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

Product Identifier

<table>
<thead>
<tr>
<th>Product name</th>
<th>RESENE THINNER No.12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>Not Available</td>
</tr>
<tr>
<td>Proper shipping name</td>
<td>PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)</td>
</tr>
<tr>
<td>Other means of identification</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

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

Relevant identified uses 6448

Details of the supplier of the safety data sheet

Registered company name Resene Paints Ltd
Address 32-50 Vogel Street Wellington Naenae 5011 New Zealand
Telephone +64 4 577 0500
Fax +64 4 577 3327
Website www.resene.co.nz
Email advice@resene.co.nz

Emergency telephone number

Association / Organisation NZ POISONS (24hr 7 days)
Emergency telephone numbers 0800 764 766
Other emergency telephone numbers Not Available

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

Considered a Hazardous Substance according to the criteria of the New Zealand Hazardous Substances New Organisms legislation. Classified as Dangerous Goods for transport purposes.

| Classification [1] | Acute Toxicity (Oral) Category 4, Acute Toxicity (Inhalation) Category 4, Skin Corrosion/ Irritation Category 2, Eye Irritation Category 2A, Reproductive Toxicity Category 2, Acute Aquatic Hazard Category 3, Acute Vertebrate Hazard Category 3, Flammable Liquid Category 2, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation) |


Determined by Chemwatch using GHS/HSNO criteria 3.1B, 6.9 (respiratory), 6.4A, 6.1D (oral), 6.3A, 9.1D, 9.3C, 6.1D (inhalation), 6.8B

Label elements

GHS label elements

SIGNAL WORD DANGER
Hazard statement(s)

H302 Harmful if swallowed.
H332 Harmful if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H361 Suspected of damaging fertility or the unborn child.
H402 Harmful to aquatic life
H433 Harmful to terrestrial vertebrates.
H225 Highly flammable liquid and vapour.
H335 May cause respiratory irritation.

Precautionary statement(s) Prevention

P201 Obtain special instructions before use.

Precautionary statement(s) Response

P308+P313 IF exposed or concerned: Get medical advice/attention.

Precautionary statement(s) Storage

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

Precautionary statement(s) Disposal

P501 Dispose of contents/container in accordance with local regulations.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances
See section below for composition of Mixtures

Mixtures

<table>
<thead>
<tr>
<th>CAS No</th>
<th>% [weight]</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>78-93-3</td>
<td>30-60</td>
<td>methyl ethyl ketone</td>
</tr>
<tr>
<td>108-88-3</td>
<td>30-60</td>
<td>toluene</td>
</tr>
</tbody>
</table>

SECTION 4 FIRST AID MEASURES

NZ Poisons Centre 0800 POISON (0800 764 766) | NZ Emergency Services: 111

Description of 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.

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.
- Prostheses 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, without delay.

Ingestion

- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casually can comfortably drink.
- Seek medical advice.
- Avoid giving milk or oils.
- Avoid giving alcohol.
- 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 ketones:

Continued...
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 (5mL/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 oro-/nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- Consider intubation at first sign of upper airway obstruction resulting from oedema.
- Positive pressure ventilation using a mask-vale 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.
- Propacaine 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

Following acute or short term repeated exposures to toluene:

- Toluene is absorbed across the alveolar barrier, the blood/air mixture being 11.2/15.6 (at 37 degrees C). The concentration of toluene, in expired breath, is of the order of 18 ppm following sustained exposure to 100 ppm. The tissue/blood proportion is 1/3 except in adipose where the proportion is 8/10.
- Metabolism by microsomal mono-oxidogenation, results in the production of hippuric acid. This may be detected in the urine in amounts between 0.5 and 2.5 g/24 hr which represents, on average 0.8 gm/gm of creatinine. The biological half-life of hippuric acid is in the order of 1-2 hours.
- Primary threat to life from ingestion and/or inhalation is respiratory failure.
- Patients should be quickly evaluated for signs of respiratory distress (eg cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pCO2 <50 mm Hg or pCO2 > 50 mm Hg) should be intubated.
- Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial damage has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.
- Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
- A chest x-ray should be taken immediately after stabilisation of breathing and circulation to document aspiration and detect the presence of pneumothorax.
- *Epinephrine (adrenaline)* is not recommended for treatment of bronchospasm because of potential myocardial sensitisation to catecholamines. Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.
- *Lavage* is indicated in patients who require decontamination; ensure use.

BIOLOGICAL EXPOSURE INDEX - BEI

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

<table>
<thead>
<tr>
<th>Determinant</th>
<th>Index</th>
<th>Sampling Time</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-Cresol in urine</td>
<td>0.5 mg/L</td>
<td>End of shift</td>
<td>B</td>
</tr>
<tr>
<td>Hippuric acid in urine</td>
<td>1.6 gm/g creatinine</td>
<td>End of shift</td>
<td>B, NS</td>
</tr>
<tr>
<td>Toluene in blood</td>
<td>0.05 mg/L</td>
<td>Prior to last shift of workweek</td>
<td></td>
</tr>
</tbody>
</table>

- B: Background levels occur in specimens collected from subjects NOT exposed
- NS: Non-specific determinant; also observed after exposure to other material

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

- Foam.

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.

**Fire/Explosion Hazard**

- Liquid and vapour are highly flammable. Combustion products include 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.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

**Minor Spills**

- Remove all ignition sources.

**Major Spills**

- Chemical Class: ketones
- For release onto land: recommended sorbents listed in order of priority.
- Clear area of personnel and move upwind.
SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling

- Containers, even those that have been emptied, may contain explosive vapours.
- Contains low boiling substance: Storage in sealed containers may result in pressure build up causing violent rupture of containers not rated appropriately.
- Electrostatic discharge may be generated during pumping - this may result in fire.
- Avoid all personal contact, including inhalation.
- DO NOT allow clothing wet with material to stay in contact with skin.

Other information

- Store in original containers in approved flame-proof area.

Conditions for safe storage, including any incompatibilities

Suitable container

- Methyl ethyl ketone: reacts violently with strong oxidisers, aldehydes, nitric acid, perchloric acid, potassium tert-butoxide, oleum
- is incompatible with inorganic acids, aliphatic amines, ammonia, caustics, isocyanates, pyridines, chlorosulfonic acid
- forms unstable peroxides in storage, or on contact with propanol or hydrogen peroxide
- attacks some plastics
- may generate electrostatic charges, due to low conductivity, on flow or agitation.

Toluene:
- reacts violently with strong oxidisers, bromine, bromine trifluoride, chlorine, hydrochloric acid/sulfuric acid mixture, 1,3-dichloro-5,5-dimethyl-2,4-imidazolidindione, dinitrogen tetraoxide, fluorine, concentrated nitric acid, nitrogen dioxide, silver chloride, sulfur dichloride, uranium fluoride, vinyl acetate
- forms explosive mixtures with strong acids, strong oxidisers, silver perchlorate, tetranitromethane
- is incompatible with bis-toluenediazo oxide
- attacks some plastics, rubber and coatings
- may generate electrostatic charges, due to low conductivity, on flow or agitation.

For alkyl aromatics:
- The alkyl side chain of aromatic rings can undergo oxidation by several mechanisms.
- Vigorous reactions, sometimes amounting to explosions, can result from the contact between aromatic rings and strong oxidising agents.
- Ketones in this group: are reactive with many acids and bases liberating heat and flammable gases (e.g., H2).

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

<table>
<thead>
<tr>
<th>Source</th>
<th>Ingredient</th>
<th>Material name</th>
<th>TWA</th>
<th>STEL</th>
<th>Peak</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zealand Workplace Exposure Standards (WES)</td>
<td>methyl ethyl ketone</td>
<td>Methyl ethyl ketone</td>
<td>445 mg/m3 / 150 ppm</td>
<td>890 mg/m3 / 300 ppm</td>
<td>Not Available</td>
<td>Exposure can also be estimated by biological monitoring</td>
</tr>
<tr>
<td>New Zealand Workplace Exposure Standards (WES)</td>
<td>toluene</td>
<td>Toluene</td>
<td>188 mg/m3 / 50 ppm</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Skin absorption</td>
</tr>
</tbody>
</table>

EMERGENCY LIMITS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Material name</th>
<th>TEEL-1</th>
<th>TEEL-2</th>
<th>TEEL-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>methyl ethyl ketone</td>
<td>Butanone, 2-; (Methyl ethyl ketone; MEK)</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>toluene</td>
<td>Toluene</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

MATERIAL DATA

For methyl ethyl ketone:
- Odour Threshold Value: Variously reported as 2 ppm and 4.8 ppm
- Odour threshold: 2 ppm (detection); 5 ppm (recognition); 300 ppm IRRITATING
- Exposures at or below the recommended TLV-TWA are thought to prevent injurious systemic effects and to minimise objections to odour and irritation.

For toluene:
- Odour Threshold Value: 0.16-6.7 (detection), 1.9-69 (recognition)
- NOTE: Detector tubes measuring in excess of 5 ppm, are available.

Exposure controls

Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard.

Personal protection

- Safety glasses with side shields.
Skin protection
See Hand protection below

Hands/feet protection
▶ Wear chemical protective gloves, e.g. PVC.
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.

Body protection
See Other protection below

Other protection
▶ Overalls.
Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.

Thermal hazards
Not Available

Recommended material(s)

<table>
<thead>
<tr>
<th>GLOVE SELECTION INDEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glove selection is based on a modified presentation of the: &quot;Forsberg Clothing Performance Index&quot;. The effect(s) of the following substance(s) are taken into account in the computer-generated selection: RESENE THINNER No.12</td>
</tr>
<tr>
<td>Material</td>
</tr>
<tr>
<td>---------------------------</td>
</tr>
<tr>
<td>PE/EVAL/PE</td>
</tr>
<tr>
<td>PVA</td>
</tr>
<tr>
<td>TEFLOE</td>
</tr>
<tr>
<td>BUTYL/NEOPRENE</td>
</tr>
<tr>
<td>CPE</td>
</tr>
<tr>
<td>HYPALON</td>
</tr>
<tr>
<td>NATURAL RUBBER</td>
</tr>
<tr>
<td>NATURAL+NEOPRENE</td>
</tr>
<tr>
<td>NEOPRENE</td>
</tr>
<tr>
<td>NEOPRENE/NATURAL</td>
</tr>
<tr>
<td>NITRILE</td>
</tr>
<tr>
<td>NITRILE+PVC</td>
</tr>
<tr>
<td>PVC</td>
</tr>
<tr>
<td>SARANEX-23</td>
</tr>
<tr>
<td>SARANEX-23 2-PLY</td>
</tr>
<tr>
<td>VITON</td>
</tr>
<tr>
<td>VITON/CHLOROBUTYL</td>
</tr>
<tr>
<td>VITON/NEOPRENE</td>
</tr>
</tbody>
</table>

* 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.

Respiratory protection
Type A Filter of sufficient capacity.
Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.
The degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

<table>
<thead>
<tr>
<th>Required Minimum Protection Factor</th>
<th>Half-Face Respirator</th>
<th>Full-Face Respirator</th>
<th>Powered Air Respirator</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 10 x ES</td>
<td>A-AUS / Class 1</td>
<td>-</td>
<td>A-PAPR-AUS / Class 1</td>
</tr>
<tr>
<td>up to 50 x ES</td>
<td>-</td>
<td>Air-line*</td>
<td>-</td>
</tr>
<tr>
<td>up to 100 x ES</td>
<td>-</td>
<td>-</td>
<td>Air-line**</td>
</tr>
<tr>
<td>100+ x ES</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* - Continuous-flow; ** - 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 degC)

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| Appearance | Clear colourless liquid with strong solvent odour |
| Physical state | Liquid |
| Odour | Not Available |
| Odour threshold | Not Available |
| pH (as supplied) | Not Available |
| Melting point / freezing point (°C) | Not Available |
| Initial boiling point and boiling range (°C) | 85 |
| Flash point (°C) | -1 |
| Evaporation rate | Not Available |
| Flammability | HIGHLY FLAMMABLE. |
| Upper Explosive Limit (%) | 9.5 |

| Relative density (Water = 1) | 0.838 |
| Partition coefficient n-octanol / water | Not Available |
| Auto-ignition temperature (°C) | 502 |
| Decomposition temperature | Not Available |
| Viscosity (cSt) | Not Available |
| Molecular weight (g/mol) | Not Available |
| Taste | Not Available |
| Explosive properties | Not Available |
| Oxidising properties | Not Available |
| Surface Tension (dyn/cm or mN/m) | Not Available |
SECTION 10 STABILITY AND REACTIVITY

Reactivity
- See section 7

Chemical stability
- Unstable in the presence of incompatible materials.

Possibility of hazardous reactions
- See section 7

Conditions to avoid
- See section 7

Incompatible materials
- See section 7

Hazardous decomposition products
- See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

**Inhaled**
- Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful.
- Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation.
- Inhalation of vapours may cause drowsiness and dizziness.
- The acute toxicity of inhaled alkylbenzenes is best described by central nervous system depression.
- Acute exposure of humans to high concentrations of methyl ethyl ketone produces irritation to the eyes, nose, and throat.
- The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing.

**Ingestion**
- 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.
- Swallowing of the liquid may cause aspiration of vomit into the lungs with the risk of haemorrhaging, pulmonary oedema, progressing to chemical pneumonitis; serious consequences may result.

**Skin Contact**
- Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period.
- The material may accentuate any pre-existing dermatitis condition.
- Toxic effects may result from skin absorption.
- Open cuts, abraded or irritated skin should not be exposed to this material.
- Entry into the bloodstream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects.

**Eye**
- Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals.

**Chronic**
- Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.
- Exposure to the material may cause concerns for humans owing to possible developmental toxic effects, generally on the basis that results in appropriate animal studies provide strong suspicion of developmental toxicity in the absence of signs of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not a secondary non-specific consequence of other toxic effects.
- Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
- Chronic toluene habituation occurs following intentional abuse (glue sniffing) or from occupational exposure.
- On the basis, primarily, of animal experiments, concern has been expressed by at least one classification body that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.
- Prolonged or repeated skin contact may cause drying with cracking, irritation and possible dermatitis following.

<table>
<thead>
<tr>
<th>RESENE THINNER No.12</th>
<th>TOXICITY</th>
<th>IRRITATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>methyl ethyl ketone</td>
<td>Dermal (rabbit) LD50: &gt;8100 mg/kg[^1]</td>
<td>- mild</td>
</tr>
<tr>
<td></td>
<td>Inhalation (rat) LC50: 23.5 mg/L/8hr[^2]</td>
<td>Eye (human): 350 ppm - irritant</td>
</tr>
<tr>
<td></td>
<td>Inhalation (rat) LC50: 50.1 mg/L/8 hr[^2]</td>
<td>Eye (rabbit): 80 mg - irritant</td>
</tr>
<tr>
<td></td>
<td>Oral (rat) LD50: 3474.9 mg/kg[^1]</td>
<td>Skin (rabbit): 402 mg/24 hr - mild</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skin (rabbit): 13.78 mg/24 hr open</td>
</tr>
</tbody>
</table>

| toluene               | Dermal (rabbit) LD50: 12124 mg/kg[^2] | Eye (rabbit): 2mg/24h - SEVERE |
|                       | Inhalation (rat) LC50: >26700 ppm/1hd[^2] | Eye (rabbit): 0.87 mg - mild |
|                       | Inhalation (rat) LC50: 49 mg/L/4hr[^2] | Eye (rabbit): 100 mg/30sec - mild |
|                       | Oral (rat) LD50: 636 mg/kge[^2] | Skin (rabbit): 20 mg/24h - moderate |
|                       |                                     | Skin (rabbit): 500 mg - moderate |

**Notes:**
- LD50: Median lethal dose
- LC50: Median lethal concentration
- V50: Vapour pressure

[^1]: Data for the rat considered inadequate.
[^2]: Animals were exposed via an appropriate route.
[^3]: Data for the rabbit considered inadequate.
### RESENE THINNER No.12

**Asthma-like symptoms may continue for months or even years after exposure to the material ceases.**

Methyl ethyl ketone is considered to have a low order of toxicity; however methyl ethyl ketone is often used in combination with other solvents and the toxic effects of the mix may be greater than either solvent alone.

**For toluene:**

**Acute Toxicity**

Humans exposed to intermediate to high levels of toluene for short periods of time experience adverse central nervous system effects ranging from headaches to intoxication, convulsions, narcosis, and death.

---

### METHYL ETHYL KETONE

**Asthma-like symptoms may continue for months or even years after exposure to the material ceases.**

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic).

Methyl ethyl ketone is considered to have a low order of toxicity; however methyl ethyl ketone is often used in combination with other solvents and the toxic effects of the mix may be greater than either solvent alone.

---

### TOLUENE

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic).

**For toluene:**

**Acute Toxicity**

Humans exposed to intermediate to high levels of toluene for short periods of time experience adverse central nervous system effects ranging from headaches to intoxication, convulsions, narcosis, and death.

---

### Toxicity

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Endpoint</th>
<th>Test Duration (hr)</th>
<th>Species</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>methyl ethyl ketone</td>
<td>EC50</td>
<td>384</td>
<td>Crustacea</td>
<td>52.575mg/L</td>
<td>3</td>
</tr>
<tr>
<td>methyl ethyl ketone</td>
<td>LC50</td>
<td>96</td>
<td>Fish</td>
<td>228.130mg/L</td>
<td>3</td>
</tr>
<tr>
<td>methyl ethyl ketone</td>
<td>EC50</td>
<td>96</td>
<td>Algae or other aquatic plants</td>
<td>&gt;500mg/L</td>
<td>4</td>
</tr>
<tr>
<td>methyl ethyl ketone</td>
<td>EC50</td>
<td>48</td>
<td>Crustacea</td>
<td>300mg/L</td>
<td>2</td>
</tr>
<tr>
<td>methyl ethyl ketone</td>
<td>NOEC</td>
<td>48</td>
<td>Crustacea</td>
<td>68mg/L</td>
<td>2</td>
</tr>
<tr>
<td>toluene</td>
<td>BCF</td>
<td>24</td>
<td>Algae or other aquatic plants</td>
<td>10mg/L</td>
<td>4</td>
</tr>
<tr>
<td>toluene</td>
<td>EC50</td>
<td>3</td>
<td>Algae or other aquatic plants</td>
<td>0.1336030mg/L</td>
<td>4</td>
</tr>
<tr>
<td>toluene</td>
<td>EC50</td>
<td>48</td>
<td>Crustacea</td>
<td>0.01151750mg/L</td>
<td>4</td>
</tr>
<tr>
<td>toluene</td>
<td>EC50</td>
<td>72</td>
<td>Algae or other aquatic plants</td>
<td>12.5mg/L</td>
<td>4</td>
</tr>
<tr>
<td>toluene</td>
<td>LC50</td>
<td>96</td>
<td>Fish</td>
<td>0.0031704mg/L</td>
<td>4</td>
</tr>
<tr>
<td>toluene</td>
<td>NOEC</td>
<td>168</td>
<td>Crustacea</td>
<td>0.74mg/L</td>
<td>2</td>
</tr>
</tbody>
</table>

---

### Environmental fate:

**TERRESTRIAL FATE:** Measured Koc values of 29 and 34 were obtained for methyl ethyl ketone in silt loams.

**For toluene:**

- **log Kow : 0.26-0.69**
- **log Koc : 0.69**
- **Koc : 34**
- **Half-life (hr) air : 2.3**
- **Half-life (hr) H2O surface water : 72-288**
- **Henry's atm m3 /mol: 1.05E-05**
- **BOD 5 : 1.5-2.24, 46%**
- **COD : 2.2-2.31, 100%**
- **ThOD : 2.44**
- **BCF : 1**

**Harmful to aquatic organisms.**

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

For methyl ethyl ketone:

- **log Kow : 0.26-0.69**
- **log Koc : 0.69**
- **Koc : 34**
- **Half-life (hr) air : 2.3**
- **Half-life (hr) H2O surface water : 72-288**
- **Henry's atm m3 /mol: 1.05E-05**
- **BOD 5 : 1.5-2.24, 46%**
- **COD : 2.2-2.31, 100%**
- **ThOD : 2.44**
- **BCF : 1**

---

**Legend:**

- Data available but does not fill the criteria for classification
- Data required to make classification available
- Data Not Available to make classification

---

**SECTION 12 ECOLOGICAL INFORMATION**

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Continued...
Half-life (hr) soil: <48-240
Henry’s Pa m3/mol: 518-694
Henry’s atm m3/mol: 5.94E-03
BOD 5: 0.86-2.12, 5%
COD: 0.7-2.52,21-27%
ThO2: 3.13
BCF: 1.67-3.80
log BCF: 0.22-3.28

Environmental fate:
Transport: The majority of toluene evaporates to the atmosphere from the water and soil. It is moderately retarded by adsorption to soils rich in organic material (Koc = 259), therefore, transport to ground water is dependent on the soil composition.
DO NOT discharge into sewer or waterways.

### Persistence and degradability

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Persistence: Water/Soil</th>
<th>Persistence: Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>methyl ethyl ketone</td>
<td>LOW (Half-life = 14 days)</td>
<td>LOW (Half-life = 26.75 days)</td>
</tr>
<tr>
<td>toluene</td>
<td>LOW (Half-life = 28 days)</td>
<td>LOW (Half-life = 4.33 days)</td>
</tr>
</tbody>
</table>

### Bioaccumulative potential

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Bioaccumulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>methyl ethyl ketone</td>
<td>LOW (LogKOW = 0.29)</td>
</tr>
<tr>
<td>toluene</td>
<td>LOW (BCF = 90)</td>
</tr>
</tbody>
</table>

### Mobility in soil

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>methyl ethyl ketone</td>
<td>MEDIUM (KOC = 3.827)</td>
</tr>
<tr>
<td>toluene</td>
<td>LOW (KOC = 268)</td>
</tr>
</tbody>
</table>

### SECTION 13 DISPOSAL CONSIDERATIONS

#### Waste treatment methods

- Containers may still present a chemical hazard/danger when empty.
- Legislation addressing waste disposal requirements may differ by country, state and/or territory.
- DO NOT allow wash water from cleaning or process equipment to enter drains.
- Recycle wherever possible.

Ensure that the disposal of material is carried out in accordance with Hazardous Substances (Disposal) Regulations 2001.

### SECTION 14 TRANSPORT INFORMATION

#### Labels Required

- Marine Pollutant: NO
- HAZCHEM: YES

#### Land transport (UN)

- UN number: 1263
- Packing group: II
- UN proper shipping name: PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)
- Environmental hazard: Not Applicable
- Transport hazard class(es):
  - Class: 3
  - Subrisk: Not Applicable
- Special precautions for user:
  - Special provisions: 163; 367
  - Limited quantity: 5 L

#### Air transport (ICAO-IATA / DGR)

- UN number: 1263
- Packing group: II
### UN proper shipping name
Paint (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base); Paint related material (including paint thinning or reducing compounds)

### Environmental hazard
Not Applicable

### Transport hazard class(es)
- **ICAO/IATA Class**: 3
- **ICAO / IATA Subrisk**: Not Applicable
- **ERG Code**: 3L

### Special precautions for user
- **Special provisions**: A3 A72 A192
- **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 / GGSee)
- **UN number**: 1263
- **Packing group**: II
- **UN proper shipping name**: Paint (including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler and liquid lacquer base) or Paint related material (including paint thinning or reducing compound)
- **Environmental hazard**: Not Applicable
- **IMDG Class**: 3
- **IMDG Subrisk**: Not Applicable
- **EMS Number**: F-E, S-E
- **Special provisions**: 163 367
- **Limited Quantities**: 5 L

### Transport in bulk according to Annex II of MARPOL and the IBC code
Not Applicable

### SECTION 15 REGULATORY INFORMATION

#### Safety, health and environmental regulations / legislation specific for the substance or mixture
This substance is to be managed using the conditions specified in an applicable Group Standard

- **HSR Number**: HSR002650
- **Group Standard**: Solvents (Flammable) Group Standard 2006

**METHYL ETHYL KETONE (78-93-3)** is found on the following regulatory lists:

- New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
- New Zealand Inventory of Chemicals (NZIoC)
- New Zealand Workplace Exposure Standards (WES)

**TOLUENE (108-88-3)** is found on the following regulatory lists:

- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
- New Zealand Inventory of Chemicals (NZIoC)
- New Zealand Workplace Exposure Standards (WES)

### Location Test Certificate
Subject to Regulation 55 of the Hazardous Substances (Classes 1 to 5 Controls) Regulations, a location test certificate is required when quantity greater than or equal to those indicated below are present.

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Quantity beyond which controls apply for closed containers</th>
<th>Quantity beyond which controls apply when use occurring in open containers</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1B</td>
<td>100 L in containers greater than 5 L</td>
<td>50 L</td>
</tr>
<tr>
<td></td>
<td>250 L in containers up to and including 5 L</td>
<td>50 L</td>
</tr>
</tbody>
</table>

### Approved Handler
Subject to Regulation 56 of the Hazardous Substances (Classes 1 to 5 Controls) Regulations and Regulation 9 of the Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations, the substance must be under the personal control of an Approved Handler when present in a quantity greater than or equal to those indicated below.

<table>
<thead>
<tr>
<th>Class of substance</th>
<th>Quantities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.1B 250 L (when in containers greater than 5 L)
500 L (when in containers up to and including 5 L)

Refer Group Standards for further information

**Tracking Requirements**

Not Applicable

<table>
<thead>
<tr>
<th>National Inventory</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia - AICS</td>
<td>Y</td>
</tr>
<tr>
<td>Canada - DSL</td>
<td>Y</td>
</tr>
<tr>
<td>Canada - NDSL</td>
<td>N (toluene; methyl ethyl ketone)</td>
</tr>
<tr>
<td>China - IECSC</td>
<td>Y</td>
</tr>
<tr>
<td>Europe - EINEC / ELINCS / NLP</td>
<td>Y</td>
</tr>
<tr>
<td>Japan - ENCS</td>
<td>Y</td>
</tr>
<tr>
<td>Korea - KECI</td>
<td>Y</td>
</tr>
<tr>
<td>New Zealand - NZIoC</td>
<td>Y</td>
</tr>
<tr>
<td>Philippines - PICCS</td>
<td>Y</td>
</tr>
<tr>
<td>USA - TSCA</td>
<td>Y</td>
</tr>
</tbody>
</table>

**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)

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### SECTION 16 OTHER 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.

**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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