



## TensorGrip L32 Canister Spray Adhesive

### QUIN GLOBAL ASIA PACIFIC

Chemwatch Hazard Alert Code: 4

Version No: 1.2

Safety Data Sheet according to WHS Regulations (Hazardous Chemicals) Amendment 2020 and ADG requirements

Issue Date: 18/05/2022

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S.GHS.AUS.EN

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

##### Product Identifier

Product name	TensorGrip L32 Canister Spray Adhesive
Synonyms	Not Available
Proper shipping name	CHEMICAL UNDER PRESSURE, FLAMMABLE, TOXIC, N.O.S. (contains methylene chloride)
Other means of identification	Not Available

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

Relevant identified uses	Adhesive
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##### Details of the supplier of the safety data sheet

Registered company name	QUIN GLOBAL ASIA PACIFIC
Address	63 Hincksman Street Queanbeyan, NSW 2620 Australia
Telephone	+61 2 6175 0574
Fax	Not Available
Website	<a href="http://www.quinglobal.com">www.quinglobal.com</a>
Email	sales@qinglobal.com.au

##### Emergency telephone number

Association / Organisation	CHEMWATCH EMERGENCY RESPONSE
Emergency telephone numbers	+61 1800 951 288
Other emergency telephone numbers	+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

Poisons Schedule	Not Applicable
Classification [1]	Serious Eye Damage/Eye Irritation Category 2A, Acute Toxicity (Oral) Category 4, Skin Corrosion/Irritation Category 2, Gases Under Pressure (Liquefied Gas), Carcinogenicity Category 2, Flammable Gases Category 1A
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

##### Label elements

Hazard pictogram(s)	
Signal word	Danger

##### Hazard statement(s)

H319	Causes serious eye irritation.
AUH044	Risk of explosion if heated under confinement.
H302	Harmful if swallowed.
H315	Causes skin irritation.

## TensorGrip L32 Canister Spray Adhesive

H280	Contains gas under pressure; may explode if heated.
H351	Suspected of causing cancer.
H220	Extremely flammable gas.

## 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.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P264	Wash all exposed external body areas thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.

## Precautionary statement(s) Response

P308+P313	IF exposed or concerned: Get medical advice/ attention.
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P381	In case of leakage, eliminate all ignition sources.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/physician/first aider if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of water.
P330	Rinse mouth.
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+P403	Protect from sunlight. Store in a well-ventilated place.

## Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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Not Applicable

## SECTION 3 Composition / information on ingredients

## Substances

See section below for composition of Mixtures

## Mixtures

CAS No	%[weight]	Name
75-09-2	35-50	<u>methylene chloride</u>
7732-18-5	<0.1	<u>water</u>
1309-48-4.	<0.3	<u>magnesium oxide</u>
98-54-4	1-2	<u>p-tert-butylphenol</u>
6683-19-8	<0.3	<u>pentaerythritol tetrabutylhydroxyhydrocinnamate</u>
64742-16-1	1-2	<u>hydrocarbon resin, postpolymerised with maleic anhydride</u>
68476-85-7.	20-39	<u>LPG (liquefied petroleum gas)</u>
<b>Legend:</b>	1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4. Classification drawn from C&L; * EU IOELVs available	

## SECTION 4 First aid measures

## Description of first aid measures

<b>Eye Contact</b>	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Wash out immediately with fresh running water.</li> <li>▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</li> <li>▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
<b>Skin Contact</b>	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately remove all contaminated clothing, including footwear.</li> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul> <p>For thermal burns:</p> <ul style="list-style-type: none"> <li>▶ Decontaminate area around burn.</li> <li>▶ Consider the use of cold packs and topical antibiotics.</li> </ul> <p>For first-degree burns (affecting top layer of skin)</p>

Continued...

## TensorGrip L32 Canister Spray Adhesive

	<ul style="list-style-type: none"> <li>▶ Hold burned skin under cool (not cold) running water or immerse in cool water until pain subsides.</li> <li>▶ Use compresses if running water is not available.</li> <li>▶ Cover with sterile non-adhesive bandage or clean cloth.</li> <li>▶ Do NOT apply butter or ointments; this may cause infection.</li> <li>▶ Give over-the-counter pain relievers if pain increases or swelling, redness, fever occur.</li> </ul> <p>For second-degree burns (affecting top two layers of skin)</p> <ul style="list-style-type: none"> <li>▶ Cool the burn by immerse in cold running water for 10-15 minutes.</li> <li>▶ Use compresses if running water is not available.</li> <li>▶ Do NOT apply ice as this may lower body temperature and cause further damage.</li> <li>▶ Do NOT break blisters or apply butter or ointments; this may cause infection.</li> <li>▶ Protect burn by cover loosely with sterile, nonstick bandage and secure in place with gauze or tape.</li> </ul> <p>To prevent shock: (unless the person has a head, neck, or leg injury, or it would cause discomfort):</p> <ul style="list-style-type: none"> <li>▶ Lay the person flat.</li> <li>▶ Elevate feet about 12 inches.</li> <li>▶ Elevate burn area above heart level, if possible.</li> <li>▶ Cover the person with coat or blanket.</li> <li>▶ Seek medical assistance.</li> </ul> <p>For third-degree burns Seek immediate medical or emergency assistance.</p> <p>In the mean time:</p> <ul style="list-style-type: none"> <li>▶ Protect burn area cover loosely with sterile, nonstick bandage or, for large areas, a sheet or other material that will not leave lint in wound.</li> <li>▶ Separate burned toes and fingers with dry, sterile dressings.</li> <li>▶ Do not soak burn in water or apply ointments or butter; this may cause infection.</li> <li>▶ To prevent shock see above.</li> <li>▶ For an airway burn, do not place pillow under the person's head when the person is lying down. This can close the airway.</li> <li>▶ Have a person with a facial burn sit up.</li> <li>▶ Check pulse and breathing to monitor for shock until emergency help arrives.</li> </ul>
Inhalation	<ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>▶ Transport to hospital, or doctor.</li> </ul>
Ingestion	<ul style="list-style-type: none"> <li>▶ <b>If swallowed do NOT induce vomiting.</b></li> <li>▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li>▶ Observe the patient carefully.</li> <li>▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</li> <li>▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>▶ Seek medical advice.</li> <li>▶ Avoid giving milk or oils.</li> <li>▶ Avoid giving alcohol.</li> </ul>

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

for intoxication due to Freons/ Halons;

## A: Emergency and Supportive Measures

- ▶ Maintain an open airway and assist ventilation if necessary
- ▶ Treat coma and arrhythmias if they occur. Avoid (adrenaline) epinephrine or other sympathomimetic amines that may precipitate ventricular arrhythmias. Tachyarrhythmias caused by increased myocardial sensitisation may be treated with propranolol, 1-2 mg IV or esmolol 25-100 microgm/kg/min IV.
- ▶ Monitor the ECG for 4-6 hours

## B: Specific drugs and antidotes:

- ▶ There is no specific antidote

## C: Decontamination

- ▶ Inhalation; remove victim from exposure, and give supplemental oxygen if available.
- ▶ Ingestion; (a) Prehospital: Administer activated charcoal, if available. **DO NOT** induce vomiting because of rapid absorption and the risk of abrupt onset CNS depression. (b) Hospital: Administer activated charcoal, although the efficacy of charcoal is unknown. Perform gastric lavage only if the ingestion was very large and recent (less than 30 minutes)

## D: Enhanced elimination:

- ▶ There is no documented efficacy for diuresis, haemodialysis, haemoperfusion, or repeat-dose charcoal.

## POISONING and DRUG OVERDOSE, Californian Poison Control System Ed. Kent R Olson; 3rd Edition

- ▶ Do not administer sympathomimetic drugs unless absolutely necessary as material may increase myocardial irritability.
- ▶ No specific antidote.
- ▶ Because rapid absorption may occur through lungs if aspirated and cause systematic effects, the decision of whether to induce vomiting or not should be made by an attending physician.
- ▶ If lavage is performed, suggest endotracheal and/or esophageal control.
- ▶ Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.
- ▶ Treatment based on judgment of the physician in response to reactions of the patient

## For frost-bite caused by liquefied petroleum gas:

- ▶ If part has not thawed, place in warm water bath (41-46 C) for 15-20 minutes, until the skin turns pink or red.
- ▶ Analgesia may be necessary while thawing.
- ▶ If there has been a massive exposure, the general body temperature must be depressed, and the patient must be immediately rewarmed by whole-body immersion, in a bath at the above temperature.
- ▶ Shock may occur during rewarming.
- ▶ Administer tetanus toxoid booster after hospitalization.
- ▶ Prophylactic antibiotics may be useful.
- ▶ The patient may require anticoagulants and oxygen.

## [Shell Australia 22/12/87]

## For petroleum distillates

- In case of ingestion, gastric lavage with activated charcoal can be used promptly to prevent absorption - decontamination (induced emesis or lavage) is controversial and should be considered on the merits of each individual case; of course the usual precautions of an endotracheal tube should be considered prior to lavage, to prevent aspiration.
- Individuals intoxicated by petroleum distillates should be hospitalized immediately, with acute and continuing attention to neurologic and cardiopulmonary function.
- Positive pressure ventilation may be necessary.
- Acute central nervous system signs and symptoms may result from large ingestions of aspiration-induced hypoxia.
- After the initial episode, individuals should be followed for changes in blood variables and the delayed appearance of pulmonary oedema and chemical pneumonitis. Such patients should be followed for several days or weeks for delayed effects, including bone marrow toxicity, hepatic and renal impairment. Individuals with chronic pulmonary disease will be more seriously impaired, and recovery from inhalation exposure may be complicated.
- Gastrointestinal symptoms are usually minor and pathological changes of the liver and kidneys are reported to be uncommon in acute intoxications.

## TensorGrip L32 Canister Spray Adhesive

Chlorinated and non-chlorinated hydrocarbons may sensitize the heart to epinephrine and other circulating catecholamines so that arrhythmias may occur. Careful consideration of this potential adverse effect should precede administration of epinephrine or other cardiac stimulants and the selection of bronchodilators.

BP America Product Safety & Toxicology Department

For gas exposures:

### BASIC TREATMENT

- ▶ Establish a patent airway with suction where necessary.
- ▶ Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- ▶ 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.
- ▶ Anticipate seizures.

### 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.

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

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

As in all cases of suspected poisoning, follow the ABCDEs of emergency medicine (airway, breathing, circulation, disability, exposure), then the ABCDEs of toxicology (antidotes, basics, change absorption, change distribution, change elimination).

For poisons (where specific treatment regime is absent):

### BASIC TREATMENT

- ▶ Establish a patent airway with suction where necessary.
- ▶ Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- ▶ 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.
- ▶ Anticipate seizures.
- ▶ **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.

### 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.
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## SECTION 5 Firefighting measures

### Extinguishing media

- ▶ Water spray or fog.
- ▶ Foam.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.

### Special hazards arising from the substrate or mixture

#### Fire Incompatibility

- ▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

### Advice for firefighters

#### Fire Fighting

- ▶ Alert Fire Brigade and tell them location and nature of hazard.
- ▶ May be violently or explosively reactive.
- ▶ Wear full body protective clothing with breathing apparatus.
- ▶ Prevent, by any means available, spillage from entering drains or water course.
- ▶ Consider evacuation (or protect in place).
- ▶ 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.
- ▶ Avoid spraying water onto liquid pools.
- ▶ **DO NOT** approach containers suspected to be hot.
- ▶ Cool fire exposed containers with water spray from a protected location.
- ▶ If safe to do so, remove containers from path of fire.

#### Fire/Explosion Hazard

carbon dioxide (CO2)  
hydrogen chloride  
phosgene

## TensorGrip L32 Canister Spray Adhesive

	<p>metal oxides</p> <p>other pyrolysis products typical of burning organic material.</p> <p><b>Contains low boiling substance:</b> Closed containers may rupture due to pressure buildup under fire conditions.</p> <p>BEWARE: Empty solvent, paint, lacquer and flammable liquid drums present a severe explosion hazard if cut by flame torch or welded. Even when thoroughly cleaned or reconditioned the drum seams may retain sufficient solvent to generate an explosive atmosphere in the drum.</p>
HAZCHEM	2WE

## SECTION 6 Accidental release measures

## Personal precautions, protective equipment and emergency procedures

See section 8

## Environmental precautions

See section 12

## Methods and material for containment and cleaning up

Minor Spills	<ul style="list-style-type: none"> <li>▶ Remove all ignition sources.</li> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid breathing vapours and contact with skin and eyes.</li> <li>▶ Control personal contact with the substance, by using protective equipment.</li> <li>▶ Contain and absorb small quantities with vermiculite or other absorbent material.</li> <li>▶ Wipe up.</li> <li>▶ Collect residues in a flammable waste container.</li> </ul>
Major Spills	<ul style="list-style-type: none"> <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 full body protective clothing with breathing apparatus.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water course.</li> <li>▶ Consider evacuation (or protect in place).</li> <li>▶ No smoking, naked lights or ignition sources.</li> <li>▶ Increase ventilation.</li> <li>▶ Stop leak if safe to do so.</li> <li>▶ Water spray or fog may be used to disperse vapour.</li> <li>▶ Contain or absorb spill with sand, earth or vermiculite.</li> <li>▶ Use only spark-free shovels and explosion proof equipment.</li> <li>▶ Collect recoverable product into labelled containers for recycling.</li> <li>▶ Collect solid residues and seal in labelled drums for disposal.</li> <li>▶ Wash area and prevent runoff into drains.</li> <li>▶ After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.</li> <li>▶ If contamination of drains or waterways occurs, advise emergency services.</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	<p>Radon and its radioactive decay products are hazardous if inhaled or ingested</p> <ul style="list-style-type: none"> <li>▶ Containers, even those that have been emptied, may contain explosive vapours.</li> <li>▶ Do NOT cut, drill, grind, weld or perform similar operations on or near containers.</li> </ul> <p><b>Contains low boiling substance:</b></p> <p>Storage in sealed containers may result in pressure buildup causing violent rupture of containers not rated appropriately.</p> <ul style="list-style-type: none"> <li>▶ Check for bulging containers.</li> <li>▶ Vent periodically</li> <li>▶ Always release caps or seals slowly to ensure slow dissipation of vapours</li> </ul>
Other information	

## Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> <li>▶ <b>DO NOT use aluminium or galvanised containers</b></li> <li>▶ Packing as supplied by manufacturer.</li> <li>▶ Plastic containers may only be used if approved for flammable liquid.</li> <li>▶ Check that containers are clearly labelled and free from leaks.</li> <li>▶ For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : Where a can is to be used as an inner package, the can must have a screwed enclosure.</li> <li>▶ For materials with a viscosity of at least 2680 cSt. (23 deg. C)</li> <li>▶ For manufactured product having a viscosity of at least 250 cSt. (23 deg. C)</li> <li>▶ Manufactured product that requires stirring before use and having a viscosity of at least 20 cSt (25 deg. C): (i) Removable head packaging; (ii) Cans with friction closures and (iii) low pressure tubes and cartridges may be used.</li> <li>▶ Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages</li> <li>▶ In addition, where inner packagings are glass and contain liquids of packing group I there must be sufficient inert absorbent to absorb any spillage, unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.</li> </ul>
Storage incompatibility	<p>Methylene chloride</p> <ul style="list-style-type: none"> <li>▶ is a combustible liquid under certain circumstances even though there is no measurable flash point and it is difficult to ignite</li> <li>▶ its is flammable in ambient air in the range 12-23%; increased oxygen content can greatly enhance fire and explosion potential</li> <li>▶ contact with hot surfaces and elevated temperatures can form fumes of hydrogen chloride and phosgene</li> <li>▶ reacts violently with active metals, aluminium, lithium, methanol, peroxydisulfuryl difluoride, potassium, potassium tert-butoxide, sodium</li> </ul>

## TensorGrip L32 Canister Spray Adhesive

- forms explosive mixtures with nitric acid
- is incompatible with strong oxidisers, strong caustics, alkaline earths and alkali metals
- attacks some plastics, coatings and rubber
- may generate electrostatic charge due to low conductivity

## Low molecular weight alkanes:

- May react violently with strong oxidisers, chlorine, chlorine dioxide, dioxygenyl tetrafluoroborate.
- May react with oxidising materials, nickel carbonyl in the presence of oxygen, heat.
- Are incompatible with nitronium tetrafluoroborate(1-), halogens and interhalogens
- may generate electrostatic charges, due to low conductivity, on flow or agitation.
- Avoid flame and ignition sources

Redox reactions of alkanes, in particular with oxygen and the halogens, are possible as the carbon atoms are in a strongly reduced condition.

Reaction with oxygen (if present in sufficient quantity to satisfy the reaction stoichiometry) leads to combustion without any smoke, producing carbon dioxide and water. Free radical halogenation reactions occur with halogens, leading to the production of haloalkanes. In addition, alkanes have been shown to interact with, and bind to, certain transition metal complexes

Interaction between chlorine and ethane over activated carbon at 350 deg C has caused explosions, but added carbon dioxide reduces the risk.

The violent interaction of liquid chlorine injected into ethane at 80 deg C/10 bar becomes very violent if ethylene is also present. A mixture prepared at -196 deg C with either methane or ethane exploded when the temp was raised to -78 deg C. Addition of nickel carbonyl to an n-butane-oxygen mixture causes an explosion at 20-40 deg C.

Alkanes will react with steam in the presence of a nickel catalyst to give hydrogen.

## Propane:

- reacts violently with strong oxidisers, barium peroxide, chlorine dioxide, dichlorine oxide, fluorine etc.
- liquid attacks some plastics, rubber and coatings
- may accumulate static charges which may ignite its vapours
- Segregate from alcohol, water.
- Avoid reaction with oxidising agents

## SECTION 8 Exposure controls / personal protection

## Control parameters

## Occupational Exposure Limits (OEL)

## INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	methylene chloride	Methylene chloride	50 ppm / 174 mg/m <sup>3</sup>	Not Available	Not Available	Not Available
Australia Exposure Standards	magnesium oxide	Magnesium oxide (fume)	10 mg/m <sup>3</sup>	Not Available	Not Available	Not Available
Australia Exposure Standards	LPG (liquefied petroleum gas)	LPG (liquefied petroleum gas)	1000 ppm / 1800 mg/m <sup>3</sup>	Not Available	Not Available	Not Available

## Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
methylene chloride	Not Available	Not Available	Not Available
magnesium oxide	30 mg/m <sup>3</sup>	120 mg/m <sup>3</sup>	730 mg/m <sup>3</sup>
p-tert-butylphenol	1.5 mg/m <sup>3</sup>	40 mg/m <sup>3</sup>	240 mg/m <sup>3</sup>
LPG (liquefied petroleum gas)	65,000 ppm	2.30E+05 ppm	4.00E+05 ppm

Ingredient	Original IDLH	Revised IDLH
methylene chloride	2,300 ppm	Not Available
water	Not Available	Not Available
magnesium oxide	750 mg/m <sup>3</sup>	Not Available
p-tert-butylphenol	Not Available	Not Available
pentaerythritol tetrabutylhydroxyhydrocinnamate	Not Available	Not Available
hydrocarbon resin, postpolymerised with maleic anhydride	Not Available	Not Available
LPG (liquefied petroleum gas)	2,000 ppm	Not Available


## Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
p-tert-butylphenol	E	≤ 0.01 mg/m <sup>3</sup>
<b>Notes:</b>	<i>Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.</i>	

## Exposure controls

<b>Appropriate engineering controls</b>	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p>
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## TensorGrip L32 Canister Spray Adhesive

	<ul style="list-style-type: none"> <li>Employees exposed to confirmed human carcinogens should be authorized to do so by the employer, and work in a regulated area.</li> <li>Work should be undertaken in an isolated system such as a "glove-box". Employees should wash their hands and arms upon completion of the assigned task and before engaging in other activities not associated with the isolated system.</li> <li>Within regulated areas, the carcinogen should be stored in sealed containers, or enclosed in a closed system, including piping systems, with any sample ports or openings closed while the carcinogens are contained within.</li> <li>Open-vessel systems are prohibited.</li> <li>Each operation should be provided with continuous local exhaust ventilation so that air movement is always from ordinary work areas to the operation.</li> <li>Exhaust air should not be discharged to regulated areas, non-regulated areas or the external environment unless decontaminated. Clean make-up air should be introduced in sufficient volume to maintain correct operation of the local exhaust system.</li> <li>For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.</li> <li>Except for outdoor systems, regulated areas should be maintained under negative pressure (with respect to non-regulated areas).</li> <li>Local exhaust ventilation requires make-up air be supplied in equal volumes to replaced air.</li> <li>Laboratory hoods must be designed and maintained so as to draw air inward at an average linear face velocity of 0.76 m/sec with a minimum of 0.64 m/sec. Design and construction of the fume hood requires that insertion of any portion of the employees body, other than hands and arms, be disallowed.</li> </ul>
Personal protection	
Eye and face protection	<ul style="list-style-type: none"> <li>Safety glasses with side shields.</li> <li>Chemical goggles.</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. 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]</li> </ul>
Skin protection	See Hand protection below
Hands/feet protection	<p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.</li> <li>Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.</li> <li>Insulated gloves:</li> </ul> <p>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.</p>
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> <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 suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood.</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>Overalls.</li> <li>PVC Apron.</li> <li>PVC protective suit may be required if exposure severe.</li> <li>Eyewash unit.</li> <li>Ensure there is ready access to a safety shower.</li> <li>Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.</li> <li>For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets).</li> <li>Non sparking safety or conductive footwear should be considered. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot an shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds. Electrical resistance must range between 0 to 500,000 ohms. Conductive shoes should be stored in lockers close to the room in which they are worn. Personnel who have been issued conductive footwear should not wear them from their place of work to their homes and return.</li> </ul>

## 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:

TensorGrip L32 Canister Spray Adhesive

Material	CPI
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## Respiratory protection

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

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum	Half-Face	Full-Face	Powered Air
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Continued...



## TensorGrip L32 Canister Spray Adhesive

BUTYL	C
CPE	C
NATURAL RUBBER	C
NEOPRENE	C
PE/EVAL/PE	C
PVA	C
TEFLON	C
VITON	C
VITON/BUTYL	C
VITON/CHLOROBUTYL	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.

Protection Factor	Respirator	Respirator	Respirator
up to 10 x ES	AX-AUS	-	AX-PAPR-AUS / Class 1
up to 50 x ES	-	AX-AUS / Class 1	-
up to 100 x ES	-	AX-2	AX-PAPR-2 ^

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- ▶ 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

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Required minimum protection factor	Maximum gas/vapour concentration present in air p.p.m. (by volume)	Half-face Respirator	Full-Face Respirator
up to 10	1000	AX-AUS / Class 1	-
up to 50	1000	-	AX-AUS / Class 1
up to 50	5000	Airline *	-
up to 100	5000	-	AX-2
up to 100	10000	-	AX-3
100+		-	Airline**

\*\* - Continuous-flow or positive pressure demand.

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 deg C)

## SECTION 9 Physical and chemical properties

## Information on basic physical and chemical properties

Appearance	Not Available		
Physical state	Liquified Gas	Relative density (Water = 1)	0.838
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	-97	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	40	Molecular weight (g/mol)	Not Available
Flash point (°C)	-104	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)	46.86	Gas group	Not Available



## TensorGrip L32 Canister Spray Adhesive

<b>Solubility in water</b>	Partly miscible	<b>pH as a solution (Not Available%)</b>	Not Available
<b>Vapour density (Air = 1)</b>	2.93	<b>VOC g/L</b>	693.70

## SECTION 10 Stability and reactivity

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

## SECTION 11 Toxicological information

## Information on toxicological effects

<b>Inhaled</b>	<p>The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of the material, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress. 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. Inhalation hazard is increased at higher temperatures. Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination.</p> <p>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. 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. Inhalation exposure may cause susceptible individuals to show change in heart beat rhythm i.e. cardiac arrhythmia. Exposures must be terminated. Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual. Acute intoxication by halogenated aliphatic hydrocarbons appears to take place over two stages. Signs of a reversible narcosis are evident in the first stage and in the second stage signs of injury to organs may become evident, a single organ alone is (almost) never involved.</p>
<b>Ingestion</b>	<p>The material is not thought to produce adverse health effects following ingestion (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum. Not normally a hazard due to physical form of product. Considered an unlikely route of entry in commercial/industrial environments. Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.</p>
<b>Skin Contact</b>	<p>The material may accentuate any pre-existing dermatitis condition. Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. Skin contact with the material may damage the health of the individual; systemic effects may result following absorption. The material may cause severe inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.</p>
<b>Eye</b>	<p>There is some evidence that material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Moderate inflammation may be expected with redness; conjunctivitis may occur with prolonged exposure.</p>
<b>Chronic</b>	<p>Strong evidence exists that this substance may cause irreversible mutations (though not lethal) even following a single exposure. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. 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 from experiments exists that there is a suspicion this material directly reduces fertility. Prolonged inhalation of high concentrations of magnesite (magnesium carbonate) dust caused pulmonary deposition and retention. Roasted magnesite (magnesium oxide) produced a greater degree of fibrosis than did crude magnesite. No cases of human systemic poisoning due to exposure to magnesite have been recorded. Pneumoconiosis was found in about 2% of workers exposed to high concentrations of dust from crude or roasted magnesite that also contained 1-3% silicon dioxide. Exposure periods ranged from 6-20 years. This condition occurred mainly in workers exposed to roasted (calcined) magnesite. The pneumoconiosis appeared to be "benign" and was often associated with chronic bronchitis and lung emphysema. In other reports the severity of the pneumoconiosis was associated with the crystalline silica content of the dust or in a case of magnesium carbonate used in insulating materials, the severity of the disease depended on the asbestos content.</p>

## TensorGrip L32 Canister Spray Adhesive

Complaints of coughing are rare amongst magnesite workers, and more frequent among dianase and grog (crushed refractory materials) workers.  
Airborne dust concentrations were lowest in dianase facilities but crystalline silica was high. Chronic bronchitis then, appears to increase where concentrations of crystalline silica are highest  
Constant or exposure over long periods to mixed hydrocarbons may produce stupor with dizziness, weakness and visual disturbance, weight loss and anaemia, and reduced liver and kidney function. Skin exposure may result in drying and cracking and redness of the skin.

<b>TensorGrip L32 Canister Spray Adhesive</b>	<b>TOXICITY</b> Not Available	<b>IRRITATION</b> Not Available
<b>methylene chloride</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	dermal (rat) LD50: >2000 mg/kg <sup>[2]</sup>	Eye(rabbit): 162 mg - moderate
	Inhalation(Rat) LC50; 76 mg/L4h <sup>[2]</sup>	Eye(rabbit): 500 mg/24hr - mild
	Oral (Rat) LD50; 1600 mg/kg <sup>[2]</sup>	Skin (rabbit): 100mg/24hr-moderate
		Skin (rabbit): 810 mg/24hr-SEVERE
<b>water</b>	<b>TOXICITY</b> Oral (Rat) LD50; >90000 mg/kg <sup>[2]</sup>	<b>IRRITATION</b> Not Available
<b>magnesium oxide</b>	<b>TOXICITY</b> Not Available	<b>IRRITATION</b> Not Available
<b>p-tert-butylphenol</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: 2288 mg/kg <sup>[2]</sup>	Eye (rabbit) 0.05 mg/24h - SEVERE
	Oral (Rat) LD50; >2000 mg/kg <sup>[1]</sup>	Eye (rabbit): 10 mg - SEVERE
		Eye: adverse effect observed (irritating) <sup>[1]</sup>
		Skin (rabbit): 500 mg/4h - mild
		Skin: adverse effect observed (irritating) <sup>[1]</sup>
<b>pentaerythritol tetrabutylhydroxyhydrocinnamate</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	dermal (rat) LD50: 3160 mg/kg <sup>[2]</sup>	Eye: no adverse effect observed (not irritating) <sup>[1]</sup>
	Inhalation(Rat) LC50; >1.95 mg/l4h <sup>[2]</sup>	Eye: non-irritating **
	Oral (Rat) LD50; >2000 mg/kg <sup>[2]</sup>	Skin: no adverse effect observed (not irritating) <sup>[1]</sup>
		Skin: non-irritating **
<b>hydrocarbon resin, postpolymerised with maleic anhydride</b>	<b>TOXICITY</b> Oral (Rat) LD50; >2000 mg/kg <sup>[1]</sup>	<b>IRRITATION</b> Not Available
<b>LPG (liquefied petroleum gas)</b>	<b>TOXICITY</b> Inhalation(Rat) LC50; 658 mg/l4h <sup>[2]</sup>	<b>IRRITATION</b> Not Available

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

<b>TensorGrip L32 Canister Spray Adhesive</b>	Laboratory (in vitro) and animal studies show, exposure to the material may result in a possible risk of irreversible effects, with the possibility of producing mutation.
<b>METHYLENE CHLORIDE</b>	Inhalation (human) TClO: 500 ppm/ 1 y - I Eye(rabbit): 10 mg - mild The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. The material may cause severe 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. Repeated exposures may produce severe ulceration. <b>WARNING:</b> This substance has been classified by the IARC as Group 2A: Probably Carcinogenic to Humans.
<b>P-TERT-BUTYLPHENOL</b>	These substances are intravenous anaesthetic agents. They have a very low level of acute toxicity; they may cause skin irritation. Repeated exposure may irritate the stomach. There is no evidence of this group of substances causing mutation or adverse effects on reproduction. However, at high doses, there may be reduction of newborn weight and reduced survival in early lactation period. For p-tert-butylphenol: p-tert-butylphenol has low acute toxicity via all routes. It irritates the skin, eyes and airway. It may cause skin sensitisation in humans. Exposure by all routes can lead to loss of pigment from the skin. It does not appear to cause chronic systemic or reproductive toxicity in animals. Except in one test, it has not caused genetic toxicity, however the possibility of this occurring cannot be ruled out. Although there is no evidence of p-tert-butylphenol inducing cancer in manufacturing workers, animal testing shows that it can promote cancer of the forestomach, therefore the cancer-causing potential of this chemical could not be ruled out. The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. 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.
<b>PENTAERYTHRITOL TETRABUTYLHYDROXYHYDROCINNAMATE</b>	Data show that acute toxicity following oral and topical use of hindered phenols is low. They are not proven to cause mutations. However, long term use may affect the liver, thyroid, kidney and lymph nodes. Liver tumours have been reported. Non-sensitising in Guinea pig skin assay *** CG ** Clariant

## TensorGrip L32 Canister Spray Adhesive

<b>HYDROCARBON RESIN, POSTPOLYMERISED WITH MALEIC ANHYDRIDE</b>	Oral (-) LD50: 7000-10000 mg/kg Nil reported. [Manufacturer]
<b>LPG (LIQUEFIED PETROLEUM GAS)</b>	inhalation of the gas
<b>TensorGrip L32 Canister Spray Adhesive &amp; MAGNESIUM OXIDE</b>	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.
<b>TensorGrip L32 Canister Spray Adhesive &amp; METHYLENE CHLORIDE</b>	
<b>WATER &amp; LPG (LIQUEFIED PETROLEUM GAS)</b>	No significant acute toxicological data identified in literature search.
<b>MAGNESIUM OXIDE &amp; P-TERT-BUTYLPHENOL</b>	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. 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. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.

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

**Legend:** ✗ – Data either not available or does not fill the criteria for classification  
 ✓ – Data available to make classification

## SECTION 12 Ecological information

## Toxicity

TensorGrip L32 Canister Spray Adhesive	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
methylene chloride	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50(ECx)	96h	Algae or other aquatic plants	0.98mg/l	4
	BCF	1008h	Fish	2-5.4	7
	LC50	96h	Fish	2-3.3mg/l	4
	EC50	72h	Algae or other aquatic plants	202-286mg/l	4
	EC50	48h	Crustacea	150-218mg/l	4
	EC50	96h	Algae or other aquatic plants	0.98mg/l	4
water	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
magnesium oxide	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
p-tert-butylphenol	Endpoint	Test Duration (hr)	Species	Value	Source
	EC10(ECx)	72h	Algae or other aquatic plants	0.23mg/l	2
	LC50	96h	Fish	>1mg/l	2
	EC50	72h	Algae or other aquatic plants	~2.4mg/l	2
	EC50	48h	Crustacea	3.4-4.5mg/l	4
pentaerythritol tetrabutylhydroxyhydrocinnamate	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50(ECx)	24h	Crustacea	>86mg/l	1
	BCF	1008h	Fish	<0.2	7
	LC50	96h	Fish	>100mg/l	2

Continued...

## TensorGrip L32 Canister Spray Adhesive

	EC50	72h	Algae or other aquatic plants	>100mg/l	1
<b>hydrocarbon resin, postpolymerised with maleic anhydride</b>	<b>Endpoint</b>	<b>Test Duration (hr)</b>	<b>Species</b>	<b>Value</b>	<b>Source</b>
	EC50	72h	Algae or other aquatic plants	>100mg/l	2
	EC50	48h	Crustacea	>100mg/l	2
	NOEC(ECx)	72h	Algae or other aquatic plants	<1 mg/l	2
<b>LPG (liquefied petroleum gas)</b>	<b>Endpoint</b>	<b>Test Duration (hr)</b>	<b>Species</b>	<b>Value</b>	<b>Source</b>
	EC50(ECx)	96h	Algae or other aquatic plants	7.71mg/l	2
	LC50	96h	Fish	24.11mg/l	2
	EC50	96h	Algae or other aquatic plants	7.71mg/l	2

**Legend:** Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 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

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.

For petroleum distillates:

Environmental fate:

When petroleum substances are released into the environment, four major fate processes will take place: dissolution in water, volatilization, biodegradation and adsorption. These processes will cause changes in the composition of these UVCB substances. In the case of spills on land or water surfaces, photodegradation-another fate process-can also be significant.

As noted previously, the solubility and vapour pressure of components within a mixture will differ from those of the component alone. These interactions are complex for complex UVCBs such as petroleum hydrocarbons.

Each of the fate processes affects hydrocarbon families differently. Aromatics tend to be more water-soluble than aliphatics of the same carbon number, whereas aliphatics tend to be more volatile. Thus, when a petroleum mixture is released into the environment, the principal water contaminants are likely to be aromatics, whereas aliphatics will be the principal air contaminants. The trend in volatility by component class is as follows: alkenes = alkanes > aromatics = cycloalkanes.

The most soluble and volatile components have the lowest molecular weight; thus there is a general shift to higher molecular weight components in residual materials.

Biodegradation:

Biodegradation is almost always operative when petroleum mixtures are released into the environment. It has been widely demonstrated that nearly all soils and sediments have populations of bacteria and other organisms capable of degrading petroleum hydrocarbons. Degradation occurs both in the presence and absence of oxygen. Two key factors that determine degradation rates are oxygen supply and molecular structure. In general, degradation is more rapid under aerobic conditions. Decreasing trends in degradation rates according to structure are as follows:

- (1) n-alkanes, especially in the C10-C25 range, which are degraded readily;
- (2) isoalkanes;
- (3) alkenes;
- (4) benzene, toluene, ethylbenzene, xylenes (BTEX) (when present in concentrations that are not toxic to microorganisms);
- (5) monoaromatics;
- (6) polynuclear (polycyclic) aromatic hydrocarbons (PAHs); and
- (7) higher molecular weight cycloalkanes (which may degrade very slowly).

Three weathering processes-dissolution in water, volatilization and biodegradation-typically result in the depletion of the more readily soluble, volatile and degradable compounds and the accumulation of those most resistant to these processes in residues.

When large quantities of a hydrocarbon mixture enter the soil compartment, soil organic matter and other sorption sites in soil are fully saturated and the hydrocarbons will begin to form a separate phase (a non-aqueous phase liquid, or NAPL) in the soil. At concentrations below the retention capacity for the hydrocarbon in the soil, the NAPL will be immobile this is referred to as residual NAPL. Above the retention capacity, the NAPL becomes mobile and will move within the soil.

Bioaccumulation:

Bioaccumulation potential was characterized based on empirical and/or modelled data for a suite of petroleum hydrocarbons expected to occur in petroleum substances.

Bioaccumulation factors (BAFs) are the preferred metric for assessing the bioaccumulation potential of substances, as the bioconcentration factor (BCF) may not adequately account for the bioaccumulation potential of substances via the diet, which predominates for substances with log Kow > -4.5

In addition to fish BCF and BAF data, bioaccumulation data for aquatic invertebrate species were also considered. Biota-sediment/soil accumulation factors (BSAFs), trophic magnification factors and biomagnification factors were also considered in characterizing bioaccumulation potential.

Overall, there is consistent empirical and predicted evidence to suggest that the following components have the potential for high bioaccumulation, with BAF/BCF values greater than 5000: C13-C15 isoalkanes, C12 alkenes, C12-C15 one-ring cycloalkanes, C12 and C15 two-ring cycloalkanes, C14 polycycloalkanes, C15 one-ring aromatics, C15 and C20 cycloalkane monoaromatics, C12-C13 diaromatics, C20 cycloalkane diaromatics, and C14 and C20 three-ring PAHs

These components are associated with a slow rate of metabolism and are highly lipophilic. Exposures from water and diet, when combined, suggest that the rate of uptake would exceed that of the total elimination rate. Most of these components are not expected to biomagnify in aquatic or terrestrial foodwebs, largely because a combination of metabolism, low dietary assimilation efficiency and growth dilution allows the elimination rate to exceed the uptake rate from the diet; however, one study suggests that some alkyl-PAHs may biomagnify. While only BSAFs were found for some PAHs, it is possible that BSAFs will be > 1 for invertebrates, given that they do not have the same metabolic competency as fish.

In general, fish can efficiently metabolize aromatic compounds. There is some evidence that alkylation increases bioaccumulation of naphthalene but it is not known if this can be generalized to larger PAHs or if any potential increase in bioaccumulation due to alkylation will be sufficient to exceed a BAF/BCF of 5000.

Some lower trophic level organisms (i.e., invertebrates) appear to lack the capacity to efficiently metabolize aromatic compounds, resulting in high bioaccumulation potential for some aromatic components as compared to fish.

This is the case for the C14 three-ring PAH, which was bioconcentrated to a high level (BCF > 5000) by invertebrates but not by fish. There is potential for such bioaccumulative components to reach toxic levels in organisms if exposure is continuous and of sufficient magnitude, though this is unlikely in the water column following a spill scenario due to relatively rapid dispersal.

Bioaccumulation of aromatic compounds might be lower in natural environments than what is observed in the laboratory. PAHs may sorb to organic material suspended in the water column (dissolved humic material), which decreases their overall bioavailability primarily due to an increase in size. This has been observed with fish.

Ecotoxicity:

Diesel fuel studies in salt water are available. The values varied greatly for aquatic species such as rainbow trout and Daphnia magna, demonstrating the inherent variability of diesel fuel compositions and its effects on toxicity. Most experimental acute toxicity values are above 1 mg/L. The lowest 48-hour LC50 for salmonids was 2.4 mg/L. Daphnia magna had a 24-hour LC50 of 1.8 mg/L. The values varied greatly for aquatic species such as rainbow trout and Daphnia magna, demonstrating the inherent variability of diesel fuel compositions and its effects on toxicity. Most experimental acute toxicity values are above 1 mg/L. The lowest 48-hour LC50 for salmonids was 2.4 mg/L. Daphnia magna had a 24-hour LC50 of 1.8 mg/L.

The tropical mysid *Metamysidopsis insularis* was shown to be very sensitive to diesel fuel, with a 96-hour LC50 value of 0.22 mg/L. This species has been shown to be as sensitive as temperate mysids to toxicants. However, this study used nominal concentrations, and therefore was not considered acceptable. In another study involving diesel fuel, the effect on brown or common shrimp (*Crangon crangon*) a 96-hour LC50 of 22 mg/L was determined. A "gas oil" was also tested and a 96-hour LC50 of 12 mg/L was determined.

The steady state cell density of marine phytoplankton decreased with increasing concentrations of diesel fuel, with different sensitivities between species. The diatom *Phaeodactylum tricornutum* showed a 20% decrease in cell density in 24 hours following a 3 mg/L exposure with a 24-hour no-observed effect concentration (NOEC) of 2.5 mg/L. The microalga *Isochrysis galbana* was more tolerant to diesel fuel, with a 24-hour lowest-observed-effect concentration (LOEC) of 26 mg/L (14% decrease in cell density), and a NOEC of 25 mg/L.

Finally, the green algae *Chlorella salina* was relatively insensitive to diesel fuel contamination, with a 24-hour LOEC of 170 mg/L (27% decrease in cell density), and a NOEC of 160

## TensorGrip L32 Canister Spray Adhesive

mg/L. All populations of phytoplankton returned to a steady state within 5 days of exposure

In sandy soils, earthworm (*Eisenia fetida*) mortality only occurred at diesel fuel concentrations greater than 10 000 mg/kg, which was also the concentration at which sub-lethal weight loss was recorded

Nephrotoxic effects of diesel fuel have been documented in several animal and human studies. Some species of birds (mallard ducks in particular) are generally resistant to the toxic effects of petrochemical ingestion, and large amounts of petrochemicals are needed in order to cause direct mortality

For Methylene Chloride: Log Kow: 1.25; Log Koc: 1.68; Log Kom: 1.44; Henry's atm m<sup>3</sup>/mol: 2.68E-03; Henry's Law Constant: 0.002 atm/m<sup>3</sup>/mol; BCF: 5.

**Atmospheric Fate:** Methylene chloride is a volatile liquid that tends to evaporate to the atmosphere from water and soil. The main degradation pathway for methylene chloride in air is via reactions with hydroxyl radicals the average atmospheric lifetime is estimated to be 130 days. Because this degradation pathway is relatively slow, methylene chloride may become widely dispersed but, is not likely to accumulate in the atmosphere. The small amount of methylene chloride which reaches the stratosphere, (about 1%), may undergo direct breakdown by sunlight; however, this is not expected to occur in the troposphere. Reactions of methylene chloride with ozone or other common atmospheric species, (e.g., oxygen atoms, chlorine atoms, and nitrate radicals), are not believed to contribute to its breakdown.

**Terrestrial Fate:** The substance will evaporate rapidly from moist soil and does not sorb strongly to soil or sediment. Methylene chloride is likely to be highly mobile in soil and is expected to leach to groundwater. Biological breakdown is dependent on soil type, substrate concentration, and if the chemical gains or loses electrons, (redox reactions). The substance has been reported to be degraded in both oxygenated and low oxygen soils and degradation appears to accelerate in the presence of elevated levels of organic carbon. Methylene chloride has a low tendency to adsorb to soil; therefore, there is a potential for leaching to groundwater. The substance is expected to evaporate from dry/moist soil.

**Aquatic Fate:** Methylene chloride will evaporate rapidly from water, however; evaporation rates vary with rate of mixing, wind speed, temperature, and other factors. The substance slowly breaks down in neutral pH water, with an experimental half-life of 18 months @ 25 C. This reaction rate varies greatly with changes in temperature and pH it has been estimated that the same reaction in acidic solutions would take 700 years. Oxygenated and non-oxygenated biological breakdown may be important fate processes for methylene chloride in water. Methylene chloride has been observed to undergo degradation at a rapid rate in the presence of oxygen.

**Ecotoxicity:** Only a few valid acute toxicity data, and no results from long-term studies in marine species, are available for this substance. Available data in marine species do not indicate a marked difference in the sensitivity of marine and freshwater species to this substance. Methylene chloride is moderately toxic to the common mummichog, daggerblade grass shrimp, and fathead minnow. The substance has low toxicity to *Daphnia magna* water fleas. Methylene chloride is not expected to accumulate/concentrate in aquatic organisms.

For Propane: Koc 460. log

Kow 2.36.

Henry's Law constant of 7.07x10<sup>-1</sup> atm-cu m/mole, derived from its vapour pressure, 7150 mm Hg, and water solubility, 62.4 mg/L. Estimated BCF: 13.1.

**Terrestrial Fate:** Propane is expected to have moderate mobility in soil. Volatilization from moist soil surfaces is expected to be an important fate process. Volatilization from dry soil surfaces is based vapor pressure. Biodegradation may be an important fate process in soil and sediment.

**Aquatic Fate:** Propane is expected to adsorb to suspended solids and sediment. Volatilization from water surfaces is expected and half-lives for a model river and model lake are estimated to be 41 minutes and 2.6 days, respectively. Biodegradation may not be an important fate process in water.

**Ecotoxicity:** The potential for bioconcentration in aquatic organisms is low.

**Atmospheric Fate:** Propane is expected to exist solely as a gas in the ambient atmosphere. Gas-phase propane is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 14 days and is not expected to be susceptible to direct photolysis by sunlight.

**DO NOT discharge into sewer or waterways.**

### Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
methylene chloride	LOW (Half-life = 56 days)	HIGH (Half-life = 191 days)
water	LOW	LOW
p-tert-butylphenol	HIGH	HIGH
pentaerythritol tetrabutylhydroxyhydrocinnamate	HIGH	HIGH

### Bioaccumulative potential

Ingredient	Bioaccumulation
methylene chloride	LOW (BCF = 40)
p-tert-butylphenol	LOW (BCF = 240)
pentaerythritol tetrabutylhydroxyhydrocinnamate	LOW (BCF = 2.3)

### Mobility in soil

Ingredient	Mobility
methylene chloride	LOW (KOC = 23.74)
p-tert-butylphenol	LOW (KOC = 1912)

## SECTION 13 Disposal considerations

### Waste treatment methods

<b>Product / Packaging disposal</b>	<ul style="list-style-type: none"> <li>▶ Containers may still present a chemical hazard/ danger when empty.</li> <li>▶ Return to supplier for reuse/ recycling if possible.</li> </ul> <p>Otherwise:</p> <ul style="list-style-type: none"> <li>▶ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.</li> <li>▶ Where possible retain label warnings and SDS and observe all notices pertaining to the product.</li> <li>▶ <b>DO NOT allow wash water from cleaning or process equipment to enter drains.</b></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>▶ Recycle wherever possible.</li> <li>▶ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.</li> <li>▶ Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material).</li> <li>▶ Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.</li> </ul>
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## TensorGrip L32 Canister Spray Adhesive

## SECTION 14 Transport information

## Labels Required

		
Marine Pollutant	NO	
HAZCHEM	2WE	

## Land transport (ADG)

UN number	3504	
UN proper shipping name	CHEMICAL UNDER PRESSURE, FLAMMABLE, TOXIC, N.O.S. (contains methylene chloride)	
Transport hazard class(es)	Class	2.1
	Subrisk	6.1
Packing group	Not Applicable	
Environmental hazard	Not Applicable	
Special precautions for user	Special provisions	274 362
	Limited quantity	0

## Air transport (ICAO-IATA / DGR)

UN number	3504	
UN proper shipping name	Chemical under pressure, flammable, toxic, n.o.s. * (contains methylene chloride)	
Transport hazard class(es)	ICAO/IATA Class	2.1
	ICAO / IATA Subrisk	6.1
	ERG Code	10P
Packing group	Not Applicable	
Environmental hazard	Not Applicable	
Special precautions for user	Special provisions	A1 A187
	Cargo Only Packing Instructions	218
	Cargo Only Maximum Qty / Pack	75 kg
	Passenger and Cargo Packing Instructions	Forbidden
	Passenger and Cargo Maximum Qty / Pack	Forbidden
	Passenger and Cargo Limited Quantity Packing Instructions	Forbidden
Passenger and Cargo Limited Maximum Qty / Pack	Forbidden	

## Sea transport (IMDG-Code / GGVSee)

UN number	3504	
UN proper shipping name	CHEMICAL UNDER PRESSURE, FLAMMABLE, TOXIC, N.O.S. (contains methylene chloride)	
Transport hazard class(es)	IMDG Class	2.1
	IMDG Subrisk	6.1
Packing group	Not Applicable	
Environmental hazard	Not Applicable	
Special precautions for user	EMS Number	F-D, S-U
	Special provisions	274 362
	Limited Quantities	0

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

Not Applicable

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

Product name	Group
methylene chloride	Not Available
water	Not Available
magnesium oxide	Not Available
p-tert-butylphenol	Not Available

Continued...

## TensorGrip L32 Canister Spray Adhesive

Product name	Group
pentaerythritol tetrabutylhydroxyhydrocinnamate	Not Available
hydrocarbon resin, postpolymerised with maleic anhydride	Not Available
LPG (liquefied petroleum gas)	Not Available

## Transport in bulk in accordance with the ICG Code

Product name	Ship Type
methylene chloride	Not Available
water	Not Available
magnesium oxide	Not Available
p-tert-butylphenol	Not Available
pentaerythritol tetrabutylhydroxyhydrocinnamate	Not Available
hydrocarbon resin, postpolymerised with maleic anhydride	Not Available
LPG (liquefied petroleum gas)	Not Available

## SECTION 15 Regulatory information

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

## methylene chloride 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  
 Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List  
 International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2A: Probably carcinogenic to humans

## water is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

## magnesium oxide 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)

## p-tert-butylphenol is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals  
 Australian Inventory of Industrial Chemicals (AIIC)

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

## pentaerythritol tetrabutylhydroxyhydrocinnamate is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)

## hydrocarbon resin, postpolymerised with maleic anhydride 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)

## LPG (liquefied petroleum gas) 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

## National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (methylene chloride; water; magnesium oxide; p-tert-butylphenol; pentaerythritol tetrabutylhydroxyhydrocinnamate; hydrocarbon resin, postpolymerised with maleic anhydride; LPG (liquefied petroleum gas))
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes



## TensorGrip L32 Canister Spray Adhesive

National Inventory	Status
Russia - FBEPH	Yes
<b>Legend:</b>	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	18/05/2022
Initial Date	18/05/2022

## SDS Version Summary

Version	Date of Update	Sections Updated
0.2	18/05/2022	Acute Health (eye), Acute Health (skin), Acute Health (swallowed), Chronic Health, Classification, Disposal, Fire Fighter (fire/explosion hazard), Fire Fighter (fire fighting), First Aid (eye), First Aid (inhaled), First Aid (skin), First Aid (swallowed), Handling Procedure, Ingredients, Instability Condition, Personal Protection (other), Personal Protection (Respirator), Personal Protection (eye), Personal Protection (hands/feet), Physical Properties, Spills (major), Spills (minor), Storage (storage incompatibility), Storage (storage requirement), Storage (suitable container), Transport, Transport Information

## Other information

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

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

## Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average  
 PC—STEL: Permissible Concentration-Short Term Exposure Limit  
 IARC: International Agency for Research on Cancer  
 ACGIH: American Conference of Governmental Industrial Hygienists  
 STEL: Short Term Exposure Limit  
 TEEL: Temporary Emergency Exposure Limit.  
 IDLH: Immediately Dangerous to Life or Health Concentrations  
 ES: Exposure Standard  
 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  
 AIIC: Australian Inventory of Industrial Chemicals  
 DSL: Domestic Substances List  
 NDSL: Non-Domestic Substances List  
 IECSC: Inventory of Existing Chemical Substance in China  
 EINECS: European INventory of Existing Commercial chemical Substances  
 ELINCS: European List of Notified Chemical Substances  
 NLP: No-Longer Polymers  
 ENCS: Existing and New Chemical Substances Inventory  
 KECI: Korea Existing Chemicals Inventory  
 NZIoC: New Zealand Inventory of Chemicals  
 PICCS: Philippine Inventory of Chemicals and Chemical Substances  
 TSCA: Toxic Substances Control Act  
 TCSI: Taiwan Chemical Substance Inventory  
 INSQ: Inventario Nacional de Sustancias Químicas  
 NCI: National Chemical Inventory  
 FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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