.com

1.4. Emergency telephone number

Emergency number : 1-703-741-5970
Chemtrec 1-800-424-9300 24 hours

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Flammable liquids Category 2	H225	Highly flammable liquid and vapor
Acute toxicity (inhalation) Category 4	H332	Harmful if inhaled
Acute toxicity (inhalation:vapor) Category 4	H332	Harmful if inhaled
Skin corrosion/irritation Category 2	H315	Causes skin irritation
Serious eye damage/eye irritation Category 2A	H319	Causes serious eye irritation
Specific target organ toxicity – Single exposure, Category 3, Narcosis	H336	May cause drowsiness or dizziness
Aspiration hazard Category 1	H304	May be fatal if swallowed and enters airways
Hazardous to the aquatic environment – Acute Hazard Category 2	H401	Toxic to aquatic life
Hazardous to the aquatic environment – Chronic Hazard Category 2	H411	Toxic to aquatic life with long lasting effects

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) : Danger

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Hazard statements (GHS US)	: H225 - Highly 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 H401 - Toxic to aquatic life H411 - Toxic to aquatic life with long lasting effects
Precautionary statements (GHS US)	: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. heat, hot surfaces, open flames, sparks P233 - Keep container tightly closed. P240 - Ground/Bond container and receiving equipment. P241 - Use explosion-proof electrical, lighting, ventilating equipment. P242 - Use only non-sparking tools. P243 - Take precautionary measures against static discharge. P261 - Avoid breathing fume, mist, spray, vapors. P264 - Wash Both hands thoroughly after handling. P271 - Use only outdoors or in a well-ventilated area. P273 - Avoid release to the environment. P280 - Wear eye protection, face protection, protective clothing, protective gloves. P301+P310 - If swallowed: Immediately call a poison center or doctor. P302+P352 - If on skin: Wash with plenty of water. P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340 - If inhaled: Remove person to fresh air and keep 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 or doctor if you feel unwell. P321 - Specific treatment (see Hazard pictograms (CLP) on this label). P331 - 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, Water spray to extinguish. 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. P405 - Store locked up. P501 - Dispose of contents/container to Comply with applicable regulations.

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

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3.2. Mixtures

Name	Product identifier	%	GHS US classification
N-NONANE UNLABELED	CAS-No.: 111-84-2	96.13965739 1	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
ISOOCTANE UNLABELED	CAS-No.: 540-84-1	3.860242185	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
2,2',5,5'-TETRACB (PCB-52) (13C12, 99%)	CAS-No.: 208263-80- 3	0.000013948	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
2,4,4'-TRICB (PCB-28) (13C12, 99%)	CAS-No.: 208263-76- 7	0.000013948	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
2,2',3,4,4',5,5'-HEPTACB (PCB-180) (13C12, 99%)	CAS-No.: 35065-29-3 (Unlabeled)	0.000013948	STOT SE 2, H371 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
2,2',3,4,4',5'-HEXACB (PCB-138) (13C12, 99%)	CAS-No.: 208263-66- 5	0.000013948	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
2,2',4,4',5,5'-HEXACB (PCB-153) (13C12, 99%)	CAS-No.: 185376-58- 3	0.000013948	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
2,2',4,5,5'-PENTACB (PCB-101) (13C12, 99%)	CAS-No.: 104130-39- 4	0.000013948	STOT RE 2, H373 Aquatic Chronic 1, H410
2,2',3,4,4',5,5'-HEPTACB UNLABELED	CAS-No.: 35065-29-3	0.000001395	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
2,2',5,5'-TETRACB UNLABELED	CAS-No.: 35693-99-3	0.000001395	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
2,4,4'-TRICB UNLABELED	CAS-No.: 7012-37-5	0.000001395	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
2,2',4,5,5'-PENTACB UNLABELED	CAS-No.: 37680-73-2	0.000001395	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
2,2',3,4,4',5'-HEXACB UNLABELED	CAS-No.: 35065-28-2	0.000001395	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

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Name	Product identifier	%	GHS US classification
2,2',4,4',5,5'-HEXACB UNLABELED	CAS-No.: 35065-27-1	0.000001395	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
2,3,4,4'-TETRACB (PCB-60) (13C12, 99%)	CAS-No.: 33025-41-1 (Unlabeled)	0.000001395	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
3,3',4,5,5'-PENTACB (PCB-127) (13C12, 99%)	CAS-No.: 39635-33-1 (Unlabeled)	0.000001395	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
2,3',4',5-TETRACB (PCB-70) (13C12, 99%)	CAS-No.: 208263-81-4	0.000001395	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
2,3,3',5,5'-PENTACB (PCB-111) (13C12, 99%)	CAS-No.: 235416-29-2	0.000001395	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
2,3,3',4,5,5'-HEXACB (PCB-159) (13C12, 99%)	CAS-No.: 39635-35-3 (Unlabeled)	0.000001395	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
2,2',3,3',4,4',5-HEPTACB (PCB-170) (13C12, 99%)	CAS-No.: 35065-30-6 (Unlabeled)	0.000001395	STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general	: If you feel unwell, seek medical advice (show the label where possible). Consult a doctor/medical service.
First-aid measures after inhalation	: Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
First-aid measures after skin contact	: Wash with plenty of soap and water. 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 thoroughly with water for at least 15 minutes. Immediately call a poison center or doctor/physician.
First-aid measures after ingestion	: Immediately call a poison center or doctor/physician.

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms	: Harmful if inhaled. 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.
Symptoms/effects	: May cause drowsiness or dizziness.
Symptoms/effects after inhalation	: Harmful if inhaled. May cause respiratory irritation.
Symptoms/effects after skin contact	: Causes skin irritation.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: May be fatal if swallowed and enters airways.

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4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Alcohol resistant foam. Dry chemical. Carbon dioxide. Water spray. Sand.

5.2. Specific hazards arising from the chemical

Fire hazard : Highly flammable liquid and vapor.
Explosion hazard : May form flammable/explosive vapor-air mixture.
Hazardous decomposition products in case of fire : Carbon oxides (CO, CO2).

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.
Other information : Use water spray to cool exposed surfaces.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking.

6.1.1. For non-emergency personnel

Emergency procedures : Ensure adequate ventilation. Evacuate unnecessary personnel. Evacuate danger area. Special attention should be given to low areas/pits where flammable vapors can accumulate. Use personal protective equipment as required.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal. This material and its container must be disposed of in a safe way, and as per local legislation.
Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters. This material and its container must be disposed of in a safe way, and as per local legislation.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

No additional information available

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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	: No open flames. No smoking. Use only non-sparking tools. Use only outdoors or in a well-ventilated area.
Hygiene measures	: Always wash your hands immediately after handling this product, and once again before leaving the workplace. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.
Storage conditions	: Store at room temperature away from light and moisture.
Incompatible materials	: Heat sources.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

EN-1948-4 MARKER PCB CALIBRATION SERIES CS3 (UNLABELED/13C12, 99%) IN ISOOCTANE:NONANE	
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA [ppm]	300 ppm Basis: USA. ACGIH Threshold Limit Values (TLV)
Remark (ACGIH)	Upper Respiratory Tract irritation
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
2,2',5,5'-TETRACB (PCB-52) (13C12, 99%) (208263-80-3)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
USA - OSHA - Occupational Exposure Limits	
OSHA PEL TWA [1]	0.5 mg/m ³
2,2',3,4,4',5,5'-HEPTACB UNLABELED (35065-29-3)	
No additional information available	
2,2',5,5'-TETRACB UNLABELED (35693-99-3)	
USA - OSHA - Occupational Exposure Limits	
OSHA PEL TWA [1]	0.5 mg/m ³
2,4,4'-TRICB (PCB-28) (13C12, 99%) (208263-76-7)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
2,4,4'-TRICB UNLABELED (7012-37-5)	
No additional information available	

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2,2',4,5,5'-PENTACB UNLABELED (37680-73-2)	
No additional information available	
2,2',3,4,4',5'-HEXACB UNLABELED (35065-28-2)	
No additional information available	
2,2',3,4,4',5,5'-HEPTACB (PCB-180) (13C12, 99%) (35065-29-3 (Unlabeled))	
USA - ACGIH - Occupational Exposure Limits	
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
2,2',4,4',5,5'-HEXACB UNLABELED (35065-27-1)	
No additional information available	
2,2',3,4,4',5'-HEXACB (PCB-138) (13C12, 99%) (208263-66-5)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
2,2',4,4',5,5'-HEXACB (PCB-153) (13C12, 99%) (185376-58-3)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
2,2',4,5,5'-PENTACB (PCB-101) (13C12, 99%) (104130-39-4)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
2,3,4,4'-TETRACB (PCB-60) (13C12, 99%) (33025-41-1 (Unlabeled))	
USA - ACGIH - Occupational Exposure Limits	
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
3,3',4,5,5'-PENTACB (PCB-127) (13C12, 99%) (39635-33-1 (Unlabeled))	
USA - ACGIH - Occupational Exposure Limits	
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
2,3',4',5-TETRACB (PCB-70) (13C12, 99%) (208263-81-4)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
2,3,3',5,5'-PENTACB (PCB-111) (13C12, 99%) (235416-29-2)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.

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2,3,3',4,5,5'-HEXACB (PCB-159) (13C12, 99%) (39635-35-3 (Unlabeled))	
USA - ACGIH - Occupational Exposure Limits	
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
2,2',3,3',4,4',5-HEPTACB (PCB-170) (13C12, 99%) (35065-30-6 (Unlabeled))	
USA - ACGIH - Occupational Exposure Limits	
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
N-NONANE UNLABELED (111-84-2)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Nonane
ACGIH OEL TWA [ppm]	200 ppm USA. ACGIH Threshold Limit Values (TLV)
Remark (ACGIH)	CNS impair
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
USA - OSHA - Occupational Exposure Limits	
OSHA PEL TWA [1]	1050 mg/m ³ USA. OSHA - Table Z-1 Limits for Air Contaminants - 1910.1000
OSHA PEL TWA [2]	200 ppm USA. OSHA - Table Z-1 Limits for Air Contaminants - 1910.1000
OSHA PEL C	1050 California permissible exposure limits for chemical contaminants.
OSHA PEL C [ppm]	200 ppm California permissible exposure limits for chemical contaminants.
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL TWA	1050 mg/m ³ USA. NIOSH Recommended Exposure Limits
NIOSH REL TWA [ppm]	200 ppm USA. NIOSH Recommended Exposure Limits
Remark (NIOSH)	Central Nervous System impairment
ISOOCTANE UNLABELED (540-84-1)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA [ppm]	300 ppm Basis: USA. ACGIH Threshold Limit Values (TLV)
Remark (ACGIH)	Upper Respiratory Tract irritation
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.

8.2. Appropriate engineering controls

Appropriate engineering controls	: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Ensure good ventilation of the work station.
Environmental exposure controls	: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

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

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Materials for protective clothing:
Wear suitable protective clothing and gloves
Hand protection:
Wear suitable protective clothing and gloves
Eye protection:
Chemical goggles or safety glasses
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.

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Color	: Colorless
Odor	: No data available
Odor threshold	: No data available
pH	: No data available
Melting point	: Not applicable
Freezing point	: -53 °C (- 63 °F) - lit
Boiling point	: 151 °C (304 °F) - lit
Flash point	: 31 °C (87.8 °F) - closed cup
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: 5.69 hPa (4.27 mmHg) at 25 °C (77 °F)
Relative vapor density at 20°C	: No data available
Relative density	: No data available
Density	: 0.718 g/ml at 25 °C (77 °F)
Molecular mass	: 128.3 g/mol
Solubility	: Water: 0.0002 %
Partition coefficient n-octanol/water (Log Pow)	: 5.65
Auto-ignition temperature	: 205 °C (401 °F)
Decomposition temperature	: No data available
Viscosity, kinematic	: ≤ 1.008 mm ² /s at 20 °C (68 °F)
Viscosity, dynamic	: No data available
Explosion limits	: 0.87 – 2.9 % (V)
Explosive properties	: No data available
Oxidizing properties	: No data available

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9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Vapor is explosive with air above.

10.2. Chemical stability

Stable if stored under recommended conditions.

10.3. Possibility of hazardous reactions

Vapors may form explosive mixture with air.

10.4. Conditions to avoid

Open flame. Direct sunlight.

10.5. Incompatible materials

Oxidizing agent.

10.6. Hazardous decomposition products

May release flammable gases.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Harmful if inhaled. Harmful if inhaled.

EN-1948-4 MARKER PCB CALIBRATION SERIES CS3 (UNLABELED/ ¹³ C12, 99%) IN ISOOCTANE:NONANE	
LD50 oral rat	> 5000 mg/kg (OECD Test Guideline 401)
LD50 dermal rabbit	> 2000 mg/kg (OECD Test Guideline 402)
LC50 Inhalation - Rat	> 33.52 mg/l/4h (OECD Test Guideline 403)
ATE US (gases)	4500 ppmV/4h
ATE US (vapors)	11 mg/l/4h
ATE US (dust, mist)	1.5 mg/l/4h
N-NONANE UNLABELED (111-84-2)	
LC50 Inhalation - Rat	23760 mg/m ³ male - 4 h
ATE US (gases)	4500 ppmV/4h
ATE US (vapors)	11 mg/l/4h
ATE US (dust, mist)	1.5 mg/l/4h
Skin corrosion/irritation, Dermal, rat	Result: Skin Irritation (Draize Test)

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N-NONANE UNLABELED (111-84-2)	
Additional information	: S. Typhimurium Result: negative
ISOOCTANE UNLABELED (540-84-1)	
LD50 oral rat	> 5000 mg/kg (OECD Test Guideline 401)
LD50 dermal rabbit	> 2000 mg/kg (OECD Test Guideline 402)
LC50 Inhalation - Rat	> 33.52 mg/l/4h (OECD Test Guideline 403)
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
2,2',5,5'-TETRACB (PCB-52) (13C12, 99%) (208263-80-3)	
IARC group	2A - Probably carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
2,2',3,4,4',5'-HEXACB (PCB-138) (13C12, 99%) (208263-66-5)	
IARC group	2A - Probably carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
2,2',4,5,5'-PENTACB (PCB-101) (13C12, 99%) (104130-39-4)	
IARC group	2A - Probably carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
2,3,4,4'-TETRACB (PCB-60) (13C12, 99%) (33025-41-1 (Unlabeled))	
IARC group	2A - Probably carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
3,3',4,5,5'-PENTACB (PCB-127) (13C12, 99%) (39635-33-1 (Unlabeled))	
IARC group	2A - Probably carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
2,3',4',5'-TETRACB (PCB-70) (13C12, 99%) (208263-81-4)	
IARC group	2A - Probably carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
2,3,3',4,5,5'-HEXACB (PCB-159) (13C12, 99%) (39635-35-3 (Unlabeled))	
IARC group	2A - Probably carcinogenic to humans
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen
Reproductive toxicity	: Not classified
STOT-single exposure	: May cause drowsiness or dizziness.
2,2',3,4,4',5,5'-HEPTACB (PCB-180) (13C12, 99%) (35065-29-3 (Unlabeled))	
STOT-single exposure	May cause damage to organs (liver, Skin) (Dermal, Inhalation, oral).

EN-1948-4 MARKER PCB CALIBRATION SERIES CS3 (UNLABELED/13C12, 99%) IN ISOOCTANE:NONANE

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N-NONANE UNLABELED (111-84-2)	
STOT-single exposure	May cause drowsiness or dizziness.
ISOOCTANE UNLABELED (540-84-1)	
STOT-single exposure	May cause drowsiness or dizziness.
STOT-repeated exposure	: Not classified
2,2',5,5'-TETRACB (PCB-52) (13C12, 99%) (208263-80-3)	
STOT-repeated exposure	May cause damage to organs (central nervous system, kidneys, liver, Skin) through prolonged or repeated exposure (Dermal, Inhalation, oral).
2,2',3,4,4',5,5'-HEPTACB UNLABELED (35065-29-3)	
STOT-repeated exposure	May cause damage to organs (liver) through prolonged or repeated exposure (Dermal, Inhalation, oral).
2,2',5,5'-TETRACB UNLABELED (35693-99-3)	
STOT-repeated exposure	May cause damage to organs (liver) through prolonged or repeated exposure (Dermal, Inhalation, oral).
2,4,4'-TRICB (PCB-28) (13C12, 99%) (208263-76-7)	
STOT-repeated exposure	May cause damage to organs (liver) through prolonged or repeated exposure (Dermal, Inhalation, oral).
2,4,4'-TRICB UNLABELED (7012-37-5)	
STOT-repeated exposure	May cause damage to organs (liver) through prolonged or repeated exposure (Dermal, Inhalation, oral).
2,2',4,5,5'-PENTACB UNLABELED (37680-73-2)	
STOT-repeated exposure	May cause damage to organs (liver) through prolonged or repeated exposure (Dermal, Inhalation, oral).
2,2',3,4,4',5'-HEXACB UNLABELED (35065-28-2)	
STOT-repeated exposure	May cause damage to organs (liver) through prolonged or repeated exposure (Dermal, Inhalation, oral).
2,2',4,4',5,5'-HEXACB UNLABELED (35065-27-1)	
STOT-repeated exposure	May cause damage to organs (liver) through prolonged or repeated exposure (Dermal, Inhalation, oral).
2,2',3,4,4',5'-HEXACB (PCB-138) (13C12, 99%) (208263-66-5)	
STOT-repeated exposure	May cause damage to organs (kidneys, liver, urinary bladder) through prolonged or repeated exposure (Dermal, Inhalation, oral).
2,2',4,4',5,5'-HEXACB (PCB-153) (13C12, 99%) (185376-58-3)	
STOT-repeated exposure	May cause damage to organs (liver, Skin) through prolonged or repeated exposure (oral, Dermal, Inhalation).
2,2',4,5,5'-PENTACB (PCB-101) (13C12, 99%) (104130-39-4)	
STOT-repeated exposure	May cause damage to organs (liver) through prolonged or repeated exposure (Dermal, Inhalation, oral).

EN-1948-4 MARKER PCB CALIBRATION SERIES CS3 (UNLABELED/13C12, 99%) IN ISOOCTANE:NONANE

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2,3,4,4'-TETRACB (PCB-60) (13C12, 99%) (33025-41-1 (Unlabeled))	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure (Dermal, Inhalation, oral).
3,3',4,5,5'-PENTACB (PCB-127) (13C12, 99%) (39635-33-1 (Unlabeled))	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure (Dermal, Inhalation, oral).
2,3',4',5-TETRACB (PCB-70) (13C12, 99%) (208263-81-4)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure (Dermal, Inhalation, oral).
2,3,3',5,5'-PENTACB (PCB-111) (13C12, 99%) (235416-29-2)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure (Dermal, Inhalation, oral).
2,3,3',4,5,5'-HEXACB (PCB-159) (13C12, 99%) (39635-35-3 (Unlabeled))	
STOT-repeated exposure	May cause damage to organs (liver) through prolonged or repeated exposure (Dermal, Inhalation, oral).
2,2',3,3',4,4',5-HEPTACB (PCB-170) (13C12, 99%) (35065-30-6 (Unlabeled))	
STOT-repeated exposure	May cause damage to organs (liver, Skin) through prolonged or repeated exposure (Dermal, Inhalation, oral).

Aspiration hazard : May be fatal if swallowed and enters airways.
Viscosity, kinematic : $\leq 1.008 \text{ mm}^2/\text{s}$ at 20 °C (68 °F)

N-NONANE UNLABELED (111-84-2)	
Viscosity, kinematic	$\leq 1.008 \text{ mm}^2/\text{s}$ at 20 °C (68 °F)

Potential Adverse human health effects and symptoms : Harmful if inhaled. 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.

Symptoms/effects : May cause drowsiness or dizziness.

Symptoms/effects after inhalation : Harmful if inhaled. May cause respiratory irritation.

Symptoms/effects after skin contact : Causes skin irritation.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : May be fatal if swallowed and enters airways.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects.

2,2',5,5'-TETRACB (PCB-52) (13C12, 99%) (208263-80-3)	
LC50 - Fish [1]	$\geq 0.002 \text{ mg/l}$ Pimephales promelas (fathead minnow) - 96 h
EC50 - Crustacea [1]	$\geq 0.002 \text{ mg/l}$ Daphnia magna (Water flea) - 48 h
NOEC (chronic)	0.1 mg/l Oncorhynchus mykiss (rainbow trout) - 7 d
2,2',5,5'-TETRACB UNLABELED (35693-99-3)	
LC50 - Fish [1]	$> 0.16 \text{ mg/l}$ Pimephales promelas (fathead minnow) - 96 h
EC50 - Crustacea [1]	$> 0.16 \text{ mg/l}$ Daphnia magna (Water flea) - 48 h

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2,2',5,5'-TETRACB UNLABELED (35693-99-3)	
NOEC (chronic)	0.1 mg/l Oncorhynchus mykiss (rainbow trout) - 7 d
2,4,4'-TRICB (PCB-28) (13C12, 99%) (208263-76-7)	
LC50 - Fish [1]	> 0.16 mg/l Pimpephale promelas (fathead minnow) -96h
EC50 - Crustacea [1]	> 0.16 mg/l Daphnia magna (Water flea) -48h
2,4,4'-TRICB UNLABELED (7012-37-5)	
LC50 - Fish [1]	> 0.16 mg/l Pimephales promelas (fathead minnow) - 96 h
EC50 - Crustacea [1]	> 0.16 mg/l Daphnia magna (Water flea) - 48 h
2,2',3,3',4,4',5-HEPTACB (PCB-170) (13C12, 99%) (35065-30-6 (Unlabeled))	
LC50 - Fish [1]	0.034 mg/l Pimephales promelas (fathead minnow) - 96 h

12.2. Persistence and degradability

EN-1948-4 MARKER PCB CALIBRATION SERIES CS3 (UNLABELED/13C12, 99%) IN ISOOCTANE:NONANE	
Persistence and degradability	May cause long-term adverse effects in the environment.
2,2',3,4,4',5,5'-HEPTACB UNLABELED (35065-29-3)	
Persistence and degradability	May cause long-term adverse effects in the environment.

12.3. Bioaccumulative potential

EN-1948-4 MARKER PCB CALIBRATION SERIES CS3 (UNLABELED/13C12, 99%) IN ISOOCTANE:NONANE	
Partition coefficient n-octanol/water (Log Pow)	5.65
2,2',3,4,4',5,5'-HEPTACB (PCB-180) (13C12, 99%) (35065-29-3 (Unlabeled))	
Partition coefficient n-octanol/water (Log Pow)	8.27
2,2',4,4',5,5'-HEXACB (PCB-153) (13C12, 99%) (185376-58-3)	
Partition coefficient n-octanol/water (Log Pow)	7.75
2,2',3,3',4,4',5-HEPTACB (PCB-170) (13C12, 99%) (35065-30-6 (Unlabeled))	
Partition coefficient n-octanol/water (Log Pow)	8.27
N-NONANE UNLABELED (111-84-2)	
Partition coefficient n-octanol/water (Log Pow)	5.65
Bioaccumulative potential	Indication of bioaccumulation.
ISOOCTANE UNLABELED (540-84-1)	
Partition coefficient n-octanol/water (Log Pow)	4.6

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other adverse effects : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Disposal must be done according to official regulations.

EN-1948-4 MARKER PCB CALIBRATION SERIES CS3 (UNLABELED/13C12, 99%) IN ISOOCTANE:NONANE

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SECTION 13: Disposal considerations

13.1. Disposal methods

Regional legislation (waste)	: Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.
Product/Packaging disposal recommendations	: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
Ecology - waste materials	: Dispose of as unused product.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

DOT NA No	: UN1920
UN-No. (TDG)	: UN1920
UN-No. (IMDG)	: 1920
UN-No. (IATA)	: 1920

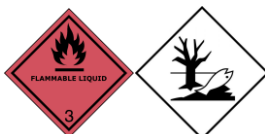
14.2. UN proper shipping name

Proper Shipping Name (DOT)	: Nonanes
Proper Shipping Name (TDG)	: NONANES
Proper Shipping Name (IMDG)	: NONANES
Proper Shipping Name (IATA)	: Nonanes

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT)	: 3
Hazard labels (DOT)	: 3



TDG

Transport hazard class(es) (TDG)	: 3
Hazard labels (TDG)	: 3



IMDG

Transport hazard class(es) (IMDG)	: 3
Hazard labels (IMDG)	: 3



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IATA

Transport hazard class(es) (IATA) : 3
Hazard labels (IATA) : 3



14.4. Packing group

Packing group (DOT) : III
Packing group (TDG) : III
Packing group (IMDG) : III
Packing group (IATA) : III

14.5. Environmental hazards

Dangerous for the environment : Yes
Marine pollutant : Yes



Other information : No supplementary information available.

14.6. Special precautions for user

DOT

UN-No. (DOT) : UN1920

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..... 178.275(d)(3)
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: t_r is the maximum mean bulk temperature during transport, t_f is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (t_f) and the maximum mean bulk temperature during transportation (t_r) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d_{15} and d_{50} are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.

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

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 60 L

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 220 L

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

EN-1948-4 MARKER PCB CALIBRATION SERIES CS3 (UNLABELED/13C12, 99%) IN ISOOCTANE:NONANE

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TDG

UN-No. (TDG) : UN1920
Explosive Limit and Limited Quantity Index : 5 L
Excepted quantities (TDG) : E1
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 60 L
Emergency Response Guide (ERG) Number : 128

IMDG

Limited quantities (IMDG) : 5 L
Excepted quantities (IMDG) : E1
Packing instructions (IMDG) : P001, LP01
IBC packing instructions (IMDG) : IBC03
Tank instructions (IMDG) : T2
Tank special provisions (IMDG) : TP1
EmS-No. (Fire) : F-E - FIRE SCHEDULE Echo - NON-WATER-REACTIVE FLAMMABLE LIQUIDS
EmS-No. (Spillage) : S-E - SPILLAGE SCHEDULE Echo - FLAMMABLE LIQUIDS, FLOATING ON WATER
Stowage category (IMDG) : A
Flash point (IMDG) : '
Properties and observations (IMDG) : Colourless liquids. Explosive limits: 0.8% to 2.9% normal-NONANE: flashpoint 31°C c.c. Immiscible with water. Irritating to skin, eyes and mucous membranes.
MFAG-No : 128

IATA

PCA Excepted quantities (IATA) : E1
PCA Limited quantities (IATA) : Y344
PCA limited quantity max net quantity (IATA) : 10L
PCA packing instructions (IATA) : 355
PCA max net quantity (IATA) : 60L
CAO packing instructions (IATA) : 366
CAO max net quantity (IATA) : 220L
ERG code (IATA) : 3L

14.7. 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

EN-1948-4 MARKER PCB CALIBRATION SERIES CS3 (UNLABELED/13C12, 99%) IN ISOOCTANE:NONANE	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
2,2',5,5'-TETRACB (PCB-52) (13C12, 99%)	208263-80-3	Not present	-	
2,2',3,4,4',5,5'-HEPTACB UNLABELED	35065-29-3	Not present	-	
2,2',5,5'-TETRACB UNLABELED	35693-99-3	Not present	-	

EN-1948-4 MARKER PCB CALIBRATION SERIES CS3 (UNLABELED/13C12, 99%) IN ISOOCTANE:NONANE

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Name	CAS-No.	Listing	Commercial status	Flags
2,4,4'-TRICB (PCB-28) (13C12, 99%)	208263-76-7	Not present	-	
2,4,4'-TRICB UNLABELED	7012-37-5	Not present	-	
2,2',4,5,5'-PENTACB UNLABELED	37680-73-2	Not present	-	
2,2',3,4,4',5'-HEXACB UNLABELED	35065-28-2	Not present	-	
2,2',3,4,4',5,5'-HEPTACB (PCB-180) (13C12, 99%)	35065-29-3 (Unlabeled)	Not present	-	
2,2',4,4',5,5'-HEXACB UNLABELED	35065-27-1	Not present	-	
2,2',3,4,4',5'-HEXACB (PCB-138) (13C12, 99%)	208263-66-5	Not present	-	
2,2',4,4',5,5'-HEXACB (PCB-153) (13C12, 99%)	185376-58-3	Not present	-	
2,2',4,5,5'-PENTACB (PCB-101) (13C12, 99%)	104130-39-4	Not present	-	
2,3,4,4'-TETRACB (PCB-60) (13C12, 99%)	33025-41-1 (Unlabeled)	Not present	-	
3,3',4,5,5'-PENTACB (PCB-127) (13C12, 99%)	39635-33-1 (Unlabeled)	Not present	-	
2,3',4',5'-TETRACB (PCB-70) (13C12, 99%)	208263-81-4	Not present	-	
2,3,3',5,5'-PENTACB (PCB-111) (13C12, 99%)	235416-29-2	Not present	-	
2,3,3',4,5,5'-HEXACB (PCB-159) (13C12, 99%)	39635-35-3 (Unlabeled)	Not present	-	
2,2',3,3',4,4',5'-HEPTACB (PCB-170) (13C12, 99%)	35065-30-6 (Unlabeled)	Not present	-	
N-NONANE UNLABELED	111-84-2	Present	Active	T
ISOOCTANE UNLABELED	540-84-1	Present	Active	

2,2',5,5'-TETRACB (PCB-52) (13C12, 99%) (208263-80-3)

SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
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2,2',3,4,4',5,5'-HEPTACB UNLABELED (35065-29-3)

SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
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SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard
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2,2',5,5'-TETRACB UNLABELED (35693-99-3)

SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
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SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard
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2,4,4'-TRICB (PCB-28) (13C12, 99%) (208263-76-7)

SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
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SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard
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EN-1948-4 MARKER PCB CALIBRATION SERIES CS3 (UNLABELED/13C12, 99%) IN ISOOCTANE:NONANE

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2,4,4'-TRICB UNLABELED (7012-37-5)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard

2,2',4,5,5'-PENTACB UNLABELED (37680-73-2)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard

2,2',3,4,4',5'-HEXACB UNLABELED (35065-28-2)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard

2,2',3,4,4',5'-HEPTACB (PCB-180) (13C12, 99%) (35065-29-3 (Unlabeled))	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard

2,2',4,4',5,5'-HEXACB UNLABELED (35065-27-1)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard

2,2',3,4,4',5'-HEXACB (PCB-138) (13C12, 99%) (208263-66-5)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard

2,2',4,4',5,5'-HEXACB (PCB-153) (13C12, 99%) (185376-58-3)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard

2,2',4,5,5'-PENTACB (PCB-101) (13C12, 99%) (104130-39-4)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.

2,3,4,4'-TETRACB (PCB-60) (13C12, 99%) (33025-41-1 (Unlabeled))	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.

EN-1948-4 MARKER PCB CALIBRATION SERIES CS3 (UNLABELED/13C12, 99%) IN ISOCTANE:NONANE

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3,3',4,5,5'-PENTACB (PCB-127) (13C12, 99%) (39635-33-1 (Unlabeled))	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302
2,3',4',5-TETRACB (PCB-70) (13C12, 99%) (208263-81-4)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302
2,3,3',5,5'-PENTACB (PCB-111) (13C12, 99%) (235416-29-2)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard
2,3,3',4,5,5'-HEXACB (PCB-159) (13C12, 99%) (39635-35-3 (Unlabeled))	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302
2,2',3,3',4,4',5-HEPTACB (PCB-170) (13C12, 99%) (35065-30-6 (Unlabeled))	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard
N-NONANE UNLABELED (111-84-2)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard
ISOCTANE UNLABELED (540-84-1)	
Not subject to reporting requirements of the United States SARA Section 313 Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	1000 lb
SARA Section 311/312 Hazard Classes	Fire hazard Delayed (chronic) health hazard
15.2. International regulations	
CANADA	
EN-1948-4 MARKER PCB CALIBRATION SERIES CS3 (UNLABELED/13C12, 99%) IN ISOCTANE:NONANE	
Listed on the Canadian DSL (Domestic Substances List)	
2,2',5,5'-TETRACB (PCB-52) (13C12, 99%) (208263-80-3)	
Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)	

EN-1948-4 MARKER PCB CALIBRATION SERIES CS3 (UNLABELED/13C12, 99%) IN ISOOCTANE:NONANE

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2,2',3,4,4',5,5'-HEPTACB UNLABELED (35065-29-3)

Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)

2,2',5,5'-TETRACB UNLABELED (35693-99-3)

Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)

2,4,4'-TRICB (PCB-28) (13C12, 99%) (208263-76-7)

Listed on the Canadian DSL (Domestic Substances List)

2,4,4'-TRICB UNLABELED (7012-37-5)

Listed on the Canadian DSL (Domestic Substances List)

2,2',4,5,5'-PENTACB UNLABELED (37680-73-2)

Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)

2,2',3,4,4',5'-HEXACB UNLABELED (35065-28-2)

Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)

2,2',4,4',5,5'-HEXACB UNLABELED (35065-27-1)

Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)

2,2',3,4,4',5'-HEXACB (PCB-138) (13C12, 99%) (208263-66-5)

Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)

2,2',4,4',5,5'-HEXACB (PCB-153) (13C12, 99%) (185376-58-3)

Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)

2,2',4,5,5'-PENTACB (PCB-101) (13C12, 99%) (104130-39-4)

Listed on the Canadian DSL (Domestic Substances List)

2,3',4',5-TETRACB (PCB-70) (13C12, 99%) (208263-81-4)

Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)

2,3,3',5,5'-PENTACB (PCB-111) (13C12, 99%) (235416-29-2)

Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)

N-NONANE UNLABELED (111-84-2)

Listed on the Canadian DSL (Domestic Substances List)

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ISOOCTANE UNLABELED (540-84-1)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

ISOOCTANE UNLABELED (540-84-1)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations

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State or local regulations	U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List
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2,2',5,5'-TETRACB (PCB-52) (13C12, 99%) (208263-80-3)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	Yes		

2,2',3,4,4',5,5'-HEPTACB UNLABELED (35065-29-3)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	Yes		

2,2',5,5'-TETRACB UNLABELED (35693-99-3)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	Yes		

2,4,4'-TRICB (PCB-28) (13C12, 99%) (208263-76-7)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	Yes		

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2,4,4'-TRICB UNLABELED (7012-37-5)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	Yes		

2,2',4,5,5'-PENTACB UNLABELED (37680-73-2)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	Yes		

2,2',3,4,4',5'-HEXACB UNLABELED (35065-28-2)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	Yes		

2,2',3,4,4',5'-HEPTACB (PCB-180) (13C12, 99%) (35065-29-3 (Unlabeled))					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	No		

2,2',4,4',5,5'-HEXACB UNLABELED (35065-27-1)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	Yes		

2,2',3,4,4',5'-HEXACB (PCB-138) (13C12, 99%) (208263-66-5)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	Yes		

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2,2',4,4',5,5'-HEXACB (PCB-153) (13C12, 99%) (185376-58-3)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	Yes		

2,2',4,5,5'-PENTACB (PCB-101) (13C12, 99%) (104130-39-4)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	Yes		

2,3,4,4'-TETRACB (PCB-60) (13C12, 99%) (33025-41-1 (Unlabeled))					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	No	Yes		

3,3',4,5,5'-PENTACB (PCB-127) (13C12, 99%) (39635-33-1 (Unlabeled))					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	Yes		

2,3',4',5-TETRACB (PCB-70) (13C12, 99%) (208263-81-4)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	No		

2,3,3',5,5'-PENTACB (PCB-111) (13C12, 99%) (235416-29-2)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	Yes		

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2,3,3',4,5,5'-HEXACB (PCB-159) (13C12, 99%) (39635-35-3 (Unlabeled))					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	Yes		

2,2',3,3',4,4',5-HEPTACB (PCB-170) (13C12, 99%) (35065-30-6 (Unlabeled))					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	Yes	Yes	No		

Component	State or local regulations
2,4,4'-TRICB (PCB-28) (13C12, 99%)(208263-76-7)	U.S. - Pennsylvania - RTK (Right to Know) List; U.S. - New Jersey - Right to Know Hazardous Substance List
2,3,3',5,5'-PENTACB (PCB-111) (13C12, 99%)(235416-29-2)	U.S. - Pennsylvania - RTK (Right to Know) List; U.S. - New Jersey - Right to Know Hazardous Substance List
N-NONANE UNLABELED(111-84-2)	U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Massachusetts - Right To Know List; U.S. - Pennsylvania - RTK (Right to Know) List
ISOOCTANE UNLABELED(540-84-1)	U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

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

Revision date : 09/18/2023

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 H-phrases	
H225	Highly flammable liquid and vapor
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
H371	May cause damage to organs
H373	May cause damage to organs through prolonged or repeated exposure

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Full text of H-phrases	
H400	Very toxic to aquatic life
H401	Toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects

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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.