

AP-1 Adhesion Promoter

Supplier Details:

Stylus Tapes International
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1. Identification: Product identifier and chemical identity

Product Identifier

Product name Tite-R-Bond (AP-1 Adhesion Promoter)

Synonyms primer promoter PZQ-6533010 Tite-R-Bond GL 2287A, Tite-R-Bond GL 2287A

Proper shipping name: ETHYL ACETATE

Other means of identification N/A

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

Relevant identified uses 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.

Primer / promoter for adhesives. Used for the preparation of plastics, metals and painted surfaces.

2. Hazard(s) identification

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

Poisons schedule: Not applicable

Classification: Flammable Liquid Category 2, Eye Irritation Category 2A, Reproductive Toxicity Category 1B, Specific target organ toxicity - single exposure Category 3 (narcotic effects)

Legend: 1. Classified by Chemwatch; 2. Classification drawn from HSIS; 3. Classification drawn from EC Directive 1272/2008 - Annex VI

Label Elements

Hazard pictogram(s)



Hazard statement(s)

H225 Highly flammable liquid and vapour

H319 Causes serious eye irritation

H360 May damage fertility or the unborn child

H336 May cause drowsiness or dizziness

AUH066 Repeated exposure may cause skin dryness and cracking

Precautionary statement(s) Prevention

P201 Obtain special instructions before use

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- P210** Keep away from heat/sparks/open flames/hot surfaces – No smoking
- P271** Use only outdoors or in a well-ventilated area
- P281** Use personal protective equipment as required
- P240** Ground/bond container and receiving equipment
- P241** Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment
- P242** Use only non-sparking tools
- P243** Take precautionary measures against static discharge
- P261** Avoid breathing mist/vapours/spray
- P280** Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s) Response

- P308+P313** IF exposed or concerned: Get medical advice/attention
- P370+P378** In case of fire: Use alcohol resistant foam or normal protein foam for extinction
- 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 or doctor/physician if you feel unwell
- P337+P313** If eye irritation persists: Get medical advice/attention
- P303+P361+P353 IF ON SKIN (or hair):** Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
- P304+P340 IF INHALED:** Remove victim to fresh air and keep at rest in a position comfortable for breathing

Precautionary statement(s) Storage

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

Precautionary statement(s) Disposal

- P501** Dispose of contents/container in accordance with local regulations

3. Composition and information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%(weight)	Name
141-78-6	>60	Ethyl acetate
Not available	1-5	Acrylic polymer
108-88-3	1-5	Toluene
67-63-0	0.1-1	Isopropanol

4. First aid measures

Eye Contact

If this product comes in contact with the eyes:

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Seek medical attention without delay; if pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

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Skin Contact

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

Inhalation

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prosthesis such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- 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.
- Transport to hospital, or doctor.

Ingestion

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.
- If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

Indication of any immediate medical attention and special treatment needed

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

for simple esters:

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.
- **DO NOT use emetics.** Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.
- Give activated charcoal.

Advanced Treatment

- Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- Positive-pressure ventilation using a bag-valve mask might be of use.
- Monitor and treat, where necessary, for arrhythmias.
- Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
- Drug therapy should be considered for pulmonary oedema.

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- Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
- Treat seizures with diazepam.
- Proparacaine hydrochloride should be used to assist eye irrigation.

Emergency Department

- Laboratory analysis of complete blood count, serum electrolytes, BUN, creatinine, glucose, urinalysis, baseline for serum aminotransferases (ALT and AST), calcium, phosphorus and magnesium, may assist in establishing a treatment regime. Other useful analyses include anion and osmolar gaps, arterial blood gases (ABGs), chest radiographs and electrocardiograph.
- Positive end-expiratory pressure (PEEP)-assisted ventilation may be required for acute parenchymal injury or adult respiratory distress syndrome.
- Consult a toxicologist as necessary.

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

5. Firefighting measures

Extinguishing media

- Alcohol stable foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

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 breathing apparatus plus protective gloves in the event of a fire.
- 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 the 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

- Liquid and vapour are highly flammable.
- Severe fire hazard when exposed to heat, flame and/or oxidisers.
- Vapour may travel a considerable distance to source of ignition.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).

Combustion products include:

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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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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

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.
- Contain and absorb small quantities with vermiculite or other absorbent material.
- Wipe up.
- Collect residues in a flammable waste container.

Major Spills

- 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 course.
- Consider evacuation (or protect in place).
- 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.
- Contain spill with sand, earth or vermiculite.
- Use only spark-free shovels and explosion proof equipment.
- Collect recoverable product into labelled containers for recycling.
- Absorb remaining product with sand, earth or vermiculite.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services

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

7. Handling and storage, including how the chemical may be safely used

Precautions for safe handling

Safe handling

- Containers, even those that have been emptied, may contain explosive vapours.
- Do NOT cut, drill, grind, weld or perform similar operations on or near containers.
- Avoid all personal contact, including inhalation.

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- 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, heat or ignition sources.
- When handling, **DO NOT eat, drink or smoke.**
- Vapour may ignite on pumping or pouring due to static electricity.
- **DO NOT use plastic buckets.**
- Earth and secure metal containers when dispensing or pouring product.
- Use spark-free tools when handling.
- Avoid contact with incompatible materials.
- Keep containers securely sealed.
- 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.

Other information

- Store in original containers in approved flame-proof area.
- No smoking, naked lights, heat or ignition sources.
- **DO NOT store in pits, depressions, basements or areas where vapours may be trapped.**
- Keep containers securely sealed.
- Store away from incompatible materials in a cool, dry well ventilated area.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storage and handling recommendations contained within this SDS.

Conditions for safe storage, including any incompatibilities

Suitable container

- Packing as supplied by manufacturer.
- Plastic containers may only be used if approved for flammable liquid.
- Check that containers are clearly labelled and free from leaks.
- For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type.
(ii) : Where a can is to be used as an inner package, the can must have a screwed enclosure.
- For materials with a viscosity of at least 2680 cSt. (23 deg. C)
- For manufactured product having a viscosity of at least 250 cSt. (23 deg. C)
- 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.
- 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
- 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.

Storage incompatibility

- Esters react with acids to liberate heat along with alcohols and acids.

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- Strong oxidising acids may cause a vigorous reaction with esters that is sufficiently exothermic to ignite the reaction products.
- Heat is also generated by the interaction of esters with caustic solutions.
- Flammable hydrogen is generated by mixing esters with alkali metals and hydrides.
- Esters may be incompatible with aliphatic amines and nitrates.

8. Exposure controls and personal protection

Control parameters

| OCCUPATIONAL EXPOSURE LIMITS (OEL)

| INGREDIENT DATA

Source	Ingredient	Material Name	TWA	STEL	Peak	Notes
Australia Exposure Standards	Ethyl acetate	Ethyl acetate	720mg/m ³ /200ppm	14470mg/m ³ /400ppm	N/A	N/A
Australia Exposure Standards	Toluene	Toluene	191mg/m ³ /50ppm	574mg/m ³ /150ppm	N/A	N/A
Australia Exposure Standards	Isopropanol	Isopropyl alcohol	983mg/m ³ /400ppm	1230mg/m ³ /500ppm	N/A	N/A

| EMERGENCY LIMITS

Ingredient	Material Name	TEEL-1	TEEL-2	TEEL-3
Ethyl acetate	Ethyl acetate	1,200 ppm	1,700 ppm	10,000 ppm
Toluene	Toluene	N/A	N/A	N/A
Isopropanol	Isopropyl alcohol	400 ppm	2,000 ppm	12,000 ppm

Ingredient	Original IDLH	Revised IDLH
Ethyl acetate	2,000 (LEL) ppm	N/A
Acrylic polymer	N/A	N/A
Toluene	500 ppm	N/A
Isopropanol	2,000 (LEL) ppm	N/A

Exposure controls

Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. 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.

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Employers may need to use multiple types of controls to prevent employee overexposure.

For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant. 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	Air speed:
Solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, 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.

Personal protection



Eye and face protection

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. 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

- Wear chemical protective gloves, e.g. PVC.
- Wear safety footwear or safety gumboots, e.g. Rubber

The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.
- Contaminated gloves should be replaced.

For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended. It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.

Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.

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- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential
- Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

Body protection

See Other protection below

Other protection

- Overalls.
 - PVC Apron.
 - PVC protective suit may be required if exposure severe.
 - Eyewash unit.
 - Ensure there is ready access to a safety shower.
- Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
 - For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets).
 - Non sparking safety or conductive footwear should be considered. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot and shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds. 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.

Thermal hazards

Not Available

Respiratory protection

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

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

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Slightly cloudy, highly flammable liquid with a sweet solvent odour; partly mixes with water.
Solubility in water: 8%. Soluble in xylene and methyl ethyl ketone (MEK).

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Physical state	Liquid	Relative density (Water = 1)	0.89
Odour	N/A	Partition coefficient n-octanol /water	N/A
Odour threshold	N/A	Auto-ignition temperature (°C)	427 ethyl acet.
pH (as supplied)	N/A	Decomposition temperature	N/A
Melting point/Freezing point (°C)	N/A	Viscosity (cSt)	N/A
Initial boiling point and boiling range (°C)	77	Molecular weight (g/mol)	N/A
Flash point (°C)	-3 (PMCC)	Taste	N/A
Evaporation rate	6.15 BuAc=1	Explosive properties	N/A
Flammability	HIGHLY FLAMMABLE	Oxidising properties	N/A
Upper Explosive Limit (%)	11.0	Surface Tension (dyn/cm or mN/m)	N/A
Lower Explosive Limit (%)	2.2	Volatile Component (%vol)	98.5
Vapour pressure (kPa)	10.1 @ 20C	Gas group	N/A
Solubility in water (g/L)	Partly miscible	pH as a solution (1%)	N/A
Vapour density (Air = 1)	3.0	VOC g/L	N/A

10. Stability and reactivity

Reactivity

See section 7

Chemical stability

- Unstable in the presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Possibility of hazardous reactions

See section 7

Conditions to avoid

See section 7

Incompatible materials

See section 7

Hazardous decomposition products

See section 5

11. Toxicological information

Information on toxicological effects

Inhaled

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.

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Ingestion

Acute intoxication by ethyl acetate causes impaired co-ordination, exhilaration, slurred speech, nausea, vomiting, and may progress to stupor, coma and death from failure of breathing or blood circulation.

Skin contact

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. Repeated exposure may cause skin cracking, flaking or drying following normal handling and use. 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.

Eye

This material can cause eye irritation and damage in some persons.

Chronic

Ample evidence exists from experimentation that reduced human fertility is directly caused by exposure to the material.

Ample evidence exists, from results in experimentation, that developmental disorders are directly caused by human exposure to the material.

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

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Tite-R-Bond

Toxicity	Irritation
N/A	N/A

Ethyl acetate

Toxicity	Irritation
Inhalation (rat) LC50: 50 mg/l/1 h[1]	Eye (human): 400 ppm
Oral (rat) LD50: 5620 mg/kg[2]	

Toluene

Toxicity	Irritation
Dermal (rabbit) LD50: 12124 mg/kg[2]	Eye (rabbit): 2mg/24h - SEVERE
Inhalation (rat) LC50: 49 mg/l/4H[2]	Eye (rabbit):0.87 mg - mild
Oral (rat) LD50: 636 mg/kg[2]	Eye (rabbit):100 mg/30sec - mild
	Skin (rabbit):20 mg/24h-moderate
	Skin (rabbit):500 mg - moderate

Isopropanol

Toxicity	Irritation
Dermal (rabbit) LD50: 12800 mg/kg[2]	Eye (rabbit): 10 mg - moderate
Inhalation (rat) LC50: 72.6 mg/l/4h[2]	Eye (rabbit): 100 mg - SEVERE
Oral (rat) LD50: 5000 mg/kg[2]	Eye (rabbit): 100mg/24hr-moderate
	Skin (rabbit): 500 mg - mild

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*

Toluene

For toluene:

Acute toxicity: Humans exposed to high levels of toluene for short periods of time experience adverse central nervous system effects ranging from headaches to intoxication, convulsions, narcosis (sleepiness) and death. When inhaled or swallowed, toluene can cause severe central nervous system depression, and in large doses has a narcotic effect. 60mL has caused death. Death of heart muscle fibres, liver swelling, congestion and bleeding of the lungs and kidney injury were all found on autopsy.

Exposure to inhalation at a concentration of 600 parts per million for 8 hours resulted in the same and more serious symptoms including euphoria (a feeling of well-being), dilated pupils, convulsions and nausea. Exposure to 10000-30000 parts per million (1-3%) has been reported to cause narcosis and death.

Toluene can also strip the skin of lipids, causing skin inflammation.

Subchronic/chronic effects: Repeat doses of toluene cause adverse central nervous system effects and can damage the upper airway, the liver and the kidney. Adverse effects occur from both swallowing and inhalation. In humans, a reported lowest level causing adverse effects on the nervous system is 88 parts per million. In one case, toluene caused heart sensitization and death. In several cases of "glue sniffing", damage to the cerebellum was noted.

Workers chronically exposed to toluene fumes have reported reduced white cell counts.

Developmental/Reproductive toxicity: Exposure to high levels of toluene can result in adverse effects in the developing foetus. Several studies have indicated that high levels of toluene can also adversely affect the developing offspring in laboratory animals. In children who were exposed to toluene before birth, as a result of solvent abuse by the mother, variable growth, a small head, central nervous system dysfunction, attention deficits, minor facial and limb abnormalities, and developmental delay were seen.

Absorption: Studies in humans and animals have shown that toluene is easily absorbed through the lungs and gastrointestinal tract, with much less being absorbed through the skin.

Distribution: Animal studies show that toluene may be distributed in the body fat, bone marrow, spinal nerves, spinal cord and brain white matter, with lower levels in the blood, kidney and liver. Toluene has generally been found to accumulate in fatty tissue, and in highly vascularised tissues.

Metabolism: Inhaled or ingested toluene may be metabolized to benzyl alcohol, after which it is further oxidized to benzaldehyde and benzoic acid. Benzoic acid is sometimes conjugated with glycine to form hippuric acid or reacted with glucuronic acid to form benzoyl glucuronide. O-cresol and p-cresol formed by ring hydroxylation are considered minor metabolites.

Excretion: Toluene is mainly (60-70%) excreted through the urine as hippuric acid. Benzoyl glucuronide accounts for 10-20% of excretion, and unchanged toluene through exhaled air also accounts for 10-20%. Excretion of hippuric acid is usually complete within 24 hours of exposure.

Isopropanol

Isopropanol is irritating to the eyes, nose and throat but generally not to the skin. Prolonged high dose exposure may also produce depression of the central nervous system and drowsiness. Few have reported skin irritation. It can be absorbed from the skin or when inhaled. Intentional swallowing is common particularly among alcoholics or suicide victims and also leads to fainting, breathing difficulty, nausea, vomiting and headache. In the absence of unconsciousness, recovery

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usually occurred. Repeated doses may damage the kidneys. A decrease in the frequency of mating has been found in among animals, and newborns have been found to have a greater incidence of low birth weight. Tumours of the testes have been observed in the male rat.

The substance is classified by IARC as Group 3:

NOT classifiable as to its carcinogenicity to humans.

Evidence of carcinogenicity may be inadequate or limited in animal testing.

Toluene & Isopropanol

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.

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

12. Ecological information

Toxicity

Tite-R-Bond

Endpoint	Test duration (HR)	Species	Value	Source
N/A	N/A	N/A	N/A	N/A

Ethyl acetate

Endpoint	Test duration (HR)	Species	Value	Source
LC50	96	Fish	212.5mg/L	4
EC50	48	Crustacea	=164mg/L	1
EC50	96	Algae or other aquatic plants	2500mg/L	4
BCF	24	Algae or other aquatic plants	0.05mg/L	4
NOEC	504	Crustacea	2.4mg/L	4

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

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BCF	24	Algae or other aquatic plants	10mg/L	4
NOEC	168	Crustacea	0.74mg/L	5

Isopropanol

Endpoint	Test duration (HR)	Species	Value	Source
LC50	96	Fish	>1400mg/L	4
EC50	48	Crustacea	12500mg/L	5
EC50	72	Algae or other aquatic plants	>1000mg/L	1
EC29	504	Crustacea	=100mg/L	1
NOEC	5760	Fish	0.02mg/L	4

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

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
ethyl acetate	LOW (Half-life = 14 days)	LOW (Half-life = 14.71 days)
toluene	LOW (Half-life = 28 days)	LOW (Half-life = 4.33 days)
isopropanol	LOW (Half-life = 14 days)	LOW (Half-life = 3 days)

Bioaccumulative potential

Ingredient	Bioaccumulation
ethyl acetate	HIGH (BCF = 3300)
toluene	LOW (BCF = 90)
isopropanol	LOW (LogKOW = 0.05)

Mobility in soil

Ingredient	Mobility
ethyl acetate	LOW (KOC = 6.131)
toluene	LOW (KOC = 268)
isopropanol	HIGH (KOC = 1.06)

13. Disposal considerations

Waste treatment methods

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
- Where possible retain label warnings and SDS and observe all notices pertaining to the product.
- **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.

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- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material).
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

14. Transport information

Labels Required



Marine Pollutant No
HAZCHEM •3YE

Land transport (ADG)

UN number 1173

UN proper shipping name ETHYL ACETATE

Transport hazard class(es) Class 3

Subrisk N/A

Packing Group II

Environmental hazard N/A

Special precautions for user Special provisions N/A
Limited quantity 1 L

Air transport (ICAO-IATA / DGR)

UN number 1173

UN proper shipping name Ethyl acetate

Transport hazard class(es) ICAO/IATA Class 3

ICAO / IATA Subrisk N/A

ERG Code 3L

Packing group II

Environmental hazard N/A

Special precautions for user Special provisions N/A
Cargo Only Packing Instructions 364
Cargo Only Maximum Qty / Pack 60 L
Passenger and Cargo Packing Instructions 353
Passenger and Cargo Maximum Qty / Pack 5 L
Passenger and Cargo Limited Quantity Packing Instructions Y341
Passenger and Cargo Limited Maximum Qty / Pack 1 L

Sea transport (IMDG-Code / GGVSee)

UN number 1173

UN proper shipping name ETHYL ACETATE

Transport hazard class(es) IMDG Class 3

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IMDG Subrisk N/A

Packing group II

Environmental hazard N/A

Special precautions for user EMS Number F-E , S-D

Special provisions N/A

Limited Quantities 1 L

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

N/A

15. Regulatory information

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

| ETHYL ACETATE(141-78-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards	Australia Inventory of Chemical Substances (AICS)
Australia Hazardous Substances Information System - Consolidated Lists	

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

Australia Exposure Standards	Australia Inventory of Chemical Substances (AICS)
Australia Hazardous Substances Information System - Consolidated Lists	International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

| ISOPROPANOL(67-63-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards	Australia Inventory of Chemical Substances (AICS)
Australia Hazardous Substances Information System - Consolidated Lists	International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

National Inventory	Status
Inventory Status Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N (toluene; ethyl acetate; isopropanol)
China – IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	Y
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	

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)

16. Any other relevant 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

OSF: Odour Safety Factor

NOAEL :No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit Of Detection

OTV: Odour Threshold Value

BCF: BioConcentration Factors

BEI: Biological Exposure Index

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