



PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE

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: 30/12/2015

Revision date:

Version: 1.0

ES-5438

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

1.1. Product identifier

Product form : Mixture
Product name. : PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE
Product code : ES-5438

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

1.2.1. Relevant identified uses

Industrial/Professional use spec : For professional use only.

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

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

USA: 1-800-322-1174 Int: 1-978-749-8000

cilsales@isotope.com www.isotope.com

Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)

International: 1-703-741-5970 (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. 2	H225
Acute Tox. 4 (Inhalation:dust,mist)	H332
Skin Irrit. 2	H315
Eye Irrit. 2	H319
Carc. 2	H351
Repr. 2	H361
STOT SE 3	H336
STOT SE 2	H371
STOT RE 2	H373
Asp. Tox. 1	H304
Aquatic Acute 1	H400

Full text of H-phrases: see section 16

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

Carc.Cat.3; R40
Repr.Cat.3; R62
Repr.Cat.3; R63
F; R11
Xn; R20
Xn; R65
Xi; R36/38
N; R51/53

Full text of R-phrases: see section 16

GHS-US classification

Flam. Liq. 2	H225
Acute Tox. 4 (Inhalation)	H332

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE ES-5438

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

Skin Irrit. 2	H315
Eye Irrit. 2A	H319
Carc. 2	H351
Repr. 2	H361
STOT SE 3	H336
STOT SE 2	H371
STOT RE 2	H373
Asp. Tox. 1	H304
Aquatic Acute 1	H400

Adverse physicochemical, human health and environmental effects

Bladder, Liver, Kidney, Brain.

2.2. Label elements

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

Hazard pictograms (CLP)



Signal word (CLP)

: Danger

Hazardous ingredients

: TOLUENE UNLABELED

Hazard statements (CLP)

: H225 - Highly flammable liquid and vapour
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
H351 - Suspected of causing cancer
H361 - Suspected of damaging fertility. Suspected of damaging the unborn child
H371 - May cause damage to organs (brain, kidneys, liver, urinary bladder)
H373 - May cause damage to organs (brain, kidneys, liver, urinary bladder) through prolonged or repeated exposure
H400 - Very toxic to aquatic life

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 ventilating, lighting, electrical equipment
P260 - Do not breathe dust, fume, gas, mist, spray, vapours
P264 - Wash Both hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P307+P311 - IF exposed: Call a POISON CENTER or doctor/physician

GHS-US labelling

Hazard pictograms (GHS-US)



Signal word (GHS-US)

: Danger

Hazard statements (GHS-US)

: H225 - Highly flammable liquid and vapour
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
H351 - Suspected of causing cancer (Dermal, Inhalation, oral)
H361 - Suspected of damaging fertility or the unborn child (Dermal, Inhalation, oral)
H371 - May cause damage to organs (brain, kidneys, liver, urinary bladder) (Dermal, Inhalation, oral)
H373 - May cause damage to organs (brain, kidneys, liver, urinary bladder) through prolonged or repeated exposure (Dermal, Inhalation, oral)

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE ES-5438

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

H400 - Very toxic to aquatic life

Precautionary statements (GHS-US)

: P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
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
P260 - Do not breathe dust, fume, gas, mist, spray, vapours
P261 - Avoid breathing dust, fume, gas, mist, spray, vapours
P264 - Wash Both hands thoroughly after handling
P270 - Do no eat, drink or smoke when using this product
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
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P308+P313 - IF exposed or concerned: Get medical advice/attention
P312 - Call a POISON CENTER/doctor/physician if you feel unwell
P314 - Get medical advice and attention 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
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

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification according to Directive 67/548/EEC
TOLUENE UNLABELED	(CAS No) 108-88-3 (EC no) 203-625-9 (EC index no) 601-021-00-3	91.491	Repr.Cat.3; R62 Repr.Cat.3; R63 F; R11 Xi; R36/38 Carc.Cat.3; R40 Xn; R20 R67 Xn; R65
ISOCTANE UNLABELED	(CAS No) 540-84-1 (EC no) 208-759-1 (EC index no) 601-009-00-8	8.133	F; R11 Xi; R38 N; R50/53 R67
NAPHTHALENE UNLABELED	(CAS No) 91-20-3 (EC no) 202-049-5 (EC index no) 601-052-00-2	0.024	Carc.Cat.3; R40 F; R11 Xn; R22 N; R50/53
BENZ[A]ANTHRACENE UNLABELED	(CAS No) 56-55-3 (EC no) 200-280-6 (EC index no) 601-033-00-9	0.024	Carc.Cat.1; R45 Carc.Cat.1; R49 N; R50/53

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE ES-5438

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

Name	Product identifier	%	Classification according to Directive 67/548/EEC
BENZO[A]PYRENE UNLABELED	(CAS No) 50-32-8 (EC no) 200-028-5 (EC index no) 601-032-00-3	0.024	Carc.Cat.1; R45 N; R50/53
BENZO[B]FLUORANTHENE UNLABELED	(CAS No) 205-99-2 (EC no) 205-911-9 (EC index no) 601-034-00-4	0.024	Carc.Cat.1; R45 N; R50/53
PHENANTHRENE UNLABELED	(CAS No) 85-01-8 (EC no) 201-581-5	0.024	Xn; R22 Xi; R36 Xi; R37 Xi; R38 N; R50/53
FLUORANTHENE UNLABELED	(CAS No) 206-44-0 (EC no) 205-912-4	0.024	N; R50/53 Carc.Cat.2; R45 Xn; R21/22
ACENAPHTHENE UNLABELED	(CAS No) 83-32-9 (EC no) 201-469-6	0.024	N; R50/53 Xi; R36/37/38
BENZO[K]FLUORANTHENE UNLABELED	(CAS No) 207-08-9 (EC no) 205-916-6 (EC index no) 601-036-00-5	0.024	Carc.Cat.1; R45 Carc.Cat.1; R49 N; R50/53
BENZO[GHI]PERYLENE UNLABELED	(CAS No) 191-24-2 (EC no) 205-883-8	0.024	N; R50/53
CHRYSENE UNLABELED	(CAS No) 218-01-9 (EC no) 205-923-4 (EC index no) 601-048-00-0	0.024	Carc.Cat.2; R45 N; R50/53 Muta.Cat.3; R68
FLUORENE UNLABELED	(CAS No) 86-73-7 (EC no) 201-695-5	0.024	Carc.Cat.1; R45 N; R50/53
INDENO[1,2,3-CD]PYRENE UNLABELED	(CAS No) 193-39-5 (EC no) 205-893-2	0.024	Carc.Cat.3; R40
PYRENE UNLABELED	(CAS No) 129-00-0 (EC no) 204-927-3	0.024	N; R50/53
PERYLENE UNLABELED	(CAS No) 198-55-0 (EC no) 205-900-9	0.024	Not classified
ACENAPHTHYLENE UNLABELED	(CAS No) 208-96-8 (EC no) 205-917-1	0.024	Xi; R36/37/38 Xn; R22
DIBENZ[A,H]ANTHRACENE UNLABELED	(CAS No) 53-70-3 (EC no) 200-181-8 (EC index no) 601-041-00-2	0.024	Carc.Cat.1; R45 Carc.Cat.1; R49 N; R50/53

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
TOLUENE UNLABELED	(CAS No) 108-88-3 (EC no) 203-625-9 (EC index no) 601-021-00-3	91.491	Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Carc. 2, H351 Repr. 2, H361d STOT SE 3, H336 STOT SE 2, H371 STOT RE 2, H373 Asp. Tox. 1, H304
ISOCTANE UNLABELED	(CAS No) 540-84-1 (EC no) 208-759-1 (EC index no) 601-009-00-8	8.133	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
NAPHTHALENE UNLABELED	(CAS No) 91-20-3 (EC no) 202-049-5 (EC index no) 601-052-00-2	0.024	Flam. Sol. 1, H228 Acute Tox. 4 (Oral), H302 Carc. 2, H351 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
BENZ[A]ANTHRACENE UNLABELED	(CAS No) 56-55-3 (EC no) 200-280-6 (EC index no) 601-033-00-9	0.024	Carc. 1A, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE ES-5438

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

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BENZO[A]PYRENE UNLABELED	(CAS No) 50-32-8 (EC no) 200-028-5 (EC index no) 601-032-00-3	0.024	Skin Sens. 1, H317 Muta. 1B, H340 Carc. 1B, H350i Repr. 1B, H360FD Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410
BENZO[B]FLUORANTHENE UNLABELED	(CAS No) 205-99-2 (EC no) 205-911-9 (EC index no) 601-034-00-4	0.024	Carc. 1A, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
PHENANTHRENE UNLABELED	(CAS No) 85-01-8 (EC no) 201-581-5	0.024	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
FLUORANTHENE UNLABELED	(CAS No) 206-44-0 (EC no) 205-912-4	0.024	Acute Tox. 4 (Oral), H302 Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410
ACENAPHTHENE UNLABELED	(CAS No) 83-32-9 (EC no) 201-469-6	0.024	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
BENZO[K]FLUORANTHENE UNLABELED	(CAS No) 207-08-9 (EC no) 205-916-6 (EC index no) 601-036-00-5	0.024	Carc. 1A, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
BENZO[GHI]PERYLENE UNLABELED	(CAS No) 191-24-2 (EC no) 205-883-8	0.024	Aquatic Acute 1, H400 Aquatic Chronic 1, H410
CHRYSENE UNLABELED	(CAS No) 218-01-9 (EC no) 205-923-4 (EC index no) 601-048-00-0	0.024	Muta. 2, H341 Carc. 1B, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
FLUORENE UNLABELED	(CAS No) 86-73-7 (EC no) 201-695-5	0.024	Carc. 1A, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
INDENO[1,2,3-CD]PYRENE UNLABELED	(CAS No) 193-39-5 (EC no) 205-893-2	0.024	Carc. 2, H351
PYRENE UNLABELED	(CAS No) 129-00-0 (EC no) 204-927-3	0.024	Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410
PERYLENE UNLABELED	(CAS No) 198-55-0 (EC no) 205-900-9	0.024	Not classified
ACENAPHTHYLENE UNLABELED	(CAS No) 208-96-8 (EC no) 205-917-1	0.024	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335
DIBENZ[A,H]ANTHRACENE UNLABELED	(CAS No) 53-70-3 (EC no) 200-181-8 (EC index no) 601-041-00-2	0.024	Carc. 1B, H350 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Name	Product identifier	%	GHS-US classification
TOLUENE UNLABELED	(CAS No) 108-88-3	91.491	Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Carc. 2, H351 Repr. 2, H361 STOT SE 3, H336 STOT SE 2, H371 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 2, H401
ISOCTANE UNLABELED	(CAS No) 540-84-1	8.133	Flam. Liq. 1, H224 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

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

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general

: IF exposed or concerned: Get medical advice/attention.

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE ES-5438

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

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. If skin irritation occurs: Wash with plenty of soap and water. Get medical advice/attention. Specific treatment (see Hazard pictograms (CLP) on this label). Gently wash with plenty of soap and water.
First-aid measures after eye contact	: Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for several minutes.
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	: Suspected of damaging fertility. Suspected of damaging the unborn child (Inhalation, dermal, oral). May cause damage to organs (brain, kidneys, liver, urinary bladder) (Inhalation, dermal, oral). Causes damage to organs (brain, kidneys, liver, urinary bladder) (Inhalation, dermal, oral).
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 eye irritation.
Symptoms/injuries after ingestion	: May be fatal if swallowed and enters airways.

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	: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.
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5.2. Special hazards arising from the substance or mixture

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

5.3. Advice for firefighters

Firefighting instructions	: Use water spray to cool unopened containers.
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.
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6.1.1. For non-emergency personnel

Emergency procedures	: Use personal protective equipment, and ensure adequate ventilation. Avoid breathing vapors, mist, gas. Remove ignition sources, and move personnel to safe area. Vapors accumulate especially in low areas to form explosive concentrations.
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6.1.2. For emergency responders

Protective equipment	: Avoid breathing dust, mist or spray.
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6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3. Methods and material for containment and cleaning up

For containment	: Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.
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6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	: Handle empty containers with care because residual vapours are flammable.
Precautions for safe handling	: No naked lights. No smoking. Use only non-sparking tools. Use only outdoors or in a well-ventilated area. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust, mist or spray.
Hygiene measures	: Wash Both hands thoroughly after handling.

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE ES-5438

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

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. Use explosion-proof electrical equipment.
Storage conditions	: Store at room temperature away from light and moisture.
Incompatible materials	: Heat sources.

7.3. Specific end use(s)

No additional information available

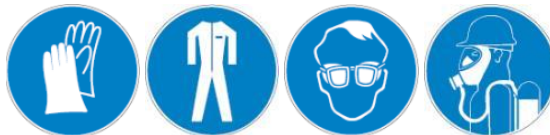
SECTION 8: Exposure controls/personal protection

8.1. Control parameters

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	20.0000000000 ppm Visual impairment, Female reproductive, Pregnancy loss
TOLUENE UNLABELED (108-88-3)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	20.0000000000 ppm Visual impairment, Female reproductive, Pregnancy loss
USA OSHA	OSHA PEL (TWA) (ppm)	100.0000000000 ppm USA. OSHA - TABLE Z-1 Limits for Air Contaminants 1910.1000
USA OSHA	OSHA PEL (STEL) (ppm)	150.0000000000 ppm USA. OSHA - TABLE Z-1 Limits for Air Contaminants 1910.1000
NAPHTHALENE UNLABELED (91-20-3)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	10.0000000000 ppm Eye & Upper Respiratory Tract irritation. Hematologic effects. Eye damage.
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	15.0000000000 ppm Eye & Upper Respiratory Tract irritation. Hematologic effects. Eye damage.
BENZO[A]PYRENE UNLABELED (50-32-8)		
USA OSHA	OSHA PEL (TWA) (mg/m ³)	0.2000000000 mg/m ³ Exposure should be carefully controlled to levels as low as possible.
PHENANTHRENE UNLABELED (85-01-8)		
USA OSHA	OSHA PEL (TWA) (mg/m ³)	0.2000000000 mg/m ³
CHRYSENE UNLABELED (218-01-9)		
USA OSHA	OSHA PEL (TWA) (mg/m ³)	0.2000000000 mg/m ³ Cancer Substances for which there is a Biological Exposure Index
PYRENE UNLABELED (129-00-0)		
USA OSHA	OSHA PEL (TWA) (mg/m ³)	0.2000000000 mg/m ³

8.2. Exposure controls

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



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.
Other information	: Do no eat, drink or smoke when using this product.

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.

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE ES-5438

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

Molecular mass	: 92.14 g/mol
Colour	: Colourless.
Odour	: No data available.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: -93 °C (-135 °F)
Freezing point	: No data available
Boiling point	: 110 - 111 °C (230 - 232 °F)
Flash point	: 4.0 °C (39.2 °F) - closed cup
Self ignition temperature	: 535 °C (995 °F)
Decomposition temperature	: No data available
Flammability (solid, gas)	: Highly flammable liquid and vapour
Vapour pressure	: 29.1 hPa (21.8 mmHg) at 20.0 °C (68.0 °F)
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 0.865 g/ml at 25 °C (77 °F)
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 1.2 - 7 % (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

Stable if stored under recommended conditions.

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

11.1. Information on toxicological effects

Acute toxicity : Harmful if inhaled.

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE	
LD50 oral rat	> 5580 mg/kg
LD50 dermal rabbit	12196 mg/kg
LC50 inhalation rat (mg/l)	12500 - 28800 mg/m ³ 4 h
ATE (dermal)	12196.000 mg/kg bodyweight
ATE (gases)	4500.000 ppmV/4h
ATE (vapours)	12.500 mg/l/4h
ATE (dust,mist)	1.500 mg/l/4h

TOLUENE UNLABELED (108-88-3)	
LD50 oral rat	> 5580 mg/kg

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE ES-5438

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

TOLUENE UNLABELED (108-88-3)	
LD50 dermal rabbit	12196 mg/kg
LC50 inhalation rat (mg/l)	12500 - 28800 mg/m ³ 4 h
ATE (dermal)	12196.000 mg/kg bodyweight
ATE (gases)	4500.000 ppmV/4h
ATE (vapours)	12.500 mg/l/4h
ATE (dust,mist)	1.500 mg/l/4h

NAPHTHALENE UNLABELED (91-20-3)	
LD50 oral rat	490.0 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 bodyweight
ATE (dermal)	20000.000 mg/kg bodyweight

BENZO[B]FLUORANTHENE UNLABELED (205-99-2)	
	LD50 Oral Mouse, 7.57 mg/kg

PHENANTHRENE UNLABELED (85-01-8)	
ATE (oral)	500.000 mg/kg bodyweight
	LD50 Oral Mouse - 700 mg/kg

FLUORANTHENE UNLABELED (206-44-0)	
LD50 oral rat	2000 mg/kg
LD50 dermal rabbit	3180 mg/kg
ATE (oral)	2000.000 mg/kg bodyweight
ATE (dermal)	3180.000 mg/kg bodyweight

PYRENE UNLABELED (129-00-0)	
LD50 oral rat	2700 mg/kg
LC50 inhalation rat (mg/l)	170 mg/m ³
ATE (oral)	2700.000 mg/kg bodyweight
ATE (vapours)	0.170 mg/l/4h
ATE (dust,mist)	0.170 mg/l/4h

ACENAPHTHYLENE UNLABELED (208-96-8)	
ATE (oral)	500.000 mg/kg bodyweight

Skin corrosion/irritation	: Causes skin irritation. Skin - rabbit - Skin irritation - 24 h
Serious eye damage/irritation	: Causes serious eye irritation. No data available
Respiratory or skin sensitisation	: Not available No data available
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Suspected of causing cancer.
Reproductive toxicity	: Experiments have shown reproductive toxicity effects in male and female laboratory animals.
Specific target organ toxicity (single exposure)	: May cause drowsiness or dizziness. May cause damage to organs (brain, kidneys, liver, urinary bladder). No data available
Specific target organ toxicity (repeated exposure)	: May cause damage to organs (brain, kidneys, liver, urinary bladder) through prolonged or repeated exposure. No data available
Aspiration hazard	: May be fatal if swallowed and enters airways.
Potential Adverse human health effects and symptoms	: Harmful if inhaled.
IARC group	: 3
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 eye irritation.

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE ES-5438

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

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

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Very toxic to aquatic life.

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE	
LC50 fishes 1	74 - 340 mg/l <i>Lepomis macrochirus</i> (Bluegill) - 96h
LC50 other aquatic organisms 1	10 mg/l <i>Pseudokirchneriella subcapitata</i> (Green algae) - 24 h
EC50 Daphnia 1	8 mg/l <i>Daphnia magna</i> (Water flea) - 24h
LC50 fish 2	7.63 mg/l <i>Oncorhynchus mykiss</i> (Rainbow trout) - 96 h
EC50 Daphnia 2	6 mg/l <i>Daphnia magna</i> (Water flea) - Immobilization - 48 h
ErC50 (algae)	245 mg/l <i>Chlorella vulgaris</i> (Fresh water algae) - 24 h
LOEC (chronic)	8.04 mg/l <i>Pimephales promelas</i> (Fathead minnow) - 7 d
NOEC (chronic)	5.44 mg/l <i>Pimephales promelas</i> (fathead minnow) - 7 d

TOLUENE UNLABELED (108-88-3)	
LC50 fishes 1	74 - 340 mg/l <i>Lepomis macrochirus</i> (Bluegill) - 96h
LC50 other aquatic organisms 1	10 mg/l <i>Pseudokirchneriella subcapitata</i> (Green algae) - 24 h
EC50 Daphnia 1	8 mg/l <i>Daphnia magna</i> (Water flea) - 24h
LC50 fish 2	7.63 mg/l <i>Oncorhynchus mykiss</i> (Rainbow trout) - 96 h
EC50 Daphnia 2	6 mg/l <i>Daphnia magna</i> (Water flea) - Immobilization - 48 h
ErC50 (algae)	245 mg/l <i>Chlorella vulgaris</i> (Fresh water algae) - 24 h
LOEC (chronic)	8.04 mg/l <i>Pimephales promelas</i> (Fathead minnow) - 7 d
NOEC (chronic)	5.44 mg/l <i>Pimephales promelas</i> (fathead minnow) - 7 d

DIBENZ[A,H]ANTHRACENE UNLABELED (53-70-3)	
EC50 Daphnia 1	0.496 mg/l <i>Daphnia magna</i> (Water flea) - 24 h

NAPHTHALENE UNLABELED (91-20-3)	
LC50 fishes 1	0.9 - 9.8 mg/l <i>Oncorhynchus mykiss</i> (rainbow trout) - 96 h
EC50 Daphnia 1	1 - 3.4 mg/l <i>Daphnia magna</i> (Water flea) - 48 h
ErC50 (algae)	33.00 mg/l -

BENZO[A]PYRENE UNLABELED (50-32-8)	
EC50 Daphnia 1	0.25 mg/l <i>Daphnia magna</i> (Water flea) - 48 h
ErC50 (algae)	0.02 mg/l <i>Pseudokirchneriella subcapitata</i> (green algae) - 48 h

BENZO[B]FLUORANTHENE UNLABELED (205-99-2)	
EC50 Daphnia 1	<i>Daphnia magna</i> (Water flea) - 24 h

PHENANTHRENE UNLABELED (85-01-8)	
LC50 fishes 1	3.2 mg/l <i>Oncorhynchus mykiss</i> (rainbow trout) - 96 h
EC50 Daphnia 1	0.86 mg/l <i>Daphnia magna</i> (Water flea) - 24 h
ErC50 (algae)	1.20 mg/l <i>Chlorella vulgaris</i> (Fresh water algae) - 3 h

FLUORANTHENE UNLABELED (206-44-0)	
LC50 fishes 1	0.0077 mg/l <i>Oncorhynchus mykiss</i> (rainbow trout) - 96 h

ACENAPHTHENE UNLABELED (83-32-9)	
LC50 fishes 1	0.67 mg/l <i>Oncorhynchus mykiss</i> (rainbow trout) - 96 h
EC50 Daphnia 1	1.27 - 3.45 ml/l <i>Daphnia magna</i> (Water flea) - 48 h
ErC50 (algae)	0.52 - 0.53 mg/l <i>Pseudokirchneriella subcapitata</i> (green algae) - 96 h

CHRYSENE UNLABELED (218-01-9)	
EC50 Daphnia 1	1.90 mg/l <i>Daphni magna</i> (Water flea) - 2 h

PYRENE UNLABELED (129-00-0)	
LC50 fishes 1	<i>Oncorhynchus mykiss</i> (rainbow trout) - 96 h
EC50 Daphnia 1	0.002 - 0.003 mg/l <i>Daphnia magna</i> (Water flea) - 48

12.2. Persistence and degradability

DIBENZ[A,H]ANTHRACENE UNLABELED (53-70-3)	
Persistence and degradability	Not available.

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE ES-5438

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

NAPHTHALENE UNLABELED (91-20-3)	
Persistence and degradability	Biodegradability: Result: - Not readily biodegradable.
BENZ[A]ANTHRACENE UNLABELED (56-55-3)	
Persistence and degradability	Not available.
BENZO[A]PYRENE UNLABELED (50-32-8)	
Persistence and degradability	Not available.
BENZO[B]FLUORANTHENE UNLABELED (205-99-2)	
Persistence and degradability	Not available.
PHENANTHRENE UNLABELED (85-01-8)	
Persistence and degradability	Biodegradability: Result: 55 - 95 % - Partially biodegradable.
FLUORANTHENE UNLABELED (206-44-0)	
Persistence and degradability	Not available.
ACENAPHTHENE UNLABELED (83-32-9)	
Persistence and degradability	Not available.
BENZO[GHI]PERYLENE UNLABELED (191-24-2)	
Persistence and degradability	Not available.
CHRYSENE UNLABELED (218-01-9)	
Persistence and degradability	Not available.
FLUORENE UNLABELED (86-73-7)	
Persistence and degradability	Not available.
INDENO[1,2,3-CD]PYRENE UNLABELED (193-39-5)	
Persistence and degradability	Not available.
PYRENE UNLABELED (129-00-0)	
Persistence and degradability	Not available.
PERYLENE UNLABELED (198-55-0)	
Persistence and degradability	Not available.
ACENAPHTHYLENE UNLABELED (208-96-8)	
Persistence and degradability	Not available.
BENZO[K]FLUORANTHENE UNLABELED (207-08-9)	
Persistence and degradability	Not available.
12.3. Bioaccumulative potential	
DIBENZ[A,H]ANTHRACENE UNLABELED (53-70-3)	
Bioaccumulative potential	Not available.
NAPHTHALENE UNLABELED (91-20-3)	
Log Pow	3.30
Bioaccumulative potential	Bioaccumulation: Fish- Bioconcentration factor (BCF): 427 - 1,158.
BENZ[A]ANTHRACENE UNLABELED (56-55-3)	
Bioaccumulative potential	Not available.
BENZO[A]PYRENE UNLABELED (50-32-8)	
Log Pow	5.97
BENZO[B]FLUORANTHENE UNLABELED (205-99-2)	
Bioaccumulative potential	Not available.
PHENANTHRENE UNLABELED (85-01-8)	
Log Pow	4.57
Bioaccumulative potential	Bioaccumulation Pimephales promelas (fathead minnow) - 28 d. Bioconcentration factor (BCF): 5,100.
FLUORANTHENE UNLABELED (206-44-0)	
Bioaccumulative potential	Not available.

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE ES-5438

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

ACENAPHTHENE UNLABELED (83-32-9)	
Log Pow	3.39 - 4.19
BENZO[GHI]PERYLENE UNLABELED (191-24-2)	
Log Pow	6.63
Bioaccumulative potential	Not available.
CHRYSENE UNLABELED (218-01-9)	
Log Pow	5.73
Bioaccumulative potential	Not available.
INDENO[1,2,3-CD]PYRENE UNLABELED (193-39-5)	
Bioaccumulative potential	Not available.
PYRENE UNLABELED (129-00-0)	
Bioaccumulative potential	other fish - 48 h Bioconcentration factor (BCF): 4,810.
PERYLENE UNLABELED (198-55-0)	
Bioaccumulative potential	Not available.
ACENAPHTHYLENE UNLABELED (208-96-8)	
Bioaccumulative potential	Not available.
BENZO[K]FLUORANTHENE UNLABELED (207-08-9)	
Bioaccumulative potential	Not available.
12.4. Mobility in soil	
DIBENZ[A,H]ANTHRACENE UNLABELED (53-70-3)	
Ecology - soil	Not available.
NAPHTHALENE UNLABELED (91-20-3)	
Ecology - soil	Not available.
BENZ[A]ANTHRACENE UNLABELED (56-55-3)	
Ecology - soil	Not available.
BENZO[A]PYRENE UNLABELED (50-32-8)	
Ecology - soil	Not available.
BENZO[B]FLUORANTHENE UNLABELED (205-99-2)	
Ecology - soil	Not available.
PHENANTHRENE UNLABELED (85-01-8)	
Ecology - soil	No data available.
FLUORANTHENE UNLABELED (206-44-0)	
Ecology - soil	Not available.
ACENAPHTHENE UNLABELED (83-32-9)	
Ecology - soil	Not available.
BENZO[GHI]PERYLENE UNLABELED (191-24-2)	
Ecology - soil	Not available.
CHRYSENE UNLABELED (218-01-9)	
Ecology - soil	Not available.
FLUORENE UNLABELED (86-73-7)	
Ecology - soil	Not available.
INDENO[1,2,3-CD]PYRENE UNLABELED (193-39-5)	
Ecology - soil	Not available.
PYRENE UNLABELED (129-00-0)	
Ecology - soil	Not available.
PERYLENE UNLABELED (198-55-0)	
Ecology - soil	Not available.

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE ES-5438

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

ACENAPHTHYLENE UNLABELED (208-96-8)

Ecology - soil : Not available.

BENZO[K]FLUORANTHENE UNLABELED (207-08-9)

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.
Toxic to aquatic life.

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.
Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.
Additional information : Handle empty containers with care because residual vapours are flammable.
Ecology - waste materials : Hazardous waste due to toxicity.

SECTION 14: Transport information

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

14.1. UN number

UN-No.(DOT) : 1294
DOT NA no. : UN1294

14.2. UN proper shipping name

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



Packing group (DOT) : II - Medium Danger
DOT Special Provisions (49 CFR 172.102) : IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.
T4 - 2.65 178.274(d)(2) Normal..... 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) : 202
DOT Packaging Bulk (49 CFR 173.xxx) : 242

14.3. Additional information

Other information : No supplementary information available.

Overland transport

Packing group (ADR) : II
Class (ADR) : 3 - Flammable liquids
Hazard identification number (Kemler No.) : 33
Classification code (ADR) : F1

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE ES-5438

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

Danger labels (ADR) : 3 - Flammable liquids



Orange plates :

Tunnel restriction code : D/E

Limited quantities (ADR) : 1L

EAC code : 3YE

Excepted quantities (ADR) : E2

Transport by sea

DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

MFAG-No : 130

Air transport

DOT Quantity Limitations Passenger aircraft/rail : 5 L
(49 CFR 173.27)

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

Civil Aeronautics Law : Flammable liquids(Hazardous materials notice Appended Table 1 Article 194 of the Enforcement Regulations)

14.4. Environmental hazards

Dangerous for the environment :

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

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE

Listed on SARA Section 313 (Specific toxic chemical listings)

SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard
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TOLUENE UNLABELED (108-88-3)

Listed on SARA Section 313 (Specific toxic chemical listings)

SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard
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ISOCTANE UNLABELED (540-84-1)

SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard
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PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE ES-5438

Safety Data Sheet

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

15.2. International regulations

CANADA

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE

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

TOLUENE UNLABELED (108-88-3)

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

15.2.1. National regulations

No additional information available

15.3. US State regulations

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE()

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 WARNING! This product contains a chemical known by the state of California to cause birth defects or other reproductive harm.
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TOLUENE UNLABELED (108-88-3)

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 birth defects or other reproductive harm.

ISOCTANE UNLABELED (540-84-1)

U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - New Jersey - Right to Know Hazardous Substance List
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16: Other information

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 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment — AcuteHazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Asp. Tox. 1	Aspiration hazard, Category 1
Carc. 1A	Carcinogenicity, Category 1A
Carc. 1B	Carcinogenicity (inhalation) Category 1B
Carc. 1B	Carcinogenicity, Category 1B
Carc. 2	Carcinogenicity, Category 2
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
Flam. Sol. 1	Flammable solids, Category 1
Muta. 1B	Germ cell mutagenicity, Category 1B
Muta. 2	Germ cell mutagenicity, Category 2
Repr. 1B	Reproductive toxicity, Category 1B
Repr. 2	Reproductive toxicity, Category 2
Repr. 2	Reproductive toxicity, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Sensitisation — Skin, category 1

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE ES-5438

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

STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
STOT SE 2	Specific target organ toxicity — Single exposure, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H225	Highly flammable liquid and vapour
H228	Flammable solid
H302	Harmful if swallowed
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H340	May cause genetic defects
H341	Suspected of causing genetic defects
H350	May cause cancer
H350i	May cause cancer by inhalation
H351	Suspected of causing cancer
H360FD	May damage fertility. May damage the unborn child
H361	Suspected of damaging fertility or the unborn child
H361d	Suspected of damaging the unborn child
H371	May cause damage to organs
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
R11	Highly flammable
R20	Harmful by inhalation
R21/22	Harmful in contact with skin and if swallowed
R22	Harmful if swallowed
R36	Irritating to eyes
R36/37/38	Irritating to eyes, respiratory system and skin
R36/38	Irritating to eyes and skin
R37	Irritating to respiratory system
R38	Irritating to skin
R40	Limited evidence of a carcinogenic effect
R45	May cause cancer
R49	May cause cancer by inhalation
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R62	Possible risk of impaired fertility
R63	Possible risk of harm to the unborn child
R65	Harmful: may cause lung damage if swallowed
R67	Vapours may cause drowsiness and dizziness
R68	Possible risk of irreversible effects
F	Highly flammable
N	Dangerous for the environment
Xi	Irritant
Xn	Harmful

NFPA health hazard

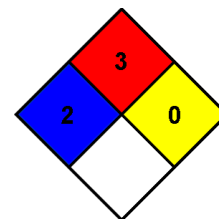
: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

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

PAH NATIVE STANDARD MIXTURE UNLABELED 200 UG/ML IN 90% TOLUENE/10% ISOCTANE ES-5438

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

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