

PAH COCKTAIL FOR CARB METHOD 429 (D, 98%)

Novachem Pty Ltd

Chemwatch Hazard Alert Code: 4

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Safety Data Sheet according to WHS and ADG requirements

Print Date: 03/09/2018

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SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name	PAH COCKTAIL FOR CARB METHOD 429 (D, 98%)
Chemical Name	benzene-D6
Synonyms	ES-2528
Proper shipping name	BENZENE
Chemical formula	C6-D6
Other means of identification	Not Available
CAS number	1076-43-3*

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

Relevant identified uses	For professional use only.
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Details of the supplier of the safety data sheet

Registered company name	Novachem Pty Ltd
Address	25 Crissane Road, Heidelberg West Victoria 3081 Australia
Telephone	+61384151255
Fax	+61386250088
Website	www.novachem.com.au
Email	novachem@novachem.com.au

Emergency telephone number

Association / Organisation	Victorian Poisons Information Centre
Emergency telephone numbers	13 11 26
Other emergency telephone numbers	Not Available

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

Poisons Schedule	S7
Classification ^[1]	Flammable Liquid Category 2, Acute Toxicity (Oral) Category 4, Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, Germ cell mutagenicity Category 1B, Carcinogenicity Category 1A, Specific target organ toxicity - single exposure Category 3 (narcotic effects), Specific target organ toxicity - repeated exposure Category 1, Aspiration Hazard Category 1, Chronic Aquatic Hazard Category 2
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HSIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

Label elements

Hazard pictogram(s)	
SIGNAL WORD	DANGER

Hazard statement(s)

H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H315	Causes skin irritation.

H319	Causes serious eye irritation.
H340	May cause genetic defects.
H350	May cause cancer.
H336	May cause drowsiness or dizziness.
H372	Causes damage to organs through prolonged or repeated exposure.
H304	May be fatal if swallowed and enters airways.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P271	Use in a well-ventilated area.

Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P331	Do NOT induce vomiting.
P362	Take off contaminated clothing and wash before reuse.

Precautionary statement(s) Storage

P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

Precautionary statement(s) Disposal

P501	Dispose of contents/container in accordance with local regulations.
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SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**Substances**

CAS No	%[weight]	Name
1076-43-3	99.83148	<u>benzene-D6</u>
93951-66-7*	0.01053	<u>Benzo[GH]Perylene-D12</u>
15067-26-2	0.01053	<u>acenaphthene-D10</u>
1719-06-8	0.01053	<u>anthracene-D10</u>
81103-79-9*	0.01053	<u>FLUORENE D10</u>
1718-52-1	0.01053	<u>pyrene-d10</u>
93952-01-3*	0.01053	<u>Benzo[K]Fluoranthene-D12</u>
93951-98-5*	0.01053	<u>Benzo[B]Fluoranthene-D12</u>
93951-69-0	0.01053	<u>fluoranthene-d10</u>
203578-33-0*	0.01053	<u>Indeno[1,2,3-CD]Pyrene-D12</u>
93951-97-4*	0.01053	<u>Acenaphthylene-D8</u>
63466-71-7	0.01053	<u>benz[a]pyrene-d12</u>
1719-03-5	0.01053	<u>chrysene-D12</u>
1146-65-2	0.01053	<u>naphthalene-D8</u>
1517-22-2	0.01053	<u>phenanthrene-D10</u>
1718-53-2	0.01053	<u>benz[a]anthracene-d12</u>
13250-98-1*	0.01053	<u>Dibenz[A,H]Anthracene-D14</u>

Mixtures

See section above for composition of Substances

SECTION 4 FIRST AID MEASURES**Description of first aid measures**

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with fresh running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
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PAH COCKTAIL FOR CARB METHOD 429 (D, 98%)

Skin Contact	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately remove all contaminated clothing, including footwear. ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none"> ▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▶ Other measures are usually unnecessary.
Ingestion	<ul style="list-style-type: none"> ▶ If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus. ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Seek medical advice. ▶ Avoid giving milk or oils. ▶ Avoid giving alcohol.

Indication of any immediate medical attention and special treatment needed

Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or pharmacologically. Mechanical means should be used if it is considered necessary to evacuate the stomach contents; these include gastric lavage after endotracheal intubation. If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hours.

For acute or short term repeated exposures to petroleum distillates or related hydrocarbons:

- ▶ Primary threat to life, from pure petroleum distillate ingestion and/or inhalation, is respiratory failure.
- ▶ Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO₂ 50 mm Hg) should be intubated.
- ▶ Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.
- ▶ A chest x-ray should be taken immediately after stabilisation of breathing and circulation to document aspiration and detect the presence of pneumothorax.
- ▶ Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitisation to catecholamines. Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.
- ▶ Lavage is indicated in patients who require decontamination; ensure use of cuffed endotracheal tube in adult patients. [Ellenhorn and Barceloux: Medical Toxicology]

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

- ▶ Foam.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.

Special hazards arising from the substrate or mixture

Fire Incompatibility	▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ May be violently or explosively reactive. ▶ Wear full body protective clothing with breathing apparatus. ▶ Prevent, by any means available, spillage from entering drains or water course.
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▶ Liquid and vapour are highly flammable. ▶ Severe fire hazard when exposed to heat, flame and/or oxidisers. ▶ Vapour may travel a considerable distance to source of ignition. ▶ Heating may cause expansion or decomposition leading to violent rupture of containers. <p>Combustion products include: carbon dioxide (CO₂) other pyrolysis products typical of burning organic material.</p>
HAZCHEM	3WE

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	<ul style="list-style-type: none"> ▶ Remove all ignition sources. ▶ Clean up all spills immediately. ▶ Avoid breathing vapours and contact with skin and eyes. ▶ Control personal contact with the substance, by using protective equipment.
Major Spills	<ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ May be violently or explosively reactive. ▶ Wear full body protective clothing with breathing apparatus.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<p>The conductivity of this material may make it a static accumulator. A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10 000 pS/m. Whether a liquid is nonconductive or semi-conductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid. Even with proper grounding and bonding, this material can still accumulate an electrostatic charge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.</p> <ul style="list-style-type: none"> ▶ Containers, even those that have been emptied, may contain explosive vapours. ▶ Do NOT cut, drill, grind, weld or perform similar operations on or near containers. ▶ Electrostatic discharge may be generated during pumping - this may result in fire. ▶ Ensure electrical continuity by bonding and grounding (earthing) all equipment. ▶ Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/sec until fill pipe submerged to twice its diameter, then ≤ 7 m/sec). ▶ Avoid splash filling. ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs. ▶ Use in a well-ventilated area. ▶ Prevent concentration in hollows and sumps. ▶ DO NOT allow clothing wet with material to stay in contact with skin
Other information	<ul style="list-style-type: none"> ▶ Store in original containers in approved flame-proof area. ▶ No smoking, naked lights, heat or ignition sources. ▶ DO NOT store in pits, depressions, basements or areas where vapours may be trapped. ▶ Keep containers securely sealed.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Glass container is suitable for laboratory quantities ▶ Packing as supplied by manufacturer. ▶ Plastic containers may only be used if approved for flammable liquid. ▶ Check that containers are clearly labelled and free from leaks. ▶ For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : Where a can is to be used as an inner package, the can must have a screwed enclosure. ▶ For materials with a viscosity of at least 2680 cSt. (23 deg. C) ▶ For manufactured product having a viscosity of at least 250 cSt.
Storage incompatibility	<p>For alkyl aromatics: The alkyl side chain of aromatic rings can undergo oxidation by several mechanisms. The most common and dominant one is the attack by oxidation at benzylic carbon as the intermediate formed is stabilised by resonance structure of the ring.</p> <ul style="list-style-type: none"> ▶ Following reaction with oxygen and under the influence of sunlight, a hydroperoxide at the alpha-position to the aromatic ring, is the primary oxidation product formed (provided a hydrogen atom is initially available at this position) - this product is often short-lived but may be stable dependent on the nature of the aromatic substitution; a secondary C-H bond is more easily attacked than a primary C-H bond whilst a tertiary C-H bond is even more susceptible to attack by oxygen ▶ Monoalkylbenzenes may subsequently form monocarboxylic acids; alkyl naphthalenes mainly produce the corresponding naphthalene carboxylic acids. ▶ Oxidation in the presence of transition metal salts not only accelerates but also selectively decomposes the hydroperoxides. ▶ Vigorous reactions, sometimes amounting to explosions, can result from the contact between aromatic rings and strong oxidising agents. ▶ Aromatics can react exothermically with bases and with diazo compounds. <p>Benzene:</p> <ul style="list-style-type: none"> ▶ reacts violently with iodine pentafluoride. ▶ hydrogenation to cyclohexane was effected in a fixed bed reactor at 210-230 deg C, but a fall in conversion was apparent; increasing the bed temp by 10 deg C and the hydrogen flow led to a large increase in reaction rate which the interbed cooling coils could not handle; an exotherm to 280 deg C developed, with a hot spot around 600 deg C which bulged the reactor wall. ▶ ignites in contact with iodine heptafluoride gas ▶ ignition may occur following addition of a small particle of dioxygenyl tetrafluoroborate (a very powerful oxidant) to small samples at ambient temp caused/ignition. ▶ ignites at -78 deg C following addition of a 2% solution dioxygen difluoride in hydrogen fluoride ▶ ignites following simultaneous contact of sodium peroxide with benzene .

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Not Available


EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
benzene-D6	Benzene-d6; (Deuterated benzene)	52 ppm	800 ppm	4000 ppm
Ingredient	Original IDLH	Revised IDLH		
benzene-D6	Not Available	Not Available		
Benzo[GHI]Perylene-D12	Not Available	Not Available		
acenaphthene-D10	Not Available	Not Available		
anthracene-D10	Not Available	Not Available		
FLUORENE D10	Not Available	Not Available		
pyrene-d10	Not Available	Not Available		
Benzo[K]Fluoranthene-D12	Not Available	Not Available		

PAH COCKTAIL FOR CARB METHOD 429 (D, 98%)

Benzo[B]Fluoranthene-D12	Not Available	Not Available
fluoranthene-d10	Not Available	Not Available
Indeno[1,2,3-CD]Pyrene-D12	Not Available	Not Available
Acenaphthylene-D8	Not Available	Not Available
benz[a]pyrene-d12	Not Available	Not Available
chrysene-D12	Not Available	Not Available
naphthalene-D8	Not Available	Not Available
phenanthrene-D10	Not Available	Not Available
benz[a]anthracene-d12	Not Available	Not Available
Dibenz[A,H]Anthracene-D14	Not Available	Not Available

Exposure controls

Appropriate engineering controls	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.</p>
Personal protection	
Eye and face protection	<ul style="list-style-type: none"> ▶ Safety glasses with side shields. ▶ Chemical goggles. ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task.
Skin protection	See Hand protection below
Hands/feet protection	<ul style="list-style-type: none"> ▶ Wear chemical protective gloves, e.g. PVC. ▶ Wear safety footwear or safety gumboots, e.g. Rubber <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Personal hygiene is a key element of effective hand care.</p> <ul style="list-style-type: none"> ▶ Neoprene gloves
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> ▶ Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area. [AS/NZS ISO 6529:2006 or national equivalent] ▶ Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted. [AS/NZS 1715 or national equivalent] ▶ Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely. ▶ Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. ▶ Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood. ▶ Overalls. ▶ PVC Apron. ▶ PVC protective suit may be required if exposure severe. ▶ Eyewash unit. ▶ Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity. ▶ For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets). ▶ Non sparking safety or conductive footwear should be considered. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot and shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds.

Respiratory protection

Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content. The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Not Available		
Physical state	Liquid	Relative density (Water = 1)	0.874 @ 25 C

PAH COCKTAIL FOR CARB METHOD 429 (D, 98%)

Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	562
pH (as supplied)	Not Applicable	Decomposition temperature	Not Available
Melting point / freezing point (°C)	5.5	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	80	Molecular weight (g/mol)	84.16
Flash point (°C)	-11 (CC)	Taste	Not Available
Evaporation rate	Fast Not Available	Explosive properties	Not Available
Flammability	HIGHLY FLAMMABLE.	Oxidising properties	Not Available
Upper Explosive Limit (%)	8	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	1.3	Volatile Component (%vol)	100
Vapour pressure (kPa)	9.95 @ 20 C	Gas group	Not Available
Solubility in water (g/L)	Immiscible	pH as a solution (1%)	Not Applicable
Vapour density (Air = 1)	2.8	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	<p>The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.</p> <p>Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo.</p> <p>Inhalation hazard is increased at higher temperatures.</p> <p>Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination.</p> <p>Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.</p> <p>The acute toxicity of inhaled alkylbenzene is best described by central nervous system depression. These compounds may also act as general anaesthetics.</p> <p>Whole body symptoms of poisoning include light-headedness, nervousness, apprehension, a feeling of well-being, confusion, dizziness, drowsiness, ringing in the ears, blurred or double vision, vomiting and sensations of heat, cold or numbness, twitching, tremors, convulsions, unconsciousness, depression of breathing, and arrest. Heart stoppage may result from cardiovascular collapse.</p> <p>The symptoms of exposure to high vapour concentrations of benzene include confusion, dizziness, tightening of the leg muscles and pressure over the forehead followed by a period of excitement. If exposure continues, the casualty quickly becomes stupefied and lapses into a coma with narcosis.</p>
Ingestion	<p>Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. (ICSC13733)</p> <p>The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.</p> <p>Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.</p>
Skin Contact	<p>The material may accentuate any pre-existing dermatitis condition</p> <p>Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.</p> <p>The material may cause moderate inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.</p>
Eye	<p>There is evidence that material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Severe inflammation may be expected with pain.</p>
Chronic	<p>There is ample evidence that this material can be regarded as being able to cause cancer in humans based on experiments and other information. Based on experiments and other information, there is ample evidence to presume that exposure to this material can cause genetic defects that can be inherited.</p> <p>Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.</p> <p>This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects.</p> <p>Chronic exposure to benzene may cause headache, fatigue, loss of appetite and lassitude with incipient blood effects including anaemia and blood changes. Benzene is a myelotoxicant known to suppress bone- marrow cell proliferation and to induce haematologic disorders in humans and animals.</p>

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	Not Available	Not Available
benzene-D6	TOXICITY	IRRITATION
	Not Available	Not Available
Benzo[GHI]Perylene-D12	TOXICITY	IRRITATION
	Not Available	Not Available
acenaphthene-D10	TOXICITY	IRRITATION
	Not Available	Not Available
anthracene-D10	TOXICITY	IRRITATION
	Not Available	Not Available
FLUORENE D10	TOXICITY	IRRITATION
	Not Available	Not Available
pyrene-d10	TOXICITY	IRRITATION
	Not Available	Not Available
Benzo[K]Fluoranthene-D12	TOXICITY	IRRITATION
	Not Available	Not Available
Benzo[B]Fluoranthene-D12	TOXICITY	IRRITATION
	Not Available	Not Available
fluoranthene-d10	TOXICITY	IRRITATION
	Not Available	Not Available
Indeno[1,2,3-CD]Pyrene-D12	TOXICITY	IRRITATION
	Not Available	Not Available
Acenaphthylene-D8	TOXICITY	IRRITATION
	Not Available	Not Available
benz[a]pyrene-d12	TOXICITY	IRRITATION
	Not Available	Skin (mouse): 0.014 mg - mild
chrysene-D12	TOXICITY	IRRITATION
	Not Available	Not Available
naphthalene-D8	TOXICITY	IRRITATION
	dermal (rat) LD50: >2500 mg/kg ^[1] Oral (rat) LD50: >2000 mg/kg ^[1]	Not Available
phenanthrene-D10	TOXICITY	IRRITATION
	Not Available	Not Available
benz[a]anthracene-d12	TOXICITY	IRRITATION
	Not Available	Not Available

PAH COCKTAIL FOR CARB METHOD 429 (D, 98%)

Dibenz[A,H]Anthracene-D14	TOXICITY	IRRITATION
	Not Available	Not Available

Legend: 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

BENZ[A]PYRENE-D12	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).
BENZENE-D6 & BENZ[A]PYRENE-D12	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.
ACENAPHTHENE-D10 & ANTHRACENE-D10 & FLUORANTHENE-D10 & PHENANTHRENE-D10	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia.
BENZ[A]PYRENE-D12 & BENZ[A]ANTHRACENE-D12	WARNING: This substance has been classified by the IARC as Group 2A: Probably Carcinogenic to Humans. Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen [National Toxicology Program: U.S. Dep. of Health & Human Services 2002]

Acute Toxicity	✓	Carcinogenicity	✓
Skin Irritation/Corrosion	✓	Reproductivity	⊘
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✓
Respiratory or Skin sensitisation	⊘	STOT - Repeated Exposure	✓
Mutagenicity	✓	Aspiration Hazard	✓

Legend: ✗ – Data available but does not fill the criteria for classification
 ✓ – Data available to make classification
 ⊘ – Data Not Available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

PAH COCKTAIL FOR CARB METHOD 429 (D, 98%)	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
		Not Available	Not Available	Not Available	Not Available
benzene-D6	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
Benzo[GHI]Perylene-D12	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
acenaphthene-D10	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
anthracene-D10	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
FLUORENE D10	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
pyrene-d10	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
Benzo[K]Fluoranthene-D12	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available

PAH COCKTAIL FOR CARB METHOD 429 (D, 98%)

Benzo[B]Fluoranthene-D12	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
fluoranthene-d10	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
Indeno[1,2,3-CD]Pyrene-D12	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
Acenaphthylene-D8	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
benz[a]pyrene-d12	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
chrysene-D12	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
naphthalene-D8	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
phenanthrene-D10	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
benz[a]anthracene-d12	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
Dibenz[A,H]Anthracene-D14	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available

Legend: *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data*

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

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

When spilled this product may act as a typical oil, causing a film, sheen, emulsion or sludge at or beneath the surface of the body of water. The oil film on water surface may physically affect the aquatic organisms, due to the interruption of the oxygen transfer between the air and the water

Oils of any kind can cause:

- ▶ drowning of water-fowl due to lack of buoyancy, loss of insulating capacity of feathers, starvation and vulnerability to predators due to lack of mobility
- ▶ lethal effects on fish by coating gill surfaces, preventing respiration
- ▶ asphyxiation of benthic life forms when floating masses become engaged with surface debris and settle on the bottom and
- ▶ adverse aesthetic effects of fouled shoreline and beaches

In case of accidental releases on the soil, a fine film is formed on the soil, which prevents the plant respiration process and the soil particle saturation. It may cause deep water infestation.

For Aromatic Substances Series:

Environmental Fate: Large, molecularly complex polycyclic aromatic hydrocarbons, or PAHs, are persistent in the environment longer than smaller PAHs.

Atmospheric Fate: PAHs are 'semi-volatile substances' which can move between the atmosphere and the Earth's surface in repeated, temperature-driven cycles of deposition and volatilization.

Terrestrial Fate: BTEX compounds have the potential to move through soil and contaminate ground water, and their vapors are highly flammable and explosive.

Ecotoxicity - Within an aromatic series, acute toxicity increases with increasing alkyl substitution on the aromatic nucleus.

For benzene:

log Kow: 1.95-2.15

log Koc: 1.7-2

Koc: 85

log Kom: 1.04-2.56

Half-life (hr) air: 2.4-501

Half-life (hr) H2O surface water: 4.81-384

Half-life (hr) H2O ground: 240-17280

Half-life (hr) soil: 48-922

Henry's Pa m³/mol: 441-595

Henry's atm m³/mol: 5.43E-03

BOD 5 if unstated: 2.18

COD: 0.25-2.8

ThOD: 3.1

BCF: 3.5-3.9

Log BCF: 0.54-1.48

Drinking Water Standards: hydrocarbon total: 10 ug/l (UK max.); benzene: 10 ug/l (WHO guideline)

Soil Guidelines: Dutch Criteria: 0.05 mg/kg (detection limit) target; 1 mg/kg (intervention)

Air Quality Standards: 1 ppb averaging time 1 year (UK)

No safe level recommended due to carcinogenic properties (WHO Guideline)

If benzene is released to the atmosphere it remains predominantly in the vapour phase.

Vapour phase benzene is not subject to direct photolysis but reacts with photochemically produced hydroxyl radicals (half-life approximately 13.4 days). Reaction time in polluted atmospheres which contain nitrogen oxide (NO) or sulfur dioxide (SO₂) is accelerated (half-life 4-6 hours); products of photooxidation include phenol, nitrophenols, nitrobenzene, formic acid and peroxyacetyl nitrates. In water, benzene is rapidly volatilised (half-life 2.7 hours).

DO NOT discharge into sewer or waterways.**Persistence and degradability**

Ingredient	Persistence: Water/Soil	Persistence: Air
benzene-D6	HIGH	HIGH
acenaphthene-D10	HIGH	HIGH
anthracene-D10	HIGH	HIGH
fluoranthene-d10	HIGH	HIGH
naphthalene-D8	HIGH	HIGH
phenanthrene-D10	HIGH	HIGH

Bioaccumulative potential

Ingredient	Bioaccumulation
benzene-D6	LOW (LogKOW = 1.993)
acenaphthene-D10	LOW (LogKOW = 3.467)
anthracene-D10	LOW (LogKOW = 2.9766)
fluoranthene-d10	MEDIUM (LogKOW = 4.2488)
naphthalene-D8	LOW (LogKOW = 2.4848)
phenanthrene-D10	LOW (LogKOW = 2.9766)



Mobility in soil

Ingredient	Mobility
benzene-D6	LOW (KOC = 165.5)
acenaphthene-D10	LOW (KOC = 6123)
anthracene-D10	LOW (KOC = 20400)
fluoranthene-d10	LOW (KOC = 70850)
naphthalene-D8	LOW (KOC = 1837)
phenanthrene-D10	LOW (KOC = 20830)

SECTION 13 DISPOSAL CONSIDERATIONS**Waste treatment methods**

Product / Packaging disposal	<ul style="list-style-type: none"> ▶ Containers may still present a chemical hazard/ danger when empty. ▶ Return to supplier for reuse/ recycling if possible. <p>Otherwise:</p> <ul style="list-style-type: none"> ▶ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. ▶ Where possible retain label warnings and SDS and observe all notices pertaining to the product. <p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.</p> <p>A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> ▶ Reduction ▶ Reuse ▶ Recycling ▶ Disposal (if all else fails) <p>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.</p> <ul style="list-style-type: none"> ▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▶ Where in doubt contact the responsible authority. ▶ Recycle wherever possible. ▶ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified. ▶ Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material). ▶ Decontaminate empty containers.
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SECTION 14 TRANSPORT INFORMATION**Labels Required**

	
Marine Pollutant	
HAZCHEM	3WE

Land transport (ADG)

UN number	1114
UN proper shipping name	BENZENE
Transport hazard class(es)	Class : 3 Subrisk : Not Applicable
Packing group	II
Environmental hazard	Environmentally hazardous
Special precautions for user	Special provisions : Not Applicable Limited quantity : 1 L

Air transport (ICAO-IATA / DGR)

UN number	1114
UN proper shipping name	Benzene
Transport hazard class(es)	ICAO/IATA Class : 3 ICAO / IATA Subrisk : Not Applicable ERG Code : 3H
Packing group	II
Environmental hazard	Environmentally hazardous
Special precautions for user	Special provisions : Not Applicable Cargo Only Packing Instructions : 364 Cargo Only Maximum Qty / Pack : 60 L Passenger and Cargo Packing Instructions : 353 Passenger and Cargo Maximum Qty / Pack : 5 L Passenger and Cargo Limited Quantity Packing Instructions : Y341 Passenger and Cargo Limited Maximum Qty / Pack : 1 L

Sea transport (IMDG-Code / GGVSee)

UN number	1114
UN proper shipping name	BENZENE
Transport hazard class(es)	IMDG Class : 3 IMDG Subrisk : Not Applicable
Packing group	II
Environmental hazard	Marine Pollutant
Special precautions for user	EMS Number : F-E , S-D Special provisions : Not Applicable Limited Quantities : 1 L

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

SECTION 15 REGULATORY INFORMATION**Safety, health and environmental regulations / legislation specific for the substance or mixture**

BENZENE-D6(1076-43-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

Continued...

BENZO[GH]PERYLENE-D12(93951-66-7*) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

ACENAPHTHENE-D10(15067-26-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

ANTHRACENE-D10(1719-06-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

FLUORENE D10(81103-79-9*) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

PYRENE-D10(1718-52-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

BENZO[K]FLUORANTHENE-D12(93952-01-3*) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

BENZO[B]FLUORANTHENE-D12(93951-98-5*) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

FLUORANTHENE-D10(93951-69-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

INDENO[1,2,3-CD]PYRENE-D12(203578-33-0*) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

ACENAPHTHYLENE-D8(93951-97-4*) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

BENZ[A]PYRENE-D12(63466-71-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

CHRYSENE-D12(1719-03-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

NAPHTHALENE-D8(1146-65-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix G

PHENANTHRENE-D10(1517-22-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

BENZ[A]ANTHRACENE-D12(1718-53-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

DIBENZ[A,H]ANTHRACENE-D14(13250-98-1*) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Not Applicable

National Inventory Status

National Inventory	Status
Australia - AICS	N (Benzo[K]Fluoranthene-D12; benz[a]anthracene-d12; FLUORENE D10; benz[a]pyrene-d12; fluoranthene-d10; Benzo[GH]Perylene-D12; Indeno[1,2,3-CD]Pyrene-D12; chrysene-D12; pyrene-d10; phenanthrene-D10; naphthalene-D8; acenaphthene-D10; benzene-D6; Acenaphthylene-D8; anthracene-D10; Benzo[B]Fluoranthene-D12)
Canada - DSL	N (Benzo[K]Fluoranthene-D12; benz[a]anthracene-d12; FLUORENE D10; benz[a]pyrene-d12; fluoranthene-d10; Benzo[GH]Perylene-D12; Indeno[1,2,3-CD]Pyrene-D12; chrysene-D12; pyrene-d10; phenanthrene-D10; naphthalene-D8; acenaphthene-D10; benzene-D6; Acenaphthylene-D8; anthracene-D10; Benzo[B]Fluoranthene-D12)
Canada - NDSL	N (Benzo[K]Fluoranthene-D12; benz[a]anthracene-d12; FLUORENE D10; benz[a]pyrene-d12; fluoranthene-d10; Benzo[GH]Perylene-D12; Indeno[1,2,3-CD]Pyrene-D12; chrysene-D12; pyrene-d10; phenanthrene-D10; naphthalene-D8; acenaphthene-D10; Acenaphthylene-D8; anthracene-D10; Benzo[B]Fluoranthene-D12)
China - IECSC	N (Benzo[K]Fluoranthene-D12; benz[a]anthracene-d12; FLUORENE D10; benz[a]pyrene-d12; fluoranthene-d10; Benzo[GH]Perylene-D12; Indeno[1,2,3-CD]Pyrene-D12; chrysene-D12; pyrene-d10; phenanthrene-D10; naphthalene-D8; acenaphthene-D10; Acenaphthylene-D8; anthracene-D10; Benzo[B]Fluoranthene-D12)
Europe - EINEC / ELINCS / NLP	N (Benzo[K]Fluoranthene-D12; benz[a]anthracene-d12; FLUORENE D10; benz[a]pyrene-d12; fluoranthene-d10; Benzo[GH]Perylene-D12; Indeno[1,2,3-CD]Pyrene-D12; chrysene-D12; pyrene-d10; phenanthrene-D10; acenaphthene-D10; Acenaphthylene-D8; Benzo[B]Fluoranthene-D12)
Japan - ENCS	N (Benzo[K]Fluoranthene-D12; benz[a]anthracene-d12; FLUORENE D10; benz[a]pyrene-d12; fluoranthene-d10; Benzo[GH]Perylene-D12; Indeno[1,2,3-CD]Pyrene-D12; chrysene-D12; pyrene-d10; phenanthrene-D10; naphthalene-D8; acenaphthene-D10; Acenaphthylene-D8; anthracene-D10; Benzo[B]Fluoranthene-D12)
Korea - KECI	N (Benzo[K]Fluoranthene-D12; benz[a]anthracene-d12; FLUORENE D10; benz[a]pyrene-d12; fluoranthene-d10; Benzo[GH]Perylene-D12; Indeno[1,2,3-CD]Pyrene-D12; chrysene-D12; pyrene-d10; phenanthrene-D10; naphthalene-D8; acenaphthene-D10; benzene-D6; Acenaphthylene-D8; anthracene-D10; Benzo[B]Fluoranthene-D12)
New Zealand - NZIoC	N (Benzo[K]Fluoranthene-D12; benz[a]anthracene-d12; FLUORENE D10; benz[a]pyrene-d12; fluoranthene-d10; Benzo[GH]Perylene-D12; Indeno[1,2,3-CD]Pyrene-D12; chrysene-D12; pyrene-d10; phenanthrene-D10; acenaphthene-D10; Acenaphthylene-D8; anthracene-D10; Benzo[B]Fluoranthene-D12)

PAH COCKTAIL FOR CARB METHOD 429 (D, 98%)

Philippines - PICCS	N (Benzo[K]Fluoranthene-D12; benz[a]anthracene-d12; FLUORENE D10; benz[a]pyrene-d12; fluoranthene-d10; Benzo[GH]Perylene-D12; Indeno[1,2,3-CD]Pyrene-D12; chrysene-D12; pyrene-d10; phenanthrene-D10; naphthalene-D8; acenaphthene-D10; benzene-D6; Acenaphthylene-D8; anthracene-D10; Benzo[B]Fluoranthene-D12)
USA - TSCA	N (Benzo[K]Fluoranthene-D12; benz[a]anthracene-d12; FLUORENE D10; benz[a]pyrene-d12; fluoranthene-d10; Benzo[GH]Perylene-D12; Indeno[1,2,3-CD]Pyrene-D12; chrysene-D12; pyrene-d10; phenanthrene-D10; naphthalene-D8; acenaphthene-D10; Acenaphthylene-D8; anthracene-D10; Benzo[B]Fluoranthene-D12)
Legend:	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

Revision Date	03/09/2018
Initial Date	03/09/2018

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC – TWA: Permissible Concentration-Time Weighted Average
 PC – STEL: Permissible Concentration-Short Term Exposure Limit
 IARC: International Agency for Research on Cancer
 ACGIH: American Conference of Governmental Industrial Hygienists
 STEL: Short Term Exposure Limit
 TEEL: Temporary Emergency Exposure Limit,
 IDLH: Immediately Dangerous to Life or Health Concentrations
 OSF: Odour Safety Factor
 NOAEL :No Observed Adverse Effect Level
 LOAEL: Lowest Observed Adverse Effect Level
 TLV: Threshold Limit Value
 LOD: Limit Of Detection
 OTV: Odour Threshold Value
 BCF: BioConcentration Factors
 BEI: Biological Exposure Index

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