

Altex Thinning Solvent #53

ALTEX COATINGS LTD

Chemwatch Hazard Alert Code: 3

Version No: 3.6
Safety Data Sheet according to HSNO Regulations

Issue Date: 07/12/2017
Print Date: 07/12/2017
S.GHS.NZL.EN

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

Product Identifier

| | |
|-------------------------------|--|
| Product name | Altex Thinning Solvent #53 |
| Synonyms | Not Available |
| 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) |
| Other means of identification | Not Available |

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

| | |
|--------------------------|--|
| Relevant identified uses | The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation. |
|--------------------------|--|

Details of the supplier of the safety data sheet

| | |
|-------------------------|---|
| Registered company name | ALTEX COATINGS LTD |
| Address | 91-111 Oropi Road Tauranga Bay of Plenty 3112 New Zealand |
| Telephone | +64 7 5411221 |
| Fax | +64 7 5411310 |
| Website | www.altexcoatings.com |
| Email | neil.debenham@carboline.co.nz |

Emergency telephone number

| | |
|-----------------------------------|--------------------------|
| Association / Organisation | NZ POISONS (24hr 7 days) |
| Emergency telephone numbers | 0800 764766 |
| Other emergency telephone numbers | Not Available |

CHEMWATCH EMERGENCY RESPONSE

| Primary Number | Alternative Number 1 | Alternative Number 2 |
|----------------|----------------------|----------------------|
| +800 2436 2255 | +800 2436 2255 | +612 9186 1132 |

Once connected and if the message is not in your preferred language then please dial 01

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

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

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|---|--|
| Classification ^[1] | Skin Corrosion/Irritation Category 2, Acute Toxicity (Oral) Category 4, Aspiration Hazard Category 1, Carcinogenicity Category 2, Reproductive Toxicity Category 2, Specific target organ toxicity - repeated exposure Category 1, Acute Aquatic Hazard Category 3, Acute Vertebrate Hazard Category 3, Flammable Liquid Category 2, Eye Irritation Category 2B, Chronic Aquatic Hazard Category 2 |
| Legend: | 1. Classified by Chemwatch; 2. Classification drawn from CCID EPA NZ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI |
| Determined by Chemwatch using GHS/HSNO criteria | 3.1B, 9.1B, 6.1E (aspiration), 6.7B, 6.1D (oral), 6.9A, 6.4A (mild), 6.3A, 9.1D, 9.3C, 6.8B |

Label elements

| | |
|---------------------|---|
| Hazard pictogram(s) |  |
| SIGNAL WORD | DANGER |

Hazard statement(s)

Continued...

Altex Thinning Solvent #53

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|------|---|
| H315 | Causes skin irritation. |
| H302 | Harmful if swallowed. |
| H304 | May be fatal if swallowed and enters airways. |
| H351 | Suspected of causing cancer. |
| H361 | Suspected of damaging fertility or the unborn child. |
| H372 | Causes damage to organs through prolonged or repeated exposure. |
| H402 | Harmful to aquatic life. |
| H433 | Harmful to terrestrial vertebrates |
| H225 | Highly flammable liquid and vapour. |
| H320 | Causes eye irritation. |
| H411 | Toxic to aquatic life with long lasting effects. |

Precautionary statement(s) Prevention

| | |
|------|---|
| P201 | Obtain special instructions before use. |
| P210 | Keep away from heat/sparks/open flames/hot surfaces. - No smoking. |
| P233 | Keep container tightly closed. |
| P260 | Do not breathe dust/fume/gas/mist/vapours/spray. |
| 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. |

Precautionary statement(s) Response

| | |
|----------------|--|
| P301+P310 | IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. |
| P308+P313 | IF exposed or concerned: Get medical advice/attention. |
| P331 | Do NOT induce vomiting. |
| P362 | Take off contaminated clothing and wash 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. |
| P314 | Get medical advice/attention if you feel unwell. |
| P337+P313 | If eye irritation persists: Get medical advice/attention. |
| P391 | Collect spillage. |
| P301+P312 | IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. |
| P302+P352 | IF ON SKIN: Wash with plenty of soap and water. |
| P303+P361+P353 | IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. |
| P330 | Rinse mouth. |
| P332+P313 | If skin irritation occurs: Get medical advice/attention. |

Precautionary statement(s) Storage

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

Precautionary statement(s) Disposal

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

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

| CAS No | %[weight] | Name |
|-------------|-----------|---|
| 108-88-3 | 40-50 | <u>toluene</u> |
| 64742-89-8. | 30-40 | <u>solvent naphtha petroleum, light aliphatic</u> |
| 110-54-3 | 10-20 | <u>n-hexane</u> |

SECTION 4 FIRST AID MEASURES

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

Description of first aid measures

| | |
|---------------------|--|
| Eye Contact | <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ 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 | <p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ 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 | <ul style="list-style-type: none"> ▶ 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. |
| Ingestion | <ul style="list-style-type: none"> ▶ 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 casualty 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.

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-oxygenation, 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 (pO₂ <50 mm Hg or pCO₂ > 50 mm Hg) should be intubated.
- ▶ Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial 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.
- ▶ 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):

| Determinant | Index | Sampling Time | Comments |
|------------------------|--------------------|---------------------------------|----------|
| o-Cresol in urine | 0.5 mg/L | End of shift | B |
| Hippuric acid in urine | 1.6 g/g creatinine | End of shift | B, NS |
| Toluene in blood | 0.05 mg/L | Prior to last shift of workweek | |

NS: Non-specific determinant; also observed after exposure to other material

B: Background levels occur in specimens collected from subjects NOT exposed

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 | <ul style="list-style-type: none"> ▶ 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. |
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| | |
|------------------------------|---|
| | <ul style="list-style-type: none"> ▶ Prevent, by any means available, spillage from entering drains or water course. ▶ Consider evacuation (or protect in place). ▶ Fight fire from a safe distance, with adequate cover. ▶ If safe, switch off electrical equipment until vapour fire hazard removed. ▶ Use water delivered as a fine spray to control the fire and cool adjacent area. ▶ Avoid spraying water onto liquid pools. ▶ Do not approach containers suspected to be hot. ▶ Cool fire exposed containers with water spray from a protected location. ▶ If safe to do so, remove containers from path of fire. |
| Fire/Explosion Hazard | <ul style="list-style-type: none"> ▶ 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). <p>Combustion products include: carbon dioxide (CO₂) other pyrolysis products typical of burning organic material.</p> <p>Contains low boiling substance: Closed containers may rupture due to pressure buildup under fire conditions. May emit clouds of acrid smoke</p> |

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

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|---------------------|--|
| Minor Spills | <ul style="list-style-type: none"> ▶ 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 | <ul style="list-style-type: none"> ▶ 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

Precautions for safe handling

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| Safe handling | <p>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.</p> <ul style="list-style-type: none"> ▶ 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. <p>Contains low boiling substance:</p> <p>Storage in sealed containers may result in pressure buildup causing violent rupture of containers not rated appropriately.</p> <ul style="list-style-type: none"> ▶ Check for bulging containers. ▶ Vent periodically ▶ Always release caps or seals slowly to ensure slow dissipation of vapours ▶ 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 fill 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. |
|----------------------|--|

| | |
|-------------------|---|
| | <ul style="list-style-type: none"> ▶ When handling, DO NOT eat, drink or smoke. ▶ Vapour may ignite on pumping or pouring due to static electricity. ▶ DO NOT use plastic buckets. ▶ Earth and secure metal containers when dispensing or pouring product. ▶ Use spark-free tools when handling. ▶ Avoid contact with incompatible materials. ▶ Keep containers securely sealed. ▶ Avoid physical damage to containers. ▶ Always wash hands with soap and water after handling. ▶ Work clothes should be laundered separately. ▶ Use good occupational work practice. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS. ▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions. ▶ DO NOT allow clothing wet with material to stay in contact with skin |
| Other information | <ul style="list-style-type: none"> ▶ Store in original containers in approved flame-proof area. ▶ No smoking, naked lights, heat or ignition sources. ▶ DO NOT store in pits, depressions, basements or areas where vapours may be trapped. ▶ Keep containers securely sealed. ▶ Store away from incompatible materials in a cool, dry well ventilated area. ▶ Protect containers against physical damage and check regularly for leaks. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS. |

Conditions for safe storage, including any incompatibilities

| | |
|-------------------------|--|
| Suitable container | <ul style="list-style-type: none"> ▶ Packing as supplied by manufacturer. ▶ Plastic containers may only be used if approved for flammable liquid. ▶ Check that containers are clearly labelled and free from leaks. ▶ For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : Where a can is to be used as an inner package, the can must have a screwed enclosure. ▶ For materials with a viscosity of at least 2680 cSt. (23 deg. C) ▶ For manufactured product having a viscosity of at least 250 cSt. (23 deg. C) ▶ Manufactured product that requires stirring before use and having a viscosity of at least 20 cSt (25 deg. C): (i) Removable head packaging; (ii) Cans with friction closures and (iii) low pressure tubes and cartridges may be used. ▶ Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages ▶ In addition, where inner packagings are glass and contain liquids of packing group I there must be sufficient inert absorbent to absorb any spillage, unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic. |
| Storage incompatibility | <p>Toluene:</p> <ul style="list-style-type: none"> ▶ 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. <p>For alkyl aromatics:</p> <p>The alkyl side chain of aromatic rings can undergo oxidation by several mechanisms. The most common and dominant one is the attack by oxidation at benzylic carbon as the intermediate formed is stabilised by resonance structure of the ring.</p> <ul style="list-style-type: none"> ▶ Following reaction with oxygen and under the influence of sunlight, a hydroperoxide at the alpha-position to the aromatic ring, is the primary oxidation product formed (provided a hydrogen atom is initially available at this position) - this product is often short-lived but may be stable dependent on the nature of the aromatic substitution; a secondary C-H bond is more easily attacked than a primary C-H bond whilst a tertiary C-H bond is even more susceptible to attack by oxygen ▶ Monoalkylbenzenes may subsequently form monocarboxylic acids; alkyl naphthalenes mainly produce the corresponding naphthalene carboxylic acids. ▶ Oxidation in the presence of transition metal salts not only accelerates but also selectively decomposes the hydroperoxides. ▶ Hock-rearrangement by the influence of strong acids converts the hydroperoxides to hemiacetals. Peresters formed from the hydroperoxides undergo Criegee rearrangement easily. ▶ Alkali metals accelerate the oxidation while CO₂ as co-oxidant enhances the selectivity. ▶ Microwave conditions give improved yields of the oxidation products. ▶ Photo-oxidation products may occur following reaction with hydroxyl radicals and NO_x - these may be components of photochemical smogs. <p>Oxidation of Alkylaromatics: T.S.S Rao and Shubhra Awasthi: E-Journal of Chemistry Vol 4, No. 1, pp 1-13 January 2007</p> <ul style="list-style-type: none"> ▶ Vigorous reactions, sometimes amounting to explosions, can result from the contact between aromatic rings and strong oxidising agents. ▶ Aromatics can react exothermically with bases and with diazo compounds. |



+ X X X + + +

X — Must not be stored together

0 — May be stored together with specific preventions

+ — May be stored together

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

| Source | Ingredient | Material name | TWA | STEL | Peak | Notes |
|--|------------|------------------|--------------------------------|---------------|---------------|--------------------------|
| New Zealand Workplace Exposure Standards (WES) | toluene | Toluene (Toluol) | 188 mg/m ³ / 50 ppm | Not Available | Not Available | (skin) - Skin absorption |

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|--|--|-------------------|-------------------------------|----------------------|---------------|--|
| New Zealand Workplace Exposure Standards (WES) | solvent naphtha petroleum, light aliphatic | Oil mist, mineral | 5 mg/m ³ | 10 mg/m ³ | Not Available | (om) - Sampled by a method that does not collect vapour. |
| New Zealand Workplace Exposure Standards (WES) | n-hexane | Hexane (n-Hexane) | 72 mg/m ³ / 20 ppm | Not Available | Not Available | (bio) - Exposure can also be estimated by biological monitoring. |

EMERGENCY LIMITS

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|------------|---------------|---------------|---------------|---------------|
| toluene | Toluene | Not Available | Not Available | Not Available |
| n-hexane | Hexane | 260 ppm | Not Available | Not Available |

| Ingredient | Original IDLH | Revised IDLH |
|--|-------------------------|---------------|
| toluene | 500 ppm | Not Available |
| solvent naphtha petroleum, light aliphatic | 2,500 mg/m ³ | Not Available |
| n-hexane | 1,100 [LEL] ppm | Not Available |

Exposure controls

| Appropriate engineering controls | <p>CARE: Use of a quantity of this material in confined space or poorly ventilated area, where rapid build up of concentrated atmosphere may occur, could require increased ventilation and/or protective gear</p> <p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p> <p>For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant.</p> <p>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.</p> | | | | | | | | | |
|---|--|---------------------------------|---|--|--|---|----------------------------------|--|---|----------------------------------|
| | <table border="1"> <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 conveyer 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, conveyer 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> | Type of Contaminant: | Air Speed: | solvent, vapours, degreasing etc., evaporating from tank (in still air). | 0.25-0.5 m/s (50-100 f/min.) | aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation) | 0.5-1 m/s (100-200 f/min.) | direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion) | 1-2.5 m/s (200-500 f/min.) | |
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| <p>Within each range the appropriate value depends on:</p> <table border="1"> <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> | Lower end of the range | Upper end of the range | 1: Room air currents minimal or favourable to capture | 1: Disturbing room air currents | 2: Contaminants of low toxicity or of nuisance value only. | 2: Contaminants of high toxicity | 3: Intermittent, low production. | 3: High production, heavy use | 4: Large hood or large air mass in motion | 4: Small hood-local control only |
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| 3: Intermittent, low production. | 3: High production, heavy use | | | | | | | | | |
| 4: Large hood or large air mass in motion | 4: Small hood-local control only | | | | | | | | | |
| <p>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.</p> | | | | | | | | | | |

Personal protection



Eye and face protection

- ▶ Safety glasses with side shields.
- ▶ Chemical goggles.
- ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

Skin protection

See Hand protection below

Hands/feet protection

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

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| | |
|-------------------------|--|
| | <p>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.</p> <p>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.</p> <p>Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.</p> <p>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:</p> <ul style="list-style-type: none"> frequency and duration of contact, chemical resistance of glove material, glove thickness and dexterity <p>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).</p> <ul style="list-style-type: none"> 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. <p>For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.</p> <p>It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.</p> <p>Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.</p> <p>Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:</p> <ul style="list-style-type: none"> Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of. Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential <p>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.</p> |
| Body protection | See Other protection below |
| Other protection | <ul style="list-style-type: none"> Overalls. PVC Apron. PVC protective suit may be required if exposure severe. Eyewash unit. Ensure there is ready access to a safety shower. <ul style="list-style-type: none"> Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity. For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets). Non sparking safety or conductive footwear should be considered. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot and shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds. Electrical resistance must range between 0 to 500,000 ohms. Conductive shoes should be stored in lockers close to the room in which they are worn. Personnel who have been issued conductive footwear should not wear them from their place of work to their homes and return. |
| Thermal hazards | Not Available |

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

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

Altex Thinning Solvent #53

| Material | CPI |
|-------------------|-----|
| PE/EVAL/PE | A |
| PVA | A |
| VITON | A |
| VITON/CHLOROBUTYL | A |
| TEFLON | B |
| BUTYL | C |
| CPE | C |
| NEOPRENE | C |
| NEOPRENE/NATURAL | C |
| NITRILE | C |
| NITRILE+PVC | C |
| PVC | C |
| SARANEX-23 | C |
| SARANEX-23 2-PLY | C |
| VITON/NEOPRENE | C |

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

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

Respiratory protection

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

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

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

* - Continuous Flow

** - Continuous-flow or positive pressure demand.

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

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.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| | | | |
|---|--|--|---------------|
| Appearance | Clear Colour with Characteristic Odour | | |
| Physical state | Liquid | Relative density (Water = 1) | 0.78 |
| Odour | Not Available | Partition coefficient n-octanol / water | Not Available |
| Odour threshold | Not Available | Auto-ignition temperature (°C) | 350 |
| pH (as supplied) | Not Available | Decomposition temperature | Not Available |
| Melting point / freezing point (°C) | Not Available | Viscosity (cSt) | Not Available |
| Initial boiling point and boiling range (°C) | 45 | Molecular weight (g/mol) | Not Available |
| Flash point (°C) | -20 | Taste | Not Available |
| Evaporation rate | 5.0 BuAC = 1 | Explosive properties | Not Available |
| Flammability | HIGHLY FLAMMABLE. | Oxidising properties | Not Available |
| Upper Explosive Limit (%) | 6.0 | Surface Tension (dyn/cm or mN/m) | Not Available |
| Lower Explosive Limit (%) | 0.5 | Volatile Component (%vol) | 100 |
| Vapour pressure (kPa) | 1.0 | Gas group | Not Available |
| Solubility in water (g/L) | Immiscible | pH as a solution (1%) | Not Available |
| Vapour density (Air = 1) | 2.4 | VOC g/L | 782.32 |

SECTION 10 STABILITY AND REACTIVITY

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

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

| | |
|------------------|--|
| Inhaled | <p>Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo.</p> <p>There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.</p> <p>The acute toxicity of inhaled alkylbenzene is best described by central nervous system depression. These compounds may also act as general anaesthetics. Whole body symptoms of poisoning include light-headedness, nervousness, apprehension, a feeling of well-being, confusion, dizziness, drowsiness, ringing in the ears, blurred or double vision, vomiting and sensations of heat, cold or numbness, twitching, tremors, convulsions, unconsciousness, depression of breathing, and arrest. Heart stoppage may result from cardiovascular collapse. A slow heart rate and low blood pressure may also occur. Alkylbenzenes are not generally toxic except at high levels of exposure. Their breakdown products have low toxicity and are easily eliminated from the body.</p> <p>Inhalation hazard is increased at higher temperatures.</p> <p>Inhaling high concentrations of mixed hydrocarbons can cause narcosis, with nausea, vomiting and lightheadedness. Low molecular weight (C2-C12) hydrocarbons can irritate mucous membranes and cause incoordination, giddiness, nausea, vertigo, confusion, headache, appetite loss, drowsiness, tremors and stupor.</p> <p>Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.</p> <p>Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination.</p> <p>Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.</p> |
| Ingestion | <p>Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. (ICSC13733)</p> <p>Ingestion of petroleum hydrocarbons can irritate the pharynx, oesophagus, stomach and small intestine, and cause swellings and ulcers of the mucous. Symptoms include a burning mouth and throat; larger amounts can cause nausea and vomiting, narcosis, weakness, dizziness, slow and shallow breathing, abdominal swelling, unconsciousness and convulsions.</p> <p>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.</p> <p>Considered an unlikely route of entry in commercial/industrial environments. The liquid may produce gastrointestinal discomfort and may be harmful if swallowed.</p> |

| | |
|---------------------|---|
| Skin Contact | <p>The material may accentuate any pre-existing dermatitis condition</p> <p>Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.</p> <p>The material may cause moderate inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.</p> |
| Eye | <p>Direct eye contact with petroleum hydrocarbons can be painful, and the corneal epithelium may be temporarily damaged. Aromatic species can cause irritation and excessive tear secretion.</p> <p>There is evidence that material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Severe inflammation may be expected with pain.</p> <p>The liquid produces a high level of eye discomfort and is capable of causing pain and severe conjunctivitis. Corneal injury may develop, with possible permanent impairment of vision, if not promptly and adequately treated.</p> |
| Chronic | <p>Harmful: danger of serious damage to health by prolonged exposure through inhalation.</p> <p>This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects.</p> <p>Ample evidence from experiments exists that there is a suspicion this material directly reduces fertility.</p> <p>Based on experience with animal studies, exposure to the material may result in toxic effects to the development of the foetus, at levels which do not cause significant toxic effects to the mother.</p> <p>Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.</p> <p>Intentional abuse (glue sniffing) or occupational exposure to toluene can result in chronic habituation. Chronic abuse has caused inco-ordination, tremors of the extremities (due to widespread cerebrum withering), headache, abnormal speech, temporary memory loss, convulsions, coma, drowsiness, reduced colour perception, blindness, nystagmus (rapid, involuntary eye movements), hearing loss leading to deafness and mild dementia.</p> <p>Constant or exposure over long periods to mixed hydrocarbons may produce stupor with dizziness, weakness and visual disturbance, weight loss and anaemia, and reduced liver and kidney function. Skin exposure may result in drying and cracking and redness of the skin.</p> <p>There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment.</p> <p>Chronic inhalation or skin exposure to n-hexane may cause damage to nerve ends in extremities, e.g. finger, toes with loss of sensation.</p> <p>Chronic exposure to benzene may cause headache, fatigue, loss of appetite and lassitude with incipient blood effects including anaemia and blood changes. Benzene is a myelotoxicant known to suppress bone- marrow cell proliferation and to induce haematologic disorders in humans and animals.</p> |

| | | |
|-----------------------------------|-----------------|-------------------|
| Altex Thinning Solvent #53 | TOXICITY | IRRITATION |
| | Not Available | Not Available |

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

| | | |
|---|--|-------------------|
| solvent naphtha petroleum, light aliphatic | TOXICITY | IRRITATION |
| | Dermal (rabbit) LD50: >1900 mg/kg ^[1] | Not Available |
| | Oral (rat) LD50: >4500 mg/kg ^[1] | |

| | | |
|-----------------|---|----------------------------|
| n-hexane | TOXICITY | IRRITATION |
| | Dermal (rabbit) LD50: >2000 mg/kg ^[1] | Eye (rabbit): 10 mg - mild |
| | Inhalation (rat) LC50: 47945.232 mg/l/4H ^[2] | |
| | Oral (rat) LD50: 28710 mg/kg ^[2] | |

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

| | |
|----------------|---|
| TOLUENE | <p>The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.</p> <p>For toluene:</p> <p>Acute toxicity: Humans exposed to high levels of toluene for short periods of time experience adverse central nervous system effects ranging from headaches to intoxication, convulsions, narcosis (sleepiness) and death. When inhaled or swallowed, toluene can cause severe central nervous system depression, and in large doses has a narcotic effect. 60mL has caused death. Death of heart muscle fibres, liver swelling, congestion and bleeding of the lungs and kidney injury were all found on autopsies.</p> <p>Exposure to inhalation at a concentration of 600 parts per million for 8 hours resulted in the same and more serious symptoms including euphoria (a feeling of well-being), dilated pupils, convulsions and nausea. Exposure to 10000-30000 parts per million (1-3%) has been reported to cause narcosis and death. Toluene can also strip the skin of lipids, causing skin inflammation.</p> <p>Subchronic/chronic effects: Repeat doses of toluene cause adverse central nervous system effects and can damage the upper airway, the liver and the kidney. Adverse effects occur from both swallowing and inhalation. In humans, a reported lowest level causing adverse effects on the nervous system is 88 parts per million. In one case, toluene caused heart sensitization and death. In several cases of "glue sniffing", damage to the cerebellum was noted. Workers chronically exposed to toluene fumes have reported reduced white cell counts.</p> <p>Developmental/Reproductive toxicity: Exposure to high levels of toluene can result in adverse effects in the developing foetus. Several studies have indicated that high levels of toluene can also adversely affect the developing offspring in laboratory animals. In children who were exposed to toluene before birth, as a result of solvent abuse by the mother, variable growth, a small head, central nervous system dysfunction, attention deficits, minor facial and limb abnormalities, and developmental delay were seen.</p> |
|----------------|---|

Altex Thinning Solvent #53

| | |
|--|---|
| | <p>Absorption: Studies in humans and animals have shown that toluene is easily absorbed through the lungs and gastrointestinal tract, with much less being absorbed through the skin.</p> <p>Distribution: Animal studies show that toluene may be distributed in the body fat, bone marrow, spinal nerves, spinal cord and brain white matter, with lower levels in the blood, kidney and liver. Toluene has generally been found to accumulate in fatty tissue, and in highly vascularised tissues.</p> <p>Metabolism: Inhaled or ingested toluene may be metabolized to benzyl alcohol, after which it is further oxidized to benzaldehyde and benzoic acid. Benzoic acid is sometimes conjugated with glycine to form hippuric acid or reacted with glucuronic acid to form benzoyl glucuronide. O-cresol and p-cresol formed by ring hydroxylation are considered minor metabolites.</p> <p>Excretion: Toluene is mainly (60-70%) excreted through the urine as hippuric acid. Benzoyl glucuronide accounts for 10-20% of excretion, and unchanged toluene through exhaled air also accounts for 10-20%. Excretion of hippuric acid is usually complete within 24 hours of exposure.</p> |
|--|---|

| | | | |
|-----------------------------------|---|--------------------------|---|
| Acute Toxicity | ✓ | Carcinogenicity | ✓ |
| Skin Irritation/Corrosion | ✓ | Reproductivity | ✓ |
| Serious Eye Damage/Irritation | ✓ | STOT - Single Exposure | ⊘ |
| Respiratory or Skin sensitisation | ⊘ | STOT - Repeated Exposure | ✓ |
| Mutagenicity | ⊘ | Aspiration Hazard | ✓ |

Legend: ✗ – Data available but does not fill the criteria for classification
 ✓ – Data available to make classification
 ⊘ – Data Not Available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

| Altex Thinning Solvent #53 | ENDPOINT | TEST DURATION (HR) | SPECIES | VALUE | SOURCE |
|----------------------------|---------------|--------------------|---------------|---------------|---------------|
| | Not Available | Not Available | Not Available | Not Available | Not Available |

| toluene | ENDPOINT | TEST DURATION (HR) | SPECIES | VALUE | SOURCE |
|---------|----------|--------------------|-------------------------------|------------|--------|
| | LC50 | 96 | Fish | 0.0073mg/L | 4 |
| | EC50 | 48 | Crustacea | 3.78mg/L | 5 |
| | EC50 | 72 | Algae or other aquatic plants | 12.5mg/L | 4 |
| | BCF | 24 | Algae or other aquatic plants | 10mg/L | 4 |
| | NOEC | 168 | Crustacea | 0.74mg/L | 5 |

| solvent naphtha petroleum, light aliphatic | ENDPOINT | TEST DURATION (HR) | SPECIES | VALUE | SOURCE |
|--|----------|--------------------|-------------------------------|----------|--------|
| | EC50 | 72 | Algae or other aquatic plants | =6.5mg/L | 1 |
| | NOEC | 72 | Algae or other aquatic plants | <0.1mg/L | 1 |

| n-hexane | ENDPOINT | TEST DURATION (HR) | SPECIES | VALUE | SOURCE |
|----------|----------|--------------------|-----------|-------------|--------|
| | LC50 | 96 | Fish | 2.5mg/L | 4 |
| | EC50 | 48 | Crustacea | 3877.65mg/L | 4 |

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

When spilled this product may act as a typical oil, causing a film, sheen, emulsion or sludge at or beneath the surface of the body of water. The oil film on water surface may physically affect the aquatic organisms, due to the interruption of the oxygen transfer between the air and the water

Oils of any kind can cause:

- ▶ drowning of water-fowl due to lack of buoyancy, loss of insulating capacity of feathers, starvation and vulnerability to predators due to lack of mobility
- ▶ lethal effects on fish by coating gill surfaces, preventing respiration
- ▶ asphyxiation of benthic life forms when floating masses become engaged with surface debris and settle on the bottom and
- ▶ adverse aesthetic effects of fouled shoreline and beaches

In case of accidental releases on the soil, a fine film is formed on the soil, which prevents the plant respiration process and the soil particle saturation. It may cause deep water infestation.

For Aromatic Substances Series:

Environmental Fate: Large, molecularly complex polycyclic aromatic hydrocarbons, or PAHs, are persistent in the environment longer than smaller PAHs.

Atmospheric Fate: PAHs are "semi-volatile substances" which can move between the atmosphere and the Earth's surface in repeated, temperature-driven cycles of deposition and volatilization.

Terrestrial Fate: BTEX compounds have the potential to move through soil and contaminate ground water, and their vapors are highly flammable and explosive.

Ecotoxicity - Within an aromatic series, acute toxicity increases with increasing alkyl substitution on the aromatic nucleus. The order of most toxic to least in a study using grass shrimp and brown shrimp was dimethylnaphthalenes > methylnaphthalenes > naphthalenes. Anthracene is a phototoxic PAH. UV light greatly increases the toxicity of anthracene to bluegill sunfish. Biological resources in strong sunlight are at more risk than those that are not. PAHs in general are more frequently associated with chronic risks.

For Toluene:

log Kow : 2.1-3;

log Koc : 1.12-2.85;

Koc : 37-260;

log Kom : 1.39-2.89;

Half-life (hr) air : 2.4-104;

Half-life (hr) H2O surface water : 5.55-528;
 Half-life (hr) H2O ground : 168-2628;
 Half-life (hr) soil : <48-240;
 Henry's Pa m3/mol : 518-694;
 Henry's atm m3/mol : 5.94;
 E-03BOD 5 0.86-2.12, 5%COD - 0.7-2.52,21-27%;
 ThOD - 3.13 ; BCF - 1.67-380;
 log BCF - 0.22-3.28.

Atmospheric Fate: The majority of toluene evaporates to the atmosphere from the water and soil. The main degradation pathway for toluene in the atmosphere is reaction with photochemically produced hydroxyl radicals. The estimated atmospheric half life for toluene is about 13 hours. Toluene is also oxidized by reactions with atmospheric nitrogen dioxide, oxygen, and ozone, but these are minor degradation pathways. Photolysis is not considered a significant degradative pathway for toluene.

Terrestrial Fate: Toluene is moderately retarded by adsorption to soils rich in organic material, therefore, transport to ground water is dependent on soil composition. In unsaturated topsoil containing organic material, it has been estimated that 97% of the toluene is adsorbed to the soil and only about 2% is in the soil-water phase and transported with flowing groundwater. There is little retardation in sandy soils and 2-13% of the toluene was estimated to migrate with flowing water; the remainder was volatilized, biodegraded, or unaccounted for. In saturated deep soils with no soil-air phase, about 48% may be transported with flowing groundwater. In surface soil, volatilization to air is an important fate process for toluene. In the environment, biodegradation of toluene to carbon dioxide occurs with a typical half life of 1-7 days.

Aquatic Fate: An important fate process for toluene is volatilization, the rate of which depends on the amount of turbulence in the surface water. The volatilization of toluene from static water has a half life of 1-16 days, whereas from turbulent water the half life is 5-6 hours. Degradation of toluene in surface water occurs primarily by biodegradation with a half life of less than one day under favorable conditions (presence of microorganisms, microbial adaptation, and optimum temperature). Biodegradation also occurs in shallow groundwater and in salt water (at a reduced rate). No data are available on anaerobic degradation of toluene in deep ground water conditions where aerobic degradation would be minimal.

Ecotoxicity: Bioaccumulation in the food chain is predicted to be low. Toluene has moderate acute toxicity to aquatic organisms. Toluene is, on the average, slightly toxic to fathead minnow, guppies and goldfish and not acutely toxic to bluegill or channel catfish and crab. Toluene, on the average, is slightly toxic to crustaceans specifically, shrimp species including grass shrimp and daggerblade grass shrimp. Toluene has a negative effect on green algae during their growth phase.

For n-Hexane: Log Kow: 3.17-3.94; Henry's Law Constant: 1.69 atm-m3 mol; Vapor Pressure: 150 mm Hg @ 25 C; Log Koc: 2.90 to 3.61. BOD 5, (if unstated): 2.21; COD: 0.04; ThOD: 3.52.

Atmospheric Fate: n-Hexane is not expected to be directly broken down by sunlight. The main atmospheric removal mechanism is through reactions with hydroxyl radicals, with an approximate half-life of 2.9 days. The smog-producing potential of n-hexane is very low, compared to other alkanes, or chlorinated VOCs. Hydroxyl ion reactions in the upper troposphere, therefore, are probably the primary mechanisms for n-hexane degradation in the atmosphere.

Terrestrial Fate: Surface evaporation is expected to be the main fate process of this substance in soil. The substance has a moderate ability to sorb to soil particles but, is expected to have low potential for leaching into the lower soil depths. n-Hexane is expected to generally stay near the soil surface and, if not appreciably sorbed into the soil matrix, will eventually evaporate. Exceptions would involve locations with shallow groundwater tables where large spills occur - in such cases, n-hexane would spread out to contaminate a large volume of soil. Once introduced into groundwater, n-hexane may be fairly persistent, since its degradation by water is slow and opportunities for biodegradation may be limited, (due to low oxygen conditions), or, where nutrients, such as nitrogen or phosphorus, are in limited supply. Biological breakdown is probably the most significant degradation mechanism in groundwater. Pseudomonas mendocina bacteria have been shown to break the substance down in groundwater and mixed/pure bacterial cultures can utilize the substance, in the presence of oxygen. The most important biological breakdown process involves the conversion of n-hexane to primary alcohols, aldehydes and, ultimately, into fatty acids. In general, unless the n-hexane is buried at some depth within a soil or sediment, evaporation is generally assumed to occur at a much more rapid rate than chemical or biochemical degradation processes.

Aquatic Fate: The dominant transport process from water is evaporation, with an estimated half-life of <3 hours. For standing bodies of water, a half-life no longer than 6.8 days is estimated. The substance has very low water solubility and is resistant to breakdown by water. Few data exist for the biological breakdown of n-hexane in water, however; this process is not considered to be as rapid as evaporation. N-Hexane may be persistent if released to deep sediment.

Ecotoxicity: This substance is not expected to concentrate/accumulate in aquatic organisms or the food chain. These substances are considered to be the most readily biodegradable fractions in petroleum, particularly when oxygen is present in solution. The substance is moderately toxic to rainbow trout, fathead minnow, bluegill, and Daphnia water fleas.

DO NOT discharge into sewer or waterways.

Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|------------|---------------------------|-----------------------------|
| toluene | LOW (Half-life = 28 days) | LOW (Half-life = 4.33 days) |
| n-hexane | LOW | LOW |

Bioaccumulative potential

| Ingredient | Bioaccumulation |
|------------|-----------------------|
| toluene | LOW (BCF = 90) |
| n-hexane | MEDIUM (LogKOW = 3.9) |

Mobility in soil

| Ingredient | Mobility |
|------------|-----------------|
| toluene | LOW (KOC = 268) |
| n-hexane | LOW (KOC = 149) |

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods



| | |
|-------------------------------------|--|
| Product / Packaging disposal | <p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.</p> <p>A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> ▶ Reduction ▶ Reuse ▶ Recycling ▶ Disposal (if all else fails) <p>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.</p> <ul style="list-style-type: none"> ▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▶ Where in doubt contact the responsible authority. |
|-------------------------------------|--|

- ▶ Recycle wherever possible.
- ▶ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- ▶ Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material).
- ▶ Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

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 |  |
| HAZCHEM | *3YE |

Land transport (UN)

| | | | | | |
|------------------------------|--|--------------------|----------|------------------|----------------|
| UN number | 1263 | | | | |
| 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) | | | | |
| Transport hazard class(es) | <table border="1"> <tr> <td>Class</td> <td>3</td> </tr> <tr> <td>Subrisk</td> <td>Not Applicable</td> </tr> </table> | Class | 3 | Subrisk | Not Applicable |
| Class | 3 | | | | |
| Subrisk | Not Applicable | | | | |
| Packing group | II | | | | |
| Environmental hazard | Environmentally hazardous | | | | |
| Special precautions for user | <table border="1"> <tr> <td>Special provisions</td> <td>163; 367</td> </tr> <tr> <td>Limited quantity</td> <td>5 L</td> </tr> </table> | Special provisions | 163; 367 | Limited quantity | 5 L |
| Special provisions | 163; 367 | | | | |
| Limited quantity | 5 L | | | | |

Air transport (ICAO-IATA / DGR)

| | | | | | | | | | | | | | | | |
|---|--|--------------------|-------------|---------------------------------|----------------|-------------------------------|------|--|-----|--|-----|---|------|--|-----|
| UN number | 1263 | | | | | | | | | | | | | | |
| 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) | | | | | | | | | | | | | | |
| Transport hazard class(es) | <table border="1"> <tr> <td>ICAO/IATA Class</td> <td>3</td> </tr> <tr> <td>ICAO / IATA Subrisk</td> <td>Not Applicable</td> </tr> <tr> <td>ERG Code</td> <td>3L</td> </tr> </table> | ICAO/IATA Class | 3 | ICAO / IATA Subrisk | Not Applicable | ERG Code | 3L | | | | | | | | |
| ICAO/IATA Class | 3 | | | | | | | | | | | | | | |
| ICAO / IATA Subrisk | Not Applicable | | | | | | | | | | | | | | |
| ERG Code | 3L | | | | | | | | | | | | | | |
| Packing group | II | | | | | | | | | | | | | | |
| Environmental hazard | Environmentally hazardous | | | | | | | | | | | | | | |
| Special precautions for user | <table border="1"> <tr> <td>Special provisions</td> <td>A3 A72 A192</td> </tr> <tr> <td>Cargo Only Packing Instructions</td> <td>364</td> </tr> <tr> <td>Cargo Only Maximum Qty / Pack</td> <td>60 L</td> </tr> <tr> <td>Passenger and Cargo Packing Instructions</td> <td>353</td> </tr> <tr> <td>Passenger and Cargo Maximum Qty / Pack</td> <td>5 L</td> </tr> <tr> <td>Passenger and Cargo Limited Quantity Packing Instructions</td> <td>Y341</td> </tr> <tr> <td>Passenger and Cargo Limited Maximum Qty / Pack</td> <td>1 L</td> </tr> </table> | 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 |
| 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 | | | | |
| 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) | | | | |
| Transport hazard class(es) | <table border="1"> <tr> <td>IMDG Class</td> <td>3</td> </tr> <tr> <td>IMDG Subrisk</td> <td>Not Applicable</td> </tr> </table> | IMDG Class | 3 | IMDG Subrisk | Not Applicable |
| IMDG Class | 3 | | | | |
| IMDG Subrisk | Not Applicable | | | | |

| | | |
|-------------------------------------|--------------------|-----------|
| Packing group | II | |
| Environmental hazard | Marine Pollutant | |
| Special precautions for user | 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 | Group Standard |
|------------|--|
| HSR002669 | Surface Coatings and Colourants (Flammable, Toxic [6.7]) Group Standard 2006 |

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 Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)

SOLVENT NAPHTHA PETROLEUM, LIGHT ALIPHATIC(64742-89-8.) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft

New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)

N-HEXANE(110-54-3) 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)

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.

| Hazard Class | Quantity beyond which controls apply for closed containers | Quantity beyond which controls apply when use occurring in open containers |
|--------------|---|--|
| 3.1B | 100 L in containers greater than 5 L 250 L in containers up to and including 5 L | 50 L 50 L |

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.

| Class of substance | Quantities |
|--------------------|---|
| 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

| National Inventory | Status |
|-------------------------------|--|
| Australia - AICS | Y |
| Canada - DSL | Y |
| Canada - NDSL | N (toluene; n-hexane; solvent naphtha petroleum, light aliphatic) |
| China - IECSC | Y |
| Europe - EINEC / ELINCS / NLP | Y |
| Japan - ENCS | N (solvent naphtha petroleum, light aliphatic) |
| Korea - KECI | Y |
| New Zealand - NZIoC | Y |
| Philippines - PICCS | Y |
| USA - TSCA | Y |
| Legend: | Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets) |

SECTION 16 OTHER INFORMATION

Other information

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

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

Definitions and abbreviations

PC – TWA: Permissible Concentration-Time Weighted Average

PC – STEL: Permissible Concentration-Short Term Exposure Limit

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit.

IDLH: Immediately Dangerous to Life or Health Concentrations

OSF: Odour Safety Factor

NOAEL :No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit Of Detection

OTV: Odour Threshold Value

BCF: BioConcentration Factors

BEI: Biological Exposure Index

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