Spray on Sound Deadener- Black

HiChem Industries (HiChem Paint Technologies)

Chemwatch: 58-0108
Version No.: 2.1.1.1
Safety Data Sheet according to WHS and ADG requirements

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

Product Identifier

<table>
<thead>
<tr>
<th>Product name</th>
<th>Spray on Sound Deadener- Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>SO</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
An automotive coating applied by spray used as a sound deadener.

Details of the supplier of the safety data sheet

Registered company name
HiChem Industries (HiChem Paint Technologies)

Address
73 Hallam South Road Hallam 3803 VIC Australia

Telephone
+61 3 9796 3400

Fax
+61 3 9796 4500

Website
www.hichem.com.au

Email
info@hichem.com.au

Emergency telephone number

Association / Organisation
Not Available

Emergency telephone numbers
Not Available

Other emergency telephone numbers
Not Available

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

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

CHEMWATCH HAZARD RATINGS

<table>
<thead>
<tr>
<th></th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Toxicity</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Reactivity</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Chronic</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Poisons Schedule
55

GHS Classification
Flammable Liquid Category 2, Acute Toxicity (Oral) Category 4, Acute Toxicity (Dermal) Category 4, Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, Carcinogen Category 2B, Reproductive Toxicity Category 2, STOT - SE (Narcosis) Category 3, STOT - RE Category 2, Aspiration Hazard Category 1, Acute Aquatic Hazard Category 2, Chronic Aquatic Hazard Category 2

Legend:

Label elements

GHS label elements
Hazard statement(s)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H225</td>
<td>Highly flammable liquid and vapour</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>H312</td>
<td>Harmful in contact with skin</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation</td>
</tr>
<tr>
<td>H351</td>
<td>Suspected of causing cancer</td>
</tr>
<tr>
<td>H361</td>
<td>Suspected of damaging fertility or the unborn child</td>
</tr>
<tr>
<td>H366</td>
<td>May cause drowsiness or dizziness</td>
</tr>
<tr>
<td>H367</td>
<td>May cause damage to organs through prolonged or repeated exposure</td>
</tr>
<tr>
<td>H368</td>
<td>May be fatal if swallowed and enters airways</td>
</tr>
<tr>
<td>H401</td>
<td>Toxic to aquatic life</td>
</tr>
<tr>
<td>H411</td>
<td>Toxic to aquatic life with long lasting effects</td>
</tr>
<tr>
<td>AUH066</td>
<td>Repeated exposure may cause skin dryness and cracking</td>
</tr>
</tbody>
</table>

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.
- **P260** Do not breathe dust/fume/gas/mist/vapours/spray.
- **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.
- **P270** Do not eat, drink or smoke when using this product.
- **P273** Avoid release to the environment.
- **P280** Wear protective gloves/protective clothing/eye protection/face protection.

Response

- **P301+P310** IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.
- **P306+P313** IF exposed or concerned: Get medical advice/attention.
- **P331** Do NOT induce vomiting.
- **P362** Take off contaminated clothing.
- **P363** Wash contaminated clothing before reuse.
- **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.
- **P337+P313** If eye irritation persists: Get medical advice/attention.
- **P391** Collect spillage.
- **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 and soap.
- **P303+P361+P353** IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- **P304+P340** IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- **P332+P313** If skin irritation occurs: Get medical advice/attention.

Storage

- **P403+P235** Store in a well-ventilated place. Keep cool.
- **P405** Store locked up.
- **P403+P233** Store in a well-ventilated place. Keep container tightly closed.

Disposal

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

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances
The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4 FIRST AID MEASURES

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 resucitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.

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
For acute or short term repeated exposures to petroleum distillates or related hydrocarbons:
- Primary threat to life, from pure petroleum distillate ingestion and/or inhalation, is respiratory failure.
- Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO2 50 mm Hg) should be intubated.
- Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.
- A chest x-ray should be taken immediately after stabilisation of breathing and circulation to document aspiration and detect the presence of pneumothorax.
- Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitisation to catecholamines. Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.
- Lavage is indicated in patients who require decontamination; ensure use of cuffed endotracheal tube in adult patients. [Ellenhorn and Barceloux: Medical Toxicology]

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.

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media
- 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.

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: carbon dioxide (CO₂), other pyrolysis products typical of burning organic material.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

**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**

<table>
<thead>
<tr>
<th>SORBENT TYPE</th>
<th>RANK</th>
<th>APPLICATION</th>
<th>COLLECTION</th>
<th>LIMITATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feathers - pillow</td>
<td>1</td>
<td>throw</td>
<td>pitchfork</td>
<td>DGC, RT</td>
</tr>
<tr>
<td>cross-linked polymer - particulate</td>
<td>2</td>
<td>shovel</td>
<td>shovel</td>
<td>R, W, SS</td>
</tr>
<tr>
<td>cross-linked polymer - pillow</td>
<td>2</td>
<td>throw</td>
<td>pitchfork</td>
<td>R, DGC, RT</td>
</tr>
<tr>
<td>sorbent clay - particulate</td>
<td>3</td>
<td>shovel</td>
<td>shovel</td>
<td>R, I, P</td>
</tr>
<tr>
<td>treated clay / treated natural organic - particulate</td>
<td>3</td>
<td>shovel</td>
<td>shovel</td>
<td>R, I</td>
</tr>
<tr>
<td>wood fibre - pillow</td>
<td>3</td>
<td>throw</td>
<td>pitchfork</td>
<td>R, P, DGC, RT</td>
</tr>
</tbody>
</table>

**LAND SPILL - MEDIUM**

<table>
<thead>
<tr>
<th>SORBENT TYPE</th>
<th>RANK</th>
<th>APPLICATION</th>
<th>COLLECTION</th>
<th>LIMITATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>cross-linked polymer - particulate</td>
<td>1</td>
<td>blower</td>
<td>skiploader</td>
<td>R, W, SS</td>
</tr>
<tr>
<td>treated clay / treated natural organic - particulate</td>
<td>2</td>
<td>blower</td>
<td>skiploader</td>
<td>R, I</td>
</tr>
<tr>
<td>sorbent clay - particulate</td>
<td>3</td>
<td>blower</td>
<td>skiploader</td>
<td>R, I, P</td>
</tr>
<tr>
<td>polypropylene - particulate</td>
<td>3</td>
<td>blower</td>
<td>skiploader</td>
<td>W, SS, DGC</td>
</tr>
<tr>
<td>feathers - pillow</td>
<td>3</td>
<td>throw</td>
<td>skiploader</td>
<td>DGC, RT</td>
</tr>
<tr>
<td>expanded mineral - particulate</td>
<td>4</td>
<td>throw</td>
<td>pitchfork</td>
<td>R, I, W, P, DGC</td>
</tr>
</tbody>
</table>

**LAND SPILL - SMALL**

Chemical Class: aromatic hydrocarbons
For release onto land: recommended sorbents listed in order of priority.

Legend
- DGC: Not effective where ground cover is dense
- R: Not reusable
- I: Not incinerable
- P: Effectiveness reduced when rainy
- RT: Not effective where terrain is rugged
- SS: Not for use within environmentally sensitive sites
- W: Effectiveness reduced when windy

Reference: Sorbents for Liquid Hazardous Substance Cleanup and Control; R.W Melvold et al: Pollution Technology Review No. 150: Noyes Data Corporation 1988

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.

SECTION 7 HANDLING AND STORAGE

Continued...
Precautions for safe handling

The conductivity of this material may make it a static accumulator. A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semi-conductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid.

- 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.
- DO NOT allow clothing wet with material to stay in contact with skin.
- Electrostatic discharge may be generated during pumping - this may result in fire.
- Ensure electrical continuity by bonding and grounding (earthing) all equipment.
- Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (<=1 m/sec until pipe submerged to twice its diameter, then <= 7 m/sec).
- Avoid splash filling.
- DO NOT use compressed air for filling discharging or handling operations.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- Avoid smoking, naked lights, 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 MSDS.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

 Conditions for safe storage, including any incompatibilities

- 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.

Suitable container

- For alkyl aromatics:
  - The alkyl side chain of aromatic rings can undergo oxidation by several mechanisms. The most common and dominant one is the attack by oxidation at benzyl carbon as the intermediate formed is stabilised by resonance structure of the ring.
  - Following reaction with oxygen and under the influence of sunlight, a hydroperoxide at the alpha-position to the aromatic ring, is the primary oxidation product formed (provided a hydrogen atom is initially available at this position) - this product is often short-lived but may be stable dependent on the nature of the aromatic substitution; a secondary C-H bond is more easily attacked than a primary C-H bond whilst a tertiary C-H bond is even more susceptible to attack by oxygen.
  - Monoalkylbenzenes may subsequently form monocarboxylic acids; alkyl naphthalenes mainly produce the corresponding naphthalene carboxylic acids.
  - Oxidation in the presence of transition metal salts not only accelerates but also selectively decomposes the hydroperoxides.
  - Criegee rearrangement easily.
  - Aikol metals accelerate the oxidation while CO2 as co-oxidant enhances the selectivity.
  - Microwave conditions give improved yields of the oxidation products.
  - Photo-oxidation products may occur following reaction with hydroxyl radicals and NOx - these may be components of photochemical smogs.


Storage incompatibility

- Containers, even those that have been emptied, may contain explosive vapours.
- DO NOT store in pits, depressions, basements or areas where vapours may be trapped.
- Use plastic buckets.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

**OCCUPATIONAL EXPOSURE LIMITS (OEL)**

<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>Australia Exposure Standards</td>
<td>Toluene</td>
<td>Toluene</td>
<td>191 mg/m³ / 50 ppm</td>
<td>574 mg/m³ / 150 ppm</td>
<td>Not Available</td>
<td>Sk</td>
</tr>
</tbody>
</table>

**EMERGENCY LIMITS**
### Exposure 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.
- 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.

### Appropriate engineering controls

<table>
<thead>
<tr>
<th>Type of Contaminant:</th>
<th>Air Speed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>solvent, vapours, degreasing etc., evaporating from tank (in still air).</td>
<td>0.25-0.5 m/s (50-100 f/min.)</td>
</tr>
<tr>
<td>aerosols, fumes from pouring operations, intermittent container filling, low speed conveyor transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)</td>
<td>0.5-1 m/s (100-200 f/min.)</td>
</tr>
<tr>
<td>direct spray, spray painting in shallow booths, drum filling, conveyor loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td>
<td>1-2.5 m/s (200-500 f/min.)</td>
</tr>
</tbody>
</table>

Within each range the appropriate value depends on:

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

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

- 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 adhesion 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

- 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.

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.

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.

**Hands/feet protection**

Hands/feet protection

See Other protection below

- Thermal hazards

**Body protection**

See Other protection below

- 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).

- 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.

**Other protection**

- Respiratory protection

Type A 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.

<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-US / Class 1</td>
<td>-</td>
<td>A-PAPR-AUS / Class 1</td>
</tr>
<tr>
<td>up to 50 x ES</td>
<td>Air-line*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>up to 100 x ES</td>
<td>-</td>
<td>A-3</td>
<td>-</td>
</tr>
<tr>
<td>100+ x ES</td>
<td>-</td>
<td>Air-line**</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(2CN), B3 = Acid gas or hydrogen cyanide(2CN), 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

<table>
<thead>
<tr>
<th>Material</th>
<th>CPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUTYL</td>
<td>C</td>
</tr>
<tr>
<td>CPE</td>
<td>C</td>
</tr>
<tr>
<td>NEOPRENE</td>
<td>C</td>
</tr>
<tr>
<td>NEOPRENE/NATURAL</td>
<td>C</td>
</tr>
<tr>
<td>NITRILE</td>
<td>C</td>
</tr>
<tr>
<td>NITRILE+PVC</td>
<td>C</td>
</tr>
<tr>
<td>PE/EVALPE</td>
<td>C</td>
</tr>
<tr>
<td>PVA</td>
<td>C</td>
</tr>
<tr>
<td>PVC</td>
<td>C</td>
</tr>
<tr>
<td>SARANEX-23</td>
<td>C</td>
</tr>
<tr>
<td>SARANEX-23 2-PLY</td>
<td>C</td>
</tr>
<tr>
<td>TEFлон</td>
<td>C</td>
</tr>
<tr>
<td>VITON</td>
<td>C</td>
</tr>
<tr>
<td>VITON/CHLOROBUTYL</td>
<td>C</td>
</tr>
<tr>
<td>VITON/NEOPRENE</td>
<td>C</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. -

* 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.
A black coloured highly flammable liquid with mild odour; not miscible with water.

**SECTION 10 STABILITY AND REACTIVITY**

| Reactivity | See section 7 |
| Chemical stability | | |
| 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

<table>
<thead>
<tr>
<th>Exposition</th>
<th>Inhalation</th>
<th>Ingestion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inhalation</strong></td>
<td>Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo. 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. Limited evidence or practical experience suggests that the material may produce irritation of the respiratory system, in a significant number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system. High inhaled concentrations of mixed hydrocarbons may produce narcosis characterised by nausea, vomiting and lightheadedness. Inhalation of aerosols may produce severe pulmonary oedema, pneumonitis and pulmonary haemorrhage. Inhalation of petroleum hydrocarbons consisting substantially of low molecular weight species may produce irritation of mucous membranes, incoordination, giddiness, nausea, vertigo, confusion, headache, appetite loss, drowsiness, tremors and anaesthetic stupor. Massive exposures may produce central nervous system depression with sudden collapse and deep coma; fatalities have been recorded. Ilation of the brain and/or apnoeic anoxia may produce convulsions. Although recovery following overexposure is generally complete, cerebral micro-haemorrhage of focal post-inflammationar scarring may produce epileptiform seizures some months after the exposure. Pulmonary episodes may include chemical pneumonitis with oedema and haemorrhage. The lighter hydrocarbons may produce kidney and neurotoxic effects. Pulmonary irritancy increases with carbon chain length for paraffins and olefins. Alkenes produce pulmonary oedema at high concentrations. Liquid paraffins may produce anaesthesia and depressant actions leading to weakness, dizziness, slow and shallow respiration, unconsciousness, convulsions and death. C5-7 paraffins may also produce polyneuropathy. Aromatic hydrocarbons accumulate in lipid rich tissues (typically the brain, spinal cord and peripheral nerves) and may produce functional impairment manifested by nonspecific symptoms such as nausea, weakness, fatigue and vertigo; severe exposures may produce inebriation or unconsciousness. Many of the petroleum hydrocarbons are cardiac sensitisers and may cause ventricular fibrillations. Central nervous system (CNS) depression may include nonspecific discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal. Acute effects from inhalation of high concentrations of vapour are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterised by headache and dizziness, increased reaction time, fatigue and loss of co-ordination.</td>
<td></td>
</tr>
<tr>
<td><strong>Ingestion</strong></td>
<td>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. Signs and symptoms of chemical aspiration pneumonitis may include coughing, gasping, choking, burning of the mouth, difficult breathing, and bluish coloured skin (cyanosis). Ingestion of petroleum hydrocarbons may produce irritation of the pharynx, oesophagus, stomach and small intestine with oedema and mucosal ulceration resulting; symptoms include a burning sensation in the mouth and throat. Large amounts may produce narcosis with nausea and vomiting, weakness or dizziness, slow and shallow respiration, swelling of the abdomen, unconsciousness and convulsions. Myocardial injury may produce arrhythmias, ventricular fibrillation and electrocardiographic changes. Central nervous system depression may also occur. Light aromatic hydrocarbons produce a warm, sharp,</td>
<td></td>
</tr>
</tbody>
</table>
Spray on Sound Deadener- Black

<table>
<thead>
<tr>
<th>Skin Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IRRITATION</strong></td>
</tr>
<tr>
<td><strong>Eye (rabbit):</strong> 100 mg/30sec - mild</td>
</tr>
<tr>
<td><strong>Not Available</strong></td>
</tr>
<tr>
<td><strong>Direct contact with liquid 1,2,4-trimethylbenzene is irritating to the skin and breathing the vapor is irritating to the respiratory tract causing</strong></td>
</tr>
<tr>
<td><strong>Eye (rabbit): 2mg/24h - SEVERE</strong></td>
</tr>
<tr>
<td><strong>Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant</strong></td>
</tr>
<tr>
<td><strong>Skin prior to the use of the material and ensure that any external damage is suitably protected.</strong></td>
</tr>
<tr>
<td><strong>On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.</strong></td>
</tr>
<tr>
<td><strong>Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.</strong></td>
</tr>
<tr>
<td><strong>Petroleum hydrocarbons may produce pain after direct contact with the eyes. Slight, but transient disturbances of the corneal epithelium may also result. The aromatic fraction may produce irritation and lacrimation.</strong></td>
</tr>
</tbody>
</table>

**Continued...**

**Spray on Sound Deadener- Black**

<table>
<thead>
<tr>
<th><strong>TOXICITY</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skin</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Not Available</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Eye</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Not Available</strong></td>
<td></td>
</tr>
</tbody>
</table>

**naphtha petroleum, light aromatic solvent**

<table>
<thead>
<tr>
<th><strong>TOXICITY</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dermal (rabbit) LD50:</strong> &gt;1900 mg/kg[1]</td>
<td></td>
</tr>
<tr>
<td><strong>Inhalation (rat) LC50:</strong> &gt;3670 ppm/8 h[2]</td>
<td></td>
</tr>
<tr>
<td><strong>Oral (rat) LD50:</strong> &gt;4500 mg/kg[1]</td>
<td></td>
</tr>
</tbody>
</table>

**toluene**

<table>
<thead>
<tr>
<th><strong>TOXICITY</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dermal (rabbit) LD50:</strong> 12124 mg/kg[2]</td>
<td></td>
</tr>
<tr>
<td><strong>Inhalation (rat) LC50:</strong> &gt;26700 ppm/1h[2]</td>
<td></td>
</tr>
<tr>
<td><strong>Inhalation (rat) LC50:</strong> 49 mg/L[4][2]</td>
<td></td>
</tr>
<tr>
<td><strong>Oral (rat) LD50:</strong> 630 mg/kg[2]</td>
<td></td>
</tr>
<tr>
<td><strong>Eye (rabbit):</strong> 2mg/24h - SEVERE</td>
<td></td>
</tr>
<tr>
<td><strong>Eye (rabbit):</strong> 0.87 mg - mild</td>
<td></td>
</tr>
<tr>
<td><strong>Eye (rabbit):</strong> 100 mg/30sec - mild</td>
<td></td>
</tr>
<tr>
<td><strong>Skin (rabbit):</strong> 20 mg/24h-moderate</td>
<td></td>
</tr>
<tr>
<td><strong>Skin (rabbit):</strong> 500 mg - moderate</td>
<td></td>
</tr>
</tbody>
</table>

**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

**NAPHTHA PETROLEUM, LIGHT AROMATIC SOLVENT**

For trimethylbenzenes: Absorption of 1,2,4-trimethylbenzene occurs after oral, inhalation, or dermal exposure. Occupationally, inhalation and dermal exposures are the most important routes of absorption although systemic intoxication from dermal absorption is not likely to occur due to the dermal irritation caused by the chemical prompting quick removal. Following oral administration of the chemical to rats, 62.6% of the dose was recovered as urinary metabolites indicating substantial absorption. 1,2,4-Trimethylbenzene is lipophilic and may accumulate in fat and fatty tissues. In the blood stream, approximately 80% of the chemical is bound to red blood cells. Metabolism occurs by side-chain oxidation to form alcohols and carboxylic acids which are then conjugated with glucuronic acid, glycine, or sulfates for urinary excretion. After a single oral dose to rats of 1200 mg/kg, urinary metabolites consisted of approximately 43.2% glycine, 6.6% glucuronic, and 12.9% sulfuric acid conjugates. The two principle metabolites excreted by rabbits after oral administration of 438 mg/kg/day for 5 days were 2,4-dimethylbenzoic acid and 3,4-dimethylhippuric acid. The major routes of excretion of 1,2,4-trimethylbenzene are exhalation of parent compound and elimination of urinary metabolites. Half-times for urinary metabolites were reported as 9.5 hours for glycine, 22.9 hours for glucuronide, and 37.6 hours for sulfuric acid conjugates.

**Acute Toxicity** Direct contact with liquid 1,2,4-trimethylbenzene is irritating to the skin and breathing the vapor is irritating to the respiratory tract causing pneumonitis. Breathing high concentrations of the chemical vapor causes headache, fatigue, and drowsiness. In humans liquid 1,2,4-trimethylbenzene is...
irritating to the skin and inhalation of vapor causes chemical pneumonitis. High concentrations of vapor (5000-9000 ppm) cause headache, fatigue, and drowsiness. The concentration of 50 ppm is roughly equivalent to a total of 221 mg/kg assuming a 30 minute exposure period (see end note 1). Animals - Mice exposed to 8130-9140 ppm 1,2,4-trimethylbenzene (no duration given) had loss of righting response and loss of reflexes. Direct dermal contact with the chemical (no species given) causes vasodilation, erythema, and irritation (U.S. EPA). Seven of 10 rats died after an oral dose of 2.5 mL of a mixture of trimethylbenzenes in olive oil (average dose approximately 4.4 g/kg). Rats are known to show irritation containing about 70% 1,3,5- and 1,2,4-trimethylbenzene; no pathological changes were noted in either species after exposure to 1800-2000 ppm for up to 48 continuous hours, or in rats after 14 exposures of 8 hours each at the same exposure levels. No effects were reported for rats exposed to a mixture of trimethylbenzenes at 1700 ppm for 10 to 21 days.

Neurotoxicity - 1,2,4-Trimethylbenzene depresses the central nervous system. Exposure to solvent mixtures containing the chemical causes headache, fatigue, and drowsiness. Occupationally, workers exposed to a solvent containing 50% 1,2,4-trimethylbenzene had headaches, headaches, drowsiness, and vertigo (U.S. EPA). Headache, fatigue, and drowsiness were reported for workers exposed (no dose given) to paint thinner containing 80%, 1,2,4- and 1,3,5-trimethylbenzenes.

Results of the developmental toxicity study indicate that the C9 fraction caused adverse neurotoxicological effects at the highest dose (1500 ppm) tested. Subchronic/Chronic Toxicity - Long-term exposure to solvents containing 1,2,4-trimethylbenzene may cause numbness, tension, and bronchitis. Painters that worked for several years with a solvent containing 50% 1,2- and 30% 1,3,5-trimethylbenzene showed nervousness, tension and anxiety, asthmatic bronchitis, anemia, mental effects, and alterations in blood clotting; haematological and neurological effects were noted.

Rats given 1,2,4-trimethylbenzene orally at doses of 0.5 or 2.0 g/kg/day, 5/week for 4 weeks. All rats exposed to the high dose died and 1 rat in the low dose died (no times given); no other effects were reported. Rats exposed by inhalation to 1700 ppm of a trimethylbenzene isomeric mixture for 4 months had decreased weight gain, lymphopenia and neutrophilia. Genotoxicity - Results of mutagenicity testing, indicate that the C9 fraction does not induce gene mutations in prokaroytes (Salmonella typhimurium/mammalian microsome assay); or in mammalian cells in culture (in Chinese hamster ovary cells with and without activation). The C9 fraction does not does not induce chromosome mutations in Chinese hamster ovary cells with and without activation; does not induce chromosome alterations in the bone marrow of Sprague-Dawley rats exposed by inhalation (6 hours/day, 5 days/week); and does not induce sister chromatid exchange in Chinese hamster ovary cells with and without activation.

Developmental/Reproductive Toxicity - A three generation reproductive study on the C9 fraction was conducted CD rats (30/sex/group) were exposed to inhalation of C9 fraction at concentrations of 0, 100, 500, or 1000 ppm (0, 100, 500, or 1000 mg/kg/day) for 6/holding, 5/week. There was evidence of parental and reproductive toxicity at all dose levels. Indicators of parental toxicity included reduced body weights, increased salivation, lunched posture, aggressive behavior, and death. Indicators of adverse reproductive effects included reduced litter size and reduced pup body weight. The LOEL was 100 ppm; a no-observed-effect level was not established. Developmental toxicity, including possible develop- mental neurotoxicity, was evident in rats in a 3-generation reproductive study. No effects on fecundity or fertility occurred in rats treated dermally with up to 0.3 mL/rat/day of a mixture of trimethylbenzenes, 4-6 hours/day, 5 days/week over one generation.

For C9 aromatics (typically trimethylbenzenes - TMBs) Acute Toxicity - Acute toxicity studies (oral, dermal and inhalation routes of exposure) have been conducted in rats using various solvent products containing predominantly mixed C9 aromatic hydrocarbons (CAS RN 64742-95-6). Inhalation LC50's range from 6.000 to 10.000 mg/m3 for C9 aromatic naphtha and 18,000 to 24,000 mg/m3 for 1,2.4 and 1,3,5-TMB, respectively. A rat oral LD50 reported for 1,2-TMB is 5 g/kg bw and a rat dermal LD50 for the C9 aromatic naphtha is >4 ml/kg bw. These data indicate that C9 aromatic solvents show that LD50/LC50 values are greater than limit doses for acute toxicity studies established under OECD test guidelines. Irritation and Sensitization - Several irritation studies, including skin, eye, and lung/respiratory system, have been conducted on members of the category. The results indicate that C9 aromatic hydrocarbon solvents are mildly to moderately irritating to the skin, minimally irritating to the eye, and have the potential to irritate the respiratory tract and cause depression of respiratory rates in mice. Respiratory irritation is a key endpoint in the current occupational exposure limits established for C9 aromatic hydrocarbon solvents and trimethylbenzenes. No evidence of skin sensitization was identified.

Repeated Dose Toxicity - Inhalation: The results of a subchronic (3 month) neurotoxicity study and a one-year chronic study (6 h/day, 5 days/week) indicate that effects from inhalation exposure to C9 Aromatic Hydrocarbon Solvents on systemic toxicity are slight. A battery of neurotoxicity and neurobehavioral endpoints were evaluated in the 3-month inhalation study on C9 aromatic naphtha tested at concentrations of 0, 100, 452, or 1230 ppm (0, 500, 2,200, or 6,500 mg/m3). In this study, other than a transient weight reduction in the high exposure group (not statistically significant at termination of exposures), no effects were reported on neurophysiology or neurobehavioral parameters. The NOAEL for systemic and/or neurotoxicity was 6,500 mg/m3, the highest concentration tested. In an inhalation study on a commercial blend, rats were exposed to C9 aromatic naphtha for 180 days; no effects were noted. The NOAEL was 138 mg/m3 (0.068 ppm). The NOAEL was 138 mg/m3 (0.068 ppm). The NOAEL was considered to be the high exposure level of 373 ppm, or 1830 mg/m3. In two subchronic rat inhalation studies, both of three months duration, rats were exposed to the individual TMB isomers (1,2-4 and 1,3,5) to nominal concentrations of 0, 25, 100, or 250 ppm (0, 750, 1750, 4375 ppm) for 6 hours/day, 5 days/week for 14 generations. No effects were observed in these studies included increased liver and kidney weights, changes in blood chemistry, increased salivation, and decreased weight gain at higher doses. Organ weight changes appeared to be adaptive as they were not accompanied by histopathological changes. Blood changes appeared sporadic and without pattern. One study reported hyaline droplet nephropathy in male rats at the highest dose (1000 mg/kg bw/day), an effect that is often associated with alpha-2mu-globulin-induced nephropathy and not considered relevant to humans. The doses at which effects were detected were 100 mg/kg bw/day or above (an exception was the pilot 14 day oral study - LOAEL 150 mg/kg bw-day - but the follow up three month study had a LOAEL of 600 mg/kg bw/day with a NOAEL of 200 mg/kg bw/day). Since effects generally were not severe and could be considered adaptive or spurious, oral exposure does not appear to pose a high toxicity hazard for pure trimethylbenzene isomers. Mutagenicity - In vitro genotoxicity testing of a variety of C9 aromatics has been conducted in both bacterial and mammalian cells. In vitro point mutation tests were conducted with Salmonella typhimurium and Escherichia coli bacterial strains, as well as with cultured mammalian cells such as the Chinese hamster cell ovary cells (HGPRT assay) with and without metabolic activation. In addition, several types of in vitro chromosomal aberration tests have been performed (chromosome aberration frequency in Chinese hamster ovary and lung cells, sister chromatid exchange in CHO cells). Results were negative both with and without metabolic activation for all category members. For the supporting chemical 1,2,3-TMB, a single in vitro chromosomal aberration test was weak positive. In in vivo bone marrow cytogenetics test, rats were exposed to C9 aromatic naphtha at concentrations of 0, 153, 471, or 1540 ppm (0, 750, 2170, 7180 mg/m3) for 6 hours/day, 5 days/week for 14 generations. No effects were noted for the low and intermediate dose groups. A rat oral LD50 reported for 1,2-TMB is 5 g/kg bw and a rat dermal LD50 for the C9 aromatic naphtha is >4 ml/kg bw. These data indicate that C9 aromatic solvents show that LD50/LC50 values are greater than limit doses for acute toxicity studies established under OECD test guidelines. Several irritation studies, including skin, eye, and lung/respiratory system, have been conducted on members of the category. The results indicate that C9 aromatic hydrocarbon solvents are mildly to moderately irritating to the skin, minimally irritating to the eye, and have the potential to irritate the respiratory tract and cause depression of respiratory rates in mice. Respiratory irritation is a key endpoint in the current occupational exposure limits established for C9 aromatic hydrocarbon solvents and trimethylbenzenes. No evidence of skin sensitization was identified.

Repeate...
The material may cause skin irritation upon prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling the epidemis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

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. Similar effects are observed in short-term animal studies.

**Humans** - Toluene ingestion or inhalation can result in severe central nervous system depression, and in large doses, can act as a narcotic. The ingestion of about 60 mL resulted in fatal nervous system depression within 30 minutes in one reported case. Convulsions and necrosis of myocardial fibers, markedly swollen liver, congestion and haemorrhage of the lungs and acute tubular necrosis were found on autopsy.

Central nervous system effects (headaches, dizziness, intoxication) and eye irritation followed inhalation exposure to 100 ppm toluene 6 hours/day for 4 days. Exposure to 600 ppm for 8 hours resulted in the same and more serious symptoms including euphoria, dilated pupils, convulsions, and nausea. Exposure to 10,000-30,000 ppm has been reported to cause narcosis and death.

Toluene can also strip the skin of lipids causing dermatitis.

**Animals** - The initial effects are instability and incoordination, lacrimation and sniffles (respiratory exposure), followed by narcosis. Animals die from respiratory failure from severe nervous system depression. Cloudy swelling of the kidneys was reported in rats following inhalation exposure to 1600 ppm, 18-20 hours/day for 3 days.

**Subchronic/Chronic Effects:**

Repeat doses of toluene cause adverse central nervous system effects and can damage the upper respiratory system, the liver, and the kidney. Adverse effects occur as a result of both oral and the inhalation exposures. A reported lowest-observed-effect level in humans for adverse neurobehavioral effects is 86 ppm.

**Humans** - Chronic occupational exposure and incidences of toluene abuse have resulted in hepatomegaly and liver function changes. It has also resulted in nephrotoxicity and, in one case, was a cardiac sensitizer and fatal cardiotoxicity.

Toluene is 88 ppm.

**Developmental/Reproductive Toxicity**

Exposures to high levels of toluene can result in adverse effects in the developing human fetus. Several studies have indicated that high levels of toluene can also adversely affect the developing offspring in laboratory animals.

**Humans** - Variable growth, microcephaly, CNS dysfunction, attentional deficits, minor craniofacial and limb abnormalities, and developmental delay were seen in three children exposed to toluene in utero as a result of maternal solvent abuse before and during pregnancy.

**Animals** - Steeratal alterations, extra ribs, and missing tails were reported following treatment of rats with 1500 mg/m3 toluene 24-hours/day during days 9-14 of gestation. Two of the dams died during the exposure. Another group of rats received 1000 mg/m3 6 hours/day during days 1-21 of gestation. No maternal deaths or toxicity occurred, however, minor skeletal retardation was present in the exposed fetuses. CFLP Mice were exposed to 500 or 1500 mg/m3 toluene continuously during days 6-13 of pregnancy. All dams died during the exposure, however none died at 500 mg/m3. Decreased fetal weight was reported, but there were no differences in the incidences of skeletal malformations or anomalies between the treated and control offspring.

**Absorption** - Studies in humans and animals have demonstrated that toluene is readily absorbed via the lungs and the gastrointestinal tract. Absorption through the skin is estimated at about 1% of that absorbed by the lungs when exposed to toluene.

**Dermal absorption** is expected to be higher upon exposure to the liquid; however, exposure is limited by the rapid evaporation of toluene.

**Distribution** - In studies with mice exposed to radiolabeled toluene by inhalation, high levels of radioactivity were present in body fat, bone marrow, spinal nerves, spinal cord, and brain white matter. Lower levels of radioactivity were present in blood, kidney, and liver. Accumulation of toluene has generally been found in adipose tissue, other tissues with high fat content, and in highly vascillated tissues.

**Metabolism** - The metabolites of inhaled or ingested toluene include benzyl alcohol resulting from the hydroxylation of the methyl group. Further oxidation results in the formation of benzylaldehyde and benzoic acid. The latter is conjugated with glycine to yield hippuric acid or reacted with glucuronic acid to form benzyl glucuronide. α-cresol and p-cresol formed by ring hydroxylation are considered minor metabolites.

**Excretion** - Toluene is primarily (60-70%) excreted through the urine as hippuric acid. The excretion of benzoyl glucuronide accounts for 10-20%, and the highest concentration was not possible. A potential developmental effect (reduction in mean pup weight and weight gain) was observed at a concentration that was also associated with maternal toxicity.

Inhalation (rat) TLC: 1320 ppm/6h/90D-I ° [Devoe]
**SECTION 12 ECOLOGICAL INFORMATION**

**Toxicity**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Endpoint</th>
<th>Test Duration</th>
<th>Effect</th>
<th>Value</th>
<th>Species</th>
<th>BCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synthetic Resins (non-hazardous)</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Naphtha Petroleum, light aromatic solvent</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Toluene</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Extenders (non-hazardous)</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Additives (non-hazardous)</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

Toxic 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.

**Persistence and degradability**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Persistence: Water/Soil</th>
<th>Persistence: Air</th>
</tr>
</thead>
<tbody>
<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>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>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.
- 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 MSDS and observe all notices pertaining to the product, legislation addressing waste disposal requirements may differ by country, state and territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A Hierarchy of Controls seems to be common - the user should investigate:
    - Reduction
    - Reuse
    - Recycling
    - Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- 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 landfill specifically licenced to accept chemical and/or pharmaceutical wastes or incineration in a licenced apparatus (after admixture with suitable combustible material).
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

**SECTION 14 TRANSPORT INFORMATION**
### Labels Required

<table>
<thead>
<tr>
<th>Marine Pollutant</th>
<th>HAZCHEM</th>
</tr>
</thead>
</table>

#### Land transport (ADG)

- **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**: No relevant data
- **Transport hazard class(es)**:
  - Class: 3
  - Subrisk: Not Applicable
- **Special precautions for user**:
  - Special provisions: 163 *
  - 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**: No relevant data
- **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 / GGVSee)

- **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)**:
  - IMDG Class: 3
  - IMDG Subrisk: Not Applicable
- **Special precautions for user**:
  - EMS Number: F-E, S-E
  - Special provisions: 163
  - Limited Quantities: 5 L

#### Transport in bulk according to Annex II of MARPOL 73 / 78 and the IBC code

<table>
<thead>
<tr>
<th>Source</th>
<th>Ingredient</th>
<th>Pollution Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk</td>
<td>naphtha petroleum, light aromatic solvent</td>
<td>Y</td>
</tr>
</tbody>
</table>
SECTION 15 REGULATORY INFORMATION

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

<table>
<thead>
<tr>
<th>NAPHTHA PETROLEUM, LIGHT AROMATIC SOLVENT (64742-95-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia Hazardous Substances Information System - Consolidated Lists</td>
</tr>
<tr>
<td>Australia Inventory of Chemical Substances (AICS)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOLUENE (108-88-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia Exposure Standards</td>
</tr>
<tr>
<td>Australia Hazardous Substances Information System - Consolidated Lists</td>
</tr>
<tr>
<td>International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs</td>
</tr>
</tbody>
</table>

<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; naphtha petroleum, light aromatic solvent)</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 - KECl</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)

SECTION 16 OTHER INFORMATION

Other information

Ingredients with multiple cas numbers

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS No</th>
</tr>
</thead>
<tbody>
<tr>
<td>naphtha petroleum, light aromatic solvent</td>
<td>25550-14-5, 64742-95-6</td>
</tr>
</tbody>
</table>

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. A list of reference resources used to assist the committee may be found at: www.chemwatch.net

The (M)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.

This document is copyright. Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any process without written permission from CHEMWATCH. TEL (+61 3) 9572 4700.