



422B Silicone Modified Conformai5(r)U19 m 683 (i5(r)U1.993 (593 (593 ()1 I 0 15.(m)8.993 (a)6c)()

MG Chemicals UK Limited

Chemwatch Hazard Alert Code: 3

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422B Silicone Modified Conformal Coating (Aerosol)

H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H229	Pressurised container: May burst if heated.
H223	Flammable aerosol.

Supplementary statement(s)

Not Applicable

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
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.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P271	Use in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.
P308+P313	IF exposed or concerned: Get medical advice/ attention.
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.
P337+P313	If eye irritation persists: Get medical advice/attention.
P302+P352	IF ON SKIN: Wash with plenty of water and soap.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.

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 in accordance with local regulations.
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2.3. Other hazards

REACH - Art.57-59: The mixture does not contain Substances of Very High Concern (SVHC) at the SDS print date.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

3.1.Substances

See 'Composition on ingredients' in Section 3.2

3.2.Mixtures

1.CAS No 2.EC No 3.Index No 4.REACH No	%[weight]	Name	Classification according to regulation (EC) No 1272/2008 [CLP]
1.115-10-6 2.204-065-8 3.603-019-00-8 4.01-2119472128-37-XXXX	36		Flammable Gas Category 1, Gas under Pressure; H220, H280 [3]
1.67-64-1 2.200-662-2 3.606-001-00-8 4.01-2119471330-49-XXXX, 01-2119498062-37-XXXX	21		Flammable Liquid Category 2, Eye Irritation Category 2, Specific target organ toxicity - single exposure Category 3

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- ▶ 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.
- ▶ Ethers may produce anion gap acidosis. Hyperventilation and bicarbonate therapy might be indicated.
- ▶ Haemodialysis might be considered in patients with impaired renal function.
- ▶ Consult a toxicologist as necessary.

BRONSTEIN, A.C. and CURRANCE, P.L.

EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994

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
Methylhippuric acids in urine	1.5 gm/gm creatinine	End of shift	
	2 mg/min	Last 4 hrs of shift	

SECTION 5 FIREFIGHTING MEASURES

5.1. Extinguishing media

SMALL FIRE:

- ▶ Water spray, dry chemical or CO₂

LARGE FIRE:

- ▶ Water spray or fog.

5.2. 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

5.3. Advice for firefighters

Fire Fighting

GENERAL

- ▶ Alert Fire Brigade and tell them location and nature of hazard.
- ▶ Wear full body protective clothing with breathing apparatus.
- ▶ Fight fire from a safe distance, with adequate cover.
- ▶ If safe, switch off electrical equipment until vapour fire hazard removed.
- ▶ Use water delivered as a fine spray to control fire and cool adjacent area.
- ▶ **DO NOT approach cylinders suspected to be hot.**
- ▶ Cool fire exposed cylinders with water spray from a protected location.
- ▶ If safe to do so, remove cylinders from path of fire.
- ▶ Equipment should be thoroughly decontaminated after use.

FIRE FIGHTING PROCEDURES:

- ▶ Excessive pressures may develop in a gas cylinder exposed in a fire; this may result in explosion.
- ▶ Cylinders with pressure relief devices may release their contents as a result of fire and the released gas may constitute a further source of hazard for the fire-fighter.
- ▶ Cylinders without pressure-relief valves have no provision for controlled release and are therefore more likely to explode if exposed to fire.

FIRE FIGHTING REQUIREMENTS:

- ▶ Positive pressure, self-contained breathing apparatus is required for fire-fighting of hazardous materials.
- ▶ Full structural fire-fighting (bunker) gear is the minimum acceptable attire.
- ▶ The need for proximity, entry and special protective clothing should be determined for each incident, by a competent fire-fighting safety professional.

Fire/Explosion Hazard

- ▶ Containers may explode when heated - Ruptured cylinders may rocket
- ▶ May burn but does not ignite easily.
- ▶ Fire exposed cylinders may vent contents through pressure relief devices thereby increasing vapour concentration..
- ▶ Fire may produce irritating, poisonous or corrosive gases.
- ▶ Runoff may create fire or explosion hazard.
- ▶ May decompose explosively when heated or involved in fire.
- ▶ Contact with gas may cause burns, severe injury and/ or frostbite.
- ▶ **POISONOUS: MAY BE FATAL IF INHALED, SWALLOWED OR ABSORBED THROUGH SKIN**

Decomposition may produce toxic fumes of:

, carbon monoxide (CO)

, carbon dioxide (CO₂)

, other pyrolysis products typical of burning organic material.

Contains low boiling substance: Closed containers may rupture due to pressure buildup under fire conditions.

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- ▶ Vented gas is more dense than air and may collect in pits, basements.
- WARNING:** Aerosol containers may present pressure related hazards.

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

See section 8

6.2. Environmental precautions

See section 12

6.3. Methods and material for containment and cleaning up

Minor Spills	<ul style="list-style-type: none"> ▶ Clean up all spills immediately. ▶ Avoid breathing vapours and contact with skin and eyes. ▶ Wear protective clothing, impervious gloves and safety glasses. ▶ Shut off all possible sources of ignition and increase ventilation. ▶ Wipe up. ▶ If safe, damaged cans should be placed in a container outdoors, away from all ignition sources, until pressure has dissipated. ▶ Undamaged cans should be gathered and stowed safely.
Major Spills	<ul style="list-style-type: none"> ▶ Clear area of all unprotected personnel and move upwind. ▶ Alert Emergency Authority and advise them of the location and nature of hazard. ▶ Wear full body clothing with breathing apparatus. ▶ Prevent by any means available, spillage from entering drains and water-courses. ▶ Consider evacuation. ▶ Increase ventilation. ▶ No smoking or naked lights within area. ▶ Stop leak only if safe to do so. ▶ Water spray or fog may be used to disperse vapour. ▶ DO NOT enter confined space where gas may have collected. ▶ Keep area clear until gas has dispersed. ▶ Remove leaking cylinders to a safe place. ▶ Fit vent pipes. Release pressure under safe, controlled conditions ▶ Burn issuing gas at vent pipes. ▶ DO NOT exert excessive pressure on valve; DO NOT attempt to operate damaged valve. ▶ 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 breathing apparatus plus protective gloves. ▶ Prevent, by any means available, spillage from entering drains or water courses ▶ No smoking, naked lights or ignition sources. ▶ Increase ventilation. ▶ Stop leak if safe to do so. ▶ Water spray or fog may be used to disperse / absorb vapour. ▶ Absorb or cover spill with sand, earth, inert materials or vermiculite. ▶ If safe, damaged cans should be placed in a container outdoors, away from ignition sources, until pressure has dissipated. ▶ Undamaged cans should be gathered and stowed safely. ▶ Collect residues and seal in labelled drums for disposal.

6.4. Reference to other sections

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

SECTION 7 HANDLING AND STORAGE

7.1. Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ 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 enter confined spaces until atmosphere has been checked. ▶ Avoid smoking, naked lights or ignition sources. ▶ Avoid contact with incompatible materials. ▶ When handling, DO NOT eat, drink or smoke. ▶ DO NOT incinerate or puncture aerosol cans. ▶ DO NOT spray directly on humans, exposed food or food utensils. ▶ Avoid physical damage to containers. ▶ Always wash hands with soap and water after handling. ▶ Work clothes should be laundered separately. ▶ Use good occupational work practice. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS. ▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
Fire and explosion protection	See section 5
Other information	<ul style="list-style-type: none"> ▶ Cylinders should be stored in a purpose-built compound with good ventilation, preferably in the open. ▶ Such compounds should be sited and built in accordance with statutory requirements. ▶ The storage compound should be kept clear and access restricted to authorised personnel only. ▶ Cylinders stored in the open should be protected against rust and extremes of weather. ▶ Cylinders in storage should be properly secured to prevent toppling or rolling. ▶ Cylinder valves should be closed when not in use. ▶ Where cylinders are fitted with valve protection this should be in place and properly secured. ▶ Gas cylinders should be segregated according to the requirements of the Dangerous Goods Act.

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- ▶ Preferably store full and empty cylinders separately.
- ▶ Check storage areas for hazardous concentrations of gases prior to entry.
- ▶ Full cylinders should be arranged so that the oldest stock is used first.
- ▶ Cylinders in storage should be checked periodically for general condition and leakage.
- ▶ Protect cylinders against physical damage. Move and store cylinders correctly as instructed for their manual handling.

NOTE: A 'G' size cylinder is usually too heavy for an inexperienced operator to raise or lower.

7.2. Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Aerosol dispenser. ▶ Check that containers are clearly labelled.
Storage incompatibility	<p>Dimethyl ether:</p> <ul style="list-style-type: none"> ▶ is a peroxidisable gas ▶ may be heat and shock sensitive ▶ is able to form unstable peroxides on prolonged exposure to air ▶ reacts violently with oxidisers, aluminium hydride, lithium aluminium hydride ▶ is incompatible with strong acids, metal salts <p>Methyl ethyl ketone:</p> <ul style="list-style-type: none"> ▶ reacts violently with strong oxidisers, aldehydes, nitric acid, perchloric acid, potassium tert-butoxide, oleum ▶ is incompatible with inorganic acids, aliphatic amines, ammonia, caustics, isocyanates, pyridines, chlorosulfonic acid ▶ forms unstable peroxides in storage, or on contact with propanol or hydrogen peroxide ▶ attacks some plastics ▶ may generate electrostatic charges, due to low conductivity, on flow or agitation <p>Xylenes:</p> <ul style="list-style-type: none"> ▶ may ignite or explode in contact with strong oxidisers, 1,3-dichloro-5,5-dimethylhydantoin, uranium fluoride ▶ attack some plastics, rubber and coatings ▶ may generate electrostatic charges on flow or agitation due to low conductivity. ▶ 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>Acetone:</p> <ul style="list-style-type: none"> ▶ may react violently with chloroform, activated charcoal, aliphatic amines, bromine, bromine trifluoride, chlorotriazine, chromic(IV) acid, chromic(VI) acid, chromium trioxide, chromyl chloride, hexachloromelamine, iodine heptafluoride, iodoform, liquid oxygen, nitrosyl chloride, nitrosyl perchlorate, nitril perchlorate, perchloromelamine, peroxomonosulfuric acid, platinum, potassium tert-butoxide, strong acids, sulfur dichloride, trichloromelamine, xenon tetrafluoride ▶ reacts violently with bromoform and chloroform in the presence of alkalies or in contact with alkaline surfaces. ▶ may form unstable and explosive peroxides in contact with strong oxidisers, fluorine, hydrogen peroxide (90%), sodium perchlorate, 2-methyl-1,3-butadiene ▶ can increase the explosive sensitivity of nitromethane on contact flow or agitation may generate electrostatic charges due to low conductivity ▶ dissolves or attacks most rubber, resins, and plastics (polyethylenes, polyester, vinyl ester, PVC, Neoprene, Viton) <p>For alkyl aromatics:</p> <p>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. ▶ Hock-rearrangement by the influence of strong acids converts the hydroperoxides to hemiacetals. Peresters formed from the hydroperoxides undergo Criegee rearrangement easily. ▶ Alkali metals accelerate the oxidation while CO₂ as co-oxidant enhances the selectivity. ▶ Microwave conditions give improved yields of the oxidation products. ▶ Photo-oxidation products may occur following reaction with hydroxyl radicals and NO_x - these may be components of photochemical smogs. <p>Oxidation of Alkylaromatics: T.S.S Rao and Shubhra Awasthi: E-Journal of Chemistry Vol 4, No. 1, pp 1-13 January 2007</p> <p>Ketones in this group:</p> <ul style="list-style-type: none"> ▶ are reactive with many acids and bases liberating heat and flammable gases (e.g., H₂). ▶ react with reducing agents such as hydrides, alkali metals, and nitrides to produce flammable gas (H₂) and heat. ▶ are incompatible with isocyanates, aldehydes, cyanides, peroxides, and anhydrides. ▶ react violently with aldehydes, HNO₃ (nitric acid), HNO₃ + H₂O₂ (mixture of nitric acid and hydrogen peroxide), and HClO₄ (perchloric acid). ▶ may react with hydrogen peroxide to form unstable peroxides; many are heat- and shock-sensitive explosives. <p>A significant property of most ketones is that the hydrogen atoms on the carbons next to the carbonyl group are relatively acidic when compared to hydrogen atoms in typical hydrocarbons. Under strongly basic conditions these hydrogen atoms may be abstracted to form an enolate anion. This property allows ketones, especially methyl ketones, to participate in condensation reactions with other ketones and aldehydes. This type of condensation reaction is favoured by high substrate concentrations and high pH (greater than 1 wt% NaOH).</p> <p>Ethers</p> <ul style="list-style-type: none"> • may react violently with strong oxidising agents and acids. • can act as bases. - they form salts with strong acids and addition complexes with Lewis acids; the complex between diethyl ether and boron trifluoride is an example. • are generally stable to water under neutral conditions and ambient temperatures. • are hydrolysed by heating in the presence of halogen acids, particularly hydrogen iodide • are relatively inert in other reactions, which typically involve the breaking of the carbon-oxygen bond <ul style="list-style-type: none"> ▶ The tendency of many ethers to form explosive peroxides is well documented. ▶ Ethers lacking non-methyl hydrogen atoms adjacent to the ether link are thought to be relatively safe. ▶ When solvents have been freed from peroxides (by percolation through a column of activated alumina for example), the absorbed peroxides must promptly be desorbed by treatment with the polar solvents methanol or water, which should be discarded safely. ▶ Compressed gases may contain a large amount of kinetic energy over and above that potentially available from the energy of reaction produced by the gas in chemical reaction with other substances

7.3. Specific end use(s)

See section 1.2

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

DERIVED NO EFFECT LEVEL (DNEL)

Continued...

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ethylbenzene	2,000 ppm	800 [LEL] ppm
toluene	2,000 ppm	500 ppm
methyl ethyl ketone	3,000 ppm	3,000 [Unch] ppm

MATERIAL DATA

IFRA Prohibited Fragrance Substance
The International Fragrance Association (IFRA) Standards form the basis for the globally accepted and recognized risk management system for the safe use of fragrance ingredients and are part of the IFRA Code of Practice. This is the self-regulating system of the industry, based on risk assessments carried out by an independent Expert Panel for dimethyl ether:
The no-effect-level for dimethyl ether is somewhere between 2000 ppm (rabbits) and 50,000 ppm (humans) with possible cardiac sensitisation occurring around 200,000 ppm (dogs). The AIHA

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the particular process and chemical or contaminant in use.
Employers may need to use multiple types of controls to prevent employee overexposure.

General exhaust is adequate under normal conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection.

Provide adequate ventilation in warehouse or closed storage areas.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Speed:
aerosols, (released at low velocity into zone of active generation)	0.5-1 m/s
direct spray, spray painting in shallow booths, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

8.2.2. Personal protection



Eye and face protection

- ▶ Chemical goggles.
- ▶ Full face shield may be required for supplementary but never for primary protection of eyes.
- ▶ 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. 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. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

Skin protection

See Hand protection below

Hands/feet protection

- ▶ No special equipment needed when handling small quantities.
- ▶ **OTHERWISE:**
- ▶ For potentially moderate exposures:
- ▶ Wear general protective gloves, eg. light weight rubber gloves.
- ▶ For potentially heavy exposures:
- ▶ Wear chemical protective gloves, eg. PVC. and safety footwear.
- ▶ Insulated gloves:

NOTE: Insulated gloves should be loose fitting so that may be removed quickly if liquid is spilled upon them. Insulated gloves are not made to permit hands to be placed in the liquid; they provide only short-term protection from accidental contact with the liquid.

Body protection

See Other protection below

Other protection

No special equipment needed when handling small quantities.

- OTHERWISE:**
- ▶ Overalls.
 - ▶ Skin cleansing cream.
 - ▶ Eyewash unit.
 - ▶ Do not spray on hot surfaces.

Thermal hazards

Not Available

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

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Material	CPI
BUTYL	C
BUTYL/NEOPRENE	C
CPE	C
HYPALON	C
NAT+NEOPR+NITRILE	C
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NEOPRENE	C

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.

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NEOPRENE/NATURAL	C
NITRILE	C
NITRILE+PVC	C
PE/EVAL/PE	C
PVA	C
PVC	C
PVDC/PE/PVDC	C
SARANEX-23	C
SARANEX-23 2-PLY	C
TEFLON	C
VITON	C
VITON/CHLOROBUTYL	C
VITON/NEOPRENE	C

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

8.2.3. Environmental exposure controls

See section 12

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Clear		
Physical state	Liquified Gas	Relative density (Water = 1)	0.89
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	>315
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	<20.5
Initial boiling point and boiling range (°C)	>56	Molecular weight (g/mol)	Not Available
Flash point (°C)	-17	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	HIGHLY FLAMMABLE.	Oxidising properties	Not Available
Upper Explosive Limit (%)	26	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	3	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water (g/L)	Partly miscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	>2	VOC g/L	Not Available

9.2. Other information

Not Available

SECTION 10 STABILITY AND REACTIVITY

10.1. Reactivity	See section 7.2
10.2. Chemical stability	<ul style="list-style-type: none"> ▶ Elevated temperatures. ▶ Presence of open flame. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur.
10.3. Possibility of hazardous reactions	See section 7.2
10.4. Conditions to avoid	See section 7.2
10.5. Incompatible materials	See section 7.2

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10.6. Hazardous decomposition products

See section 5.3

SECTION 11 TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Inhaled	<p>Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful.</p> <p>Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.</p> <p>Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.</p> <p>The acute toxicity of inhaled alkylbenzenes is best described by central nervous system depression. As a rule, these compounds may also act as general anaesthetics.</p> <p>Systemic poisoning produced by general anaesthesia is characterised by lightheadedness, nervousness, apprehension, euphoria, confusion, dizziness, drowsiness, tinnitus, blurred or double vision, vomiting and sensations of heat, cold or numbness, twitching, tremors, convulsions, unconsciousness and respiratory depression and arrest. Cardiac arrest may result from cardiovascular collapse. Bradycardia, and hypotension may also be produced.</p> <p>Inhaled alkylbenzene vapours cause death in animals at air levels that are relatively similar (typically LC50s are in the range 5000 -8000 ppm for 4 to 8 hour exposures). It is likely that acute inhalation exposure to alkylbenzenes resembles that to general anaesthetics.</p> <p>Alkylbenzenes are not generally toxic other than at high levels of exposure. This may be because their metabolites have a low order of toxicity and are easily excreted. There is little or no evidence to suggest that metabolic pathways can become saturated leading to spillover to alternate pathways. Nor is there evidence that toxic reactive intermediates, which may produce subsequent toxic or mutagenic effects, are formed</p> <p>Common, generalised symptoms associated with toxic gas inhalation include:</p> <ul style="list-style-type: none"> central nervous system effects such as depression, headache, confusion, dizziness, progressive stupor, coma and seizures; respiratory system complications may include acute pulmonary oedema, dyspnoea, stridor, tachypnoea, bronchospasm, wheezing and other reactive airway symptoms, and respiratory arrest; cardiovascular effects may include cardiovascular collapse, arrhythmias and cardiac arrest; gastrointestinal effects may also be present and may include mucous membrane irritation, nausea and vomiting (sometimes bloody), and abdominal pain. <p>Material is highly volatile and may quickly form a concentrated atmosphere in confined or unventilated areas. The vapour may displace and replace air in breathing zone, acting as a simple asphyxiant. This may happen with little warning of overexposure.</p> <p>The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation.</p> <p>WARNING: Intentional misuse by concentrating/inhaling contents may be lethal.</p> <p>Acute exposure of humans to high concentrations of methyl ethyl ketone produces irritation to the eyes, nose, and throat. Other effects reported from acute inhalation exposure in humans include central nervous system depression, headache, and nausea.</p> <p>Easy odour recognition and irritant properties of methyl ethyl ketone means that high vapour levels are readily detected and should be avoided by application of control measures; however odour fatigue may occur with loss of warning of exposure.</p> <p>Headache, fatigue, lassitude, irritability and gastrointestinal disturbances (e.g., nausea, anorexia and flatulence) are the most common symptoms of xylene overexposure. Injury to the heart, liver, kidneys and nervous system has also been noted amongst workers. Transient memory loss, renal impairment, temporary confusion and some evidence of disturbance of liver function was reported in three workers overcome by gross exposure to xylene (10000 ppm). One worker died and autopsy revealed pulmonary congestion, oedema and focal alveolar haemorrhage. Volunteers inhaling xylene at 100 ppm for 5 to 6 hours showed changes in manual coordination reaction time and slight ataxia. Tolerance developed during the workweek but was lost over the weekend. Physical exercise may antagonise this effect. Xylene body burden in humans exposed to 100 or 200 ppm xylene in air depends on the amount of body fat with 4% to 8% of total absorbed xylene accumulating in adipose tissue.</p> <p>Xylene is a central nervous system depressant. Central nervous system (CNS) depression may include nonspecific 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>
Ingestion	<p>Not normally a hazard due to physical form of product.</p> <p>Considered an unlikely route of entry in commercial/industrial environments</p> <p>Swallowing of the liquid may cause aspiration of vomit into the lungs with the risk of haemorrhaging, pulmonary oedema, progressing to chemical pneumonitis; serious consequences may result.</p> <p>Signs and symptoms of chemical (aspiration) pneumonitis may include coughing, gasping, choking, burning of the mouth, difficult breathing, and bluish coloured skin (cyanosis).</p>
Skin Contact	<p>Skin contact with the material may be harmful; systemic effects may result following absorption.</p> <p>Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.</p> <p>The material may accentuate any pre-existing dermatitis condition</p> <p>Dermatitis has been reported in humans following dermal exposure to methyl ethyl ketone. Tests involving acute exposure of rabbits has shown methyl ethyl ketone to have high acute toxicity from dermal exposure.</p> <p>Spray mist may produce discomfort</p> <p>Vapourising liquid causes rapid cooling and contact may cause cold burns, frostbite, even through normal gloves. Frozen skin tissues are painless and appear waxy and yellow. Signs and symptoms of frost-bite may include "pins and needles", paleness followed by numbness, a hardening and stiffening of the skin, a progression of colour changes in the affected area, (first white, then mottled and blue and eventually black; on recovery, red, hot, painful and blistered).</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, puncture wounds 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>
Eye	<p>Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals.</p> <p>Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.</p> <p>Direct contact with the eye may not cause irritation because of the extreme volatility of the gas; however concentrated atmospheres may produce irritation after brief exposures..</p>

Continued...

422B Silicone Modified Conformal Coating (Aerosol)

Chronic

On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.

Repeated or long-term occupational exposure is likely to produce cumulative health effects involving organs or biochemical systems.

Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

Exposure to the material may cause concerns for human fertility, generally on the basis that results in animal studies provide sufficient evidence to cause a strong suspicion of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects, but which are not a secondary non-specific consequence of other toxic effects.

Principal route of occupational exposure to the gas is by inhalation.

Limited information is available on the chronic (long-term) effects of methyl ethyl ketone in humans. Chronic inhalation studies in animals have reported slight neurological, liver, kidney, and respiratory effects. No information is available on the developmental, reproductive, or carcinogenic effects of methyl ethyl ketone in humans. Developmental effects, including decreased foetal weight and foetal malformations, have been reported in mice and rats exposed to methyl ethyl ketone via inhalation and ingestion.

Methyl ethyl ketone is considered to have a low order of toxicity; however methyl ethyl ketone is often used in combination with other solvents and the toxic effects of the mix may be greater than either solvent alone. Combinations of n-hexane with methyl ethyl ketone and also methyl n-butyl ketone with methyl ethyl ketone show increase in peripheral neuropathy, a progressive disorder of nerves of extremities.

Combinations with chloroform also show increase in toxicity

Prolonged or repeated contact with xylenes may cause defatting dermatitis with drying and cracking. Chronic inhalation of xylenes has been associated with central nervous system effects, loss of appetite, nausea, ringing in the ears, irritability, thirst anaemia, mucosal bleeding, enlarged liver and hyperplasia.

Exposure may produce kidney and liver damage. In chronic occupational exposure, xylene (usually mixed with other solvents) has produced irreversible damage to the central nervous system and ototoxicity (damages hearing and increases sensitivity to noise), probably due to neurotoxic mechanisms.

Industrial workers exposed to xylene with a maximum level of ethyl benzene of 0.06 mg/l (14 ppm) reported headaches and irritability and tired quickly. Functional nervous system disturbances were found in some workers employed for over 7 years whilst other workers had enlarged livers.

Xylene has been classed as a developmental toxin in some jurisdictions.

Small excess risks of spontaneous abortion and congenital malformation were reported amongst women exposed to xylene in the first trimester of pregnancy. In all cases, however, the women were also been exposed to other substances. Evaluation of workers chronically exposed to xylene has demonstrated lack of genotoxicity. Exposure to xylene has been associated with increased risks of haemopoietic malignancies but, again, simultaneous exposure to other substances (including benzene) complicates the picture. A long-term gavage study to mixed xylenes (containing 17% ethyl benzene) found no evidence of carcinogenic activity in rats and mice of either sex.

Chronic exposure to alkyl ethers may result in loss of appetite, excessive thirst, fatigue, and weight loss

Repeated overexposure of liquid to skin can cause cracking and drying. Rabbits exposed for 15 minute periods, daily, 5 days/week for 13 weeks, showed no changes in haematology, gross pathology or histopathology of the lungs, spleen, liver, kidney, lymph nodes, aorta or testes. Rats and rabbits exposed at 50,000 ppm, 7 hours/day,

5 days/week for 90 days, showed narcosis.

Prolonged or repeated skin contact may cause drying with cracking, irritation and possible dermatitis following.

422B Silicone Modified Conformal Coating (Aerosol)

TOXICITY

#55rads#551acetone#551mek^[2]

IRRITATION

Not Available

dimethyl ether

TOXICITY

Not Available

IRRITATION

Not Available

acetone

TOXICITY

Dermal (rabbit) LD50: 20000 mg/kg^[2]

Oral (rat) LD50: 5800 mg/kgE^[2]

IRRITATION

Eye (human): 500 ppm - irritant

Eye (rabbit): 20mg/24hr - moderate

Eye (rabbit): 3.95 mg - SEVERE

Skin (rabbit): 500 mg/24hr - mild

Skin (rabbit): 395mg (open) - mild

xylene

TOXICITY

Dermal (rabbit) LD50: >1700 mg/kg^[2]

Inhalation (rat) LC50: 5000 ppm/4hr^[2]

Oral (rat) LD50: 4300 mg/kg^[2]

IRRITATION

Eye (human): 200 ppm irritant

Eye (rabbit): 5 mg/24h SEVERE

Eye (rabbit): 87 mg mild

Skin (rabbit): 500 mg/24h moderate

ethylbenzene

TOXICITY

Dermal (rabbit) LD50: >5000 mg/kg^[2]

Inhalation (rabbit) LC50: 4000 ppm/4hr^[2]

Oral (rat) LD50: 3500 mg/kg^[2]

IRRITATION

Eye (rabbit): 500 mg - SEVERE

Skin (rabbit): 15 mg/24h mild

toluene

TOXICITY

Dermal (rabbit) LD50: 12124 mg/kg^[2]

Inhalation (rat) LC50: >6675 ppm/1hr^[2]

Oral (rat) LD50: 636 mg/kg^[2]

IRRITATION

Eye (rabbit): 2mg/24h - SEVERE

Eye (rabbit): 0.87 mg - mild

Eye (rabbit): 100 mg/30sec - mild

Skin (rabbit): 20 mg/24h - moderate

Skin (rabbit): 500 mg - moderate

methyl ethyl ketone

TOXICITY

Dermal (rabbit) LD50: 6480 mg/kg^[2]

IRRITATION

Eye (human): 350 ppm - irritant

Eye (rabbit): 80 mg - irritant

Skin (rabbit): 402 mg/24 hr - mild

422B Silicone Modified Conformal Coating (Aerosol)

ENEL:

Skin (rabbit):13.78mg/24 hr open

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

ACETONE

for acetone:

The acute toxicity of acetone is low. Acetone is not a skin irritant or sensitiser but is a defatting agent to the skin. Acetone is an eye irritant. The subchronic toxicity of acetone has been examined in mice at oral doses up to 5000 mg/kg/d for 90 days. In the drinking water studies, rats treated by oral gavage. Acetone-induced increases in relative kidney weight changes were observed in male and female rats used in the oral 13-week study. Acetone treatment caused increases in the relative liver weight in male and female rats that were not associated with histopathologic effects and the effects may have been associated with microsomal enzyme induction. Haematologic effects consistent with macrocytic anaemia were also noted in male rats along with hyperpigmentation in the spleen. The most notable findings in the mice were increased liver and decreased spleen weights. Overall, the no-observed-effect-levels in the drinking water study were 1% for male rats (900 mg/kg/d) and male mice (2258 mg/kg/d), 2% for female mice (5945 mg/kg/d), and 5% for female rats (3100 mg/kg/d). For developmental effects, a statistically significant reduction in foetal weight, and a slight, but statistically significant increase in the percent incidence of later resorptions was seen in males and females of both species at 1000 mg/kg/d. There were no adverse effects on development and mortality was about 10% at 5220 mg/m³ for both rats and mice.

Teratogenic effects were not observed in rats and mice tested at 26,110 and 15,665 mg/m³, respectively. Lifetime dermal carcinogenicity studies in mice treated with up to 0.2 mL of acetone did not reveal any increase in organ tumor incidence relative to untreated control animals.

The scientific literature contains many different studies that have measured either the neurobehavioural performance or neurophysiological response of humans exposed to acetone. Effect levels ranging from about 600 to greater than 2375 mg/m³ have been reported. Neurobehavioral studies with acetone-exposed employees have recently shown that 8-hr exposures in excess of 2375 mg/m³ were not associated with any dose-related changes in response time, vigilance, or digit symbol tests. Clinical case studies, controlled human and animal studies, and observational studies have also been conducted for this effect is 2375 mg/m³ or greater.

XYLENE

The substance is classified by IARC as Group 3: (1) (0) n1 (0) e1 (0) 26 (:)] TJ ET /Gabc6 gs BT /Fabc7 8 Tf 1 0 0 -1 143.7586.312.75 Tm4(e A7 (0) 23 (1) u

Reproductive effector in rats

There are two different metabolic pheurolicifees 39 (m)zve 39 (m)fewsh8 | 39 8 (e) 27 (e) ewofwa riyheeh (i) 27ie150 (e 39 (m)g(i) 27) 278leva(i) 27I39 8(y) 27 1 (h) z

ETHYLBENZENE

Continued...

422B Silicone Modified Conformal Coating (Aerosol)

	<p>in three children exposed to toluene in utero as a result of maternal solvent abuse before and during pregnancy</p> <p>Animals - Sternebral alterations, extra ribs, and missing tails were reported following treatment of rats with 1500 mg/m3 toluene 24 hours/day during days 9-14 of gestation. Two of the dams died during the exposure. Another group of rats received 1000 mg/m3 8 hours/day during days 1-21 of gestation. No maternal deaths or toxicity occurred, however, minor skeletal retardation was present in the exposed fetuses. CFLP Mice were exposed to 500 or 1500 mg/m3 toluene continuously during days 6-13 of pregnancy. All dams died at the high dose during the first 24 hours of exposure, however none died at 500 mg/m3. Decreased foetal weight was reported, but there were no differences in the incidences of skeletal malformations or anomalies between the treated and control offspring.</p> <p>Absorption - Studies in humans and animals have demonstrated that toluene is readily absorbed via the lungs and the gastrointestinal tract. Absorption through the skin is estimated at about 1% of that absorbed by the lungs when exposed to toluene vapor.</p> <p>Dermal absorption is expected to be higher upon exposure to the liquid; however, exposure is limited by the rapid evaporation of toluene .</p> <p>Distribution - In studies with mice exposed to radiolabeled toluene by inhalation, high levels of radioactivity were present in body fat, bone marrow, spinal nerves, spinal cord, and brain white matter. Lower levels of radioactivity were present in blood, kidney, and liver. Accumulation of toluene has generally been found in adipose tissue, other tissues with high fat content, and in highly vascularised tissues .</p> <p>Metabolism - The metabolites of inhaled or ingested toluene include benzyl alcohol resulting from the hydroxylation of the methyl group. Further oxidation results in the formation of benzaldehyde and benzoic acid. The latter is conjugated with glycine to yield hippuric acid or reacted with glucuronic acid to form benzoyl glucuronide. o-cresol and p-cresol formed by ring hydroxylation are considered minor metabolites</p> <p>Excretion - Toluene is primarily (60-70%) excreted through the urine as hippuric acid. The excretion of benzoyl glucuronide accounts for 10-20%, and excretion of unchanged toluene through the lungs also accounts for 10-20%. Excretion of hippuric acid is usually complete within 24 hours after exposure.</p>		
METHYL ETHYL KETONE	<p>Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.</p> <p>Methyl ethyl ketone is considered to have a low order of toxicity; however methyl ethyl ketone is often used in combination with other solvents and the toxic effects of the mix may be greater than either solvent alone. Combinations of n-hexane with methyl ethyl ketone and also methyl n-butyl ketone with methyl ethyl ketone show increase in peripheral neuropathy, a progressive disorder of nerves of extremities.</p> <p>Combinations with chloroform also show increase in toxicity</p>		
ACETONE & ETHYLBENZENE	<p>The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.</p>		
XYLENE & ETHYLBENZENE	<p>The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p>		
XYLENE & TOLUENE & METHYL ETHYL KETONE	<p>The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling the epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.</p>		
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

12.1. Toxicity

422B Silicone Modified Conformal Coating (Aerosol)	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
dimethyl ether	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	200.592mg/L	3
	EC50	48	Crustacea	>4400.0mg/L	2
	EC50	96	Algae or other aquatic plants	1168.058mg/L	3
	NOEC	48	Crustacea	>4000mg/L	1
acetone	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	>100mg/L	4
	EC50	48	Crustacea	>100mg/L	4
	EC50	96	Algae or other aquatic plants	20.565mg/L	4
	NOEC	96	Algae or other aquatic plants	4.950mg/L	4
xylene	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	2.6mg/L	2
	EC50	48	Crustacea	>3.4mg/L	2

Continued...

422B Silicone Modified Conformal Coating (Aerosol)

	EC50	72	Algae or other aquatic plants	4.6mg/L	2
	NOEC	73	Algae or other aquatic plants	0.44mg/L	2
ethylbenzene	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	0.0043mg/L	4
	EC50	48	Crustacea	1.184mg/L	4
	EC50	96	Algae or other aquatic plants	3.6mg/L	2
	NOEC	168	Crustacea	0.96mg/L	5
toluene	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	0.0073mg/L	4
	EC50	48	Crustacea	3.78mg/L	5
	EC50	72	Algae or other aquatic plants	12.5mg/L	4
	BCF	24	Algae or other aquatic plants	10mg/L	4
	NOEC	168	Crustacea	0.74mg/L	5
methyl ethyl ketone	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	228.130mg/L	3
	EC50	48	Crustacea	308mg/L	2
	EC50	96	Algae or other aquatic plants	>500mg/L	4
	NOEC	48	Crustacea	68mg/L	2

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

Within an aromatic series, acute toxicity increases with increasing alkyl substitution on the aromatic nucleus. For example, there is an increase in toxicity as alkylation of the naphthalene structure increases. The order of most toxic to least in a study using grass shrimp (*Palaemonetes pugio*) and brown shrimp (*Penaeus aztecus*) was dimethylnaphthalenes > methylnaphthalenes > naphthalenes.

Studies conclude that the toxicity of an oil appears to be a function of its di-aromatic and tri-aromatic hydrocarbons, which includes three-ring hydrocarbons such as phenanthrene.

The heavier (4-, 5-, and 6-ring) PAHs are more persistent than the lighter (2- and 3-ring) PAHs and tend to have greater carcinogenic and other chronic impact potential. PAHs in general are more frequently associated with chronic risks. These risks include cancer and often are the result of exposures to complex mixtures of chronic-risk aromatics (such as PAHs, alkyl PAHs, benzenes, and alkyl benzenes), rather than exposures to low levels of a single compound.

Anthracene is a phototoxic PAH. UV light greatly increases the toxicity of anthracene to bluegill sunfish. . Benchmarks developed in the absence of UV light may be under-protective, and biological resources in strong sunlight are at more risk than those that are not.

For methyl ethyl ketone:

log Kow : 0.26-0.69

log Koc : 0.69

Koc : 34

Half-life (hr) air : 2.3

Half-life (hr) H₂O surface water : 72-288

Henry's atm m³/mol: 1.05E-05

BOD 5 : 1.5-2.24, 46%

COD : 2.2-2.31, 100%

ThOD : 2.44

BCF : 1

Environmental fate:

TERRESTRIAL FATE: Measured Koc values of 29 and 34 were obtained for methyl ethyl ketone in silt loams. Methyl ethyl ketone is expected to have very high mobility in soil. Volatilisation of methyl ethyl ketone from dry soil surfaces is expected based upon an experimental vapor pressure of 91 mm Hg at 25 deg C. Volatilization from moist soil surfaces is also expected given the measured Henry's Law constant of 4.7x10⁻⁵ atm-cu m/mole. The volatilisation half-life of methyl ethyl ketone from silt and sandy loams was measured as 4.9 days. Methyl ethyl ketone is expected to biodegrade under both aerobic and anaerobic conditions as indicated by numerous screening tests.

AQUATIC FATE: Based on Koc values, methyl ethyl ketone is not expected to adsorb to suspended solids and sediment in water. Methyl ethyl ketone is expected to volatilise from water surfaces based on the measured Henry's Law constant. Estimated half-lives for a model river and model lake are 19 and 197, hours respectively. Biodegradation of this compound is expected based upon numerous screening tests. An estimated BCF value of 1 based on an experimental log Kow of 0.29, suggests that bioconcentration in aquatic organisms is low.

ATMOSPHERIC FATE: According to a model of gas/particle partitioning of semivolatile organic compounds in the atmosphere, methyl ethyl ketone, which has an experimental vapor pressure of 91 mm Hg at 25 deg C, will exist solely as a vapor in the ambient atmosphere. Vapour-phase methyl ethyl ketone is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be about 14 days. Methyl ethyl ketone is also expected to undergo photodecomposition in the atmosphere by natural sunlight.

Photochemical degradation of methyl ethyl ketone by natural sunlight is expected to occur at approximately 1/5 the rate of degradation by photochemically produced hydroxyl radicals.

Ecotoxicity:

Fish LC50 (24 h): bluegill sunfish (*Lepomis macrochirus*) 1690-5640 mg/l; guppy (*Lebistes reticulatus*) 5700 mg/l; goldfish (*Carassius auratus*) >5000 mg/l

Fish LC50 (96 h): fathead minnow (*Pimephales promelas*) 3200 mg/l; bluegill sunfish (*Lepomis macrochirus*) 4467 mg/l; mosquito fish (*Gambusia affinis*) 5600 mg/l

Daphnia magna LC50 (48 h): <520-1382 mg/l

Daphnia magna LC50 (24 h): 8890 mg/l

Brine shrimp (*Artemia salina*) LC50 (24 h): 1950 mg/l

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

422B Silicone Modified Conformal Coating (Aerosol)

Environmental Fate

Terrestrial fate: Measured Koc values of 166 and 182, indicate that 3-xylene is expected to have moderate mobility in soil. Volatilisation of p-xylene is expected to be important from moist soil surfaces given a measured Henry's Law constant of 7.18×10^{-3} atm-cu m/mole. The potential for volatilisation of 3-xylene from dry soil surfaces may exist based on a measured vapor pressure of 8.29 mm Hg. p-Xylene may be degraded during its passage through soil. 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. p-Xylene, present in soil samples contaminated with jet fuel, was completely degraded aerobically within 5 days. In aquifer studies under anaerobic conditions, p-xylene was degraded, usually within several weeks, with the production of 3-methylbenzylfumaric acid, 3-methylbenzylsuccinic acid, 3-methylbenzoate, and 3-methylbenzaldehyde as metabolites.

Aquatic fate: Koc values indicate that p-xylene may adsorb to suspended solids and sediment in water. p-Xylene is expected to volatilise from water surfaces based on the measured Henry's Law constant. Estimated volatilisation half-lives for a model river and model lake are 3 hours and 4 days, respectively. BCF values of 14.8, 23.4, and 6, measured in goldfish, eels, and clams, respectively, indicate that bioconcentration in aquatic organisms is low. p-Xylene in water with added humic substances was 50% degraded following 3 hours irradiation suggesting that indirect photooxidation in the presence of humic acids may play an important role in the abiotic degradation of p-xylene. Although p-xylene is biodegradable and has been observed to degrade in pond water, there are insufficient data to assess the rate of this process in surface waters. p-Xylene has been observed to degrade in anaerobic and aerobic groundwater in several studies; however, it is known to persist for many years in groundwater, at least at sites where the concentration might have been quite high.

Atmospheric fate:

Most xylenes released to the environment will occur in the atmosphere and volatilisation is the dominant environmental fate process. In the ambient atmosphere, xylenes are expected to exist solely in the vapour phase. Xylenes are degraded in the atmosphere primarily by reaction with photochemically-produced hydroxyl radicals, with an estimated atmospheric lifetime of about 0.5 to 2 days. Xylenes' susceptibility to photochemical oxidation in the troposphere is to the extent that they may contribute to photochemical smog formation.

According to a model of gas/particle partitioning of semivolatile organic compounds in the atmosphere and from its vapour pressure, p-xylene, is expected to exist solely as a vapour in the ambient atmosphere. Vapour-phase p-xylene is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be about 16 hours. A half-life of 1.0 hr in summer and 10 hr in winter was measured for the reaction of p-xylene with photochemically-produced hydroxyl radicals. p-Xylene has a moderately high photochemical reactivity under smog conditions, higher than the other xylene isomers, with loss rates varying from 9-42% per hr. The photooxidation of p-xylene results in the production of carbon monoxide, formaldehyde, glyoxal, methylglyoxal, 3-methylbenzyl nitrate, m-tolualdehyde, 4-nitro-3-xylene, 5-nitro-3-xylene, 2,6-dimethyl-p-benzoquinone, 2,4-dimethylphenol, 6-nitro-2,4-dimethylphenol, 2,6-dimethylphenol, and 4-nitro-2,6-dimethylphenol.

Ecotoxicity:

for xylenes

Fish LC50 (96 h) Pimephales promelas 13.4 mg/l; Oncorhynchus mykiss 8.05 mg/l; Lepomis macrochirus 16.1 mg/l (all flow through values); Pimephales promelas 26.7 (static)

Daphnia EC50 948 h): 3.83 mg/l

Photobacterium phosphoreum EC50 (24 h): 0.0084 mg/l

Gammarus lacustris LC50 (48 h): 0.6 mg/l

Most ethers are very resistant to hydrolysis, and the rate of cleavage of the carbon-oxygen bond by abiotic processes is expected to be insignificant.

Direct photolysis will not be an important removal process since aliphatic ethers do not absorb light at wavelengths >290 nm

DO NOT discharge into sewer or waterways.

for acetone:

log Kow: -0.24

Half-life (hr) air: 312-1896

Half-life (hr) H₂O surface water: 20

Henry's atm m³/mol: 3.67E-05

BOD 5: 0.31-1.76,46-55%

COD: 1.12-2.07

ThOD: 2.2

BCF: 0.69

Environmental fate:

Acetone preferentially locates in the air compartment when released to the environment. A substantial amount of acetone can also be found in water, which is consistent with the high water to air partition coefficient and its small, but detectable, presence in rain water, sea water, and lake water samples. Very little acetone is expected to reside in soil, biota, or suspended solids. This is entirely consistent with the physical and chemical properties of acetone and with measurements showing a low propensity for soil absorption and a high preference for moving through the soil and into the ground water

In air, acetone is lost by photolysis and reaction with photochemically produced hydroxyl radicals; the estimated half-life of these combined processes is about 22 days. The relatively long half-life allows acetone to be transported long distances from its emission source.

Acetone is highly soluble and slightly persistent in water, with a half-life of about 20 hours; it is minimally toxic to aquatic life.

Acetone released to soil volatilises although some may leach into the ground where it rapidly biodegrades.

Acetone does not concentrate in the food chain.

Acetone meets the OECD definition of readily biodegradable which requires that the biological oxygen demand (BOD) is at least 70% of the theoretical oxygen demand (THOD) within the 28-day test period

Drinking Water Standard: none available.

Soil Guidelines: none available.

Air Quality Standards: none available.

Ecotoxicity:

Testing shows that acetone exhibits a low order of toxicity

Fish LC50: brook trout 6070 mg/l; fathead minnow 15000 mg/l

Bird LC0 (5 day): Japanese quail, ring-neck pheasant 40,000 mg/l

Daphnia magna LC50 (48 h): 15800 mg/l; NOEC 8500 mg/l

Aquatic invertebrate 2100 - 16700 mg/l

Aquatic plant NOEC: 5400-7500 mg/l

Daphnia magna chronic NOEC 1660 mg/l

Acetone vapors were shown to be relatively toxic to two types insects and their eggs. The time to 50% lethality (LT50) was found to be 51.2 hr and 67.9 hr when the flour beetle (*Tribolium confusum*) and the flour moth (*Ephestia kuehniella*) were exposed to an airborne acetone concentration of 61.5 mg/m³. The LT50 values for the eggs were 30-50% lower than for the adult. The direct application of acetone liquid to the body of the insects or surface of the eggs did not, however, cause any mortality.

The ability of acetone to inhibit cell multiplication has been examined in a wide variety of microorganisms. The results have generally indicated mild to minimal toxicity with NOECs greater than 1700 mg/L for exposures lasting from 6 hr to 4 days. Longer exposure periods of 7 to 8 days with bacteria produced mixed results; but overall the data indicate a low degree of toxicity for acetone. The only exception to these findings were the results obtained with the flagellated protozoa (*Entosiphon sulcatum*) which yielded a 3-day NOEC of 28 mg/L.

12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
dimethyl ether	LOW	LOW
acetone	LOW (Half-life = 14 days)	MEDIUM (Half-life = 116.25 days)
xylene	HIGH (Half-life = 360 days)	LOW (Half-life = 1.83 days)
ethylbenzene	HIGH (Half-life = 228 days)	LOW (Half-life = 3.57 days)
toluene	LOW (Half-life = 28 days)	LOW (Half-life = 4.33 days)
methyl ethyl ketone	LOW (Half-life = 14 days)	LOW (Half-life = 26.75 days)

12.3. Bioaccumulative potential

422B Silicone Modified Conformal Coating (Aerosol)

Ingredient	Bioaccumulation
dimethyl ether	LOW (LogKOW = 0.1)
acetone	LOW (BCF = 0.69)
xylene	MEDIUM (BCF = 740)
ethylbenzene	LOW (BCF = 79.43)
toluene	LOW (BCF = 90)
methyl ethyl ketone	LOW (LogKOW = 0.29)

12.4. Mobility in soil

Ingredient	Mobility
dimethyl ether	HIGH (KOC = 1.292)
acetone	HIGH (KOC = 1.981)
ethylbenzene	LOW (KOC = 517.8)
toluene	LOW (KOC = 268)
methyl ethyl ketone	MEDIUM (KOC = 3.827)

12.5. Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT Criteria fulfilled?	Not Available	Not Available	Not Available

12.6. Other adverse effects

No data available


SECTION 13 DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Product / Packaging disposal	<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. ▶ Consult State Land Waste Management Authority for disposal. ▶ Discharge contents of damaged aerosol cans at an approved site. ▶ Allow small quantities to evaporate. ▶ DO NOT incinerate or puncture aerosol cans. ▶ Bury residues and emptied aerosol cans at an approved site.
Waste treatment options	Not Available
Sewage disposal options	Not Available

SECTION 14 TRANSPORT INFORMATION

Labels Required

	
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Land transport (ADR)

14.1. UN number	1950								
14.2. UN proper shipping name	AEROSOLS								
14.3. Transport hazard class(es)	<table> <tr> <td>Class</td><td>2.1</td></tr> <tr> <td>Subrisk</td><td>Not Applicable</td></tr> </table>	Class	2.1	Subrisk	Not Applicable				
Class	2.1								
Subrisk	Not Applicable								
14.4. Packing group	Not Applicable								
14.5. Environmental hazard	Not Applicable								
14.6. Special precautions for user	<table> <tr> <td>Hazard identification (Kemler)</td><td>Not Applicable</td></tr> <tr> <td>Classification code</td><td>5F</td></tr> <tr> <td>Hazard Label</td><td>2.1</td></tr> <tr> <td>Special provisions</td><td>190 327 344 625</td></tr> </table>	Hazard identification (Kemler)	Not Applicable	Classification code	5F	Hazard Label	2.1	Special provisions	190 327 344 625
Hazard identification (Kemler)	Not Applicable								
Classification code	5F								
Hazard Label	2.1								
Special provisions	190 327 344 625								

Continued...

422B Silicone Modified Conformal Coating (Aerosol)

Limited quantity	1 L
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Air transport (ICAO-IATA / DGR)

14.1. UN number	1950														
14.2. UN proper shipping name	Aerosols, flammable; Aerosols, flammable (engine starting fluid)														
14.3. Transport hazard class(es)	<table border="1"> <tr> <td>ICAO/IATA Class</td><td>2.1</td></tr> <tr> <td>ICAO / IATA Subrisk</td><td>Not Applicable</td></tr> <tr> <td>ERG Code</td><td>10L</td></tr> </table>	ICAO/IATA Class	2.1	ICAO / IATA Subrisk	Not Applicable	ERG Code	10L								
ICAO/IATA Class	2.1														
ICAO / IATA Subrisk	Not Applicable														
ERG Code	10L														
14.4. Packing group	Not Applicable														
14.5. Environmental hazard	Not Applicable														
14.6. Special precautions for user	<table border="1"> <tr> <td>Special provisions</td><td>A145 A167 A802</td></tr> <tr> <td>Cargo Only Packing Instructions</td><td>203</td></tr> <tr> <td>Cargo Only Maximum Qty / Pack</td><td>150 kg</td></tr> <tr> <td>Passenger and Cargo Packing Instructions</td><td>203</td></tr> <tr> <td>Passenger and Cargo Maximum Qty / Pack</td><td>75 kg</td></tr> <tr> <td>Passenger and Cargo Limited Quantity Packing Instructions</td><td>Y203</td></tr> <tr> <td>Passenger and Cargo Limited Maximum Qty / Pack</td><td>30 kg G</td></tr> </table>	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 Maximum Qty / Pack	30 kg G
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 Maximum Qty / Pack	30 kg G														

Sea transport (IMDG-Code / GGVSee)

14.1. UN number	1950						
14.2. UN proper shipping name	AEROSOLS						
14.3. Transport hazard class(es)	<table border="1"> <tr> <td>IMDG Class</td><td>2.1</td></tr> <tr> <td>IMDG Subrisk</td><td>Not Applicable</td></tr> </table>	IMDG Class	2.1	IMDG Subrisk	Not Applicable		
IMDG Class	2.1						
IMDG Subrisk	Not Applicable						
14.4. Packing group	Not Applicable						
14.5. Environmental hazard	Not Applicable						
14.6. Special precautions for user	<table border="1"> <tr> <td>EMS Number</td><td>F-D, S-U</td></tr> <tr> <td>Special provisions</td><td>63 190 277 327 344 381 959</td></tr> <tr> <td>Limited Quantities</td><td>1000ml</td></tr> </table>	EMS Number	F-D, S-U	Special provisions	63 190 277 327 344 381 959	Limited Quantities	1000ml
EMS Number	F-D, S-U						
Special provisions	63 190 277 327 344 381 959						
Limited Quantities	1000ml						

Inland waterways transport (ADN)

14.1. UN number	1950										
14.2. UN proper shipping name	AEROSOLS										
14.3. Transport hazard class(es)	2.1 Not Applicable										
14.4. Packing group	Not Applicable										
14.5. Environmental hazard	Not Applicable										
14.6. Special precautions for user	<table border="1"> <tr> <td>Classification code</td><td>5F</td></tr> <tr> <td>Special provisions</td><td>190; 327; 344; 625</td></tr> <tr> <td>Limited quantity</td><td>1 L</td></tr> <tr> <td>Equipment required</td><td>PP, EX, A</td></tr> <tr> <td>Fire cones number</td><td>1</td></tr> </table>	Classification code	5F	Special provisions	190; 327; 344; 625	Limited quantity	1 L	Equipment required	PP, EX, A	Fire cones number	1
Classification code	5F										
Special provisions	190; 327; 344; 625										
Limited quantity	1 L										
Equipment required	PP, EX, A										
Fire cones number	1										

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

Not Applicable

SECTION 15 REGULATORY INFORMATION

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

DIMETHYL ETHER(115-10-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)

EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

European Customs Inventory of Chemical Substances ECICS (English)

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft

UK Workplace Exposure Limits (WELs)

ACETONE(67-64-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Continued...

422B Silicone Modified Conformal Coating (Aerosol)

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)
 EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
 European Customs Inventory of Chemical Substances ECICS (English)
 European Trade Union Confederation (ETUC) Priority List for REACH Authorisation

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)
 European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
 UK Workplace Exposure Limits (WELs)

XYLENE(1330-20-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)
 EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances
 EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
 European Customs Inventory of Chemical Substances ECICS (English)
 European Trade Union Confederation (ETUC) Priority List for REACH Authorisation

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)
 European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
 International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
 UK Workplace Exposure Limits (WELs)

ETHYLBENZENE(100-41-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)
 EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances
 EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
 European Customs Inventory of Chemical Substances ECICS (English)
 European Trade Union Confederation (ETUC) Priority List for REACH Authorisation

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)
 European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
 International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
 UK Workplace Exposure Limits (WELs)

TOLUENE(108-88-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)
 EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances
 EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
 European Customs Inventory of Chemical Substances ECICS (English)
 European Trade Union Confederation (ETUC) Priority List for REACH Authorisation
 European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)

European Union (EU) Annex I to Directive 67/548/EEC on Classification and Labelling of Dangerous Substances (updated by ATP: 31) - Reprotoxic Substances
 European Union (EU) Commission Directive 2006/15/EC establishing a second list of indicative occupational exposure limit values (IOELVs) (Spanish)
 European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
 International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
 UK Workplace Exposure Limits (WELs)

METHYL ETHYL KETONE(78-93-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)
 EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances
 EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
 European Customs Inventory of Chemical Substances ECICS (English)

European Trade Union Confederation (ETUC) Priority List for REACH Authorisation
 European Union - European Inventory of Existing Commercial Chemical Substances (EINECS) (English)
 European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
 UK Workplace Exposure Limits (WELs)

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : 98/24/EC, 92/85/EC, 94/33/EC, 91/689/EEC, 1999/13/EC, Commission Regulation (EU) 2015/830, Regulation (EC) No 1272/2008 and their amendments

15.2. Chemical safety assessment

For further information please look at the Chemical Safety Assessment and Exposure Scenarios prepared by your Supply Chain if available.

ECHA SUMMARY

Ingredient	CAS number	Index No	ECHA Dossier
dimethyl ether	115-10-6	603-019-00-8	01-2119472128-37-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Gas 1	GHS02, GHS04, Dgr	H220
2	Flam. Gas 1, Press. Gas (Comp.), Press. Gas (Liq.), Muta. 1B, Carc. 1A, STOT SE 3, STOT SE 1, Not Classified	GHS04, Dgr, GHS01, GHS08	H220, H280, H336, H370

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
acetone	67-64-1	606-001-00-8	01-2119471330-49-XXXX, 01-2119498062-37-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3	GHS02, GHS07, Dgr	H225, H319, H336
2	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3, Flam. Liq. 3, Not Classified, Eye Irrit. 2A	Dgr, GHS01, GHS08, GHS06	H225, H319, H336, H371, H228, H315, H312, H335, H302, H332, H340
1	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3	GHS02, GHS07, Dgr	H225, H319, H336
2	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3	GHS02, GHS07, Dgr	H225, H319, H336
1	Flam. Liq. 2, Skin Irrit. 2, Skin Sens. 1, Eye Irrit. 2, STOT SE 3, Aquatic Chronic 2	GHS02, GHS09, GHS07, Dgr	H225, H315, H317, H319, H336, H411
2	Flam. Liq. 2, Skin Irrit. 2, Skin Sens. 1, Eye Irrit. 2, STOT SE 3, Aquatic Chronic 2	GHS02, GHS09, GHS07, Dgr	H225, H315, H317, H319, H336, H411

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
xylene	1330-20-7	601-022-00-9	01-2119488216-32-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 3, Acute Tox. 4, Skin Irrit. 2	GHS02, GHS07, Wng	H226, H312, H315, H332
2	Flam. Liq. 3, Acute Tox. 4, Skin Irrit. 2, Not Classified, Asp. Tox. 1, Eye Irrit. 2, STOT SE 3, STOT RE 2, Aquatic Chronic 3, Aquatic Chronic 2, Repr. 1B, STOT SE 1, STOT RE 1, Flam. Liq. 2, Repr. 2	GHS02, GHS08, Dgr, GHS09	H312, H315, H332, H304, H335, H336, H411, H360, H370, H372, H225, H302, H318

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
ethylbenzene	100-41-4	601-023-00-4	01-2119489370-35-XXXX, 01-2119892111-44-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 2, Acute Tox. 4	GHS02, GHS07, Dgr	H225, H332
2	Flam. Liq. 2, Asp. Tox. 1, Acute Tox. 4, STOT RE 2, Aquatic Chronic 3, Eye Irrit. 2, Skin Irrit. 2, STOT SE 3, Acute Tox. 3, Carc. 2, Not Classified, Asp. Tox. 2, Flam. Liq. 3, Eye Dam. 1	GHS02, GHS08, Dgr, GHS06, GHS05	H225, H304, H373, H315, H336, H331, H351, H335, H411, H334, H312, H318

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
toluene	108-88-3	601-021-00-3	01-2119471310-51-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 2, Asp. Tox. 1, Skin Irrit. 2, STOT SE 3, Repr. 2, STOT RE 2	GHS02, GHS08, Dgr	H225, H304, H315, H336, H361d, H373
2	Flam. Liq. 2, Asp. Tox. 1, Skin Irrit. 2, STOT SE 3, Repr. 2, STOT RE 2, Flam. Liq. 3, Eye Irrit. 2, Aquatic Chronic 2, STOT RE 1, Aquatic Chronic 3, Repr. 1A, Acute Tox. 4, Not Classified, STOT SE 1, Skin Sens. 1	GHS08, Dgr, GHS09, GHS01, GHS06, GHS05	H225, H304, H315, H336, H411, H372, H362, H360, H335, H301, H332, H370, H228, H318, H351
1	Aquatic Chronic 4	GHS02, GHS08, Dgr, GHS08, Dgr, GHS09, GHS01, GHS06, GHS05	H413
2	Aquatic Chronic 4	GHS02, GHS08, Dgr, GHS08, Dgr, GHS09, GHS01, GHS06, GHS05	H413

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
methyl ethyl ketone	78-93-3	606-002-00-3	01-2119457290-43-XXXX, 01-2119943742-35-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3	GHS02, GHS07, Dgr	H225, H319, H336
2	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3, Skin Irrit. 2, Not Classified, Eye Irrit. 2A	Dgr, GHS01, GHS08	H225, H319, H336, H371, H335, H302, H312, H341, H361, H314

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N (toluene; acetone; xylene; dimethyl ether; ethylbenzene; methyl ethyl ketone)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	Y
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y
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

Full text Risk and Hazard codes

H220	Extremely flammable gas.
H225	Highly flammable liquid and vapour.

422B Silicone Modified Conformal Coating (Aerosol)

H226	Flammable liquid and vapour.
H228	Flammable solid.
H280	Contains gas under pressure; may explode if heated.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H340	May cause genetic defects.
H341	Suspected of causing genetic defects.
H360	May damage fertility or the unborn child.
H361d	Suspected of damaging the unborn child.
H362	May cause harm to breast-fed children.
H370	Causes damage to organs.
H371	May cause damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.

Other information

Ingredients with multiple cas numbers

Name	CAS No
dimethyl ether	115-10-6, 157621-61-9

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.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 166 Personal eye-protection
EN 340 Protective clothing
EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices

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