# **ITW POLYMERS & FLUIDS**

Chemwatch: **5545-85** Version No: **4.1** Safety Data Sheet according to Work Health and Safety Regulations (Hazardous Chemicals) 2023 and ADG requirements

Issue Date: **10/03/2023** Print Date: **26/09/2024** S.GHS.AUS.EN

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

### **Product Identifier**

Product name	SPS-3 Hydrocarbon
Chemical Name	Not Applicable
Synonyms	Not Available
Proper shipping name	AEROSOLS (contains butane and propane)
Chemical formula	Not Applicable
Other means of identification	Not Available

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

Relevant identified uses	Application is by spray atomisation from a hand held aerosol pack
	Use according to manufacturer's directions.

#### Details of the manufacturer or supplier of the safety data sheet

Registered company name	ITW POLYMERS & FLUIDS	ITW Polymers & Fluids (NZ)
Address	100 Hassall Street, Wetherill Park NSW 2164 Australia	Unit 2/38 Trugood Drive, East Tamaki, Auckland 2013 New Zealand
Telephone	+61 2 9757 8800	0800 476 265
Fax	+61 2 9757 3855	+64 9 273 6489
Website	www.itwpf.com.au	www.itwpf.co.nz
Email	Not Available	Not Available

#### **Emergency telephone number**

Association / Organisation	CHEMWATCH EMERGENCY RESPONSE (24/7)	ITW Polymers & Fluids (NZ)	CHEMWATCH EMERGENCY RESPONSE (24/7)
Emergency telephone numbers	+61 1800 951 288	0800 2436 2255	+61 1800 951 288
Other emergency telephone numbers	+61 3 9573 3188	Not Available	+61 3 9573 3188

Once connected and if the message is not in your preferred language then please dial 01

# **SECTION 2 Hazards identification**

### Classification of the substance or mixture

### HAZARDOUS CHEMICAL. DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

Poisons Schedule	Not Applicable
Classification <sup>[1]</sup>	Aerosols Category 1, Aspiration Hazard Category 1, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2A, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Specific Target Organ Toxicity - Single Exposure (Narcotic Effects) Category 3
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI



Signal word Danger

## Hazard statement(s)

H222+H229	Extremely flammable aerosol. Pressurized container: may burst if heated.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
AUH044	Risk of explosion if heated under confinement.

#### Precautionary statement(s) General

P101	If medical advice is needed, have product container or label at hand.	
P102	Keep out of reach of children.	
P103	Read carefully and follow all instructions.	

### Precautionary statement(s) Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.	
P211	Do not spray on an open flame or other ignition source.	
P251	Do not pierce or burn, even after use.	
P271	Use only a well-ventilated area.	

# Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.	
P331	Do NOT induce vomiting.	
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	
P312	Call a POISON CENTER/doctor/physician/first aider/if you feel unwell.	

### Precautionary statement(s) Storage

P405	Store locked up.	
P410+P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.	
P403+P233	Store in a well-ventilated place. Keep container tightly closed.	

## Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

# **SECTION 3 Composition / information on ingredients**

#### Substances

See section below for composition of Mixtures

#### **Mixtures**

CAS No	%[weight]	Name
64-17-5	10-20	ethanol
1330-20-7	10-20	xylene
7782-42-5	10-20	<u>graphite</u>
123-86-4	0-10	n-butyl acetate
74-98-6	20-30	propane
106-97-8.	0-20	butane

Legend:

#### SPS-3 Hydrocarbon

Annex VI; 4. Classification drawn from C&L; \* EU IOELVs available

1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 -

**SECTION 4 First aid measures** Description of first aid measures If aerosols come in contact with the eves: Immediately hold the eyelids apart and flush the eye continuously for at least 15 minutes with fresh running water. • Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally Eye Contact lifting the upper and lower lids. Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. If solids or aerosol mists are deposited upon the skin: Flush skin and hair with running water (and soap if available). Skin Contact Remove any adhering solids with industrial skin cleansing cream. DO NOT use solvents. Seek medical attention in the event of irritation. If aerosols, fumes or combustion products are inhaled: Remove to fresh air. Lay patient down. Keep warm and rested. Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid Inhalation procedures. F If breathing is shallow or has stopped, ensure clear airway and apply resuscitation, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. Transport to hospital, or doctor. Avoid giving milk or oils Avoid giving alcohol. Ingestion Not considered a normal route of entry. If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

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

Treat symptomatically. for simple esters:

ior simple esters.

BASIC TREATMENT

- Establish a patent airway with suction where necessary.
- Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- Watch for signs of respiratory insufficiency and assist ventilation as necess
- Administer oxygen by non-rebreather mask at 10 to 15 l/min.
- Monitor and treat, where necessary, for pulmonary oedema .
   Monitor and treat, where necessary, for shock.
- NOT use smatter Millers insection is supported rises mouth on
- DO NOT use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.
- Give activated charcoal.

#### ADVANCED TREATMENT

- -----
- Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- Positive-pressure ventilation using a bag-valve mask might be of use.
- Monitor and treat, where necessary, for arrhythmias.
- Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
- Drug therapy should be considered for pulmonary oedema.
- + Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
- Treat seizures with diazepam.
- Proparacaine hydrochloride should be used to assist eye irrigation.

EMERGENCY DEPARTMENT

 Laboratory analysis of complete blood count, serum electrolytes, BUN, creatinine, glucose, urinalysis, baseline for serum aminotransferases (ALT and AST), calcium, phosphorus and magnesium, may assist in establishing a treatment regime. Other useful analyses include anion and osmolar gaps, arterial blood gases (ABGs), chest radiographs and electrocardiograph.

Positive end-expiratory pressure (PEEP)-assisted ventilation may be required for acute parenchymal injury or adult respiratory distress syndrome.

Consult a toxicologist as necessary.

- For acute or short term repeated exposures to ethanol:
- Acute ingestion in non-tolerant patients usually responds to supportive care with special attention to prevention of aspiration, replacement of fluid and correction of nutritional deficiencies (magnesium, thiamine pyridoxine, Vitamins C and K).
- Give 50% dextrose (50-100 ml) IV to obtunded patients following blood draw for glucose determination.
- Comatose patients should be treated with initial attention to airway, breathing, circulation and drugs of immediate importance (glucose, thiamine).

BRONSTEIN, A.C. and CURRANCE, P.L. EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994

- Decontamination is probably unnecessary more than 1 hour after a single observed ingestion. Cathartics and charcoal may be given but are probably not effective in single ingestions.
- Fructose administration is contra-indicated due to side effects.

For acute or short term repeated exposures to xylene:

- Gastro-intestinal absorption is significant with ingestions. For ingestions exceeding 1-2 ml (xylene)/kg, intubation and lavage with cuffed endotracheal tube is recommended. The use of charcoal and cathartics is equivocal.
- Pulmonary absorption is rapid with about 60-65% retained at rest.
- Primary threat to life from 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 or pCO2 > 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.

**BIOLOGICAL EXPOSURE INDEX - BEI** 

These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
Methylhippu-ric acids in urine	1.5 gm/gm creatinine	End of shift	
	2 mg/min	Last 4 hrs of shift	

### **SECTION 5 Firefighting measures**

#### Extinguishing media

• Sand, dry powder extinguishers or other inerts should be used to smother dust fires.

At temperatures above 1500 C, carbon, graphite or graphene reacts with substances containing oxygen, including water and carbon dioxide. In case of intensely hot fires sand should be used to cover and isolate these materials.

- Alcohol stable foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

#### SMALL FIRE:

Water spray, dry chemical or CO2

## LARGE FIRE:

Water spray or fog.

#### 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> <li>Alert Fire Brigade and tell them location and nature of hazard.</li> <li>May be violently or explosively reactive.</li> <li>Wear breathing apparatus plus protective gloves.</li> <li>Prevent, by any means available, spillage from entering drains or water course.</li> <li>Liquid and vapour are highly flammable.</li> <li>Severe fire hazard when exposed to heat or flame.</li> <li>Vapour forms an explosive mixture with air.</li> <li>Severe explosion hazard, in the form of vapour, when exposed to flame or spark.</li> <li>Combustion products include:</li> <li>carbon monoxide (CO)</li> <li>carbon monoxide (CO)</li> <li>carbon monoxide (CO)</li> <li>carbon boiling substance: Closed containers may rupture due to pressure buildup under fire conditions.</li> <li>A fire in bulk finely divided carbon may not be obviously visible unless the material is disturbed and sparks appear. A straw broom may be useful to produce the disturbance.</li> <li>Explosion and Ignition Behaviour of Carbon Black with Air</li> <li>Lower Limit for Explosion:</li> <li>§0 g/m3 (carbon black in air)</li> <li>Maximum Rate of Pressure Rise:</li> <li>30-100 bar/sec</li> <li>Minimum Ignition Temperature:</li> <li>315 deg. C.</li> <li>Mot Applicable</li> <li>Kot Appl</li></ul>				
<ul> <li>Liquid and vapour are highly flammable.</li> <li>Severe fire hazard when exposed to heat or flame.</li> <li>Vapour forms an explosive mixture with air.</li> <li>Severe explosion hazard, in the form of vapour, when exposed to flame or spark.</li> <li>Combustion products include: carbon monoxide (CO) carbon dioxide (CO2) other pyrolysis products typical of burning organic material.</li> <li>Contains low boiling substance: Closed containers may rupture due to pressure buildup under fire conditions.</li> <li>A fire in bulk finely divided carbon may not be obviously visible unless the material is disturbed and sparks appear. A straw broom may be useful to produce the disturbance.</li> <li>Explosion and Ignition Behaviour of Carbon Black with Air</li> <li>Lower Limit for Explosion: 50 g/m3 (carbon black in air) Maximum Explosion Pressure: 10 bar</li> <li>Maximum Rate of Pressure Rise: 30-100 bar/sec</li> <li>Minimum Ignition Temperature: 315 deg. C.</li> </ul>	Fire Fighting	<ul> <li>Alert Fire Brigade and tell them</li> <li>May be violently or explosively</li> <li>Wear breathing apparatus plus</li> <li>Prevent, by any means available</li> </ul>	location and nature of hazard. reactive. protective gloves. le, spillage from entering drains	or water course.
HAZCHEM Not Applicable	Fire/Explosion Hazard	<ul> <li>Liquid and vapour are highly fla</li> <li>Severe fire hazard when expos</li> <li>Vapour forms an explosive mixt</li> <li>Severe explosion hazard, in the Combustion products include:</li> <li>carbon monoxide (CO)</li> <li>carbon dioxide (CO2)</li> <li>other pyrolysis products typical of b</li> <li>Contains low boiling substance:</li> <li>A fire in bulk finely divided carbon may be useful to produce the disture</li> <li>Explosion and Ignition Behaviour of</li> <li>Lower Limit for Explosion:</li> <li>Maximum Rate of Pressure Rise:</li> <li>Minimum Ignition Temperature:</li> </ul>	ammable. ed to heat or flame. ture with air. e form of vapour, when exposed ourning organic material. Closed containers may rupture may not be obviously visible unler bance. f Carbon Black with Air 50 g/m3 (carbon black in air) 10 bar 30-100 bar/sec 315 deg. C.	t to flame or spark. due to pressure buildup under fire conditions. ess the material is disturbed and sparks appear. A straw broom
	HAZCHEM	Not Applicable		

# 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> <li>Clean up all spills immediately.</li> <li>Avoid breathing vapours and contact with skin and eyes.</li> <li>Wear protective clothing, impervious gloves and safety glasses.</li> <li>Shut off all possible sources of ignition and increase ventilation.</li> </ul>
Major Spills	<ul> <li>Clear area of personnel and move upwind.</li> <li>Alert Fire Brigade and tell them location and nature of hazard.</li> <li>Wear full body protective clothing with breathing apparatus.</li> <li>Prevent, by all means available, spillage from entering drains or water courses.</li> <li>Remove leaking cylinders to a safe place.</li> <li>Fit vent pipes. Release pressure under safe, controlled conditions</li> <li>Burn issuing gas at vent pipes.</li> <li>DO NOT exert excessive pressure on valve; DO NOTattempt to operate damaged valve.</li> <li>Clear area of personnel and move upwind.</li> <li>Alert Fire Brigade and tell them location and nature of hazard.</li> <li>May be violently or explosively reactive.</li> <li>Wear breathing apparatus plus protective gloves.</li> <li>Clear area of all unprotected personnel and move upwind.</li> <li>Alert Emergency Authority and advise them of the location and nature of hazard.</li> <li>May be violently or explosively reactive.</li> <li>Wear full body clothing with breathing apparatus.</li> </ul>

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

# **SECTION 7 Handling and storage**

## Precautions for safe handling

Safe handling	<ul> <li>Radon and its radioactive decay products are hazardous if inhaled or ingested Graphite: <ul> <li>is a good conductor of electricity; avoid contact with electrical circuitry.</li> <li>is a highly lubricious material and may present a slip hazard if spilled on pedestrian surfaces.</li> </ul> </li> <li>NOTE: <ul> <li>Wet, activated carbon removes oxygen from the air thus producing a severe hazard to workers inside carbon vessels and in enclosed or confined spaces where activated carbons might accumulate.</li> <li>Before entry to such areas, sampling and test procedures for low oxygen levels should be undertaken; control conditions should be established to ensure the availability of adequate oxygen supply.</li> <li>DO NOT allow clothing wet with material to stay in contact with skin</li> <li>Avoid all personal contact, including inhalation.</li> <li>Wear protective clothing when risk of exposure occurs.</li> <li>Use in a well-ventilated area.</li> <li>Prevent concentration in hollows and sumps.</li> </ul> </li> </ul>
Other information	<ul> <li>Carbon and charcoal may be stabilised for storage and transport, without moistening, by treatment with hot air at 50 deg. C Use of oxygen-impermeable bags to limit oxygen and moisture uptake has been proposed. Surface contamination with oxygenated volatiles may generate a heat of reaction (spontaneous heating).</li> <li>Keep dry to avoid corrosion of cans. Corrosion may result in container perforation and internal pressure may eject contents of can</li> <li>Store in original containers in approved flammable liquid storage area.</li> <li>DO NOT store in pits, depressions, basements or areas where vapours may be trapped.</li> <li>No smoking, naked lights, heat or ignition sources.</li> <li>Keep containers securely sealed.</li> </ul>

## Conditions for safe storage, including any incompatibilities

Suitable container	<ul> <li>Aerosol dispenser.</li> <li>Check that containers are clearly labelled.</li> </ul>
Storage incompatibility	<ul> <li>Xylenes:</li> <li>may ignite or explode in contact with strong oxidisers, 1,3-dichloro-5,5-dimethylhydantoin, uranium fluoride</li> <li>attack some plastics, rubber and coatings</li> <li>may generate electrostatic charges on flow or agitation due to low conductivity.</li> <li>For alkyl aromatics:</li> <li>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.</li> <li>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</li> </ul>

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
<ul> <li>Monoalkylbenzenes may subsequently form monocarboxylic acids; alkyl naphthalenes mainly produce the corresponding</li> </ul>
naphthalene carboxylic acids.
Oxidation in the presence of transition metal saits not only accelerates but also selectively decomposes the hydroperoxides.
n-Butyl acetate:
reacts with water on standing to form acetic acid and n-butyl alcohol
<ul> <li>reacts violently with strong oxidisers and potassium tert-butoxide</li> </ul>
is incompatible with caustics, strong acids and nitrates
dissolves rubber, many plastics, resins and some coatings
Avoid oxidising agents, acids, acid chlorides, acid anhydrides, chloroformates.
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.
Butane / isobutane:
reacts violently with strong oxidisers, acetylene, halogens, and nitrous oxides
does not mix with chlorine dioxide, nitric acid and some plastics
may generate electrostatic charges, due to low conductivity, which may ignite vapours.
Store butane well away from nickel carbonyl in the presence of oxygen between 20-40°C
Esters react with acids to liberate heat along with alcohols and acids.
Strong oxidising acids may cause a vigorous reaction with esters that is sufficiently exothermic to ignite the reaction products.
Heat is also generated by the interaction of esters with caustic solutions.
Flammable hydrogen is generated by mixing esters with alkali metals and hydrides.
Propane:
reacts violently with strong oxidisers, barium peroxide, chlorine dioxide, dichlorine oxide, fluorine etc.
<ul> <li>Dissolves some plastics, rubbers, and coatings</li> </ul>
may accumulate static charges which may ignite its vapours
For carbon powders:
Avoid oxidising agents, reducing agents.
<ul> <li>Reaction with finely divided metals, bromates, chlorates, chloramine monoxide, dichlorine oxide, iodates, metal nitrates,</li> </ul>
oxygen difluoride, peroxyformic acid, peroxyfuroic acid and trioxygen difluoride may result in an exotherm with ignition or
explosion. Less active forms of carbon will ignite or explode on suitably intimate contact with oxygen, oxides, peroxides,
oxosalts, halogens, interhalogens and other oxidising species.
<ul> <li>Explosive reaction with ammonium nitrate, ammonium perchlorate, calcium hypochlorite and iodine pentoxide may occur following beating</li> </ul>
<ul> <li>Activated carbon when exposed to air represents a potential fire hazard due to a high surface area and adsorptive capacity.</li> </ul>
Freshly prepared material may innite spontaneously in the presence of air especially at high humidity. Spontaneous
combustion in air may occur at 900-100 deg. C. The presence of moisture in air facilitates the initian
<ul> <li>Consistence in the result of a large amount of kinetic energy over and above that notentially available from the energy of</li> </ul>
reaction produced by the ras in chemical reaction with other substances

# **SECTION 8 Exposure controls / personal protection**

# **Control parameters**

## Occupational Exposure Limits (OEL)

INCREDIENT	ΠΑΤΑ
INGREDIENT	DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	ethanol	Ethyl alcohol	1000 ppm / 1880 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	xylene	Xylene (o-, m-, p- isomers)	80 ppm / 350 mg/m3	655 mg/m3 / 150 ppm	Not Available	Not Available
Australia Exposure Standards	graphite	Graphite (all forms except fibres) (respirable dust) (natural & synthetic)	3 mg/m3	Not Available	Not Available	<ul> <li>(e) Containing no</li> <li>asbestos and &lt; 1%</li> <li>crystalline silica.</li> </ul>
Australia Exposure Standards	n-butyl acetate	n-Butyl acetate	150 ppm / 713 mg/m3	950 mg/m3 / 200 ppm	Not Available	Not Available
Australia Exposure Standards	butane	Butane	800 ppm / 1900 mg/m3	Not Available	Not Available	Not Available

# Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
ethanol	Not Available	Not Available	15000* ppm
xylene	Not Available	Not Available	Not Available
graphite	6 mg/m3	330 mg/m3	2,000 mg/m3
n-butyl acetate	Not Available	Not Available	Not Available
propane	Not Available	Not Available	Not Available
butane	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
ethanol	Not Available	Not Available
xylene	900 ppm	Not Available
graphite	1,250 mg/m3	Not Available
n-butyl acetate	1,700 ppm	Not Available
propane	Not Available	Not Available
butane	Not Available	Not Available

# Exposure controls

Appropriate engineering controls	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. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk. 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. Exhaust ventilation should be designed to prevent accumulation and recirculation in the workplace and safely remove carbon black from the air. Note: Wet, activated carbon removes oxygen from the air and thus presents a severe hazard to workers inside carbon vessels and enclosed or confined spaces. Before entering such areas sampling and test procedures for low oxygen levels should be undertaken and control conditions set up to ensure ample oxygen availability.[Linde]
Individual protection measures, such as personal protective equipment	
Eye and face protection	<ul> <li>Safety glasses with side shields.</li> <li>Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]</li> <li>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.</li> <li>Close fitting gas tight goggles</li> <li>DO NOT wear contact lenses.</li> <li>Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task.</li> <li>Close fitting gas tight goggles</li> <li>DO NOT wear contact lenses.</li> <li>Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available.</li> </ul>
Skin protection	See Hand protection below
Hands/feet protection	<ul> <li>For esters:</li> <li>Do NOT use natural rubber, butyl rubber, EPDM or polystyrene-containing materials.</li> <li>No special equipment needed when handling small quantities.</li> <li>OTHERWISE:</li> <li>For potentially moderate exposures:</li> <li>Wear general protective gloves, eg. light weight rubber gloves.</li> <li>For potentially heavy exposures:</li> <li>Wear chemical protective gloves, eg. PVC. and safety footwear.</li> </ul>
Body protection	See Other protection below
Other protection	<ul> <li>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]</li> <li>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]</li> <li>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.</li> <li>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 and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood.</li> <li>Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.</li> <li>No special equipment needed when handling small quantities.</li> <li>OTHERWISE:</li> <li>Overalls.</li> <li>Skin cleansing cream.</li> <li>Eyewash unit.</li> <li>The clothing worn by process operators insulated from earth may develop static charges far higher (up to 100 times) than the minimum ignition energies for various flammable gas-air mixtures. This holds true for a wide range of clothing materials including cotton.</li> </ul>

• Avoid dangerous levels of charge by ensuring a low resistivity of the surface material worn outermost. BRETHERICK: Handbook of Reactive Chemical Hazards.

### **Respiratory protection**

Type AX Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

- · 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.
- Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used
- Positive pressure, full face, air-supplied breathing apparatus should be used for work in enclosed spaces if a leak is suspected or the primary containment is to be opened (e.g. for a cylinder change)
- Air-supplied breathing apparatus is required where release of gas from primary containment is either suspected or demonstrated.

Generally not applicable.

Aerosols, in common with most vapours/ mists, should never be used in confined spaces without adequate ventilation. Aerosols, containing agents designed to enhance or mask smell, have triggered allergic reactions in predisposed individuals.

### **SECTION 9** Physical and chemical properties

### Information on basic physical and chemical properties

Appearance	Clear liquid with mild odour, immiscible in water.		
Physical state	Liquid	Relative density (Water = 1)	0.89
Odour	Not Available	Partition coefficient n- octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Applicable	Decomposition temperature (°C)	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	-60	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	HIGHLY FLAMMABLE.	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Immiscible	pH as a solution (1%)	Not Applicable
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available
Heat of Combustion (kJ/g)	Not Available	Ignition Distance (cm)	Not Available
Flame Height (cm)	Not Available	Flame Duration (s)	Not Available
Enclosed Space Ignition Time Equivalent (s/m3)	Not Available	Enclosed Space Ignition Deflagration Density (g/m3)	Not Available

### SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	<ul> <li>Elevated temperatures.</li> <li>Presence of open flame.</li> <li>Product is considered stable.</li> <li>Hazardous polymerisation will not occur.</li> </ul>
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition	See section 5

products

# **SECTION 11 Toxicological information**

### Information on toxicological effects

	There is strong evidence to suggest that this material can cause, if inhaled once, very serious, irreversible damage of organs. The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung		
	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.		
	Isobutane produces a d	ose dependent action and at high concentrations may cause numbness, suffocation, exhilaration,	
	dizziness, headache, na The main effects of sim	ausea, confusion, incoordination and unconsciousness in severe cases. ole esters are irritation, stupor and insensibility. Headache, drowsiness, dizziness, coma and behavioural	
	changes may occur.	at the meet common signs of inhalation subscience is inco ardination and drawsingsa	
	The paraffin gases are p	oractically not harmful at low doses. Higher doses may produce reversible brain and nerve depression	
	Central nervous system	(CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness,	
	nausea, anaesthetic effe may result in respiratory	ects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings / depression and may be fatal.	
Inhaled	Material is highly volatile	e and may quickly form a concentrated atmosphere in confined or unventilated areas. The vapour may	
	displace and replace air Inhalation of high conce	in breathing zone, acting as a simple asphyxiant. This may happen with little warning of overexposure. Intrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with a shared and and a set of a flower for the set of a set of the set	
	Impurities found in carb	s, slowing of reflexes, fatigue and inco-ordination. ons. including iodine. can be toxic. Carbon dusts in the air may cause irritation of the mucous	
	membranes, eyes and s	skin.	
	The acute toxicity of inh	aled alkylbenzene is best described by central nervous system depression. These compounds may also	
	act as general anaesthe	stics. Whole body symptoms of poisoning include light-headedness, nervousness, apprehension, a feeling dizziness, drowsiness, ringing in the ears, blurred or double vision, vomiting and sensations of heat	
	cold or numbness, twitc	hing, tremors, convulsions, unconsciousness, depression of breathing, and arrest. Heart stoppage may	
	result from cardiovascul	ar collapse.	
	WARNING: Intentional n	nisuse by concentrating/inhaling contents may be lethal. Iness, irritability and digestive disturbances (nausea, loss of appetite and bloating) are the most common	
	symptoms of xylene over	erexposure. Injury to the heart, liver, kidneys and nervous system has also been noted amongst workers.	
	Xylene is a central nerv	ous system depressant	
	Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be		
	There is strong evidence	e to suggest that this material can cause if swallowed once, very serious, irreversible damage of organs	
	Accidental ingestion of t	he material may be damaging to the health of the individual.	
	Ingestion of ethanol (eth	nyl alcohol, "alcohol") may produce nausea, vomiting, bleeding from the digestive tract, abdominal pain,	
	and diarrhoea. Effects on the body:		
	Blood concentration	Effects	
	<1.5 g/L	Mild: impaired vision, co-ordination and reaction time; emotional instability	
		Moderate: Slurred speech, confusion,	
		inco-ordination, emotional instability,	
		possible blackouts, and impaired	
Ingestion		objective performance in standardized	
	1.5-3.0 g/L	tests. Possible double vision, flushing,	
		fast heart rate, sweating and incontinence.	
		breathing may develop in cases of	
		metabolic acidosis, low blood sugar	
		and low blood potassium.	
	Not normally a hazard due to physical form of product.		
	Considered an unlikely route of entry in commercial/industrial environments		
	result. (ICSC13733)		
	Ingestion of finely divided carbon may produce gagging and constipation. Aspiration does not appear to be a concern as the		
	material is generally regarded as inert and is often used as a food additive.		
	There is strong evidence	e to suggest that this material, on a single contact with skin, can cause very serious, irreversible damage	
	The material may cause	e moderate inflammation of the skin either following direct contact or after a delay of some time. Repeated	
	exposure can cause cor	ntact dermatitis which is characterised by redness, swelling and blistering.	
	Skin contact is not though	ght to have harmful health effects (as classified under EC Directives); the material may still produce	
Skin Contact	Repeated exposure ma	y enny mough wounds, lesions of abrasions. y cause skin cracking, flaking or drying following normal handling and use.	
	Repeated exposure may cause skin cracking, flaking or drying following normal handling and use.		
	Spray mist may produce	e discomfort	
	Spray mist may produce Open cuts, abraded or i	ritated skin should not be exposed to this material	
	Spray mist may produce Open cuts, abraded or i Toxic effects may result Entry into the blood-stre	e discomfort rritated skin should not be exposed to this material from skin absorption sam, through, for example, cuts, abrasions or lesions, may produce systemic injury with barmful effects	

Continued...

Eye	This material can cause eye irritation and damage in some persons. Direct contact of the eye with ethanol (alcohol) may cause an immediate stinging and burning sensation, with reflex closure of the lid, and a temporary, tearing injury to the cornea together with redness of the conjunctiva. Discomfort may last 2 days but usually the injury heals without treatment. Not considered to be a risk because of the extreme volatility of the gas. Eyes exposed to carbon particulates may be liable to irritation and burning. These can remain in the eye causing inflammation lasting weeks, and can cause permanent dark dotty discolouration.
Chronic	Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. There is sufficient evidence to suggest that this material directly causes cancer in humans. Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. 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. Ample evidence exists that this material directly causes reduced fertility Ample evidence exists that developmental disorders are directly caused by human exposure to the material. Ample evidence exists from experimentation that reduced human fertility is directly caused by exposure to the material. Ample evidence exists, from results in experimentation, that developmental disorders are directly caused by human exposure to the material. Ample evidence exists, from results in experimentation, that developmental disorders are directly caused by human exposure to the material. Prolonged exposure to ethanol may cause damage to the liver and cause scarring. It may also worsen damage caused by other agents. Prolonged or repeated inhalation of dust may cause in lung disease. Graphite workers have reported symptoms of headaches, coughing, depression, low appetite, difficult breathing and black sputum. Workers suffering from this have generally worked in the industry for long periods, (10 years or more), although some cases have been reported after as little as four years. There is insufficient evidence to suggest that exposure to carbon black causes increased susceptibility to cancer or other ill effects. Some lung changes can occur after a prolonged period of exposure as well as increased strain on the right side of the heart. Main route of exposure to the gas in the workplace is by inhalation. Women exposed to xylene in the first 3 months of pregnancy showed a slightly increased risk of miscarriag

SDS 2 Hydrosorbon	ΤΟΧΙΟΙΤΥ	IRRITATION
SPS-3 Hydrocarbon	Not Available	Not Available
	ΤΟΧΙΟΙΤΥ	IRRITATION
	Dermal (rabbit) LD50: 17100 mg/kg <sup>[1]</sup>	Eye (rabbit): 500 mg SEVERE
	Inhalation (Rat) LC50: 64000 ppm4h <sup>[2]</sup>	Eye (rabbit):100mg/24hr-moderate
ethanol	Oral (Rat) LD50: 7060 mg/kg <sup>[2]</sup>	Eye: adverse effect observed (irritating) <sup>[1]</sup>
		Eye: no adverse effect observed (not irritating) <sup>[1]</sup>
		Skin (rabbit):20 mg/24hr-moderate
		Skin (rabbit):400 mg (open)-mild
		Skin: no adverse effect observed (not irritating) <sup>[1]</sup>
	ΤΟΧΙΟΙΤΥ	IRRITATION
	Dermal (rabbit) LD50: >1700 mg/kg <sup>[2]</sup>	Eye (human): 200 ppm irritant
	Inhalation (Rat) LC50: 5000 ppm4h <sup>[2]</sup>	Eye (rabbit): 5 mg/24h SEVERE
xylene	Oral (Mouse) LD50; 2119 mg/kg <sup>[2]</sup>	Eye (rabbit): 87 mg mild
		Eye: adverse effect observed (irritating) <sup>[1]</sup>
		Skin (rabbit):500 mg/24h moderate
		Skin: adverse effect observed (irritating) <sup>[1]</sup>
	ΤΟΧΙΟΙΤΥ	IRRITATION
graphite	Inhalation (Rat) LC50: >2 mg/L4h <sup>[1]</sup>	Eye: no adverse effect observed (not irritating) <sup>[1]</sup>
	Oral (Rat) LD50: >200 mg/kg <sup>[1]</sup>	Skin: no adverse effect observed (not irritating) <sup>[1]</sup>
n-butyl acetate	ΤΟΧΙΟΙΤΥ	IRRITATION
	Dermal (rabbit) LD50: 3200 mg/kg <sup>[2]</sup>	Eye ( human): 300 mg * [PPG]
	Inhalation (Rat) LC50: 0.74 mg/l4h <sup>[2]</sup>	Eye (rabbit): 20 mg (open)-SEVERE
	Oral (Rabbit) LD50; 3200 mg/kg <sup>[2]</sup>	Eye (rabbit): 20 mg/24h - moderate
		Eye: no adverse effect observed (not irritating) <sup>[1]</sup>
		Skin (rabbit): 500 mg/24h-moderate

		Skin: no adverse effect observed (not irritating) <sup>[1]</sup>
	ΤΟΧΙΟΙΤΥ	IRRITATION
propane	Inhalation (Rat) LC50: 364726.819 ppm4h <sup>[2]</sup>	Not Available
	ΤΟΧΙΟΙΤΥ	IRRITATION
butane	Inhalation (Rat) LC50: 658 mg/l4h <sup>[2]</sup>	Not Available
Legend:	1. Value obtained from Europe ECHA Registered Substances - A	Acute toxicity 2. Value obtained from manufacturer's SDS.
	Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

SPS-3 Hydrocarbon	Data demonstrate that during inhalation exposure, aromatic hydrocarbons undergo substantial partitioning into adipose tissues. Following cessation of exposure, the level of aromatic hydrocarbons in body fats rapidly declines. Thus, the aromatic hydrocarbons are unlikely to bioaccumulate in the body. Selective partitioning of the aromatic hydrocarbons into the non-adipose tissues is unlikely.		
XYLENE	Reproductive effector in rats		
SPS-3 Hydrocarbon & GRAPHITE	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.		
SPS-3 Hydrocarbon & GRAPHITE & PROPANE	No significant acute toxicological data identified	in literature search.	
SPS-3 Hydrocarbon & N- BUTYL ACETATE	Generally,linear and branched-chain alkyl esters are hydrolysed to their component alcohols and carboxylic acids in the intestinal tract, blood and most tissues throughout the body. Following hydrolysis the component alcohols and carboxylic acids are metabolized Oral acute toxicity studies have been reported for 51 of the 67 esters of aliphatic acyclic primary alcohols and aliphatic linear saturated carboxylic acids. The very low oral acute toxicity of this group of esters is demonstrated by oral LD50 values greater than 1850 mg/kg bw Genotoxicity studies have been performed in vitro using the following esters of aliphatic acyclic primary alcohols and aliphatic linear saturated carboxylic acids: methyl acetate, butyl acetate, butyl stearate and the structurally related isoamyl formate and demonstrates that these substances are not genotoxic. The JEFCA Committee concluded that the substances in this group would not present safety concerns at the current levels of intake the esters of aliphatic acyclic primary alcohols and aliphatic linear saturated carboxylic acids are generally used as flavouring substances up to average maximum levels of 200 mg/kg. Higher levels of use (up to 3000 mg/kg) are permitted in food categories such as chewing our and hard candy		
SPS-3 Hydrocarbon & XYLENE	The substance is classified by IARC as Group 3: NOT classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing.		
SPS-3 Hydrocarbon & ETHANOL & XYLENE & N- BUTYL ACETATE	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.		
XYLENE & N-BUTYL ACETATE	The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.		
Acute Toxicity	×	Carcinogenicity	×
Skin Irritation/Corrosion	<b>*</b>	Reproductivity	×
Serious Eye Damage/Irritation	*	STOT - Single Exposure	*
Respiratory or Skin sensitisation	×	STOT - Repeated Exposure	×
Mutagenicity	×	Aspiration Hazard	✓
	Leg	gend: X – Data either not ava ✓ – Data available to n	ailable or does not fill the criteria for classification nake classification

# **SECTION 12 Ecological information**

# Toxicity

	Endpoint	Test Duration (hr)	Species	Value	Source
SPS-3 Hydrocarbon	Not Available	Not Available	Not Available	Not Available	Not Available

	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	72h	Algae or other aquatic plants	275mg/l	2
	EC50	48h	Crustacea	2mg/L	4
etnanoi	EC50(ECx)	96h	Algae or other aquatic plants	<0.001mg/L	4
	LC50	96h	Fish	42mg/L	4
	EC50	96h	Algae or other aquatic plants	Algae or other aquatic plants <0.001mg/L	
	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	72h	Algae or other aquatic plants	4.6mg/l	2
xylene	EC50	48h	Crustacea	1.8mg/l	2
	LC50	96h	Fish	2.6mg/l	2
	NOEC(ECx)	73h	Algae or other aquatic plants	0.44mg/l	2
	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	72h	Algae or other aquatic plants	>100mg/l	2
graphite	EC50	48h	Crustacea	>100mg/l	
	LC50	96h	Fish	>100mg/l	2
	NOEC(ECx)	96h	Fish	>=100mg/l	2
	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	72h	Algae or other aquatic plants	246mg/l	2
n-hutvl acetate	EC50	48h	Crustacea	32mg/l	1
in-butyr acetate	EC50(ECx)	96h	Fish	18mg/l	2
	LC50	96h	Fish	17- 19mg/L	4
	Endpoint	Test Duration (hr)	Species	Value	Source
propane	Not Available	Not Available	Not Available	Not Available	Not Available
	Endpoint	Test Duration (hr)	Species	Value	Source
hutana	EC50(ECx)	96h	Algae or other aquatic plants	7.71mg/l	2
butane	LC50	96h	Fish	24.11mg/l	2
	EC50	96h	Algae or other aquatic plants	7.71mg/l	2
Legend:	Extracted from 4. US EPA, Ec Bioconcentrati	1. IUCLID Toxicity Data 2. Europ otox database - Aquatic Toxicity D on Data 7. METI (Japan) - Biocon	e ECHA Registered Substances - Ecotoxicologic Data 5. ECETOC Aquatic Hazard Assessment Da centration Data 8. Vendor Data	al Information - Aqu ta 6. NITE (Japan) -	atic Toxici

Harmful 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
- Iethal 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 Ethanol: log Kow: -0.31 to -0.32; Koc 1: Estimated BCF= 3; Half-life (hr) air: 144; Half-life (hr) H2O surface water: 144; Henry's atm m3 /mol: 6.29E-06;

BOD 5 if unstated: 0.93-1.67,63% COD: 1.99-2.11,97%;

ThOD : 2.1.

Environmental Fate: Terrestrial - Ethanol quickly biodegrades in soil but may leach into ground water; most is lost by evaporation. Ethanol is expected to have very high mobility in soil. Volatilization of ethanol from moist soil surfaces is expected to be an important fate process. For Xylenes:

log Koc : 2.05-3.08; Koc : 25.4-204; Half-life (hr) air : 0.24-42; Half-life (hr) H2O surface water : 24-672; Half-life (hr) H2O ground : 336-8640; Half-life (hr) soil : 52-672; Henry's Pa m3 /mol : 637-879; Henry's atm m3 /mol - 7.68E-03; BOD 5 if unstated - 1.4,1%; COD - 2.56,13% ThOD - 3.125 : BCF : 23; log BCF : 1.17-2.41. Environmental Fate: Most xylenes released to the environment will occur in the atmosphere and volatilisation is the dominant environmental fate process. Soil -Xylenes are expected to have moderate mobility in soil evaporating rapidly from soil surfaces. The extent of the degradation is expected to depend on its concentration, residence time in the soil, the nature of the soil, and whether resident microbial populations have been acclimated.

For Butane (Synonym: n-Butane): Log Kow: 2.89; Koc: 450-900; Henry s Law Constant: 0.95 atm-cu m/mole, Vapor Pressure: 1820 mm Hg; BCF: 1.9. Atmospheric Fate: Butane is expected to exist only as a gas in the ambient atmosphere. Gas-phase n-butane is degraded in the atmosphere by reaction with hydroxyl radicals; the half-life for this reaction in air is estimated to be 6.3 days, (@ 25 C). Butane is not expected to absorb UV light and probably will probably not be broken down directly by sunlight in the atmosphere.

For Propane: Koc 460. log

Kow 2.36.

Henry's Law constant of 7.07x10-1 atm-cu m/mole, derived from its vapour pressure, 7150 mm Hg, and water solubility, 62.4 mg/L. Estimated BCF: 13.1. DO NOT discharge into sewer or waterways.

For n-Butyl Acetate: Koc: ~200; log Kow: 1.78; Half-life (hr) air: 144; Half-life (hr) H2O surface water: 178 - 27156; Henry's atm: m3 /mol: 3.20E-04 BOD 5 if unstated: 0.15-1.02,7%; COD: 78%; ThOD: 2.207; BCF : 4-14.

Environmental Fate: Terrestrial Fate - Butyl acetate is expected to have moderate mobility in soil. Volatilization of n-butyl acetate is expected from moist and dry soil surfaces. n-Butyl acetate may biodegrade in soil.

# Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
ethanol	LOW (Half-life = 2.17 days)	LOW (Half-life = 5.08 days)
xylene	HIGH (Half-life = 360 days)	LOW (Half-life = 1.83 days)
n-butyl acetate	LOW	LOW
propane	LOW	LOW
butane	LOW	LOW

### **Bioaccumulative potential**

Ingredient	Bioaccumulation
ethanol	LOW (LogKOW = -0.31)
xylene	MEDIUM (BCF = 740)
n-butyl acetate	LOW (BCF = 14)
propane	LOW (LogKOW = 2.36)
butane	LOW (LogKOW = 2.89)

### Mobility in soil

Ingredient	Mobility
ethanol	HIGH (Log KOC = 1)
n-butyl acetate	LOW (Log KOC = 20.86)
propane	LOW (Log KOC = 23.74)
butane	LOW (Log KOC = 43.79)

## **SECTION 13 Disposal considerations**

#### Waste treatment methods

Product / Packaging disposal 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.

A Hierarchy of Controls seems to be common - the user should investigate:

Reduction

Reuse

<ul> <li>Recycling</li> <li>Disposal (if all else fails)</li> <li>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.</li> <li>DO NOT allow wash water from cleaning or process equipment to enter drains.</li> <li>It may be necessary to collect all wash water for treatment before disposal.</li> <li>In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.</li> <li>Where in doubt contact the responsible authority.</li> <li>Consult State Land Waste Management Authority for disposal.</li> <li>Discharge contents of damaged aerosol cans at an approved site.</li> <li>Allow small quantities to evaporate.</li> </ul>
<ul> <li>DO NOT incinerate or puncture aerosol cans.</li> </ul>

# **SECTION 14 Transport information**

Labels Required		
Marine Pollutant	NO	
HAZCHEM	Not Applicable	

# Land transport (ADG)

14.1. UN number or ID number	1950			
14.2. UN proper shipping name	AEROSOLS (contains	AEROSOLS (contains butane and propane)		
14.3. Transport hazard class(es)	Class Subsidiary Hazard	2.1 Not Applicable		
14.4. Packing group	Not Applicable			
14.5. Environmental hazard	Not Applicable			
14.6. Special precautions for user	Special provisions Limited quantity	63 190 277 327 344 381 1000ml		

# Air transport (ICAO-IATA / DGR)

14.1. UN number	1950			
14.2. UN proper shipping name	Aerosols, flammable (contains butane and propane)			
14.3. Transport hazard class(es)	ICAO/IATA Class ICAO / IATA Subsidiary Hazard	2.1 Not Applicable		
	ERG Code	10L		
14.4. Packing group	Not Applicable			
14.5. Environmental hazard	Not Applicable			
14.6. Special precautions for user	Special provisions		A145 A167 A802	
	Cargo Only Packing Instructions		203	
	Cargo Only Maximum Qty / Pack		150 kg	
	Passenger and Cargo Packing Instructions		203	
	Passenger and Cargo Maximum Qty / Pack		75 kg	
	Passenger and Cargo Limited Quantity Packing Instructions		Y203	
	Passenger and Cargo Limited Ma	aximum Qty / Pack	30 kg G	

# Sea transport (IMDG-Code / GGVSee)

1

14.1. UN number	1950
	AEROSOLS (contains butane and propane)

14.2. UN proper shipping name			
14.3. Transport hazard	IMDG Class	2.1	
class(es)	IMDG Subsidiary Ha	Izard Not Applicable	
14.4. Packing group	Not Applicable		
14.5 Environmental hazard	Not Applicable		
14.6. Special precautions for user	EMS Number	F-D , S-U 63 190 277 327 344 381 959	
	Limited Quantities	1000 ml	

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

Not Applicable

## 14.7.2. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
ethanol	Not Available
xylene	Not Available
graphite	Not Available
n-butyl acetate	Not Available
propane	Not Available
butane	Not Available

# 14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
ethanol	Not Available
xylene	Not Available
graphite	Not Available
n-butyl acetate	Not Available
propane	Not Available
butane	Not Available

### **SECTION 15 Regulatory information**

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

#### ethanol is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australian Inventory of Industrial Chemicals (AIIC)

#### xylene is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6

Australian Inventory of Industrial Chemicals (AIIC)

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic

#### graphite is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)

### n-butyl acetate is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australian Inventory of Industrial Chemicals (AIIC)

#### propane is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australian Inventory of Industrial Chemicals (AIIC)

#### butane is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

### Additional Regulatory Information

Not Applicable

#### **National Inventory Status**

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (ethanol; xylene; graphite; n-butyl acetate; propane; butane)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	No (graphite)
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - FBEPH	Yes
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.

# **SECTION 16 Other information**

Revision Date	10/03/2023
Initial Date	10/06/2022

## **SDS Version Summary**

Version	Date of Update	Sections Updated
3.1	28/06/2022	Toxicological information - Acute Health (eye), Toxicological information - Acute Health (inhaled), Toxicological information - Acute Health (skin), Toxicological information - Acute Health (swallowed), First Aid measures - Advice to Doctor, Toxicological information - Chronic Health, Hazards identification - Classification, Disposal considerations - Disposal, Exposure controls / personal protection - Engineering Control, Ecological Information - Environmental, Exposure controls / personal protection - Exposure Standard, Firefighting measures - Fire Fighter (extinguishing media), Firefighting measures - Fire Fighter (fire/explosion hazard), Firefighting measures - Fire Fighter (fire fighting), First Aid measures - First Aid (eye), First Aid measures - First Aid (inhaled), First Aid measures - First Aid (swallowed), Handling and storage - Handling Procedure, Stability and reactivity - Instability Condition, Exposure controls / personal protection - Personal Protection (other), Exposure controls / personal protection - Personal Protection (Respirator), Exposure controls / personal protection (eye), Exposure controls / personal protection - Personal Protection (hands/feet), Accidental release measures - Spills (major), Accidental release measures - Spills (minor), Handling and storage - Storage (storage incompatibility), Handling and storage - Storage (suitable container), Toxicological information - Toxicity and Irritation (Other), Transport information, Identification of the substance / mixture and of the company / undertaking - Use
4.1	10/03/2023	Classification change due to full database hazard calculation/update.

#### 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.

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