

**Product name:** EN12916:2006 IP391-07 Cal. Solns A-D  
**Part no.:** 5190-0484

This product is composed of the following:

### Kit Components, Reagents

Box/Module Part number	Box/Module Name	Kit Component Part Number	Kit Component Name	Qty Units	CLP
-	-	5190-0484-A	EN12916:2006 IP391-07 Cal. Soln A	1	Yes
-	-	5190-0484-B	EN12916:2006 IP391-07 Cal. Soln B	1	Yes
-	-	5190-0484-C	EN12916:2006 IP391-07 Cal. Soln C	1	Yes
-	-	5190-0484-D	EN12916:2006 IP391-07 Cal. Soln D	1	Yes

Article SDSs, if maintained, are available on [www.agilent.com](http://www.agilent.com). We recommend using the article product code when searching. SDSs are only available for a limited set of countries.

### Transport Information for the Kit:

**Dangerous Goods classification for:** 5190-0484

ADR/RID	IMDG	IATA
UN1206, HEPTANES solution, 3, II	UN1206, HEPTANES solution, 3, II	UN1206, Heptanes solution, 3, II

De minimis quantities

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SDSs for each individual Kit component follow this cover sheet.

# SAFETY DATA SHEET

EN12916:2006 IP391-07 Cal. Soln A

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

### 1.1 Product identifier

**Product name** : EN12916:2006 IP391-07 Cal. Soln A  
**Part no.** : 5190-0484-A

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

**Identified uses** : Reagents and Standards for Analytical Chemistry Laboratory Use  
1 x 1 ml  
**Uses advised against** : None known.

### 1.3 Details of the supplier of the safety data sheet

Agilent Technologies LDA UK Ltd.  
5500 Lakeside Cheadle Royal Business Park,  
Cheadle, Cheshire, SK8 3GR  
United Kingdom  
Tel: +44 (0) 345 712 5292  
**e-mail address of person responsible for this SDS** : pdl-msds\_author@agilent.com

### 1.4 Emergency telephone number

**Emergency telephone number (with hours of operation)** : CHEMTREC®: +44 20 3807 3798

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : Mixture

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

H225	FLAMMABLE LIQUIDS	Category 2
H315	SKIN CORROSION/IRRITATION	Category 2
H336	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects)	Category 3
H304	ASPIRATION HAZARD	Category 1
H400	SHORT-TERM (ACUTE) AQUATIC HAZARD	Category 1
H410	LONG-TERM (CHRONIC) AQUATIC HAZARD	Category 1
EUH440	PERSISTENT, BIOACCUMULATIVE AND TOXIC	Applicable
EUH441	VERY PERSISTENT AND VERY BIOACCUMULATIVE	Applicable

The product is classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

**Ingredients of unknown toxicity** : Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 1 - 10%  
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 1 - 10%  
Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 1 - 10%

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

### 2.2 Label elements

## SECTION 2: Hazards identification

**Hazard pictograms** :



**Signal word** : Danger

**Hazard statements** :

- H225 - Highly flammable liquid and vapour.
- H304 - May be fatal if swallowed and enters airways.
- H315 - Causes skin irritation.
- H336 - May cause drowsiness or dizziness.
- H410 - Very toxic to aquatic life with long lasting effects.
- EUH441 - Strongly accumulates in the environment and living organisms including in humans.

### Precautionary statements

**Prevention** :

- P201 - Obtain special instructions before use.
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P273 - Avoid release to the environment.

**Response** : P391 - Collect spillage.

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

**Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Hazardous ingredients** : heptane

**Supplemental label elements** : Not applicable.

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Not applicable.

### Special packaging requirements

**Containers to be fitted with child-resistant fastenings** : Not applicable.

**Tactile warning of danger** : Not applicable.

### 2.3 Other hazards

**Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII** : This mixture contains substances that are assessed to be a PBT or a vPvB, refer to Section 3.2.

**Other hazards which do not result in classification** : None known.

## SECTION 3: Composition/information on ingredients

**3.2 Mixtures** : Mixture

### SECTION 3: Composition/information on ingredients

Product/ingredient name	Identifiers	%	Classification	Type
Heptane	EC: 205-563-8 CAS: 142-82-5 Index: 601-008-00-2	≥90	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	[1] [2]
o-xylene	EC: 202-422-2 CAS: 95-47-6 Index: 601-022-00-9	<10	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 3, H412	[1] [2]
Fluorene	EC: 201-695-5 CAS: 86-73-7	≤3	Aquatic Acute 1, H400 (M=1) Aquatic Chronic 2, H411	[1] [2]
Phenanthrene	EC: 201-581-5 CAS: 85-01-8	<1	Acute Tox. 4, H302 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=10) PBT, EUH440 vPvB, EUH441 <b>See Section 16 for the full text of the H statements declared above.</b>	[1] [2] [3] [4]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

#### Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT

[4] Substance meets the criteria for vPvB

Occupational exposure limits, if available, are listed in Section 8.

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

## SECTION 4: First aid measures

- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

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

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
nausea or vomiting  
headache  
drowsiness/fatigue  
dizziness/vertigo  
unconsciousness
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : Adverse symptoms may include the following:  
nausea or vomiting

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

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

### 5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : Highly flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapour/gas is heavier than air and will spread along the ground. Vapours may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. This material is very toxic to aquatic life with long lasting effects. This material strongly accumulates in the environment and living organisms including in humans. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous combustion products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide

## SECTION 5: Firefighting measures

### 5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to British standard BS EN 469 will provide a basic level of protection for chemical incidents.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

### 6.2 Environmental precautions

- : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

### 6.3 Methods and material for containment and cleaning up

- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

### 6.4 Reference to other sections

- : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Avoid release to the environment. Avoid contact with eyes, skin and clothing. Do not ingest. Empty containers retain product residue and can be hazardous. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse container. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Do not swallow.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

### 7.2 Conditions for safe storage, including any incompatibilities

## SECTION 7: Handling and storage

**Storage** : Store between the following temperatures: 18 to 25°C (64.4 to 77°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

### Seveso Directive - Reporting thresholds

#### Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
P5c E1	5000 tonnes 100 tonnes	50000 tonnes 200 tonnes

### 7.3 Specific end use(s)

**Recommendations** : Industrial applications, Professional applications.

**Industrial sector specific solutions** : Not available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Product/ingredient name	Exposure limit values
heptane	<b>EH40/2005 WELs (United Kingdom (UK), 1/2020)</b> TWA 8 hours: 500 ppm. TWA 8 hours: 2085 mg/m <sup>3</sup> .
o-xylene	<b>EH40/2005 WELs (United Kingdom (UK), 1/2020) [xylene, o-,m-,p- or mixed isomers]</b> Absorbed through skin. STEL 15 minutes: 441 mg/m <sup>3</sup> . TWA 8 hours: 50 ppm. TWA 8 hours: 220 mg/m <sup>3</sup> . STEL 15 minutes: 100 ppm.
fluorene	<b>EU OEL (Europe, 3/2024) [Polycyclic aromatic hydrocarbons mixtures]</b> Absorbed through skin.
phenanthrene	<b>EU OEL (Europe, 3/2024) [Polycyclic aromatic hydrocarbons mixtures]</b> Absorbed through skin.

#### Biological exposure indices

Product/ingredient name	Exposure indices
o-xylene	<b>EH40/2005 BMGVs (United Kingdom (UK), 1/2020) [Xylene, o-, m-, p- or mixed isomers]</b> BGV: 650 mmol/mol creatinine, methyl hippuric acid [in urine]. Sampling time: post shift.
fluorene	<b>EH40/2005 BMGVs (United Kingdom (UK), 1/2020) [Polycyclic aromatic hydrocarbons]</b> BGV: 4 µmol/mol creatinine, 1-hydroxypyrene [in urine]. Sampling time: post shift.
phenanthrene	<b>EH40/2005 BMGVs (United Kingdom (UK), 1/2020) [Polycyclic aromatic hydrocarbons]</b> BGV: 4 µmol/mol creatinine, 1-hydroxypyrene [in urine]. Sampling time: post shift.

## SECTION 8: Exposure controls/personal protection

**Recommended monitoring procedures** : Reference should be made to monitoring standards, such as the following: British Standard BS EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) British Standard BS EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) British Standard BS EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

### DNELs/DMELs

#### **Product/ingredient name**

#### **Result**

heptane	DNEL - General population - Long term - Oral	149 mg/kg bw/day
	DNEL - General population - Long term - Dermal	149 mg/kg bw/day
	DNEL - Workers - Long term - Dermal	300 mg/kg bw/day
	DNEL - General population - Long term - Inhalation	447 mg/m <sup>3</sup>
	DNEL - Workers - Long term - Inhalation	2085 mg/m <sup>3</sup>
o-xylene	DNEL - General population - Long term - Oral	2.5 mg/kg bw/day
	DNEL - General population - Long term - Inhalation	65.3 mg/m <sup>3</sup>
	DNEL - General population - Long term - Inhalation	65.3 mg/m <sup>3</sup>
	DNEL - General population - Long term - Dermal	125 mg/kg bw/day
	DNEL - Workers - Long term - Dermal	212 mg/kg bw/day
	DNEL - Workers - Long term - Inhalation	221 mg/m <sup>3</sup>
	DNEL - Workers - Long term - Inhalation	221 mg/m <sup>3</sup>
	DNEL - General population - Short term - Inhalation	260 mg/m <sup>3</sup>
	DNEL - General population - Short term - Inhalation	260 mg/m <sup>3</sup>
	DNEL - Workers - Short term - Inhalation	442 mg/m <sup>3</sup>
DNEL - Workers - Short term - Inhalation	442 mg/m <sup>3</sup>	

### PNECs

Not available.

### 8.2 Exposure controls

**Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

### Individual protection measures

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

### Skin protection

## SECTION 8: Exposure controls/personal protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to British Standard BS EN 1149 for further information on material and design requirements and test methods.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### 9.1 Information on basic physical and chemical properties

#### Appearance

- Physical state** : Liquid.
- Colour** : Colourless.
- Odour** : Not available.
- Odour threshold** : Not available.
- Melting point/freezing point** : -91°C
- Initial boiling point and boiling range** : 98°C
- Flammability** : Not applicable.
- Lower and upper explosion limit/flammability limit** : Lower: 1.05%  
Upper: 6.7%
- Flash point** : Closed cup: -1.11°C
- Auto-ignition temperature** : 215°C
- Decomposition temperature** : Not available.
- pH** : Not available.
- Viscosity** : Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C): Not available.

Solubility	Media	Result
	water	Insoluble

**Partition coefficient: n-octanol/water** : Not applicable.

**Vapour pressure** :

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## SECTION 9: Physical and chemical properties

Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
heptane	34.5028	4.6	-	141.761	18.9	-
o-xylene	5.25043	0.7	-	25.652	3.4	-

Relative density : 0.684  
 Density : 0.684 g/cm<sup>3</sup>  
 Vapour density : 3.5 [Air = 1]

### Particle characteristics

Median particle size : Not applicable.

## 9.2 Other information

### 9.2.1 Information with regard to physical hazard classes

Explosive properties : Not available.  
 Oxidising properties : Not available.

### 9.2.2 Other safety characteristics

Miscible with water : No.  
 Evaporation rate : Not available.  
 Physical/chemical properties comments : Not available.

## SECTION 10: Stability and reactivity

- 10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- 10.2 Chemical stability** : The product is stable.
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- 10.4 Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapour to accumulate in low or confined areas.
- 10.5 Incompatible materials** : Reactive or incompatible with the following materials:  
 oxidising materials
- 10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	
heptane	Rat - Oral - LD50	>17 g/kg
	Rabbit - Dermal - LD50	>2 g/kg
	Rat - Inhalation - LC50 Vapour	103 g/m <sup>3</sup> [4 hours]
	Rat - Inhalation - LC50 Vapour	48000 ppm [4 hours]
o-xylene	Rat - Oral - LD50	3567 mg/kg
	Rat - Inhalation - LC50 Vapour	6350 ppm [4 hours]
	Rat - Inhalation - LC50 Vapour	27.559 mg/l [4 hours]
phenanthrene	Rat - Oral - LD50	1.8 g/kg
	Not available.	

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## SECTION 11: Toxicological information

**Conclusion/Summary** :

[Product]

### Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
EN12916:2006 IP391-07 Cal. Soln A	N/A	20680.2	N/A	206.8	N/A
heptane	N/A	N/A	N/A	103	N/A
o-xylene	3000	1100	N/A	11	N/A
phenanthrene	1800	N/A	N/A	N/A	N/A

### Skin corrosion/irritation

**Conclusion/Summary** : Not available.

[Product]

### Serious eye damage/eye irritation

**Conclusion/Summary** : Not available.

[Product]

### Respiratory corrosion/irritation

**Conclusion/Summary** : Not available.

[Product]

### Respiratory or skin sensitization

#### Skin

**Conclusion/Summary** : Not available.

[Product]

#### Respiratory

**Conclusion/Summary** : Not available.

[Product]

### Germ cell mutagenicity

**Conclusion/Summary** : Not available.

[Product]

### Carcinogenicity

**Conclusion/Summary** : Not available.

[Product]

### Reproductive toxicity

**Conclusion/Summary** : Not available.

[Product]

### Specific target organ toxicity (single exposure)

**Product/ingredient name**

**Result**

heptane

STOT SE 3, H336 (Narcotic effects)

o-xylene

STOT SE 3, H335 (Respiratory tract irritation)

### Specific target organ toxicity (repeated exposure)

Not available.

## SECTION 11: Toxicological information

### Aspiration hazard

Product/ingredient name	Result
EN12916:2006 IP391-07 Cal. Soln A	ASPIRATION HAZARD - Category 1
heptane	ASPIRATION HAZARD - Category 1
o-xylene	ASPIRATION HAZARD - Category 1

**Information on likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

### Potential acute health effects

<b>Eye contact</b>	: No known significant effects or critical hazards.
<b>Inhalation</b>	: Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
<b>Skin contact</b>	: Causes skin irritation.
<b>Ingestion</b>	: Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

### Symptoms related to the physical, chemical and toxicological characteristics

<b>Eye contact</b>	: Adverse symptoms may include the following: pain or irritation watering redness
<b>Inhalation</b>	: Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
<b>Skin contact</b>	: Adverse symptoms may include the following: irritation redness
<b>Ingestion</b>	: Adverse symptoms may include the following: nausea or vomiting

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

#### Short term exposure

<b>Potential immediate effects</b>	: Not available.
<b>Potential delayed effects</b>	: Not available.

#### Long term exposure

<b>Potential immediate effects</b>	: Not available.
<b>Potential delayed effects</b>	: Not available.

### Potential chronic health effects

<b>Conclusion/Summary [Product]</b>	: Not available.
<b>General</b>	: No known significant effects or critical hazards.
<b>Carcinogenicity</b>	: No known significant effects or critical hazards.
<b>Mutagenicity</b>	: No known significant effects or critical hazards.
<b>Reproductive toxicity</b>	: No known significant effects or critical hazards.
<b>Other information</b>	: Adverse symptoms may include the following: Repeated exposure may cause skin dryness or cracking.

**SECTION 12: Ecological information****12.1 Toxicity**

Product/ingredient name	Result		
heptane	Acute - LC50 - Fresh water Fish - Mozambique tilapia - <i>Oreochromis mossambicus</i> Size: 99 mm; Weight: 10 g 375 mg/l [96 hours] Mortality	-	-
o-xylene	Acute - LC50 - Fresh water Fish - Rainbow trout, donaldson trout - <i>Oncorhynchus mykiss</i> 7600 µg/l [96 hours] Mortality	-	-
	Acute - EC50 - Fresh water Daphnia - Water flea - <i>Daphnia magna</i> - Neonate Age: ≤24 hours 1.39 mg/l [48 hours] Intoxication	-	-
	Chronic - NOEC - Fresh water OECD [Daphnia Magna Reproduction Test] Daphnia - <i>Daphnia magna</i> 1.57 mg/l [21 days]	-	-
	Chronic - NOEC - Fresh water OECD [Fish, Early-Life Stage Toxicity Test] Fish - <i>Danio rerio</i> 0.714 mg/l [35 days]	-	-
	Acute - EC50 - Fresh water Algae - Green algae - <i>Raphidocelis subcapitata</i> 4700 µg/l [72 hours] Growth	-	-
fluorene	Acute - EC50 - Fresh water Daphnia - Water flea - <i>Daphnia pulex</i> - Neonate Age: <24 hours 212 µg/l [48 hours] Intoxication	-	-
	Acute - LC50 - Fresh water Fish - Rainbow trout, donaldson trout - <i>Oncorhynchus mykiss</i>	-	-

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**SECTION 12: Ecological information**

	0.82 mg/l [96 hours] Mortality		
	Chronic - NOEC - Fresh water Fish - Bluegill - <i>Lepomis macrochirus</i> - Fingerling 0.125 mg/l [30 days] Growth	-	-
	Chronic - NOEC - Fresh water Daphnia - Water flea - <i>Daphnia magna</i> 0.125 mg/l [21 days] Reproduction	-	-
	Acute - EC50 - Fresh water Algae - Green algae - <i>Raphidocelis subcapitata</i> 3.4 mg/l [96 hours] Population	-	-
phenanthrene	Acute - EC50 - Fresh water Daphnia - Water flea - <i>Daphnia magna</i> - Adult Weight: 0.004 g 0.117 mg/l [48 hours] Intoxication	-	-
	Chronic - NOEC - Fresh water Daphnia - Water flea - <i>Daphnia magna</i> - Neonate Age: <24 hours 48 µg/l [21 days] Mortality	-	-
	Chronic - NOEC - Fresh water Fish - Rainbow trout, donaldson trout - <i>Oncorhynchus mykiss</i> - Embryo Age: 3 days 0.005 mg/l [90 days] Population	-	-
	Chronic - NOEC - Fresh water Aquatic plants - Duckweed - <i>Lemna minor</i> 0.658 mg/l [96 hours] Population	-	-
	Acute - EC50 - Fresh water Fish - Bluegill - <i>Lepomis macrochirus</i> - Juvenile (Fledgling, Hatchling, Weanling)	-	-

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## SECTION 12: Ecological information

Size: 13 mm  
0.049 mg/l [96 hours]  
Behavior

Acute - EC50 - Fresh water -  
Algae - Green algae -  
*Raphidocelis subcapitata*  
324 µg/l [3 days]  
Population

**Conclusion/Summary [Product]** : Not available.

### 12.2 Persistence and degradability

Product/ingredient name	Result
o-xylene	OECD [ Ready Biodegradability - Manometric Respirometry Test] 98% [28 days] - Readily Aerobic

**Conclusion/Summary [Product]** : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
heptane	-	-	Readily
o-xylene	-	-	Readily

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
heptane	4.66	552	High
o-xylene	3.12	8.1 to 25.9	Low
fluorene	4.18	524.81	High
phenanthrene	4.46	2511.89	High

### 12.4 Mobility in soil

#### Soil/water partition coefficient

Product/ingredient name	logKoc	Koc
heptane	2.5	321.749
o-xylene	2.3	178.668
fluorene	3.7	5010.8
phenanthrene	4.3	22309.4

#### Results of PMT and vPvM assessment

Product/ingredient name	PMT	P	M	T	vPvM	vP	vM
heptane	No	No	No	No	No	No	No
o-xylene	No	N/A	Yes	No	No	N/A	No
fluorene	No	N/A	No	No	No	N/A	No
phenanthrene	No	Yes	No	Yes	No	Yes	No

**Mobility** : Not available.

**Conclusion/Summary** : The product does not meet the criteria to be considered as a PMT or vPvM.

### 12.5 Results of PBT and vPvB assessment

#### Regulation (EC) No. 1907/2006 [REACH]

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## SECTION 12: Ecological information

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
heptane	No	N/A	No	No	No	N/A	No
o-xylene	No	N/A	No	No	No	N/A	No
fluorene	No	N/A	No	No	No	N/A	No
phenanthrene	Yes	Yes	Yes	Yes	Yes	Yes	Yes

### Regulation (EC) No. 1272/2008 [CLP]

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
heptane	No	No	No	No	No	No	No
o-xylene	No	N/A	No	No	No	N/A	No
fluorene	No	N/A	No	No	No	N/A	No
phenanthrene	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Conclusion/Summary** : Strongly accumulates in the environment and living organisms including in humans.

**Regulation (EC) No. 1272/2008 [CLP]**

### 12.6 Endocrine disrupting properties

Not available.

**Conclusion/Summary [Product]** : The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

### 12.7 Other adverse effects

No known significant effects or critical hazards.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

**Methods of disposal** : Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. The generation of waste should be avoided or minimised wherever possible. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

**Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

#### Packaging






**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

**Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

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## SECTION 14: Transport information

	ADR/RID	IMDG	IATA
14.1 UN number	UN1206	UN1206	UN1206
14.2 UN proper shipping name	HEPTANES solution	HEPTANES solution	Heptanes solution
14.3 Transport hazard class(es)	3  	3  	3 
14.4 Packing group	II	II	II
14.5 Environmental hazards	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.

### Additional information

**Remarks** : De minimis quantities

**ADR/RID** : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

**Hazard identification number** 33

**Limited quantity** 1 L

**Tunnel code** (D/E)

**IMDG** : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

**Emergency schedules** F-E, \_S-D\_

**IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.

**Quantity limitation** Passenger and Cargo Aircraft: 5 L. Packaging instructions: 353. Cargo Aircraft Only: 60 L. Packaging instructions: 364. Limited Quantities - Passenger Aircraft: 1 L. Packaging instructions: Y341.

**14.6 Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**14.7 Transport in bulk according to IMO instruments** : Not available.

## SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

### UK (GB)/REACH

#### Annex XIV - List of substances subject to authorisation

##### Annex XIV

None of the components are listed.

#### Substances of very high concern

Intrinsic property	Ingredient name	Status	Reference number	Date of revision
vPvB	phenanthrene	Candidate	-	1/15/2019

#### Ozone depleting substances

Not listed.

#### Prior Informed Consent (PIC)

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## SECTION 15: Regulatory information

Not listed.

### Persistent Organic Pollutants

Annex	Ingredient name	Status
Annex III	Polycyclic aromatic hydrocarbons	Listed
	Polycyclic aromatic hydrocarbons	Listed

### Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

None of the components are listed / The components are not impacted by a restriction

**Labelling** : Not applicable.

### Seveso Directive

This product is controlled under the Seveso Directive.

### Danger criteria

Category
P5c
E1

### EU regulations

**Industrial emissions (integrated pollution prevention and control) - Air** : Not listed

**Industrial emissions (integrated pollution prevention and control) - Water** : Not listed

**15.2 Chemical safety assessment** : This product contains substances for which Chemical Safety Assessments might still be required.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

**United States** : All components are active or exempted.

## SECTION 16: Other information

✔ Indicates information that has changed from previously issued version.

**SECTION 16: Other information**

**Abbreviations and acronyms**

- : ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
- ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
- ATE = Acute Toxicity Estimate
- GB CLP = UK CLP (EC No 1272/2008) on the Classification, Labelling and Packaging of Substances and Mixtures as amended by (EU Exit) Regulations 2019 No. 720 and amendments
- DMEL = Derived Minimal Effect Level
- DNEL = Derived No Effect Level
- EUH statement = GB CLP-specific Hazard statement
- IATA = International Air Transport Association
- IMDG = International Maritime Dangerous Goods
- IMO = International Maritime Organization
- N/A = Not available
- PBT = Persistent, Bioaccumulative and Toxic
- PNEC = Predicted No Effect Concentration
- RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
- RRN = REACH Registration Number
- SGG = Segregation Group
- vPvB = Very Persistent and Very Bioaccumulative

**Procedure used to derive the classification**

Classification	Justification
Flam. Liq. 2, H225	On basis of test data
Skin Irrit. 2, H315	Calculation method
STOT SE 3, H336	Calculation method
Asp. Tox. 1, H304	Expert judgment
Aquatic Acute 1, H400	Calculation method
Aquatic Chronic 1, H410	Calculation method
PBT, EUH440	Calculation method
vPvB, EUH441	Calculation method

**Full text of abbreviated H statements**

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
EUH440	Accumulates in the environment and living organisms including in humans.
EUH441	Strongly accumulates in the environment and living organisms including in humans.

**Full text of classifications**

**SECTION 16: Other information**

Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 2	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Aquatic Chronic 3	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Asp. Tox. 1	ASPIRATION HAZARD - 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
PBT	PERSISTENT, BIOACCUMULATIVE AND TOXIC
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3
vPvB	VERY PERSISTENT AND VERY BIOACCUMULATIVE

**Date of issue/ Date of revision** : 12/03/2026

**Date of previous issue** : No previous validation

**Version** : 1

Notice to reader

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# SAFETY DATA SHEET

EN12916:2006 IP391-07 Cal. Soln B

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

### 1.1 Product identifier

**Product name** : EN12916:2006 IP391-07 Cal. Soln B  
**Part no.** : 5190-0484-B

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

**Identified uses** : Reagents and Standards for Analytical Chemistry Laboratory Use  
1 x 1 ml  
**Uses advised against** : None known.

### 1.3 Details of the supplier of the safety data sheet

Agilent Technologies LDA UK Ltd.  
5500 Lakeside Cheadle Royal Business Park,  
Cheadle, Cheshire, SK8 3GR  
United Kingdom  
Tel: +44 (0) 345 712 5292  
**e-mail address of person responsible for this SDS** : pdl-msds\_author@agilent.com

### 1.4 Emergency telephone number

**Emergency telephone number (with hours of operation)** : CHEMTREC®: +44 20 3807 3798

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : Mixture

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

H225	FLAMMABLE LIQUIDS	Category 2
H315	SKIN CORROSION/IRRITATION	Category 2
H336	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects)	Category 3
H304	ASPIRATION HAZARD	Category 1
H400	SHORT-TERM (ACUTE) AQUATIC HAZARD	Category 1
H410	LONG-TERM (CHRONIC) AQUATIC HAZARD	Category 1
EUH440	PERSISTENT, BIOACCUMULATIVE AND TOXIC	Applicable
EUH441	VERY PERSISTENT AND VERY BIOACCUMULATIVE	Applicable

The product is classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

**Ingredients of unknown toxicity** : Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 1 - 10%  
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 1 - 10%  
Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 1 - 10%

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

### 2.2 Label elements

## SECTION 2: Hazards identification

**Hazard pictograms** :



**Signal word** : Danger

**Hazard statements** :

- H225 - Highly flammable liquid and vapour.
- H304 - May be fatal if swallowed and enters airways.
- H315 - Causes skin irritation.
- H336 - May cause drowsiness or dizziness.
- H410 - Very toxic to aquatic life with long lasting effects.
- EUH441 - Strongly accumulates in the environment and living organisms including in humans.

### Precautionary statements

**Prevention** :

- P201 - Obtain special instructions before use.
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P273 - Avoid release to the environment.

**Response** : P391 - Collect spillage.

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

**Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Hazardous ingredients** : heptane

**Supplemental label elements** : Not applicable.

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Not applicable.

### Special packaging requirements

**Containers to be fitted with child-resistant fastenings** : Not applicable.

**Tactile warning of danger** : Not applicable.

### 2.3 Other hazards

**Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII** : This mixture contains substances that are assessed to be a PBT or a vPvB, refer to Section 3.2.

**Other hazards which do not result in classification** : None known.

## SECTION 3: Composition/information on ingredients

**3.2 Mixtures** : Mixture

### SECTION 3: Composition/information on ingredients

Product/ingredient name	Identifiers	%	Classification	Type
Heptane	EC: 205-563-8 CAS: 142-82-5 Index: 601-008-00-2	≥90	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	[1] [2]
o-xylene	EC: 202-422-2 CAS: 95-47-6 Index: 601-022-00-9	≤3	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 3, H412	[1] [2]
Fluorene	EC: 201-695-5 CAS: 86-73-7	≤3	Aquatic Acute 1, H400 (M=1) Aquatic Chronic 2, H411	[1] [2]
Phenanthrene	EC: 201-581-5 CAS: 85-01-8	≤0.3	Acute Tox. 4, H302 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=10) PBT, EUH440 vPvB, EUH441 <b>See Section 16 for the full text of the H statements declared above.</b>	[1] [2] [3] [4]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

#### Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT

[4] Substance meets the criteria for vPvB

Occupational exposure limits, if available, are listed in Section 8.

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

## SECTION 4: First aid measures

- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

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

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
nausea or vomiting  
headache  
drowsiness/fatigue  
dizziness/vertigo  
unconsciousness
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : Adverse symptoms may include the following:  
nausea or vomiting

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

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

### 5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : Highly flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapour/gas is heavier than air and will spread along the ground. Vapours may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. This material is very toxic to aquatic life with long lasting effects. This material strongly accumulates in the environment and living organisms including in humans. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous combustion products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide

## SECTION 5: Firefighting measures

### 5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to British standard BS EN 469 will provide a basic level of protection for chemical incidents.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

### 6.2 Environmental precautions

- : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

### 6.3 Methods and material for containment and cleaning up

- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

### 6.4 Reference to other sections

- : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Avoid release to the environment. Avoid contact with eyes, skin and clothing. Do not ingest. Empty containers retain product residue and can be hazardous. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse container. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Do not swallow.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

### 7.2 Conditions for safe storage, including any incompatibilities

## SECTION 7: Handling and storage

**Storage** : Store between the following temperatures: 18 to 25°C (64.4 to 77°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

### Seveso Directive - Reporting thresholds

#### Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
P5c E1	5000 tonnes 100 tonnes	50000 tonnes 200 tonnes

### 7.3 Specific end use(s)

**Recommendations** : Industrial applications, Professional applications.

**Industrial sector specific solutions** : Not available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Product/ingredient name	Exposure limit values
heptane	<b>EH40/2005 WELs (United Kingdom (UK), 1/2020)</b> TWA 8 hours: 500 ppm. TWA 8 hours: 2085 mg/m <sup>3</sup> .
o-xylene	<b>EH40/2005 WELs (United Kingdom (UK), 1/2020) [xylene, o-,m-,p- or mixed isomers]</b> Absorbed through skin. STEL 15 minutes: 441 mg/m <sup>3</sup> . TWA 8 hours: 50 ppm. TWA 8 hours: 220 mg/m <sup>3</sup> . STEL 15 minutes: 100 ppm.
fluorene	<b>EU OEL (Europe, 3/2024) [Polycyclic aromatic hydrocarbons mixtures]</b> Absorbed through skin.
phenanthrene	<b>EU OEL (Europe, 3/2024) [Polycyclic aromatic hydrocarbons mixtures]</b> Absorbed through skin.

#### Biological exposure indices

Product/ingredient name	Exposure indices
o-xylene	<b>EH40/2005 BMGVs (United Kingdom (UK), 1/2020) [Xylene, o-, m-, p- or mixed isomers]</b> BGV: 650 mmol/mol creatinine, methyl hippuric acid [in urine]. Sampling time: post shift.
fluorene	<b>EH40/2005 BMGVs (United Kingdom (UK), 1/2020) [Polycyclic aromatic hydrocarbons]</b> BGV: 4 µmol/mol creatinine, 1-hydroxypyrene [in urine]. Sampling time: post shift.
phenanthrene	<b>EH40/2005 BMGVs (United Kingdom (UK), 1/2020) [Polycyclic aromatic hydrocarbons]</b> BGV: 4 µmol/mol creatinine, 1-hydroxypyrene [in urine]. Sampling time: post shift.

## SECTION 8: Exposure controls/personal protection

**Recommended monitoring procedures** : Reference should be made to monitoring standards, such as the following: British Standard BS EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) British Standard BS EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) British Standard BS EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

### DNELs/DMELs

#### **Product/ingredient name**

#### **Result**

heptane	DNEL - General population - Long term - Oral	149 mg/kg bw/day
	DNEL - General population - Long term - Dermal	149 mg/kg bw/day
	DNEL - Workers - Long term - Dermal	300 mg/kg bw/day
	DNEL - General population - Long term - Inhalation	447 mg/m <sup>3</sup>
	DNEL - Workers - Long term - Inhalation	2085 mg/m <sup>3</sup>
o-xylene	DNEL - General population - Long term - Oral	2.5 mg/kg bw/day
	DNEL - General population - Long term - Inhalation	65.3 mg/m <sup>3</sup>
	DNEL - General population - Long term - Inhalation	65.3 mg/m <sup>3</sup>
	DNEL - General population - Long term - Dermal	125 mg/kg bw/day
	DNEL - Workers - Long term - Dermal	212 mg/kg bw/day
	DNEL - Workers - Long term - Inhalation	221 mg/m <sup>3</sup>
	DNEL - Workers - Long term - Inhalation	221 mg/m <sup>3</sup>
	DNEL - General population - Short term - Inhalation	260 mg/m <sup>3</sup>
	DNEL - General population - Short term - Inhalation	260 mg/m <sup>3</sup>
	DNEL - Workers - Short term - Inhalation	442 mg/m <sup>3</sup>
DNEL - Workers - Short term - Inhalation	442 mg/m <sup>3</sup>	

### PNECs

Not available.

### 8.2 Exposure controls

**Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

#### Individual protection measures

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

#### Skin protection

## SECTION 8: Exposure controls/personal protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to British Standard BS EN 1149 for further information on material and design requirements and test methods.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### 9.1 Information on basic physical and chemical properties

#### Appearance

- Physical state** : Liquid.
- Colour** : Colourless.
- Odour** : Not available.
- Odour threshold** : Not available.
- Melting point/freezing point** : -91°C
- Initial boiling point and boiling range** : 98°C
- Flammability** : Not applicable.
- Lower and upper explosion limit/flammability limit** : Lower: 1.05%  
Upper: 6.7%
- Flash point** : Closed cup: -1.11°C
- Auto-ignition temperature** : 215°C
- Decomposition temperature** : Not available.
- pH** : Not available.
- Viscosity** : Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C): Not available.

Solubility	Media	Result
	water	Insoluble

**Partition coefficient: n-octanol/water** : Not applicable.

**Vapour pressure** :

## SECTION 9: Physical and chemical properties

Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
heptane	34.5028	4.6	-	141.761	18.9	-
o-xylene	5.25043	0.7	-	25.652	3.4	-

Relative density : 0.684  
 Density : 0.684 g/cm<sup>3</sup>  
 Vapour density : 3.5 [Air = 1]

### Particle characteristics

Median particle size : Not applicable.

## 9.2 Other information

### 9.2.1 Information with regard to physical hazard classes

Explosive properties : Not available.  
 Oxidising properties : Not available.

### 9.2.2 Other safety characteristics

Miscible with water : No.  
 Evaporation rate : Not available.  
 Physical/chemical properties comments : Not available.

## SECTION 10: Stability and reactivity

- 10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- 10.2 Chemical stability** : The product is stable.
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- 10.4 Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapour to accumulate in low or confined areas.
- 10.5 Incompatible materials** : Reactive or incompatible with the following materials:  
 oxidising materials
- 10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	
heptane	Rat - Oral - LD50	>17 g/kg
	Rabbit - Dermal - LD50	>2 g/kg
	Rat - Inhalation - LC50 Vapour	103 g/m <sup>3</sup> [4 hours]
	Rat - Inhalation - LC50 Vapour	48000 ppm [4 hours]
o-xylene	Rat - Oral - LD50	3567 mg/kg
	Rat - Inhalation - LC50 Vapour	6350 ppm [4 hours]
	Rat - Inhalation - LC50 Vapour	27.559 mg/l [4 hours]
phenanthrene	Rat - Oral - LD50	1.8 g/kg
	Not available.	

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## SECTION 11: Toxicological information

**Conclusion/Summary** :

[Product]

### Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
EN12916:2006 IP391-07 Cal. Soln B	N/A	78097.3	N/A	781.0	N/A
heptane	N/A	N/A	N/A	103	N/A
o-xylene	3000	1100	N/A	11	N/A
phenanthrene	1800	N/A	N/A	N/A	N/A

### Skin corrosion/irritation

**Conclusion/Summary** : Not available.

[Product]

### Serious eye damage/eye irritation

**Conclusion/Summary** : Not available.

[Product]

### Respiratory corrosion/irritation

**Conclusion/Summary** : Not available.

[Product]

### Respiratory or skin sensitization

#### Skin

**Conclusion/Summary** : Not available.

[Product]

#### Respiratory

**Conclusion/Summary** : Not available.

[Product]

### Germ cell mutagenicity

**Conclusion/Summary** : Not available.

[Product]

### Carcinogenicity

**Conclusion/Summary** : Not available.

[Product]

### Reproductive toxicity

**Conclusion/Summary** : Not available.

[Product]

### Specific target organ toxicity (single exposure)

**Product/ingredient name**

**Result**

heptane

STOT SE 3, H336 (Narcotic effects)

o-xylene

STOT SE 3, H335 (Respiratory tract irritation)

### Specific target organ toxicity (repeated exposure)

Not available.

## SECTION 11: Toxicological information

### Aspiration hazard

Product/ingredient name	Result
EN12916:2006 IP391-07 Cal. Soln B	ASPIRATION HAZARD - Category 1
heptane	ASPIRATION HAZARD - Category 1
o-xylene	ASPIRATION HAZARD - Category 1

**Information on likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

### Potential acute health effects

<b>Eye contact</b>	: No known significant effects or critical hazards.
<b>Inhalation</b>	: Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
<b>Skin contact</b>	: Causes skin irritation.
<b>Ingestion</b>	: Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

### Symptoms related to the physical, chemical and toxicological characteristics

<b>Eye contact</b>	: Adverse symptoms may include the following: pain or irritation watering redness
<b>Inhalation</b>	: Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
<b>Skin contact</b>	: Adverse symptoms may include the following: irritation redness
<b>Ingestion</b>	: Adverse symptoms may include the following: nausea or vomiting

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

#### Short term exposure

<b>Potential immediate effects</b>	: Not available.
<b>Potential delayed effects</b>	: Not available.

#### Long term exposure

<b>Potential immediate effects</b>	: Not available.
<b>Potential delayed effects</b>	: Not available.

### Potential chronic health effects

<b>Conclusion/Summary [Product]</b>	: Not available.
<b>General</b>	: No known significant effects or critical hazards.
<b>Carcinogenicity</b>	: No known significant effects or critical hazards.
<b>Mutagenicity</b>	: No known significant effects or critical hazards.
<b>Reproductive toxicity</b>	: No known significant effects or critical hazards.
<b>Other information</b>	: Adverse symptoms may include the following: Repeated exposure may cause skin dryness or cracking.

## SECTION 12: Ecological information

## 12.1 Toxicity

Product/ingredient name	Result		
heptane	Acute - LC50 - Fresh water Fish - Mozambique tilapia - <i>Oreochromis mossambicus</i> Size: 99 mm; Weight: 10 g 375 mg/l [96 hours] Mortality	-	-
o-xylene	Acute - LC50 - Fresh water Fish - Rainbow trout, donaldson trout - <i>Oncorhynchus mykiss</i> 7600 µg/l [96 hours] Mortality	-	-
	Acute - EC50 - Fresh water Daphnia - Water flea - <i>Daphnia magna</i> - Neonate Age: ≤24 hours 1.39 mg/l [48 hours] Intoxication	-	-
	Chronic - NOEC - Fresh water OECD [Daphnia Magna Reproduction Test] Daphnia - <i>Daphnia magna</i> 1.57 mg/l [21 days]	-	-
	Chronic - NOEC - Fresh water OECD [Fish, Early-Life Stage Toxicity Test] Fish - <i>Danio rerio</i> 0.714 mg/l [35 days]	-	-
	Acute - EC50 - Fresh water Algae - Green algae - <i>Raphidocelis subcapitata</i> 4700 µg/l [72 hours] Growth	-	-
fluorene	Acute - EC50 - Fresh water Daphnia - Water flea - <i>Daphnia pulex</i> - Neonate Age: <24 hours 212 µg/l [48 hours] Intoxication	-	-
	Acute - LC50 - Fresh water Fish - Rainbow trout, donaldson trout - <i>Oncorhynchus mykiss</i>	-	-

**SECTION 12: Ecological information**

	0.82 mg/l [96 hours] Mortality		
	Chronic - NOEC - Fresh water Fish - Bluegill - <i>Lepomis macrochirus</i> - Fingerling 0.125 mg/l [30 days] Growth	-	-
	Chronic - NOEC - Fresh water Daphnia - Water flea - <i>Daphnia magna</i> 0.125 mg/l [21 days] Reproduction	-	-
	Acute - EC50 - Fresh water Algae - Green algae - <i>Raphidocelis subcapitata</i> 3.4 mg/l [96 hours] Population	-	-
phenanthrene	Acute - EC50 - Fresh water Daphnia - Water flea - <i>Daphnia magna</i> - Adult Weight: 0.004 g 0.117 mg/l [48 hours] Intoxication	-	-
	Chronic - NOEC - Fresh water Daphnia - Water flea - <i>Daphnia magna</i> - Neonate Age: <24 hours 48 µg/l [21 days] Mortality	-	-
	Chronic - NOEC - Fresh water Fish - Rainbow trout, donaldson trout - <i>Oncorhynchus mykiss</i> - Embryo Age: 3 days 0.005 mg/l [90 days] Population	-	-
	Chronic - NOEC - Fresh water Aquatic plants - Duckweed - <i>Lemna minor</i> 0.658 mg/l [96 hours] Population	-	-
	Acute - EC50 - Fresh water Fish - Bluegill - <i>Lepomis macrochirus</i> - Juvenile (Fledgling, Hatchling, Weanling)	-	-

## SECTION 12: Ecological information

Size: 13 mm  
0.049 mg/l [96 hours]  
Behavior

Acute - EC50 - Fresh water -  
Algae - Green algae -  
*Raphidocelis subcapitata*  
324 µg/l [3 days]  
Population

**Conclusion/Summary [Product]** : Not available.

### 12.2 Persistence and degradability

Product/ingredient name	Result
o-xylene	OECD [ Ready Biodegradability - Manometric Respirometry Test] 98% [28 days] - Readily Aerobic

**Conclusion/Summary [Product]** : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
heptane	-	-	Readily
o-xylene	-	-	Readily

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
heptane	4.66	552	High
o-xylene	3.12	8.1 to 25.9	Low
fluorene	4.18	524.81	High
phenanthrene	4.46	2511.89	High

### 12.4 Mobility in soil

#### Soil/water partition coefficient

Product/ingredient name	logKoc	Koc
heptane	2.5	321.749
o-xylene	2.3	178.668
fluorene	3.7	5010.8
phenanthrene	4.3	22309.4

#### Results of PMT and vPvM assessment

Product/ingredient name	PMT	P	M	T	vPvM	vP	vM
heptane	No	No	No	No	No	No	No
o-xylene	No	N/A	Yes	No	No	N/A	No
fluorene	No	N/A	No	No	No	N/A	No
phenanthrene	No	Yes	No	Yes	No	Yes	No

**Mobility** : Not available.

**Conclusion/Summary** : The product does not meet the criteria to be considered as a PMT or vPvM.

### 12.5 Results of PBT and vPvB assessment

#### Regulation (EC) No. 1907/2006 [REACH]

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## SECTION 12: Ecological information

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
heptane	No	N/A	No	No	No	N/A	No
o-xylene	No	N/A	No	No	No	N/A	No
fluorene	No	N/A	No	No	No	N/A	No
phenanthrene	Yes	Yes	Yes	Yes	Yes	Yes	Yes

### Regulation (EC) No. 1272/2008 [CLP]

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
heptane	No	No	No	No	No	No	No
o-xylene	No	N/A	No	No	No	N/A	No
fluorene	No	N/A	No	No	No	N/A	No
phenanthrene	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Conclusion/Summary** : Strongly accumulates in the environment and living organisms including in humans.

**Regulation (EC) No. 1272/2008 [CLP]**

### 12.6 Endocrine disrupting properties

Not available.

**Conclusion/Summary [Product]** : The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

### 12.7 Other adverse effects

No known significant effects or critical hazards.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

**Methods of disposal** : Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. The generation of waste should be avoided or minimised wherever possible. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

**Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

#### Packaging

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

**Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

EN12916:2006 IP391-07 Cal. Soln B

## SECTION 14: Transport information

	ADR/RID	IMDG	IATA
14.1 UN number	UN1206	UN1206	UN1206
14.2 UN proper shipping name	HEPTANES solution	HEPTANES solution	Heptanes solution
14.3 Transport hazard class(es)	3 	3 	3 
14.4 Packing group	II	II	II
14.5 Environmental hazards	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.

### Additional information

**Remarks** : De minimis quantities

**ADR/RID** : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

**Hazard identification number** 33

**Limited quantity** 1 L

**Tunnel code** (D/E)

**IMDG** : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

**Emergency schedules** F-E, \_S-D\_

**IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.

**Quantity limitation** Passenger and Cargo Aircraft: 5 L. Packaging instructions: 353. Cargo Aircraft Only: 60 L. Packaging instructions: 364. Limited Quantities - Passenger Aircraft: 1 L. Packaging instructions: Y341.

**14.6 Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**14.7 Transport in bulk according to IMO instruments** : Not available.

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### UK (GB)/REACH

##### Annex XIV - List of substances subject to authorisation

##### Annex XIV

None of the components are listed.

##### Substances of very high concern

Intrinsic property	Ingredient name	Status	Reference number	Date of revision
vPvB	phenanthrene	Candidate	-	1/15/2019

##### Ozone depleting substances

Not listed.

##### Prior Informed Consent (PIC)

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## SECTION 15: Regulatory information

Not listed.

### Persistent Organic Pollutants

Annex	Ingredient name	Status
Annex III	Polycyclic aromatic hydrocarbons	Listed
	Polycyclic aromatic hydrocarbons	Listed

### Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

None of the components are listed / The components are not impacted by a restriction

**Labelling** : Not applicable.

### Seveso Directive

This product is controlled under the Seveso Directive.

### Danger criteria

Category
P5c
E1

### EU regulations

**Industrial emissions (integrated pollution prevention and control) - Air** : Not listed

**Industrial emissions (integrated pollution prevention and control) - Water** : Not listed

**15.2 Chemical safety assessment** : This product contains substances for which Chemical Safety Assessments might still be required.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

**United States** : All components are active or exempted.

## SECTION 16: Other information

✔ Indicates information that has changed from previously issued version.

**SECTION 16: Other information**

**Abbreviations and acronyms**

- : ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
- ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
- ATE = Acute Toxicity Estimate
- GB CLP = UK CLP (EC No 1272/2008) on the Classification, Labelling and Packaging of Substances and Mixtures as amended by (EU Exit) Regulations 2019 No. 720 and amendments
- DMEL = Derived Minimal Effect Level
- DNEL = Derived No Effect Level
- EUH statement = GB CLP-specific Hazard statement
- IATA = International Air Transport Association
- IMDG = International Maritime Dangerous Goods
- IMO = International Maritime Organization
- N/A = Not available
- PBT = Persistent, Bioaccumulative and Toxic
- PNEC = Predicted No Effect Concentration
- RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
- RRN = REACH Registration Number
- SGG = Segregation Group
- vPvB = Very Persistent and Very Bioaccumulative

**Procedure used to derive the classification**

Classification	Justification
Flam. Liq. 2, H225	On basis of test data
Skin Irrit. 2, H315	Calculation method
STOT SE 3, H336	Calculation method
Asp. Tox. 1, H304	Expert judgment
Aquatic Acute 1, H400	Calculation method
Aquatic Chronic 1, H410	Calculation method
PBT, EUH440	Calculation method
vPvB, EUH441	Calculation method

**Full text of abbreviated H statements**

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
EUH440	Accumulates in the environment and living organisms including in humans.
EUH441	Strongly accumulates in the environment and living organisms including in humans.

**Full text of classifications**

**SECTION 16: Other information**

Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 2	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Aquatic Chronic 3	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Asp. Tox. 1	ASPIRATION HAZARD - 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
PBT	PERSISTENT, BIOACCUMULATIVE AND TOXIC
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3
vPvB	VERY PERSISTENT AND VERY BIOACCUMULATIVE

**Date of issue/ Date of revision** : 12/03/2026

**Date of previous issue** : No previous validation

**Version** : 1

Notice to reader

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# SAFETY DATA SHEET

EN12916:2006 IP391-07 Cal. Soln C

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

### 1.1 Product identifier

**Product name** : EN12916:2006 IP391-07 Cal. Soln C  
**Part no.** : 5190-0484-C

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

**Identified uses** : Reagents and Standards for Analytical Chemistry Laboratory Use  
 1 x 1 ml  
**Uses advised against** : None known.

### 1.3 Details of the supplier of the safety data sheet

Agilent Technologies LDA UK Ltd.  
 5500 Lakeside Cheadle Royal Business Park,  
 Cheadle, Cheshire, SK8 3GR  
 United Kingdom  
 Tel: +44 (0) 345 712 5292  
**e-mail address of person responsible for this SDS** : pdl-msds\_author@agilent.com

### 1.4 Emergency telephone number

**Emergency telephone number (with hours of operation)** : CHEMTREC®: +44 20 3807 3798

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : Mixture

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

H225	FLAMMABLE LIQUIDS	Category 2
H315	SKIN CORROSION/IRRITATION	Category 2
H336	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects)	Category 3
H304	ASPIRATION HAZARD	Category 1
H400	SHORT-TERM (ACUTE) AQUATIC HAZARD	Category 1
H410	LONG-TERM (CHRONIC) AQUATIC HAZARD	Category 1

The product is classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

### 2.2 Label elements

**Hazard pictograms** :



**Signal word** : Danger

**Hazard statements** : H225 - Highly flammable liquid and vapour.  
 H304 - May be fatal if swallowed and enters airways.  
 H315 - Causes skin irritation.  
 H336 - May cause drowsiness or dizziness.  
 H410 - Very toxic to aquatic life with long lasting effects.

## SECTION 2: Hazards identification

### Precautionary statements

- Prevention** : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273 - Avoid release to the environment.
- Response** : P391 - Collect spillage.  
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor.
- Storage** : P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
- Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Hazardous ingredients** : heptane

**Supplemental label elements** : Not applicable.

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Not applicable.

### Special packaging requirements

- Containers to be fitted with child-resistant fastenings** : Not applicable.
- Tactile warning of danger** : Not applicable.

### 2.3 Other hazards

**Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII** : This mixture contains substances that are assessed to be a PBT or a vPvB, refer to Section 3.2.

**Other hazards which do not result in classification** : None known.

## SECTION 3: Composition/information on ingredients

**3.2 Mixtures** : Mixture

Product/ingredient name	Identifiers	%	Classification	Type
Heptane	EC: 205-563-8 CAS: 142-82-5 Index: 601-008-00-2	≥90	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	[1] [2]
Fluorene	EC: 201-695-5 CAS: 86-73-7	<1	Aquatic Acute 1, H400 (M=1) Aquatic Chronic 2, H411	[1] [2]
Phenanthrene	EC: 201-581-5 CAS: 85-01-8	<0.1	Acute Tox. 4, H302 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=10) PBT, EUH440 vPvB, EUH441	[1] [2] [3] [4]

### SECTION 3: Composition/information on ingredients

			<b>See Section 16 for the full text of the H statements declared above.</b>
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There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT
- [4] Substance meets the criteria for vPvB

Occupational exposure limits, if available, are listed in Section 8.

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

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

##### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
 pain or irritation  
 watering  
 redness
- Inhalation** : Adverse symptoms may include the following:  
 nausea or vomiting  
 headache  
 drowsiness/fatigue  
 dizziness/vertigo  
 unconsciousness
- Skin contact** : Adverse symptoms may include the following:  
 irritation  
 redness

## SECTION 4: First aid measures

**Ingestion** : Adverse symptoms may include the following:  
nausea or vomiting

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

**Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

**Specific treatments** : No specific treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

**Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.

**Unsuitable extinguishing media** : Do not use water jet.

### 5.2 Special hazards arising from the substance or mixture

**Hazards from the substance or mixture** : Highly flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapour/gas is heavier than air and will spread along the ground. Vapours may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

**Hazardous combustion products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide

### 5.3 Advice for firefighters

**Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to British standard BS EN 469 will provide a basic level of protection for chemical incidents.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**6.2 Environmental precautions** : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

### 6.3 Methods and material for containment and cleaning up

## SECTION 6: Accidental release measures

**Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**6.4 Reference to other sections** : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

**Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Avoid release to the environment. Avoid contact with eyes, skin and clothing. Do not ingest. Empty containers retain product residue and can be hazardous. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse container. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Do not swallow.

**Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

### 7.2 Conditions for safe storage, including any incompatibilities

**Storage** : Store between the following temperatures: 18 to 25°C (64.4 to 77°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

### Seveso Directive - Reporting thresholds

#### Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
P5c	5000 tonnes	50000 tonnes
E1	100 tonnes	200 tonnes

### 7.3 Specific end use(s)

**Recommendations** : Industrial applications, Professional applications.

**Industrial sector specific solutions** : Not available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Product/ingredient name	Exposure limit values
heptane	<b>EH40/2005 WELs (United Kingdom (UK), 1/2020)</b> TWA 8 hours: 500 ppm. TWA 8 hours: 2085 mg/m <sup>3</sup> .
fluorene	<b>EU OEL (Europe, 3/2024) [Polycyclic aromatic hydrocarbons mixtures]</b> Absorbed through skin.
phenanthrene	<b>EU OEL (Europe, 3/2024) [Polycyclic aromatic hydrocarbons mixtures]</b> Absorbed through skin.

#### Biological exposure indices

Product/ingredient name	Exposure indices
fluorene	<b>EH40/2005 BMGVs (United Kingdom (UK), 1/2020) [Polycyclic aromatic hydrocarbons]</b> BGV: 4 µmol/mol creatinine, 1-hydroxypyrene [in urine]. Sampling time: post shift.
phenanthrene	<b>EH40/2005 BMGVs (United Kingdom (UK), 1/2020) [Polycyclic aromatic hydrocarbons]</b> BGV: 4 µmol/mol creatinine, 1-hydroxypyrene [in urine]. Sampling time: post shift.

#### Recommended monitoring procedures

: Reference should be made to monitoring standards, such as the following: British Standard BS EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) British Standard BS EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) British Standard BS EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

#### DNELs/DMELs

Product/ingredient name	Result
heptane	DNEL - General population - Long term - Oral 149 mg/kg bw/day
	DNEL - General population - Long term - Dermal 149 mg/kg bw/day
	DNEL - Workers - Long term - Dermal 300 mg/kg bw/day
	DNEL - General population - Long term - Inhalation 447 mg/m <sup>3</sup>
	DNEL - Workers - Long term - Inhalation 2085 mg/m <sup>3</sup>

#### PNECs

Not available.

### 8.2 Exposure controls

**Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

#### Individual protection measures

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

## SECTION 8: Exposure controls/personal protection

- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to British Standard BS EN 1149 for further information on material and design requirements and test methods.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### 9.1 Information on basic physical and chemical properties

#### Appearance

- Physical state** : Liquid.
- Colour** : Colourless.
- Odour** : Not available.
- Odour threshold** : Not available.
- Melting point/freezing point** : -91°C
- Initial boiling point and boiling range** : 98°C
- Flammability** : Not applicable.
- Lower and upper explosion limit/flammability limit** : Lower: 1.05%  
Upper: 6.7%
- Flash point** : Closed cup: -1.11°C
- Auto-ignition temperature** : 215°C
- Decomposition temperature** : Not available.
- pH** : Not available.
- Viscosity** : Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C): Not available.

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## SECTION 9: Physical and chemical properties

Solubility	Media	Result
	water	Insoluble

Partition coefficient: n-octanol/water : Not applicable.

Vapour pressure	Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
		mm Hg	kPa	Method	mm Hg	kPa	Method
	heptane	34.5028	4.6	-	141.761	18.9	-

Relative density : 0.684

Density : 0.684 g/cm<sup>3</sup>

Vapour density : 3.5 [Air = 1]

### Particle characteristics

Median particle size : Not applicable.

## 9.2 Other information

### 9.2.1 Information with regard to physical hazard classes

Explosive properties : Not available.

Oxidising properties : Not available.

### 9.2.2 Other safety characteristics

Miscible with water : No.

Evaporation rate : Not available.

Physical/chemical properties comments : Not available.

## SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapour to accumulate in low or confined areas.

10.5 Incompatible materials : Reactive or incompatible with the following materials:  
oxidising materials

10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	
heptane	Rat - Oral - LD50	>17 g/kg
	Rabbit - Dermal - LD50	>2 g/kg
	Rat - Inhalation - LC50 Vapour	103 g/m <sup>3</sup> [4 hours]
	Rat - Inhalation - LC50 Vapour	48000 ppm [4 hours]
	Rat - Oral - LD50	1.8 g/kg
phenanthrene		

## SECTION 11: Toxicological information

**Conclusion/Summary** : Not available.

**[Product]**

### Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
heptane	N/A	N/A	N/A	103	N/A
phenanthrene	1800	N/A	N/A	N/A	N/A

### Skin corrosion/irritation

**Conclusion/Summary** : Not available.

**[Product]**

### Serious eye damage/eye irritation

**Conclusion/Summary** : Not available.

**[Product]**

### Respiratory corrosion/irritation

**Conclusion/Summary** : Not available.

**[Product]**

### Respiratory or skin sensitization

#### **Skin**

**Conclusion/Summary** : Not available.

**[Product]**

#### **Respiratory**

**Conclusion/Summary** : Not available.

**[Product]**

### Germ cell mutagenicity

**Conclusion/Summary** : Not available.

**[Product]**

### Carcinogenicity

**Conclusion/Summary** : Not available.

**[Product]**

### Reproductive toxicity

**Conclusion/Summary** : Not available.

**[Product]**

### Specific target organ toxicity (single exposure)

**Product/ingredient name**

**Result**

heptane

STOT SE 3, H336 (Narcotic effects)

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

**Product/ingredient name**

**Result**

## SECTION 11: Toxicological information

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 heptane      ASPIRATION HAZARD - Category 1

**Information on likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

### Potential acute health effects

**Eye contact** : No known significant effects or critical hazards.  
**Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.  
**Skin contact** : Causes skin irritation.  
**Ingestion** : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : Adverse symptoms may include the following:  
 pain or irritation  
 watering  
 redness  
**Inhalation** : Adverse symptoms may include the following:  
 nausea or vomiting  
 headache  
 drowsiness/fatigue  
 dizziness/vertigo  
 unconsciousness  
**Skin contact** : Adverse symptoms may include the following:  
 irritation  
 redness  
**Ingestion** : Adverse symptoms may include the following:  
 nausea or vomiting

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

#### Short term exposure

**Potential immediate effects** : Not available.  
**Potential delayed effects** : Not available.

#### Long term exposure

**Potential immediate effects** : Not available.  
**Potential delayed effects** : Not available.

### Potential chronic health effects

**Conclusion/Summary [Product]** : Not available.  
**General** : No known significant effects or critical hazards.  
**Carcinogenicity** : No known significant effects or critical hazards.  
**Mutagenicity** : No known significant effects or critical hazards.  
**Reproductive toxicity** : No known significant effects or critical hazards.  
**Other information** : Adverse symptoms may include the following: Repeated exposure may cause skin dryness or cracking.

**SECTION 12: Ecological information**

**12.1 Toxicity**

Product/ingredient name	Result		
heptane	Acute - LC50 - Fresh water Fish - Mozambique tilapia - <i>Oreochromis mossambicus</i> Size: 99 mm; Weight: 10 g 375 mg/l [96 hours] Mortality	-	-
fluorene	Acute - EC50 - Fresh water Daphnia - Water flea - <i>Daphnia pulex</i> - Neonate Age: <24 hours 212 µg/l [48 hours] Intoxication	-	-
	Acute - LC50 - Fresh water Fish - Rainbow trout, donaldson trout - <i>Oncorhynchus mykiss</i> 0.82 mg/l [96 hours] Mortality	-	-
	Chronic - NOEC - Fresh water Fish - Bluegill - <i>Lepomis macrochirus</i> - Fingerling 0.125 mg/l [30 days] Growth	-	-
	Chronic - NOEC - Fresh water Daphnia - Water flea - <i>Daphnia magna</i> 0.125 mg/l [21 days] Reproduction	-	-
	Acute - EC50 - Fresh water Algae - Green algae - <i>Raphidocelis subcapitata</i> 3.4 mg/l [96 hours] Population	-	-
	phenanthrene	Acute - EC50 - Fresh water Daphnia - Water flea - <i>Daphnia magna</i> - Adult Weight: 0.004 g 0.117 mg/l [48 hours] Intoxication	-
	Chronic - NOEC - Fresh water Daphnia - Water flea - <i>Daphnia magna</i> - Neonate Age: <24 hours 48 µg/l [21 days]	-	-

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**SECTION 12: Ecological information**

Mortality

Chronic - NOEC - Fresh water -  
 Fish - Rainbow trout, donaldson trout -  
*Oncorhynchus mykiss* - Embryo  
 Age: 3 days  
 0.005 mg/l [90 days]  
 Population

Chronic - NOEC - Fresh water -  
 Aquatic plants -  
 Duckweed - *Lemna minor*  
 0.658 mg/l [96 hours]  
 Population

Acute - EC50 - Fresh water -  
 Fish - Bluegill - *Lepomis macrochirus* - Juvenile (Fledgling, Hatchling, Weanling)  
 Size: 13 mm  
 0.049 mg/l [96 hours]  
 Behavior

Acute - EC50 - Fresh water -  
 Algae - Green algae - *Raphidocelis subcapitata*  
 324 µg/l [3 days]  
 Population

**Conclusion/Summary [Product]** : Not available.

**12.2 Persistence and degradability**

**Conclusion/Summary [Product]** : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
heptane	-	-	Readily

**12.3 Bioaccumulative potential**

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
heptane	4.66	552	High
fluorene	4.18	524.81	High
phenanthrene	4.46	2511.89	High

**12.4 Mobility in soil**

**Soil/water partition coefficient**

## SECTION 12: Ecological information

Product/ingredient name	logKoc	Koc
heptane	2.5	321.749
fluorene	3.7	5010.8
phenanthrene	4.3	22309.4

### Results of PMT and vPvM assessment

Product/ingredient name	PMT	P	M	T	vPvM	vP	vM
heptane	No	No	No	No	No	No	No
fluorene	No	N/A	No	No	No	N/A	No
phenanthrene	No	Yes	No	Yes	No	Yes	No

**Mobility** : Not available.

**Conclusion/Summary** : The product does not meet the criteria to be considered as a PMT or vPvM.

### 12.5 Results of PBT and vPvB assessment

#### Regulation (EC) No. 1907/2006 [REACH]

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
heptane	No	N/A	No	No	No	N/A	No
fluorene	No	N/A	No	No	No	N/A	No
phenanthrene	Yes	Yes	Yes	Yes	Yes	Yes	Yes

#### Regulation (EC) No. 1272/2008 [CLP]

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
heptane	No	No	No	No	No	No	No
fluorene	No	N/A	No	No	No	N/A	No
phenanthrene	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Conclusion/Summary** : The product does not meet the criteria to be considered as a PBT or vPvB.

**Regulation (EC) No. 1272/2008 [CLP]**

### 12.6 Endocrine disrupting properties

Not available.

**Conclusion/Summary [Product]** : The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

### 12.7 Other adverse effects

No known significant effects or critical hazards.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

**Methods of disposal** : Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. The generation of waste should be avoided or minimised wherever possible. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

**Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

#### Packaging






**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

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## SECTION 13: Disposal considerations

**Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

	ADR/RID	IMDG	IATA
14.1 UN number	UN1206	UN1206	UN1206
14.2 UN proper shipping name	HEPTANES solution	HEPTANES solution	Heptanes solution
14.3 Transport hazard class(es)	3  	3  	3 
14.4 Packing group	II	II	II
14.5 Environmental hazards	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.

### Additional information

**Remarks** : De minimis quantities

**ADR/RID** : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

**Hazard identification number** 33

**Limited quantity** 1 L

**Tunnel code** (D/E)

**IMDG** : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

**Emergency schedules** F-E, \_S-D\_

**IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.

**Quantity limitation** Passenger and Cargo Aircraft: 5 L. Packaging instructions: 353. Cargo Aircraft Only: 60 L. Packaging instructions: 364. Limited Quantities - Passenger Aircraft: 1 L. Packaging instructions: Y341.

**14.6 Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**14.7 Transport in bulk according to IMO instruments** : Not available.

## SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

**UK (GB)/REACH**

**Annex XIV - List of substances subject to authorisation**

**Annex XIV**

None of the components are listed.

**Substances of very high concern**

EN12916:2006 IP391-07 Cal. Soln C

## SECTION 15: Regulatory information

Intrinsic property	Ingredient name	Status	Reference number	Date of revision
vPvB	phenanthrene	Candidate	-	1/15/2019

### Ozone depleting substances

Not listed.

### Prior Informed Consent (PIC)

Not listed.

### Persistent Organic Pollutants

Annex	Ingredient name	Status
Annex III	Polycyclic aromatic hydrocarbons	Listed

### Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

None of the components are listed / The components are not impacted by a restriction

**Labelling** : Not applicable.

### Seveso Directive

This product is controlled under the Seveso Directive.

### Danger criteria

Category
P5c E1

### EU regulations

**Industrial emissions (integrated pollution prevention and control) - Air** : Not listed

**Industrial emissions (integrated pollution prevention and control) - Water** : Not listed

**15.2 Chemical safety assessment** : This product contains substances for which Chemical Safety Assessments might still be required.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

**United States** : All components are active or exempted.

## SECTION 16: Other information

Indicates information that has changed from previously issued version.

### Abbreviations and acronyms

: ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway  
 ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road  
 ATE = Acute Toxicity Estimate  
 GB CLP = UK CLP (EC No 1272/2008) on the Classification, Labelling and Packaging of Substances and Mixtures as amended by (EU Exit) Regulations 2019 No. 720 and amendments  
 DMEL = Derived Minimal Effect Level  
 DNEL = Derived No Effect Level  
 EUH statement = GB CLP-specific Hazard statement  
 IATA = International Air Transport Association  
 IMDG = International Maritime Dangerous Goods  
 IMO = International Maritime Organization  
 N/A = Not available  
 PBT = Persistent, Bioaccumulative and Toxic  
 PNEC = Predicted No Effect Concentration  
 RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail  
 RRN = REACH Registration Number  
 SGG = Segregation Group  
 vPvB = Very Persistent and Very Bioaccumulative

### Procedure used to derive the classification

Classification	Justification
Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	On basis of test data Calculation method Calculation method Expert judgment Calculation method Calculation method

### Full text of abbreviated H statements

H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
EUH440	Accumulates in the environment and living organisms including in humans.
EUH441	Strongly accumulates in the environment and living organisms including in humans.

### Full text of classifications

Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 2	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Asp. Tox. 1	ASPIRATION HAZARD - Category 1
Flam. Liq. 2	FLAMMABLE LIQUIDS - Category 2
PBT	PERSISTENT, BIOACCUMULATIVE AND TOXIC
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3
vPvB	VERY PERSISTENT AND VERY BIOACCUMULATIVE

Date of issue/ Date of revision : 12/03/2026

Date of previous issue : No previous validation

Version : 1

## SECTION 16: Other information

### [Notice to reader](#)

Disclaimer: The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

# SAFETY DATA SHEET

EN12916:2006 IP391-07 Cal. Soln D

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

### 1.1 Product identifier

**Product name** : EN12916:2006 IP391-07 Cal. Soln D  
**Part no.** : 5190-0484-D

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

**Identified uses** : Reagents and Standards for Analytical Chemistry Laboratory Use  
 1 x 1 ml  
**Uses advised against** : None known.

### 1.3 Details of the supplier of the safety data sheet

Agilent Technologies LDA UK Ltd.  
 5500 Lakeside Cheadle Royal Business Park,  
 Cheadle, Cheshire, SK8 3GR  
 United Kingdom  
 Tel: +44 (0) 345 712 5292  
**e-mail address of person responsible for this SDS** : pdl-msds\_author@agilent.com

### 1.4 Emergency telephone number

**Emergency telephone number (with hours of operation)** : CHEMTREC®: +44 20 3807 3798

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : Mixture

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

H225	FLAMMABLE LIQUIDS	Category 2
H315	SKIN CORROSION/IRRITATION	Category 2
H336	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects)	Category 3
H304	ASPIRATION HAZARD	Category 1
H400	SHORT-TERM (ACUTE) AQUATIC HAZARD	Category 1
H410	LONG-TERM (CHRONIC) AQUATIC HAZARD	Category 1

The product is classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

### 2.2 Label elements

**Hazard pictograms** :



**Signal word** : Danger

**Hazard statements** : H225 - Highly flammable liquid and vapour.  
 H304 - May be fatal if swallowed and enters airways.  
 H315 - Causes skin irritation.  
 H336 - May cause drowsiness or dizziness.  
 H410 - Very toxic to aquatic life with long lasting effects.

## SECTION 2: Hazards identification

### Precautionary statements

- Prevention** : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273 - Avoid release to the environment.
- Response** : P391 - Collect spillage.  
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor.
- Storage** : P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
- Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Hazardous ingredients** : heptane

**Supplemental label elements** : Not applicable.

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Not applicable.

### Special packaging requirements

- Containers to be fitted with child-resistant fastenings** : Not applicable.
- Tactile warning of danger** : Not applicable.

### 2.3 Other hazards

**Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII** : This mixture contains substances that are assessed to be a PBT or a vPvB, refer to Section 3.2.

**Other hazards which do not result in classification** : None known.

## SECTION 3: Composition/information on ingredients

**3.2 Mixtures** : Mixture

Product/ingredient name	Identifiers	%	Classification	Type
Heptane	EC: 205-563-8 CAS: 142-82-5 Index: 601-008-00-2	≥90	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	[1] [2]
Phenanthrene	EC: 201-581-5 CAS: 85-01-8	<0.1	Acute Tox. 4, H302 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=10) PBT, EUH440 vPvB, EUH441 <b>See Section 16 for the full text of the H statements declared above.</b>	[1] [2] [3] [4]

## SECTION 3: Composition/information on ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

### Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT

[4] Substance meets the criteria for vPvB

Occupational exposure limits, if available, are listed in Section 8.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

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

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
nausea or vomiting  
headache  
drowsiness/fatigue  
dizziness/vertigo  
unconsciousness
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : Adverse symptoms may include the following:  
nausea or vomiting

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

## SECTION 4: First aid measures

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

### 5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : Highly flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapour/gas is heavier than air and will spread along the ground. Vapours may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous combustion products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide

### 5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to British standard BS EN 469 will provide a basic level of protection for chemical incidents.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

### 6.2 Environmental precautions

- : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

### 6.3 Methods and material for containment and cleaning up

- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

## SECTION 6: Accidental release measures

**6.4 Reference to other sections** : See Section 1 for emergency contact information.  
 See Section 8 for information on appropriate personal protective equipment.  
 See Section 13 for additional waste treatment information.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

**Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Avoid release to the environment. Avoid contact with eyes, skin and clothing. Do not ingest. Empty containers retain product residue and can be hazardous. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse container. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Do not swallow.

**Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

### 7.2 Conditions for safe storage, including any incompatibilities

**Storage** : Store between the following temperatures: 18 to 25°C (64.4 to 77°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

### Seveso Directive - Reporting thresholds

#### Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
P5c	5000 tonnes	50000 tonnes
E1	100 tonnes	200 tonnes

### 7.3 Specific end use(s)

**Recommendations** : Industrial applications, Professional applications.

**Industrial sector specific solutions** : Not available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Product/ingredient name	Exposure limit values
heptane	<b>EH40/2005 WELs (United Kingdom (UK), 1/2020)</b> TWA 8 hours: 500 ppm. TWA 8 hours: 2085 mg/m <sup>3</sup> .
phenanthrene	<b>EU OEL (Europe, 3/2024) [Polycyclic aromatic hydrocarbons mixtures]</b> Absorbed through skin.

#### Biological exposure indices

## SECTION 8: Exposure controls/personal protection

Product/ingredient name	Exposure indices
phenanthrene	<b>EH40/2005 BMGVs (United Kingdom (UK), 1/2020) [Polycyclic aromatic hydrocarbons]</b> BGV: 4 µmol/mol creatinine, 1-hydroxypyrene [in urine]. Sampling time: post shift.

**Recommended monitoring procedures** : Reference should be made to monitoring standards, such as the following: British Standard BS EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) British Standard BS EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) British Standard BS EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

### DNELs/DMELs

Product/ingredient name	Result
heptane	DNEL - General population - Long term - Oral 149 mg/kg bw/day
	DNEL - General population - Long term - Dermal 149 mg/kg bw/day
	DNEL - Workers - Long term - Dermal 300 mg/kg bw/day
	DNEL - General population - Long term - Inhalation 447 mg/m <sup>3</sup>
	DNEL - Workers - Long term - Inhalation 2085 mg/m <sup>3</sup>

### PNECs

Not available.

## 8.2 Exposure controls

**Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

### Individual protection measures

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

### Skin protection

**Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

**Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to British Standard BS EN 1149 for further information on material and design requirements and test methods.

## SECTION 8: Exposure controls/personal protection

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### 9.1 Information on basic physical and chemical properties

#### Appearance

- Physical state** : Liquid.
- Colour** : Colourless.
- Odour** : Not available.
- Odour threshold** : Not available.
- Melting point/freezing point** : -91°C
- Initial boiling point and boiling range** : 98°C
- Flammability** : Not applicable.
- Lower and upper explosion limit/flammability limit** : Lower: 1.05%  
Upper: 6.7%
- Flash point** : Closed cup: -1.11°C
- Auto-ignition temperature** : 215°C
- Decomposition temperature** : Not available.
- pH** : Not available.
- Viscosity** : Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C): Not available.

<b>Solubility</b>	<b>Media</b>	<b>Result</b>
	water	Insoluble

- Partition coefficient: n-octanol/water** : Not applicable.

<b>Vapour pressure</b>	<b>Vapour Pressure at 20°C</b>			<b>Vapour pressure at 50°C</b>			
	<b>Ingredient name</b>	<b>mm Hg</b>	<b>kPa</b>	<b>Method</b>	<b>mm Hg</b>	<b>kPa</b>	<b>Method</b>
	heptane	34.5028	4.6	-	141.761	18.9	-

- Relative density** : 0.684
- Density** : 0.684 g/cm<sup>3</sup>
- Vapour density** : 3.5 [Air = 1]

#### Particle characteristics

- Median particle size** : Not applicable.

## SECTION 9: Physical and chemical properties

### 9.2 Other information

#### 9.2.1 Information with regard to physical hazard classes

**Explosive properties** : Not available.

**Oxidising properties** : Not available.

#### 9.2.2 Other safety characteristics

**Miscible with water** : No.

**Evaporation rate** : Not available.

**Physical/chemical properties comments** : Not available.

## SECTION 10: Stability and reactivity

**10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.

**10.2 Chemical stability** : The product is stable.

**10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

**10.4 Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapour to accumulate in low or confined areas.

**10.5 Incompatible materials** : Reactive or incompatible with the following materials:  
oxidising materials

**10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

##### Product/ingredient name

##### Result

heptane

Rat - Oral - LD50

>17 g/kg

Rabbit - Dermal - LD50

>2 g/kg

Rat - Inhalation - LC50 Vapour

103 g/m<sup>3</sup> [4 hours]

Rat - Inhalation - LC50 Vapour

48000 ppm [4 hours]

phenanthrene

Rat - Oral - LD50

1.8 g/kg

**Conclusion/Summary** : Not available.

#### [Product]

#### Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
heptane	N/A	N/A	N/A	103	N/A
phenanthrene	1800	N/A	N/A	N/A	N/A

#### Skin corrosion/irritation

**Conclusion/Summary** : Not available.

#### [Product]

#### Serious eye damage/eye irritation

## SECTION 11: Toxicological information

**Conclusion/Summary** : Not available.  
**[Product]**

### Respiratory corrosion/irritation

**Conclusion/Summary** : Not available.  
**[Product]**

### Respiratory or skin sensitization

#### Skin

**Conclusion/Summary** : Not available.  
**[Product]**

#### Respiratory

**Conclusion/Summary** : Not available.  
**[Product]**

### Germ cell mutagenicity

**Conclusion/Summary** : Not available.  
**[Product]**

### Carcinogenicity

**Conclusion/Summary** : Not available.  
**[Product]**

### Reproductive toxicity

**Conclusion/Summary** : Not available.  
**[Product]**

### Specific target organ toxicity (single exposure)

Product/ingredient name	Result
heptane	STOT SE 3, H336 (Narcotic effects)

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Product/ingredient name	Result
EN12916:2006 IP391-07 Cal. Soln D	ASPIRATION HAZARD - Category 1
heptane	ASPIRATION HAZARD - Category 1

**Information on likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

### Potential acute health effects

**Eye contact** : No known significant effects or critical hazards.

**Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

**Skin contact** : Causes skin irritation.

**Ingestion** : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

### Symptoms related to the physical, chemical and toxicological characteristics

## SECTION 11: Toxicological information

- Eye contact** : Adverse symptoms may include the following:  
 pain or irritation  
 watering  
 redness
- Inhalation** : Adverse symptoms may include the following:  
 nausea or vomiting  
 headache  
 drowsiness/fatigue  
 dizziness/vertigo  
 unconsciousness
- Skin contact** : Adverse symptoms may include the following:  
 irritation  
 redness
- Ingestion** : Adverse symptoms may include the following:  
 nausea or vomiting

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

#### Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

#### Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

#### Potential chronic health effects

- Conclusion/Summary [Product]** : Not available.
- General** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Reproductive toxicity** : No known significant effects or critical hazards.
- Other information** : Adverse symptoms may include the following: Repeated exposure may cause skin dryness or cracking.

## SECTION 12: Ecological information

### 12.1 Toxicity

Product/ingredient name	Result		
heptane	Acute - LC50 - Fresh water Fish - Mozambique tilapia - <i>Oreochromis mossambicus</i> Size: 99 mm; Weight: 10 g 375 mg/l [96 hours] Mortality	-	-
phenanthrene	Acute - EC50 - Fresh water Daphnia - Water flea - <i>Daphnia magna</i> - Adult Weight: 0.004 g 0.117 mg/l [48 hours]	-	-

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**SECTION 12: Ecological information**

Intoxication

Chronic - NOEC - Fresh water -  
 Daphnia - Water flea -  
*Daphnia magna* -  
 Neonate  
 Age: <24 hours  
 48 µg/l [21 days]  
 Mortality

Chronic - NOEC - Fresh water -  
 Fish - Rainbow trout,  
 donaldson trout -  
*Oncorhynchus mykiss* -  
 Embryo  
 Age: 3 days  
 0.005 mg/l [90 days]  
 Population

Chronic - NOEC - Fresh water -  
 Aquatic plants -  
 Duckweed - *Lemna minor*  
 0.658 mg/l [96 hours]  
 Population

Acute - EC50 - Fresh water -  
 Fish - Bluegill - *Lepomis macrochirus* - Juvenile  
 (Fledgling, Hatchling, Weanling)  
 Size: 13 mm  
 0.049 mg/l [96 hours]  
 Behavior

Acute - EC50 - Fresh water -  
 Algae - Green algae -  
*Raphidocelis subcapitata*  
 324 µg/l [3 days]  
 Population

**Conclusion/Summary [Product]** : Not available.

**12.2 Persistence and degradability**

**Conclusion/Summary [Product]** : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
heptane	-	-	Readily

**12.3 Bioaccumulative potential**

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
heptane	4.66	552	High
phenanthrene	4.46	2511.89	High

**SECTION 12: Ecological information****12.4 Mobility in soil****Soil/water partition coefficient**

Product/ingredient name	logKoc	Koc
heptane	2.5	321.749
phenanthrene	4.3	22309.4

**Results of PMT and vPvM assessment**

Product/ingredient name	PMT	P	M	T	vPvM	vP	vM
heptane	No	No	No	No	No	No	No
phenanthrene	No	Yes	No	Yes	No	Yes	No

**Mobility** : Not available.**Conclusion/Summary** : The product does not meet the criteria to be considered as a PMT or vPvM.**12.5 Results of PBT and vPvB assessment****Regulation (EC) No. 1907/2006 [REACH]**

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
heptane	No	N/A	No	No	No	N/A	No
phenanthrene	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Regulation (EC) No. 1272/2008 [CLP]**

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
heptane	No	No	No	No	No	No	No
phenanthrene	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Conclusion/Summary** : The product does not meet the criteria to be considered as a PBT or vPvB.**Regulation (EC) No. 1272/2008 [CLP]****12.6 Endocrine disrupting properties**

Not available.

**Conclusion/Summary [Product]** : The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.**12.7 Other adverse effects**






No known significant effects or critical hazards.

**SECTION 13: Disposal considerations****13.1 Waste treatment methods****Product****Methods of disposal** : Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. The generation of waste should be avoided or minimised wherever possible. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.**Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.**Packaging****Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

## SECTION 13: Disposal considerations

**Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

	ADR/RID	IMDG	IATA
14.1 UN number	UN1206	UN1206	UN1206
14.2 UN proper shipping name	HEPTANES solution	HEPTANES solution	Heptanes solution
14.3 Transport hazard class(es)	3  	3  	3 
14.4 Packing group	II	II	II
14.5 Environmental hazards	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.

### Additional information

**Remarks** : De minimis quantities

**ADR/RID** : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

**Hazard identification number** 33

**Limited quantity** 1 L

**Tunnel code** (D/E)

**IMDG** : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

**Emergency schedules** F-E, \_S-D\_

**IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.

**Quantity limitation** Passenger and Cargo Aircraft: 5 L. Packaging instructions: 353. Cargo Aircraft Only: 60 L. Packaging instructions: 364. Limited Quantities - Passenger Aircraft: 1 L. Packaging instructions: Y341.

**14.6 Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**14.7 Transport in bulk according to IMO instruments** : Not available.

## SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

**UK (GB)/REACH**

**Annex XIV - List of substances subject to authorisation**

**Annex XIV**

None of the components are listed.

**Substances of very high concern**

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## SECTION 15: Regulatory information

Intrinsic property	Ingredient name	Status	Reference number	Date of revision
vPvB	phenanthrene	Candidate	-	1/15/2019

### Ozone depleting substances

Not listed.

### Prior Informed Consent (PIC)

Not listed.

### Persistent Organic Pollutants

Not listed.

### Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

None of the components are listed / The components are not impacted by a restriction

**Labelling** : Not applicable.

### Seveso Directive

This product is controlled under the Seveso Directive.

### Danger criteria

#### Category

P5c  
E1

### EU regulations

**Industrial emissions (integrated pollution prevention and control) - Air** : Not listed

**Industrial emissions (integrated pollution prevention and control) - Water** : Not listed

**15.2 Chemical safety assessment** : This product contains substances for which Chemical Safety Assessments might still be required.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

**United States** : All components are active or exempted.

## SECTION 16: Other information

Indicates information that has changed from previously issued version.

### Abbreviations and acronyms

: ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway  
 ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road  
 ATE = Acute Toxicity Estimate  
 GB CLP = UK CLP (EC No 1272/2008) on the Classification, Labelling and Packaging of Substances and Mixtures as amended by (EU Exit) Regulations 2019 No. 720 and amendments  
 DMEL = Derived Minimal Effect Level  
 DNEL = Derived No Effect Level  
 EUH statement = GB CLP-specific Hazard statement  
 IATA = International Air Transport Association  
 IMDG = International Maritime Dangerous Goods  
 IMO = International Maritime Organization  
 N/A = Not available  
 PBT = Persistent, Bioaccumulative and Toxic  
 PNEC = Predicted No Effect Concentration  
 RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail  
 RRN = REACH Registration Number  
 SGG = Segregation Group  
 vPvB = Very Persistent and Very Bioaccumulative

### Procedure used to derive the classification

Classification	Justification
Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	On basis of test data Calculation method Calculation method Expert judgment Calculation method Calculation method

### Full text of abbreviated H statements

H225 H302 H304 H315 H336 H400 H410 EUH440 EUH441	Highly flammable liquid and vapour. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. May cause drowsiness or dizziness. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects. Accumulates in the environment and living organisms including in humans. Strongly accumulates in the environment and living organisms including in humans.
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### Full text of classifications

Acute Tox. 4 Aquatic Acute 1 Aquatic Chronic 1 Asp. Tox. 1 Flam. Liq. 2 PBT Skin Irrit. 2 STOT SE 3 vPvB	ACUTE TOXICITY - Category 4 SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1 ASPIRATION HAZARD - Category 1 FLAMMABLE LIQUIDS - Category 2 PERSISTENT, BIOACCUMULATIVE AND TOXIC SKIN CORROSION/IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3 VERY PERSISTENT AND VERY BIOACCUMULATIVE
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Date of issue/ Date of revision : 12/03/2026

Date of previous issue : No previous validation

Version : 1

### Notice to reader

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## SECTION 16: Other information

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