

Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 12/11/2014

Revision date:

Version: 1.0

### ECN-5489-CS3

1.1. Produ	ct identifier	
Product form		: Mixtures
Product name.		: PCN CALIBRATION SOLUTION CS3 (UNLABELED/13C10, 99%) IN NONANE
Product code		: ECN-5489-CS3
1.2. Releva	Int identified uses of the s	substance or mixture and uses advised against
1.2.1. Releva	Int identified uses	
Industrial/Profess	sional use spec	: For professional use only.
1.2.2. Uses a	dvised against	
	ormation available	
	s of the supplier of the saf	iety data sheet
	pe Laboratories, Inc.	
50 Frontage Roa Andover, MA 01 USA	d	
	-1174 Int: 1-978-749-8000 .com www.isotope.com	2
Emerg	ency telephone number	
Emergency num	pers:	
	)-424-9300 (24 hours) 202-483-7616 (24 hours)	
SECTION 2:	Hazards identificatio	n
2.1. Classi	fication of the substance of	or mixture
Classification a	ccording to Regulation (E	C) No. 1272/2008 [CLP]
Flam. Liq. 3	H226	
Acute Tox. 4 (Inh	alation) H332	
Skin Irrit. 2	H315	
Eye Irrit. 2	H319	
STOT SE 3	H336	
Asp. Tox. 1	H304	
Aquatic Chronic	3 H412	
Full text of H-phr	ases: see section 16	
Classification a	ccording to Directive 67/54	48/EEC or 1999/45/EC
F; R11 Xn; R20 Xn; R65		
R52/53 Full toxt of P phr	ases: see section 16	
Full text of K-phr	2555. 566 56011011 10	
	HS-US)	
Classification (		
Classification ( Flam. Liq. 3 Skin Irrit. 2	H226 H315	

 Eye Irrit. 2A
 H319

 STOT SE 3
 H336

 Asp. Tox. 1
 H304

 Aquatic Acute 3
 H402

 Aquatic Chronic 3
 H412

Adverse physicochemical, human health and environmental effects

Central Nervous System.

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Labeling according to Regulation (EC) No	5. 1272/2008 [CLP]
Hazard pictograms (CLP)	
Signal word (CLP)	GHS02 GHS07 GHS08 : Danger
Hazardous ingredients	: N-NONANE UNLABELED
Hazard statements (CLP)	<ul> <li>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 H412 - Harmful to aquatic life with long lasting effects</li> </ul>
Precautionary statements (CLP)	<ul> <li>P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking</li> <li>P233 - Keep container tightly closed</li> <li>P240 - Ground/bond container and receiving equipment</li> <li>P241 - Use explosion-proof electrical, lighting, ventilating equipment</li> <li>P261 - Avoid breathing fume, mist, spray, vapors</li> <li>P264 - Wash both hands thoroughly after handling</li> <li>P271 - Use only outdoors or in a well-ventilated area</li> <li>P273 - Avoid release to the environment</li> </ul>
GHS-US labeling	
Hazard pictograms (GHS-US)	
	GHS02 GHS07 GHS08
Signal word (GHS-US) Hazard statements (GHS-US)	<ul> <li>Danger</li> <li>H226 - Flammable liquid and vapor</li> <li>H304 - May be fatal if swallowed and enters airways</li> <li>H315 - Causes skin irritation</li> <li>H319 - Causes serious eye irritation</li> <li>H336 - May cause drowsiness or dizziness</li> <li>H402 - Harmful to aquatic life</li> <li>H412 - Harmful to aquatic life with long lasting effects</li> </ul>
Precautionary statements (GHS-US)	<ul> <li>P210 - Keep away from heat, hot surfaces, open flames, sparks No smoking P233 - Keep container tightly closed P240 - Ground/bond container and receiving equipment P241 - Use explosion-proof electrical, 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/physician P302+P352 - IF ON SKIN: Wash with plenty of soap and water P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing, Rinse skin with water/shower P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing P312 - Call a POISON CENTER/doctor/physician if you feel unwell P331 - If swallowed, do NOT induce vomiting P332+P313 - If skin irritation occurs: Get medical advice/attention P337+P313 - If eye irritation persists: Get medical advice/attention</li> </ul>

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P370+P378 - In case of fire: Use Alcohol resistant foam., Carbon dioxide., Dry chemical., Water spray for extinction

P403+P233 - Store in a well-ventilated place. Keep container tightly closed

P403+P235 - Store in a well-ventilated place. Keep cool

P405 - Store locked up

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

#### 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	98.07146904	R10 Xn; R20 Xn; R65 R67
ISOOCTANE UNLABELED	(CAS No) 540-84-1 (EC no) 208-759-1 (EC index no) 601-009-00-8	1.92851813	F; R11 Xi; R38 N; R50/53 R67
1,2,3,4-TCDD	(CAS No) 1746-01-6	0.00000348	Muta.Cat.3; R68 T+; R27 Xn; R65 R53
1,2,3,4,5,6,7-HEPTACN (13C10, 98%)	(CAS No) 58863-14-2 (Unlabeled) (EC no) 215-320-8 (EC index no) 602-041-00-5	0.00000139	Xn; R20/21 Xi; R36/37/38 N; R50/53
1,2,3,4,5,7-HEXACN (13C10, 99%)	(CAS No) 67922-27-4 (Unlabeled)	0.00000139	Xn; R22 Xi; R41 Xi; R38 N; R50/53 R48
1,2,3,4-TETRACN (13C10, 99%)	(CAS No) 20020-02-4 (Unlabeled)	0.00000139	Xn; R22
1,2,3,5,7-PENTACN (13C10, 99%)	(CAS No) 53555-65-0 (Unlabeled) (EC no) 215-320-8 (EC index no) 602-041-00-5	0.00000139	Xn; R20/21 Xi; R36/37/38 N; R50/53
1,2,3,5,6,7-HEXACN (13C10, 98%)	(CAS No) 103426-97-7 (Unlabeled) (EC no) 215-320-8 (EC index no) 602-041-00-5	0.00000139	Xn; R20/21 Xi; R36/37/38 N; R50/53
OCTACN (13C10, 99%)	(CAS No) 2234-13-1 (Unlabeled) (EC no) 218-778-7	0.00000139	Xn; R22 R53
1,2,3,5,6,7-HEXACN UNLABELED	(CAS No) 103426-97-7 (Unlabeled) (EC no) 215-320-8 (EC index no) 602-041-00-5	0.00000013	Xn; R20/21 Xi; R36/37/38 N; R50/53
1,2,3,5,6,8-HEXACN UNLABELED	(CAS No) 103426-95-5 (Unlabeled) (EC no) 215-320-8 (EC index no) 602-041-00-5	0.00000013	Xn; R20/21 Xi; R36/37/38 N; R50/53
OCTACHLORONAPHTHALENE UNLABELED	(CAS No) 2234-13-1 (Unlabeled) (EC no) 218-778-7	0.00000013	Xn; R22 R53
1,2,3,5,7-PENTACN UNLABELED	(CAS No) 53555-65-0 (Unlabeled) (EC no) 215-320-8 (EC index no) 602-041-00-5	0.00000013	Xn; R20/21 Xi; R36/37/38 N; R50/53
1,2,3,4,6,7-HEXACN UNLABELED	(CAS No) 103426-96-6 (Unlabeled) (EC no) 215-320-8 (EC index no) 602-041-00-5	0.00000013	Xn; R20/21 Xi; R36/37/38 N; R50/53

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1,2,3,4,5,6,7-HEPTACN UNLABELED	(CAS No) 58863-14-2 (Unlabeled) (EC no) 215-320-8 (EC index no) 602-041-00-5	0.00000013	Xn; R20/21 Xi; R36/37/38 N; R50/53
1,2,3,4-TETRACHLORONAPHTHALENE UNLABELED	(CAS No) 20020-02-4 (Unlabeled)	0.00000013	Xn; R22
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	98.07146904	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 (EC no) 208-759-1 (EC index no) 601-009-00-8	1.92851813	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
1,2,3,4-TCDD	(CAS No) 1746-01-6	0.00000348	Acute Tox. 1 (Dermal), H310 Muta. 2, H341 STOT SE 2, H371 Asp. Tox. 1, H304 Aquatic Chronic 4, H413
1,2,3,4,5,6,7-HEPTACN (13C10, 98%)	(CAS No) 58863-14-2 (Unlabeled) (EC no) 215-320-8 (EC index no) 602-041-00-5	0.00000139	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT RE 1, H372 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
1,2,3,4,5,7-HEXACN (13C10, 99%)	(CAS No) 67922-27-4 (Unlabeled)	0.00000139	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
1,2,3,4-TETRACN (13C10, 99%)	(CAS No) 20020-02-4 (Unlabeled)	0.00000139	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Aquatic Chronic 4, H413
1,2,3,5,7-PENTACN (13C10, 99%)	(CAS No) 53555-65-0 (Unlabeled) (EC no) 215-320-8 (EC index no) 602-041-00-5	0.00000139	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT RE 1, H372 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
1,2,3,5,6,7-HEXACN (13C10, 98%)	(CAS No) 103426-97-7 (Unlabeled) (EC no) 215-320-8 (EC index no) 602-041-00-5	0.00000139	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT RE 1, H372 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
OCTACN (13C10, 99%)	(CAS No) 2234-13-1 (Unlabeled) (EC no) 218-778-7	0.00000139	Acute Tox. 4 (Oral), H302 Aquatic Chronic 4, H413
1,2,3,5,6,7-HEXACN UNLABELED	(CAS No) 103426-97-7 (Unlabeled) (EC no) 215-320-8 (EC index no) 602-041-00-5	0.00000013	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 1, H370 STOT SE 2, H371 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
1,2,3,5,6,8-HEXACN UNLABELED	(CAS No) 103426-95-5 (Unlabeled) (EC no) 215-320-8 (EC index no) 602-041-00-5	0.00000013	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT RE 1, H372 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
OCTACHLORONAPHTHALENE UNLABELED	(CAS No) 2234-13-1 (Unlabeled) (EC no) 218-778-7	0.00000013	Acute Tox. 4 (Oral), H302 Aquatic Chronic 4, H413

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
1,2,3,5,7-PENTACN UNLABELED	(CAS No) 53555-65-0 (Unlabeled) (EC no) 215-320-8 (EC index no) 602-041-00-5	0.00000013	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT RE 1, H372 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
1,2,3,4,6,7-HEXACN UNLABELED	(CAS No) 103426-96-6 (Unlabeled) (EC no) 215-320-8 (EC index no) 602-041-00-5	0.00000013	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT RE 1, H372 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
1,2,3,4,5,6,7-HEPTACN UNLABELED	(CAS No) 58863-14-2 (Unlabeled) (EC no) 215-320-8 (EC index no) 602-041-00-5	0.00000013	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT RE 1, H372 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
1,2,3,4-TETRACHLORONAPHTHALENE UNLABELED	(CAS No) 20020-02-4 (Unlabeled)	0.00000013	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Aquatic Chronic 4, H413
Name	Product identifier	%	Classification (GHS-US)
N-NONANE UNLABELED	(CAS No) 111-84-2	98.07146904	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H336 Asp. Tox. 1, H304
ISOOCTANE UNLABELED	(CAS No) 540-84-1	1.92851813	Flam. Liq. 1, H224 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
1,2,3,4-TCDD	(CAS No) 1746-01-6	0.00000348	Acute Tox. 1 (Dermal), H310 STOT SE 2, H371 Asp. Tox. 1, H304

Full text of R-, H- and EUH-phrases: see section 16

SECTION 4: First aid measures	
4.1. Description of first aid measure	S
First-aid measures general	: Move out of dangerous area. Consult a physician and show this safety data sheet.
First-aid measures after inhalation	: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.
First-aid measures after skin contact	: 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	: Immediately call a POISON CENTER or doctor/physician.
4.2. Most important symptoms and	effects, both acute and delayed
Symptoms/injuries after inhalation	: May cause drowsiness or dizziness.
Symptoms/injuries after skin contact	: Causes skin irritation.
Symptoms/injuries after eye contact	: Causes eye irritation.
Symptoms/injuries after ingestion	: May be fatal if swallowed and enters airways.
4.3. Indication of any immediate me	dical attention and special treatment needed

4.3. Indication of any immediate medical attention and special treatment need

No additional information available

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SECTION 5: Firefighting	-		r, March 26, 2012 / Rules and Regulations	
5.1. Extinguishing media				
suitable extinguishing media	: For sı fires, a misi	apply water from as far as possi	cohol" foam, dry chemical, or carbon dioxide. For large ble. Use very large quantities (flooding) of water applied as r may be ineffective. Cool all affected containers with	
5.2. Special hazards aris	ing from the substance o	or mixture		
Fire hazard	: Highly	y flammable liquid and vapor.		
Explosion hazard	: May f	orm flammable/explosive vapor-	air mixture.	
Reactivity	: Vapor	rs may form explosive mixture w	ith air.	
5.3. Advice for firefighter	'S			
Firefighting instructions	: Use v	vater spray to cool unopened co	ntainers.	
Protection during firefighting	: Do no	ot enter fire area without proper p	protective equipment, including respiratory protection.	
SECTION 6: Accidental	release measures			
6.1. Personal precaution	s, protective equipment	and emergency procedures		
General measures	: Remo smok		care to avoid static electric charges. No naked lights. No	
6.1.1. For non-emergency	personnel			
Emergency procedures	ventila	ation. Remove all sources of ign	void breathing vapors, mist or gas. Ensure adequate ition. Evacuate personnel to safe areas. Beware of vapours entrations. Vapours can accumulate in low areas.	
6.1.2. For emergency response				
6.2. Environmental preca	utions			
Avoid release to the environmer	ıt.			
6.3. Methods and materia	al for containment and cl	leaning up		
For containment		ain spillage, then collect with non dance with applicable Federal, S	-combustible absorbent material. Disposal should be in State and local regulations.	
6.4. Reference to other s	ections			
No additional information availal	ole			
<b>SECTION 7: Handling ar</b>	nd storage			
7.1. Precautions for safe	-			
Additional hazards when proces	sed : Hand	le empty containers with care be	ecause residual vapors are flammable.	
Precautions for safe handling		aked lights. No smoking. Use onl ated area.	y non-sparking tools. Use only outdoors or in a well-	
Hygiene measures			strial hygiene and safety practice. Wash hands before	
7.2. Conditions for safe storage, including any incompatibilities				
Technical measures	: Prope	<ul> <li>Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.</li> </ul>		
Storage conditions		Store at room temperature away from light and moisture.		
Incompatible materials				
7.3. Specific end use(s)				
No additional information availab	ole			
SECTION 8: Exposure c	ontrols/pers <u>onal pr</u>	otection		
8.1. Control parameters				
PCN CALIBRATION SOLUTIO	ON CS3 (UNLABELED/13	C10, 99%) IN NONANE		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)		200.0000000000 ppm Central Nervous System impairment.	
N-NONANE UNLABELED (111-84-2)				
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)		200.0000000000 ppm Central Nervous System impairment.	

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1,2,3,4,6,7-HEXACN UNLABELED (103426-96-6 (Unlabeled))			
USA OSHA	OSHA PEL (TWA) (mg/m3)	0.200000000 mg/m³ Skin	
1,2,3,5,7-PENTACN UNLABE	LED (53555-65-0 (Unlabeled))		
Italy - Portugal - USA ACGIH	ACGIH TWA (mg/m³)	0.500000000 mg/m³ Skin	
USA OSHA	OSHA PEL (TWA) (mg/m3)	0.500000000 mg/m³ Skin	
1,2,3,5,7-PENTACN (13C10, 99%) (53555-65-0 (Unlabeled))			
Italy - Portugal - USA ACGIH	ACGIH TWA (mg/m³)	0.500000000 mg/m³ Skin	
USA OSHA	OSHA PEL (TWA) (mg/m3)	0.500000000 mg/m³ Skin	

#### 8.2. Exposure controls

Personal protective equipment

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



Hand protection	: Wear suitable protective clothing and gloves.
Eye protection	: Wear safety glasses with side shields (or goggles) and a face shield.
Skin and body protection	: Wear suitable protective clothing.
Respiratory protection	: Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. Wear respiratory protection.

SECTION 9: Physical and chemical properties			
·			
Physical state	: Liquid		
Appearance	: Liquid.		
Molecular mass	: 128.3		
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	: -53 °C (- 63 °F) - lit		
Freezing point	: No data available		
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

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SECTION 10: Stability and reactivity		
10.1. Reactivity		
Vapors may form explosive mixture with air.		
10.2. Chemical stability		
See storage and expiration date on CoA.		
10.3. Possibility of hazardous reactions		
No additional information available		
10.4. Conditions to avoid		
Open flame. Direct sunlight.		
10.5. Incompatible materials		
Strong oxidizing agents.		
10.6. Hazardous decomposition products		
May release flammable gases.		
SECTION 11: Toxicological information	n	
11.1. Information on toxicological effects		
Acute toxicity	Harmful if inhaled.	
PCN CALIBRATION SOLUTION CS3 (UNLABE	LED/13C10, 99%) IN NONANE	
LC50 inhalation rat (ppm)	3200 ppm/4h	
ATE (gases)	3200.000 ppmV/4h	
ATE (vapors)	11.000 mg/l/4h	
ATE (dust, mist)	1.500 mg/l/4h	
N-NONANE UNLABELED (111-84-2)		
LC50 inhalation rat (ppm)	3200 ppm/4h	
ATE (dust, mist)	1.500 mg/l/4h	
ATE (oral)	500.000 mg/kg body weight	
1,2,3,4,5,6,7-HEPTACN (13C10, 98%) (58863-14	· · · · ·	
ATE (oral)	500.000 mg/kg body weight	
1,2,3,5,6,8-HEXACN UNLABELED (103426-95-	5 (Unlabeled))	
ATE (oral)	500.000 mg/kg body weight	
1,2,3,5,6,7-HEXACN UNLABELED (103426-97-	7 (Unlabeled))	
ATE (oral)	500.000 mg/kg body weight	
1,2,3,4,6,7-HEXACN UNLABELED (103426-96-6	6 (Unlabeled))	
ATE (oral)	500.000 mg/kg body weight	
1,2,3,5,7-PENTACN UNLABELED (53555-65-0	(Unlabeled))	
ATE (oral)	500.000 mg/kg body weight	
1,2,3,4-TETRACHLORONAPHTHALENE UNLA	BELED (20020-02-4 (Unlabeled))	
ATE (oral) 500.000 mg/kg body weight		
1,2,3,4,5,6,7-HEPTACN UNLABELED (58863-14	4-2 (Unlabeled))	
ATE (oral)	500.000 mg/kg body weight	
1,2,3,4-TETRACN (13C10, 99%) (20020-02-4 (U	nlabeled))	
ATE (oral)	500.000 mg/kg body weight	
1,2,3,5,7-PENTACN (13C10, 99%) (53555-65-0 (Unlabeled))		
ATE (oral)	500.000 mg/kg body weight	
1,2,3,5,6,7-HEXACN (13C10, 98%) (103426-97-	· · · · ·	
ATE (oral) 500.000 mg/kg body weight		
1,2,3,4,5,7-HEXACN (13C10, 99%) (67922-27-4		
ATE (oral)	500.000 mg/kg body weight	

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OCTACN (13C10, 99%) (2234-13-1 (Unlabeled))				
ATE (oral)	500.000 mg/kg body weight			
1,2,3,4-TCDD (1746-01-6)				
LD50 oral	0.013 mg/kg			
LD50 dermal	0.275 mg/kg			
ATE (dermal)	5.000 mg/kg body weight			
Skin corrosion/irritation	: Causes skin irritation.			
	Skin - rat - Skin irritation - Draize test			
Serious eye damage/irritation	: Causes serious eye irritation.			
	No data available			
Respiratory or skin sensitization	: Not available			
	No data available			
Germ cell mutagenicity	: Not available			
Carcinogenicity	: Not classified			
Reproductive toxicity	: Not available			
Specific target organ toxicity (single exposure)	: May cause drowsiness or dizziness.			
	May cause drowsiness or dizziness.			
Specific target organ toxicity (repeated	: Not classified			
exposure)	No data available			
Aspiration hazard	: May be fatal if swallowed and enters airways.			
Potential Adverse human health effects and symptoms	: The chemical, physical, and toxicological properties have not been thoroughly investigated.			
Symptoms/injuries after inhalation	: May cause drowsiness or dizziness.			
Symptoms/injuries after skin contact	: Causes skin irritation.			
Symptoms/injuries after eye contact	: Causes eye irritation.			
Symptoms/injuries after ingestion	: May be fatal if swallowed and enters airways.			

SECT	ION 12: Ecolo	al information	
12.1.	Toxicity		
Ecology	/ - water	: Harmful to aquatic life with long lasting effects.	

OCTACHLORONAPHTHALENE UNLABELED (2234-13-1 (Unlabeled))		
LC50 fish 1	> 600 mg/l Lepomis macrochirus (Bluegill) - 96 h	
EC50 Daphnia 1	> 530 mg/l Daphnia magna (Water flea) - 48 h	
ErC50 (algae)	> 500 mg/l Pseudokirchneriella subcapitata (green algae) - 72 h	
NOEC (chronic)	560 mg/l Cyprinodon variegatus (sheepshead minnow) - 96 h	
OCTACN (13C10, 99%) (2234-13-1 (Unlabeled))		
LC50 fish 1	> 600 mg/l Lepomis macrochirus (Bluegill) - 96 h	
EC50 Daphnia 1	> 530 mg/l Daphnia magna (Water flea) - 48 h	
ErC50 (algae)	> 500 mg/l Pseudokirchneriella subcapitata (green algae) - 72 h	
NOEC (chronic)	560 mg/l Cyprinodon variegatus (sheepshead minnow) - 96 h	

#### 12.2. Persistence and degradability

PCN CALIBRATION SOLUTION CS3 (UNLABELED/13C10, 99%) IN NONANE		
Persistence and degradability	May cause long-term adverse effects in the environment.	
N-NONANE UNLABELED (111-84-2)		
Persistence and degradability	Not available.	
ISOOCTANE UNLABELED (540-84-1)		
Persistence and degradability	Not available.	
OCTACHLORONAPHTHALENE UNLABELED (2234-13-1 (Unlabeled))		
Persistence and degradability	Not available.	
1,2,3,4,5,6,7-HEPTACN (13C10, 98%) (58863-14-2 (Unlabeled))		
Persistence and degradability	No data available.	

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1,2,3,5,6,8-HEXACN UNLABELED (103426-95-	5 (Unlabeled))
Persistence and degradability	No data available.
1,2,3,5,6,7-HEXACN UNLABELED (103426-97-	7 (Unlabeled))
Persistence and degradability	No data available.
1,2,3,4,6,7-HEXACN UNLABELED (103426-96-	
Persistence and degradability	No data available.
1,2,3,5,7-PENTACN UNLABELED (53555-65-0	(Unlabeled))
Persistence and degradability	No data available.
1,2,3,4-TETRACHLORONAPHTHALENE UNLA	\BELED (20020-02-4 (Unlabeled))
Persistence and degradability	Not available.
1,2,3,4,5,6,7-HEPTACN UNLABELED (58863-1	4.2 (Unicholod))
Persistence and degradability	No data available.
• •	
1,2,3,4-TETRACN (13C10, 99%) (20020-02-4 (L	
Persistence and degradability	Not available.
1,2,3,5,7-PENTACN (13C10, 99%) (53555-65-0	(Unlabeled))
Persistence and degradability	No data available.
1,2,3,5,6,7-HEXACN (13C10, 98%) (103426-97- Persistence and degradability	No data available.
	I
1,2,3,4,5,7-HEXACN (13C10, 99%) (67922-27-4	
Persistence and degradability	Not available.
OCTACN (13C10, 99%) (2234-13-1 (Unlabeled	
Persistence and degradability	Not available.
•	· · · · · · · · · · · · · · · · · · ·
12.3. Bioaccumulative potential	
PCN CALIBRATION SOLUTION CS3 (UNLABE	
Log Pow	5.65
Bioaccumulative potential	Indication of bioaccumulation.
N-NONANE UNLABELED (111-84-2)	
Log Pow	5.65
Bioaccumulative potential	Indication of bioaccumulation.
ISOOCTANE UNLABELED (540-84-1)	
Bioaccumulative potential	Not available.
OCTACHLORONAPHTHALENE UNLABELED	
Log Pow Bioggoumulative potential	6.42 Not evollable
Bioaccumulative potential	Not available.
1,2,3,4,5,6,7-HEPTACN (13C10, 98%) (58863-1	4-2 (Unlabeled))
Bioaccumulative potential	No data available.
1,2,3,5,6,8-HEXACN UNLABELED (103426-95-	5 (Unlabeled))
Log Pow	6.88
Bioaccumulative potential	No data available.
1,2,3,5,6,7-HEXACN UNLABELED (103426-97-	
Log Pow	6.88 No data available.
Bioaccumulative potential	I
	6 (Unlabeled))
1,2,3,4,6,7-HEXACN UNLABELED (103426-96-	
Log Pow	6.88
Log Pow	6.88 No data available.
Log Pow Bioaccumulative potential	6.88 No data available.
Log Pow Bioaccumulative potential 1,2,3,5,7-PENTACN UNLABELED (53555-65-0	6.88 No data available. (Unlabeled))
Log Pow Bioaccumulative potential 1,2,3,5,7-PENTACN UNLABELED (53555-65-0 Log Pow Bioaccumulative potential	6.88         No data available.         (Unlabeled))         6.88         No data available.
Log Pow Bioaccumulative potential 1,2,3,5,7-PENTACN UNLABELED (53555-65-0 Log Pow Bioaccumulative potential 1,2,3,4-TETRACHLORONAPHTHALENE UNLA	6.88         No data available.         (Unlabeled))         6.88         No data available.         BELED (20020-02-4 (Unlabeled))
Log Pow Bioaccumulative potential 1,2,3,5,7-PENTACN UNLABELED (53555-65-0 Log Pow Bioaccumulative potential	6.88         No data available.         (Unlabeled))         6.88         No data available.

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1,2,3,4-TETRACHLORONAPHTHALENE UNLA	
Bioaccumulative potential	Not available.
1,2,3,4,5,6,7-HEPTACN UNLABELED (58863-1	4-2 (Unlabeled))
Log Pow	6.88
Bioaccumulative potential	No data available.
1,2,3,4-TETRACN (13C10, 99%) (20020-02-4 (U	Inlabeled))
Log Pow	5.314
Bioaccumulative potential	Not available.
1,2,3,5,7-PENTACN (13C10, 99%) (53555-65-0	(Unlabeled))
Bioaccumulative potential	No data available.
1,2,3,5,6,7-HEXACN (13C10, 98%) (103426-97-	7 (   n abalad))
Bioaccumulative potential	No data available.
1,2,3,4,5,7-HEXACN (13C10, 99%) (67922-27-4	
Bioaccumulative potential	Not available.
OCTACN (13C10, 99%) (2234-13-1 (Unlabeled)	
Log Pow	6.42
Bioaccumulative potential	Not available.
12.4. Mobility in soil	
PCN CALIBRATION SOLUTION CS3 (UNLABE	ELED/13C10, 99%) IN NONANE
Ecology - soil	Not available.
N-NONANE UNLABELED (111-84-2)	
Ecology - soil	Not available.
••	
ISOOCTANE UNLABELED (540-84-1) Ecology - soil	Not available.
OCTACHLORONAPHTHALENE UNLABELED	
Ecology - soil	Not available.
1,2,3,4,5,6,7-HEPTACN (13C10, 98%) (58863-1	4-2 (Unlabeled))
Ecology - soil	No data available.
1,2,3,5,6,8-HEXACN UNLABELED (103426-95-	5 (Unlabeled))
Ecology - soil	No data available.
1,2,3,5,6,7-HEXACN UNLABELED (103426-97-	7 (Unlabeled))
Ecology - soil	No data available.
1,2,3,4,6,7-HEXACN UNLABELED (103426-96-	6 (Unlabeled)) No data available.
Ecology - soil	
1,2,3,5,7-PENTACN UNLABELED (53555-65-0	
Ecology - soil	No data available.
1,2,3,4-TETRACHLORONAPHTHALENE UNLA	BELED (20020-02-4 (Unlabeled))
Ecology - soil	Not available.
1,2,3,4,5,6,7-HEPTACN UNLABELED (58863-14	4-2 (Unlabeled))
Ecology - soil	No data available.
1,2,3,4-TETRACN (13C10, 99%) (20020-02-4 (U Ecology - soil	Nabeled)) Not available.
1,2,3,5,7-PENTACN (13C10, 99%) (53555-65-0	
Ecology - soil	No data available.
1,2,3,5,6,7-HEXACN (13C10, 98%) (103426-97-	7 (Unlabeled))
	NI 1
Ecology - soil	No data available.
Ecology - soil	

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### Safety Data Sheet

OCTACN (13C10, 99%) (2234-13-1 (Unlabele	
Ecology - soil	Not available.
12.5. Results of PBT and vPvB assessme	ent
No additional information available	
12.6. Other adverse effects	
Other adverse effects	: An environmental hazard cannot be excluded in the event of unprofessional handling or dispose Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment
SECTION 13: Disposal consideration	ns
13.1. Waste treatment methods	
Regional legislation (waste)	: Waste materials should be disposed of under conditions which meet Federal, State, and Local environmental control regulations.
Waste disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations.
Additional information	: Handle empty containers with care because residual vapors are flammable.
Ecology - waste materials	: Hazardous waste due to toxicity.
SECTION 14: Transport information	
In accordance with ADR / RID / ADNR / IMDG /	
14.1. UN number	
JN-No.(DOT)	: 1920
DOT NA no.	UN1920
I4.2. UN proper shipping name	· Nenanaa
DOT Proper Shipping Name Department of Transportation (DOT) Hazard	: Nonanes : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Classes Hazard labels (DOT)	: 3 - Flammable liquid
	3
Packing group (DOT) DOT Special Provisions (49 CFR 172.102)	<ul> <li>III - Minor Danger</li> <li>B1 - If the material has a flash point at or above 38 C (100 F) and below 93 C (200 F), then the bulk packaging requirements of 173.241 of this subchapter are applicable. If the material has a flash point of less than 38 C (100 F), then the bulk packaging requirements of 173.242 of this subchapter are applicable.</li> <li>IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquid with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 5 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Tabl 2 for UN2672).</li> <li>T2 - 1.5 178.274(d)(2) Normal</li></ul>
DOT Packaging Exceptions (49 CFR 173.xxx)	: 150
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 203
DOT Packaging Bulk (49 CFR 173.xxx)	: 242
14.3. Additional information	
Other information	: No supplementary information available.
Overland transport	
Packing group (ADR)	: III - D. Flemmahla Kasid
Class (ADR)	: 3 - Flammable liquid
Hazard identification number (Kemler No.)	: 30
Classification code (ADR)	: F1

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according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Danger labels (ADR)	: 3 - Flammable liquids
Orange plates	30 1920
Tunnel restriction code	: D/E
Limited quantities (ADR)	5L
EAC	: 3Y
Excepted quantities (ADR)	: E1
Transport by sea	
DOT Vessel Stowage Location	: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
MFAG-No	: 128
Air transport	
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 60 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 220 L
Civil Aeronautics Law	: Flammable liquids
14.4. Environmental hazards	
Other information	: No supplementary information available.
14.5. Special precautions for user	
	ex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information		
15.1. US Federal regulations		
PCN CALIBRATION SOLUTION CS3 (UNLA	BELED/13C10, 99%) IN NONANE	
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard	
N-NONANE UNLABELED (111-84-2)		
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard	
ISOOCTANE UNLABELED (540-84-1)		
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard	
1,2,3,4-TCDD (1746-01-6)		
Not listed on the United States TSCA (Toxic Substances Control Act) inventory		

### 15.2. International regulations

### CANADA

PCN CALIBRATION SOLUTION CS3 (UNLABELED/13C10, 99%) IN NONANE

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

#### 15.2.1. National regulations

No additional information available

### NONANE ECN-5489-CS3

### 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

15.3. US State regulations		
PCN CALIBRATION SOLUTION CS3 (UNLABELED/13C10, 99%) 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.

#### 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.

#### 1,2,3,4-TCDD (1746-01-6)

WARNING! This product contains a chemical known to the state of California to cause cancer, birth defects, or 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::

text of R, Tr and Eori phrases			
Acute Tox. 1 (Dermal)	Acute toxicity (dermal) Category 1		
Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4		
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4		
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1		
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1		
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3		
Aquatic Chronic 4	Hazardous to the aquatic environment - Chronic Hazard Category 4		
Asp. Tox. 1	Aspiration hazard Category 1		
Eye Dam. 1	Serious eye damage/eye irritation Category 1		
Eye Irrit. 2	Serious eye damage/eye irritation Category 2		
Flam. Liq. 2	Flammable liquids Category 2		
Flam. Liq. 3	Flammable liquids Category 3		
Muta. 2	Germ cell mutagenicity Category 2		
Skin Irrit. 2	skin corrosion/irritation Category 2		
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1		
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2		
STOT SE 1	Specific target organ toxicity (single exposure) Category 1		
STOT SE 2	Specific target organ toxicity (single exposure) Category 2		
STOT SE 3	Specific target organ toxicity (single exposure) Category 3		
H225	Highly flammable liquid and vapor		
H226	Flammable liquid and vapor		
H302	Harmful if swallowed		
H304	May be fatal if swallowed and enters airways		
H310	Fatal in contact with skin		
H315	Causes skin irritation		
H318	Causes serious eye damage		
H319	Causes serious eye irritation		
H332	Harmful if inhaled		

### NONANE ECN-5489-CS3

### 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

H336	May cause drowsiness or dizziness
H341	Suspected of causing genetic defects
H370	Causes damage to organs
H371	May cause damage to organs
H372	Causes damage to organs through prolonged or repeated exposure
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
H412	Harmful to aquatic life with long lasting effects
H413	May cause long lasting harmful effects to aquatic life
R10	Flammable
R11	Highly flammable
R20	Harmful by inhalation
R20/21	Harmful by inhalation and in contact with skin
R22	Harmful if swallowed
R27	Very toxic in contact with skin
R36/37/38	Irritating to eyes, respiratory system and skin
R38	Irritating to skin
R41	Risk of serious damage to eyes
R48	Danger of serious damage to health by prolonged exposure
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R53	May cause long-term adverse effects in the aquatic environment
R65	Harmful: may cause lung damage if swallowed
R67	Vapors may cause drowsiness and dizziness
R68	Possible risk of irreversible effects
F	Highly flammable
N	Dangerous for the environment
T+	Very toxic
Xi	Irritant
Xn	Harmful

NFPA health hazard	: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.	3
NFPA fire hazard	: 3 - Liquids and solids that can be ignited under almost all ambient conditions.	2 0
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 Multi-Solvent 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