



CUSTOM 16 PAH LABELED MIXTURE (13C; D) IN NONANE

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: 11/12/2015

Revision date:

Version: 1.0

ES-5546

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixtures
Product name : CUSTOM 16 PAH LABELED MIXTURE (13C; D) IN NONANE
Product code : ES-5546

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category : Professional use
Industrial/Professional use spec : For professional use only.
Industrial.

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.
50 Frontage Road
Andover, MA 01810
USA

USA: 1-800-322-1174 Int: 1-978-749-8000
cilsales@isotope.com www.isotope.com

Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)
International: 1-703-741-5970 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 3 H226
Acute Tox. 4 (Inhalation) H332
Skin Irrit. 2 H315
Eye Irrit. 2 H319
STOT SE 3 H336
Asp. Tox. 1 H304

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC or 1999/45/EC

Xn; R65
Xi; R38
R10
R67

Full text of R-phrases: see section 16

Classification (GHS-US)

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

Adverse physicochemical, human health and environmental effects

Central Nervous System.

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2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) :

Danger

Hazard statements (CLP) :

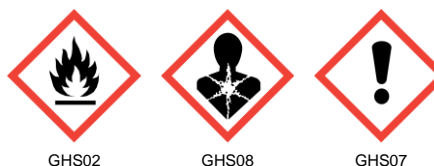
H226 - Flammable liquid and vapor
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H336 - May cause drowsiness or dizziness

Precautionary statements (CLP) :

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical, lighting, ventilating equipment
P261 - Avoid breathing dust, fume, gas, mist, spray, vapors
P264 - Wash Both hands thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective clothing, protective gloves

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

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

Precautionary statements (GHS-US) :

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 dust, fume, gas, mist, spray, vapors
P264 - Wash Both hands thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective clothing, protective gloves
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P352 - IF ON SKIN: Wash with plenty of soap and water
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312 - Call a POISON CENTER/doctor/physician if you feel unwell
P321 - Specific treatment (see Hazard pictograms (CLP) on this label)
P331 - If swallowed, do NOT induce vomiting
P332+P313 - If skin irritation occurs: Get medical advice/attention
P337+P313 - If eye irritation persists: Get medical advice/attention
P362 - Take off contaminated clothing and wash before reuse
P370+P378 - In case of fire: Use 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

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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	99.99999652	R10 Xn; R20 Xn; R65 R67 Xi; R38
NAPHTHALENE (13C10, 99%)	(CAS No) 219526-41-7 (EC no) 202-049-5 (Unlabeled) (EC index no) 601-052-00-2 (Unlabeled)	0.00000139	Carc.Cat.3; R40 Xn; R22 N; R50/53
BENZO[C]PHENANTHRENE (1,2,3,4,4A,4B-13C6, 99%)	(CAS No) 195-19-7 (Unlabeled) (EC no) 205-896-9	0.00000014	Xi; R36/37/38 Xn; R20/21/22
CYCLOPENTA[CD]PYRENE (13C6, 99%)	(CAS No) 27208-37-3 (Unlabeled)	0.00000014	Carc.Cat.1; R45
5-METHYLCHRYSENE (13C6, 99%)	(CAS No) 3697-24-3 (Unlabeled)	0.00000014	Carc.Cat.3; R40 Xn; R22 Xi; R41 N; R50/53
CHRYSENE (13C6, 99%)	(CAS No) 218-01-9 (Unlabeled) (EC no) 205-923-4 (Unlabeled)	0.00000014	Muta.Cat.3; R68 Carc.Cat.1; R45 Carc.Cat.1; R49 N; R50/53
BENZ[A]ANTHRACENE (13C6, 99%)	(CAS No) 56-55-3 (Unlabeled) (EC no) 200-280-6 (EC index no) 601-033-00-9	0.00000014	Carc.Cat.1; R45 N; R50/53
DIBENZO[A,H]PYRENE (13C12, 99%)	(CAS No) 189-64-0 (Unlabeled)	0.00000014	Carc.Cat.1; R45 Carc.Cat.1; R49 Muta.Cat.3; R68 N; R50/53
DIBENZO[A,L]PYRENE (13C6, 99%)	(CAS No) 191-30-0 (Unlabeled) (EC no) 205-886-4	0.00000014	Carc.Cat.1; R45 Carc.Cat.1; R49 Xn; R22 Xi; R41
DIBENZO[A,I]PYRENE (13C12, 99%)	(CAS No) 189-55-9 (Unlabeled) (EC no) 205-877-5	0.00000014	Carc.Cat.3; R40
BENZO[B]FLUORANTHENE (13C6, 99%)	(CAS No) 205-99-2 (Unlabeled) (EC no) 205-911-9 (EC index no) 601-034-00-4	0.00000014	Carc.Cat.1; R45 Xn; R65 N; R50/53
BENZO[K]FLUORANTHENE (13C6, 99%)	(CAS No) 93952-01-3 (EC no) 205-916-6 (EC index no) 601-036-00-5	0.00000014	Carc.Cat.1; R45 Xi; R36/38 N; R50/53
INDENO[1,2,3-CD]PYRENE (13C6, 99%)	(CAS No) 193-39-5 (Unlabeled) (EC no) 205-893-2 (Unlabeled)	0.00000014	Carc.Cat.3; R40
DIBENZ[A,H]ANTHRACENE (13C6, 99%)	(CAS No) 13250-98-1 (EC no) 200-181-8 (Unlabeled) (EC index no) 601-041-00-2 (Unlabeled)	0.00000014	Carc.Cat.1; R45 N; R50/53
DIBENZO[A,E]PYRENE (13C6, 99%)	(CAS No) 192-65-4 (Unlabeled) (EC no) 205-891-1	0.00000014	Xi; R41 R53 Carc.Cat.3; R40
BENZO[A]PYRENE (13C4, 99%)	(CAS No) 50-32-8 (Unlabeled) (EC no) 200-028-5 (EC index no) 601-032-00-3	0.00000014	Carc.Cat.1; R45 Muta.Cat.1; R46 Repr.Cat.1; R61 R42 Xi; R38 N; R50/53

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Name	Product identifier	%	Classification according to Directive 67/548/EEC
BENZ[J]ACEANTHRYLENE (13C2, 94%; D2, 94%)	(CAS No) 202-33-5 (Unlabeled)	0.00000098	Repr.Cat.1; R60 Carc.Cat.3; R40
BENZ[E]ACEANTHRYLENE (13C2, 94%; D2, 94%)	(CAS No) 199-54-2 (Unlabeled)	0.00000042	Repr.Cat.1; R60 Carc.Cat.3; R40
Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
N-NONANE UNLABELED	(CAS No) 111-84-2 (EC no) 203-913-4	99.99999652	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation:vapour), H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H336 Asp. Tox. 1, H304
NAPHTHALENE (13C10, 99%)	(CAS No) 219526-41-7 (EC no) 202-049-5 (Unlabeled) (EC index no) 601-052-00-2 (Unlabeled)	0.00000139	Flam. Sol. 1, H228 Acute Tox. 4 (Oral), H302 Carc. 2, H351 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
BENZO[C]PHENANTHRENE (1,2,3,4,4A,4B-13C6, 99%)	(CAS No) 195-19-7 (Unlabeled) (EC no) 205-896-9	0.00000014	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335
CYCLOPENTA[CD]PYRENE (13C6, 99%)	(CAS No) 27208-37-3 (Unlabeled)	0.00000014	Carc. 1A, H350
5-METHYLCHRYSENE (13C6, 99%)	(CAS No) 3697-24-3 (Unlabeled)	0.00000014	Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Carc. 2, H351 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
CHRYSENE (13C6, 99%)	(CAS No) 218-01-9 (Unlabeled) (EC no) 205-923-4 (Unlabeled)	0.00000014	Muta. 2, H341 Carc. 1A, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
BENZ[A]ANTHRACENE (13C6, 99%)	(CAS No) 56-55-3 (Unlabeled) (EC no) 200-280-6 (EC index no) 601-033-00-9	0.00000014	Carc. 1A, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
DIBENZO[A,H]PYRENE (13C12, 99%)	(CAS No) 189-64-0 (Unlabeled)	0.00000014	Muta. 2, H341 Carc. 1A, H350 Carc. 1A, H350i Aquatic Acute 1, H400 Aquatic Chronic 1, H410
DIBENZO[A,L]PYRENE (13C6, 99%)	(CAS No) 191-30-0 (Unlabeled) (EC no) 205-886-4	0.00000014	Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Carc. 1B, H350
DIBENZO[A,I]PYRENE (13C12, 99%)	(CAS No) 189-55-9 (Unlabeled) (EC no) 205-877-5	0.00000014	Carc. 2, H351
BENZO[B]FLUORANTHENE (13C6, 99%)	(CAS No) 205-99-2 (Unlabeled) (EC no) 205-911-9 (EC index no) 601-034-00-4	0.00000014	Carc. 1A, H350 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
BENZO[K]FLUORANTHENE (13C6, 99%)	(CAS No) 93952-01-3 (EC no) 205-916-6 (EC index no) 601-036-00-5	0.00000014	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Carc. 1A, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
INDENO[1,2,3-CD]PYRENE (13C6, 99%)	(CAS No) 193-39-5 (Unlabeled) (EC no) 205-893-2 (Unlabeled)	0.00000014	Carc. 2, H351
DIBENZ[A,H]ANTHRACENE (13C6, 99%)	(CAS No) 13250-98-1 (EC no) 200-181-8 (Unlabeled) (EC index no) 601-041-00-2 (Unlabeled)	0.00000014	Carc. 1B, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
DIBENZO[A,E]PYRENE (13C6, 99%)	(CAS No) 192-65-4 (Unlabeled) (EC no) 205-891-1	0.00000014	Eye Dam. 1, H318 Carc. 2, H351 Aquatic Chronic 4, H413
BENZO[A]PYRENE (13C4, 99%)	(CAS No) 50-32-8 (Unlabeled) (EC no) 200-028-5 (EC index no) 601-032-00-3	0.00000014	Not classified
BENZ[J]ACEANTHRYLENE (13C2, 94%; D2, 94%)	(CAS No) 202-33-5 (Unlabeled)	0.00000098	Carc. 2, H351 Repr. 1A, H360F
BENZ[E]ACEANTHRYLENE (13C2, 94%; D2, 94%)	(CAS No) 199-54-2 (Unlabeled)	0.00000042	Carc. 2, H351 Repr. 1A, H360F

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Name	Product identifier	%	Classification (GHS-US)
N-NONANE UNLABELED	(CAS No) 111-84-2	99.99999652	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation:vapour), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H336 Asp. Tox. 1, H304
BENZO[B]FLUORANTHENE (13C6, 99%)	(CAS No) 205-99-2 (Unlabeled)	0.00000014	Carc. 1B, H350 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

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

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
- First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.
- First-aid measures after skin contact : Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water. Wash contaminated clothing before reuse. Get medical advice/attention.
- First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled. May cause drowsiness or dizziness.
- Symptoms/injuries after skin contact : Causes skin irritation.
- Symptoms/injuries after eye contact : Causes serious eye irritation.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

- suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
- Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Extremely flammable liquid and vapor.
- Explosion hazard : May form flammable/explosive vapor-air mixture.
- Reactivity : Vapors may form explosive mixture with air.

5.3. Advice for firefighters

- Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Avoid (reject) fire-fighting water to enter environment.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Remove ignition sources. Use special care to avoid static electric charges. No naked lights. No smoking.

6.1.1. For non-emergency personnel

- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Avoid breathing dust, mist or spray. Equip cleanup crew with proper protection.
- Emergency procedures : Ventilate area.

6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

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6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

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 naked lights. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. Use only outdoors or in a well-ventilated area. Avoid breathing dust, mist or spray. Wash hands and other exposed areas with mild soap and water before eat, drink or smoke and when leaving work. Provide good ventilation in process area to prevent formation of vapor.
Hygiene measures : Wash Both hands thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Ground/bond container and receiving equipment. Use explosion-proof electrical equipment.
Storage conditions : Store at room temperature away from light and moisture.
Incompatible products : Strong bases. strong acids.
Incompatible materials : Heat sources. Sources of ignition. Direct sunlight.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

CUSTOM 16 PAH LABELED MIXTURE (13C; D) IN NONANE		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	200.000000000 ppm Central Nervous System impairment.
NAPHTHALENE (13C10, 99%) (219526-41-7)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	10 ppm Eye & Upper Respiratory Tract irritation. Hematologic effects. Eye damage.
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	15.000000000 ppm Eye & Upper Respiratory Tract irritation. Hematologic effects. Eye damage.
Italy - Portugal - USA ACGIH	Remark (ACGIH)	Parameters -1-Naphthol+2-Naphthol , Basis-ACGIH - Biological Exposure Indices (BEI), Remarks- End of shift(As soon as possible after exposure ceases)
USA NIOSH	NIOSH REL (TWA) (mg/m3)	50 mg/m ³ USA NIOSH Recommended Exposure Limits
USA NIOSH	NIOSH REL (TWA) (ppm)	10 ppm USA NIOSH Recommended Exposure Limits
USA NIOSH	NIOSH REL (STEL) (mg/m3)	75 mg/m ³ USA NIOSH Recommended Exposure Limits
USA NIOSH	NIOSH REL (STEL) (ppm)	15 ppm USA NIOSH Recommended Exposure Limits
USA OSHA	OSHA PEL (TWA) (mg/m3)	50 mg/m ³ The value in mg/m3 is approximate.
USA OSHA	OSHA PEL (TWA) (ppm)	10 ppm The value in mg/m3 is approximate.
CHRYSENE (13C6, 99%) (218-01-9 (Unlabeled))		
USA NIOSH	NIOSH REL (TWA) (mg/m3)	0.1 mg/m ³ Potential Occupational Carcinogen. NIOSH considers coal tar, coal tar pitch and creosote to be coal tar
USA OSHA	OSHA PEL (TWA) (mg/m3)	0.2 mg/m ³ Confirmed animal carcinogen with unknown relevance to humans. OSHA specifically regulated carcinogen.
N-NONANE UNLABELED (111-84-2)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	200.000000000 ppm Central Nervous System impairment.
BENZO[A]PYRENE (13C4, 99%) (50-32-8 (Unlabeled))		
USA OSHA	OSHA PEL (TWA) (mg/m3)	0.200000000 mg/m ³ Exposure should be carefully controlled to levels as low as possible.

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8.2. Exposure controls

Personal protective equipment : Protective clothing. Protective goggles. Self-contained breathing apparatus. Gloves.



Eye protection : Wear safety glasses with side shields (or goggles) and a face shield.

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : When appropriate, use NIOSH/CEN approved respirator.

Other information : When using, do not eat, drink or smoke.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

The properties listed below are for the solvent, the main component of this mixture.

Physical state	: Liquid
Appearance	: Liquid.
Molecular mass	: 128.3 g/mol
Color	: Colorless.
Odor	: No data available
Odor threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: No data available
Freezing point	: -53 °C (- 63 °F) - lit
Boiling point	: 151 °C (304 °F) - lit
Flash point	: 31.0 °C (87.8 °F) - closed cup
Self ignition temperature	: 205 °C (401 °F)
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
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
Density	: 0.718 g/ml at 25 °C (77 °F)
Solubility	: Water: 0 %
Log Pow	: 5.65
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: 0.87 - 2.9 % (V)

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Vapors may form explosive mixture with air.

10.2. Chemical stability

See storage and expiration date on CoA.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

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

10.5. Incompatible materials

strong acids. Strong bases.

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10.6. Hazardous decomposition products

May release flammable gases. fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Harmful if inhaled.

CUSTOM 16 PAH LABELED MIXTURE (13C; D) IN NONANE	
LC50 inhalation rat (mg/l)	23760 mg/m ³ male - 4 h
LC50 inhalation rat (ppm)	3200 ppm/4h
ATE (gases)	3200.000 ppmV/4h
ATE (vapors)	11.000 mg/l/4h
ATE (dust, mist)	1.500 mg/l/4h

NAPHTHALENE (13C10, 99%) (219526-41-7)	
LD50 oral rat	490 mg/kg
LD50 dermal rabbit	20000 mg/kg
LC50 inhalation rat (mg/l)	> 340 mg/m ³ 1 h
ATE (oral)	490.000 mg/kg body weight
ATE (dermal)	20000.000 mg/kg body weight

BENZO[C]PHENANTHRENE (1,2,3,4,4A,4B-13C6, 99%) (195-19-7 (Unlabeled))	
ATE (oral)	500.000 mg/kg body weight
ATE (dermal)	1100.000 mg/kg body weight
ATE (dust, mist)	1.500 mg/l/4h

5-METHYLCHRYSENE (13C6, 99%) (3697-24-3 (Unlabeled))	
ATE (oral)	500.000 mg/kg body weight

BENZ[A]ANTHRACENE (13C6, 99%) (56-55-3 (Unlabeled))	
	LD50 Intravenous - rat - >200 mg/kg

N-NONANE UNLABELED (111-84-2)	
LC50 inhalation rat (mg/l)	23760 mg/m ³ male - 4 h
LC50 inhalation rat (ppm)	3200 ppm/4h
ATE (gases)	3200.000 ppmV/4h
ATE (vapors)	11.000 mg/l/4h
ATE (dust, mist)	23.760 mg/l/4h

DIBENZO[A,L]PYRENE (13C6, 99%) (191-30-0 (Unlabeled))	
ATE (oral)	500.000 mg/kg body weight

BENZO[B]FLUORANTHENE (13C6, 99%) (205-99-2 (Unlabeled))	
	LD50 Oral Mouse, 7.57 mg/kg

Skin corrosion/irritation	: Causes skin irritation. Skin - rat - Skin irritation - Draize test
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitization	: Not classified Based on available data, the classification criteria are not met
Germ cell mutagenicity	: Not classified Based on available data, the classification criteria are not met
Carcinogenicity	: Not classified Based on available data, the classification criteria are not met
Reproductive toxicity	: Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity (single exposure)	: May cause drowsiness or dizziness.
Specific target organ toxicity (repeated exposure)	: Not classified Based on available data, the classification criteria are not met
Aspiration hazard	: May be fatal if swallowed and enters airways. Based on available data, the classification criteria are not met
Potential Adverse human health effects and symptoms	: Harmful if inhaled.

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Symptoms/injuries after inhalation	: Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled. May cause drowsiness or dizziness.
Symptoms/injuries after skin contact	: Causes skin irritation.
Symptoms/injuries after eye contact	: Causes serious eye irritation.

SECTION 12: Ecological information

12.1. Toxicity

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

NAPHTHALENE (13C10, 99%) (219526-41-7)	
LC50 fish 1	<= 0.9 - 9.8 mg/l Oncorhynchus mykiss (rainbow trout) - 96 h
LC50 other aquatic organisms 1	1 - 6.5 mg/l Pimephales promelas (fathead minnow) 96.0 h
EC50 Daphnia 1	1 - 3.4 mg/l Daphnia magna (Water flea) - 48 h
EC50 other aquatic organisms 1	33 mg/l No information available - 24 h
EC50 other aquatic organisms 2	33 mg/l 24 h
LOEC (acute)	3.2 mg/l Other fish - 3.0 d
NOEC (acute)	1.8 mg/l Other fish - 3.0 d

CHRYSENE (13C6, 99%) (218-01-9 (Unlabeled))	
EC50 Daphnia 1	1.9 mg/l EC50 - Daphnia magna (Water flea) - 2 h

BENZO[B]FLUORANTHENE (13C6, 99%) (205-99-2 (Unlabeled))	
EC50 Daphnia 1	> 1.024 mg/l Daphnia magna (Water flea) - 24 h

DIBENZ[A,H]ANTHRACENE (13C6, 99%) (13250-98-1)	
EC50 Daphnia 1	0.496 mg/l Daphnia magna (Water flea) - 24 h

BENZO[A]PYRENE (13C4, 99%) (50-32-8 (Unlabeled))	
EC50 Daphnia 1	0.25 mg/l Daphnia magna (Water flea) - 48 h
ErC50 (algae)	0.02 mg/l Pseudokirchneriella subcapitata (green algae) - 48 h

12.2. Persistence and degradability

CUSTOM 16 PAH LABELED MIXTURE (13C; D) IN NONANE	
Persistence and degradability	May cause long-term adverse effects in the environment.

NAPHTHALENE (13C10, 99%) (219526-41-7)	
Persistence and degradability	Not available.

BENZO[C]PHENANTHRENE (1,2,3,4,4A,4B-13C6, 99%) (195-19-7 (Unlabeled))	
Persistence and degradability	Not available.

CYCLOPENTA[CD]PYRENE (13C6, 99%) (27208-37-3 (Unlabeled))	
Persistence and degradability	Not available.

5-METHYLCHRYSENE (13C6, 99%) (3697-24-3 (Unlabeled))	
Persistence and degradability	Not available.

BENZ[A]ANTHRACENE (13C6, 99%) (56-55-3 (Unlabeled))	
Persistence and degradability	Not available.

DIBENZO[A,H]PYRENE (13C12, 99%) (189-64-0 (Unlabeled))	
Persistence and degradability	Not available.

DIBENZO[A,L]PYRENE (13C6, 99%) (191-30-0 (Unlabeled))	
Persistence and degradability	Not available.

DIBENZO[A,I]PYRENE (13C12, 99%) (189-55-9 (Unlabeled))	
Persistence and degradability	No data available.

BENZ[E]ACEANTHRYLENE (13C2, 94%; D2, 94%) (199-54-2 (Unlabeled))	
Persistence and degradability	Not available.

BENZ[J]ACEANTHRYLENE (13C2, 94%; D2, 94%) (202-33-5 (Unlabeled))	
Persistence and degradability	Not available.

DIBENZO[A,E]PYRENE (13C6, 99%) (192-65-4 (Unlabeled))	
Persistence and degradability	Not available.

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12.3. Bioaccumulative potential

CUSTOM 16 PAH LABELED MIXTURE (13C; D) IN NONANE	
Log Pow	5.65
Bioaccumulative potential	Not established.
NAPHTHALENE (13C10, 99%) (219526-41-7)	
Log Pow	3.3
Bioaccumulative potential	Bioaccumulation: Fish- Bioconcentration factor (BCF): 427 - 1,158.
BENZO[C]PHENANTHRENE (1,2,3,4,4A,4B-13C6, 99%) (195-19-7 (Unlabeled))	
Bioaccumulative potential	Not available.
CYCLOPENTA[CD]PYRENE (13C6, 99%) (27208-37-3 (Unlabeled))	
Bioaccumulative potential	Not available.
5-METHYLCHRYSENE (13C6, 99%) (3697-24-3 (Unlabeled))	
Bioaccumulative potential	Not available.
CHRYSENE (13C6, 99%) (218-01-9 (Unlabeled))	
Log Pow	5.73 Partition coefficient: n-octanol/water
BENZ[A]ANTHRACENE (13C6, 99%) (56-55-3 (Unlabeled))	
Bioaccumulative potential	Not available.
N-NONANE UNLABELED (111-84-2)	
Log Pow	5.65
Bioaccumulative potential	Indication of bioaccumulation.
DIBENZO[A,H]PYRENE (13C12, 99%) (189-64-0 (Unlabeled))	
Bioaccumulative potential	Not available.
DIBENZO[A,L]PYRENE (13C6, 99%) (191-30-0 (Unlabeled))	
Log Pow	7.382
Bioaccumulative potential	Not available.
DIBENZO[A,I]PYRENE (13C12, 99%) (189-55-9 (Unlabeled))	
Bioaccumulative potential	No data available.
BENZ[E]ACEANTHRYLENE (13C2, 94%; D2, 94%) (199-54-2 (Unlabeled))	
Bioaccumulative potential	Not available.
BENZ[J]ACEANTHRYLENE (13C2, 94%; D2, 94%) (202-33-5 (Unlabeled))	
Bioaccumulative potential	Not available.
DIBENZO[A,E]PYRENE (13C6, 99%) (192-65-4 (Unlabeled))	
Log Pow	7.387
Bioaccumulative potential	Not available.
BENZO[A]PYRENE (13C4, 99%) (50-32-8 (Unlabeled))	
Log Pow	5.97
Bioaccumulative potential	Bioaccumulation: Lepomis macrochirus (Bluegill) - 48h. Bioconcentration factor (BCF): 3,208.

12.4. Mobility in soil

NAPHTHALENE (13C10, 99%) (219526-41-7)	
Ecology - soil	Not available.
BENZO[C]PHENANTHRENE (1,2,3,4,4A,4B-13C6, 99%) (195-19-7 (Unlabeled))	
Ecology - soil	Not available.
CYCLOPENTA[CD]PYRENE (13C6, 99%) (27208-37-3 (Unlabeled))	
Ecology - soil	Not available.
5-METHYLCHRYSENE (13C6, 99%) (3697-24-3 (Unlabeled))	
Ecology - soil	Not available.
BENZ[A]ANTHRACENE (13C6, 99%) (56-55-3 (Unlabeled))	
Ecology - soil	Not available.
DIBENZO[A,H]PYRENE (13C12, 99%) (189-64-0 (Unlabeled))	
Ecology - soil	Not available.

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DIBENZO[A,L]PYRENE (13C6, 99%) (191-30-0 (Unlabeled))	
Ecology - soil	Not available.
DIBENZO[A,I]PYRENE (13C12, 99%) (189-55-9 (Unlabeled))	
Ecology - soil	No data available.
BENZ[E]ACEANTHRYLENE (13C2, 94%; D2, 94%) (199-54-2 (Unlabeled))	
Ecology - soil	Not available.
BENZ[J]ACEANTHRYLENE (13C2, 94%; D2, 94%) (202-33-5 (Unlabeled))	
Ecology - soil	Not available.
DIBENZO[A,E]PYRENE (13C6, 99%) (192-65-4 (Unlabeled))	
Ecology - soil	Not available.

12.5. Results of PBT and vPvB assessment

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 disposal. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

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.

SECTION 14: Transport information

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

14.1. UN number

UN-No.(DOT) : 1920
DOT NA no. UN1920

14.2. UN proper shipping name

DOT Proper Shipping Name : Nonanes
Department of Transportation (DOT) Hazard Classes : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Hazard labels (DOT) : 3 - Flammable liquid



Packing group (DOT) : III - Minor Danger
DOT Special Provisions (49 CFR 172.102) : B1 - If the material has a flash point at or above 38 C (100 F) and below 93 C (200 F), then the bulk packaging requirements of 173.241 of this subchapter are applicable. If the material has a flash point of less than 38 C (100 F), then the bulk packaging requirements of 173.242 of this subchapter are applicable.
IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).
T2 - 1.5 178.274(d)(2) Normal..... 178.275(d)(3)
TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.

DOT Packaging Exceptions (49 CFR 173.xxx) : 150
DOT Packaging Non Bulk (49 CFR 173.xxx) : 203
DOT Packaging Bulk (49 CFR 173.xxx) : 242
Marine pollutant : No

14.3. Additional information

Other information : No supplementary information available.

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Overland transport

Packing group (ADR) : III
Class (ADR) : 3 - Flammable liquid
Hazard identification number (Kemler No.) : 30
Classification code (ADR) : F1
Danger labels (ADR) : 3 - Flammable liquids



Orange plates : An orange rectangular label with a black border, divided into two horizontal sections. The top section contains the number '30' and the bottom section contains the number '1262'.

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 : 60 L
(49 CFR 173.27)
DOT Quantity Limitations Cargo aircraft only (49 : 220 L
CFR 175.75)

14.4. Environmental hazards

Other information : No supplementary information available.

14.5. Special precautions for user

14.6. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

CUSTOM 16 PAH LABELED MIXTURE (13C; D) 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
BENZO[B]FLUORANTHENE (13C6, 99%) (205-99-2 (Unlabeled))	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard

15.2. International regulations

CANADA

CUSTOM 16 PAH LABELED MIXTURE (13C; D) IN NONANE	
Listed on the Canadian DSL (Domestic Substances List) inventory.	
BENZO[B]FLUORANTHENE (13C6, 99%) (205-99-2 (Unlabeled))	
Not listed on the Canadian DSL (Domestic Substances List) inventory.	

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15.2.1. National regulations

No additional information available

15.3. US State regulations

CUSTOM 16 PAH LABELED MIXTURE (13C; D) 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.
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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.

BENZO[B]FLUORANTHENE (13C6, 99%) (205-99-2 (Unlabeled))

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
WARNING! This product contains a chemical known by the state of California to cause cancer.

SECTION 16: Other information

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

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

Acute Tox. 4 (Dermal)	Acute toxicity (dermal) Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 4	Hazardous to the aquatic environment - Chronic Hazard Category 4
Asp. Tox. 1	Aspiration hazard Category 1
Carc. 1A	Carcinogenicity Category 1A
Carc. 1A	Carcinogenicity (inhalation) Category 1A
Carc. 1B	Carcinogenicity Category 1B
Carc. 2	Carcinogenicity Category 2
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2	Serious eye damage/eye irritation Category 2
Flam. Liq. 3	Flammable liquids Category 3
Flam. Sol. 1	Flammable solids Category 1
Muta. 2	Germ cell mutagenicity Category 2
Repr. 1A	Reproductive toxicity Category 1A
Skin Irrit. 2	skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H226	Flammable liquid and vapor
H228	Flammable solid
H302	Harmful if swallowed
H304	May be fatal if swallowed and enters airways
H312	Harmful in contact with skin
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation

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H332	Harmful if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H341	Suspected of causing genetic defects
H350	May cause cancer
H350i	May cause cancer by inhalation
H351	Suspected of causing cancer
H360F	May damage fertility
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H413	May cause long lasting harmful effects to aquatic life
R10	Flammable
R20	Harmful by inhalation
R20/21/22	Harmful by inhalation, in contact with skin and if swallowed
R22	Harmful if swallowed
R36/37/38	Irritating to eyes, respiratory system and skin
R36/38	Irritating to eyes and skin
R38	Irritating to skin
R40	Limited evidence of a carcinogenic effect
R41	Risk of serious damage to eyes
R42	May cause sensitization by inhalation
R45	May cause cancer
R46	May cause heritable genetic damage
R49	May cause cancer by inhalation
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R53	May cause long-term adverse effects in the aquatic environment
R60	May impair fertility
R61	May cause harm to the unborn child
R65	Harmful: may cause lung damage if swallowed
R67	Vapors may cause drowsiness and dizziness
R68	Possible risk of irreversible effects
N	Dangerous for the environment
Xi	Irritant
Xn	Harmful

NFPA health hazard

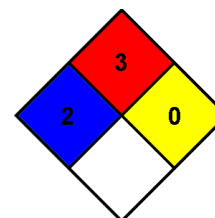
: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard

: 3 - Liquids and solids that can be ignited under almost all ambient conditions.

NFPA reactivity

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 3 Serious Hazard

Physical : 0 Minimal Hazard

CIL Mixture SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product