



VAPOR SOLVE LOW PERM 'B'

ICP Construction Inc

Version No: 8.14

Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Issue Date: 06/19/2024

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S.GHS.USA.EN

SECTION 1 Identification

Product Identifier

| | |
|-------------------------------|--|
| Product name | VAPOR SOLVE LOW PERM 'B' |
| Synonyms | Not Available |
| Proper shipping name | Amines, liquid, corrosive, n.o.s. (contains m-xylenediamine) |
| Other means of identification | Not Available |

Recommended use of the chemical and restrictions on use

| | |
|--------------------------|--------------------|
| Relevant identified uses | Specialty flooring |
|--------------------------|--------------------|

Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

| | |
|-------------------------|--|
| Registered company name | ICP Construction Inc |
| Address | 150 Dascomb Road Andover MA 01810 United States |
| Telephone | 1-866-667-5119 1-978-623-9987 |
| Fax | Not Available |
| Website | www.icpgroup.com |
| Email | sds@icpgroup.com |

Emergency phone number

| | |
|-----------------------------------|----------------|
| Association / Organisation | ChemTel |
| Emergency telephone numbers | 1-800-255-3924 |
| Other emergency telephone numbers | 1-813-248-0585 |

SECTION 2 Hazard(s) identification

Classification of the substance or mixture

NFPA 704 diamond

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| | |
|-----------------------|--|
| | INDUCE VOMITING (if conscious). |
| 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. |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P308+P313 | IF exposed or concerned: Get medical advice/ attention. |
| P342+P311 | If experiencing respiratory symptoms: Call a POISON CENTER/doctor/physician/first aider. |
| P363 | Wash contaminated clothing before reuse. |
| P333+P313 | If skin irritation or rash occurs: Get medical advice/attention. |
| P362+P364 | Take off contaminated clothing and wash it before reuse. |
| P391 | Collect spillage. |

Precautionary statement(s) Storage

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|-------------|------------------|
| P405 | Store locked up. |
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Precautionary statement(s) Disposal

| | |
|-------------|--|
| P501 | Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation. |
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SECTION 3 Composition / information on ingredients**Substances**

See section below for composition of Mixtures

Mixtures

| CAS No | %[weight] | Name |
|-----------|-----------|---------------------------|
| 98-54-4 | 10-30 | <u>p-tert-butylphenol</u> |
| 1477-55-0 | 10-30 | <u>m-xylenediamine</u> |
| 100-51-6 | 7-13 | <u>benzyl alcohol</u> |

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 | <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Immediately hold eyelids apart and flush the eye continuously with 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. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▶ Transport to hospital or doctor without delay. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. <p>For amines:</p> <ul style="list-style-type: none"> ▶ If liquid amines come in contact with the eyes, irrigate immediately and continuously with low pressure flowing water, preferably from an eye wash fountain, for 15 to 30 minutes. ▶ For more effective flushing of the eyes, use the fingers to spread apart and hold open the eyelids. The |
|--------------------|---|

Continued...

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|----------------------------|---|
| | <p>eyes should then be “rolled” or moved in all directions.</p> <ul style="list-style-type: none"> ▸ Seek immediate medical attention, preferably from an ophthalmologist. |
| <p>Skin Contact</p> | <p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> ▸ Immediately flush body and clothes with large amounts of water, using safety shower if available. ▸ Quickly remove all contaminated clothing, including footwear. ▸ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. ▸ Transport to hospital, or doctor. <p>For amines:</p> <ul style="list-style-type: none"> ▸ In case of major exposure to liquid amine, promptly remove any contaminated clothing, including rings, watches, and shoe, preferably under a safety shower. ▸ Wash skin for 15 to 30 minutes with plenty of water and soap. Call a physician immediately. ▸ Remove and dry-clean or launder clothing soaked or soiled with this material before reuse. Dry cleaning of contaminated clothing may be more effective than normal laundering. ▸ Inform individuals responsible for cleaning of potential hazards associated with handling contaminated clothing. ▸ Discard contaminated leather articles such as shoes, belts, and watchbands. ▸ Note to Physician: Treat any skin burns as thermal burns. After decontamination, consider the use of cold packs and topical antibiotics. |
| <p>Inhalation</p> | <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, without delay. ▸ Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema. ▸ Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs). ▸ As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested. ▸ Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered. <p>This must definitely be left to a doctor or person authorised by him/her. (ICSC13719)</p> <p>For amines:</p> <ul style="list-style-type: none"> ▸ All employees working in areas where contact with amine catalysts is possible should be thoroughly trained in the administration of appropriate first aid procedures. ▸ Experience has demonstrated that prompt administration of such aid can minimize the effects of accidental exposure. ▸ Promptly move the affected person away from the contaminated area to an area of fresh air. ▸ Keep the affected person calm and warm, but not hot. ▸ If breathing is difficult, oxygen may be administered by a qualified person. ▸ If breathing stops, give artificial respiration. Call a physician at once. |
| <p>Ingestion</p> | <ul style="list-style-type: none"> ▸ For advice, contact a Poisons Information Centre or a doctor at once. ▸ Urgent hospital treatment is likely to be needed. ▸ 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 |

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drink.

- Transport to hospital or doctor without delay.

For amines:

- If liquid amine are ingested, have the affected person drink several glasses of water or milk.
- Do not induce vomiting.
- Immediately transport to a medical facility and inform medical personnel about the nature of the exposure. The decision of whether to induce vomiting should be made by an attending physician.

Most important symptoms and effects, both acute and delayed

See Section 11

Indication of any immediate medical attention and special treatment needed

Clinical experience of benzyl alcohol poisoning is generally confined to premature neonates in receipt of preserved intravenous salines.

- Metabolic acidosis, bradycardia, skin breakdown, hypotonia, hepatorenal failure, hypotension and cardiovascular collapse are characteristic.
- High urine benzoate and hippuric acid as well as elevated serum benzoic acid levels are found.
- The so-called 'gaspings syndrome' describes the progressive neurological deterioration of poisoned neonates.
- Management is essentially supportive.

For acute or short term repeated exposures to phenols/ cresols:

- Phenol is absorbed rapidly through lungs and skin. [Massive skin contact may result in collapse and death]*
- [Ingestion may result in ulceration of upper respiratory tract; perforation of oesophagus and/or stomach, with attendant complications, may occur. Oesophageal stricture may occur.]*
- An initial excitatory phase may present. Convulsions may appear as long as 18 hours after ingestion. Hypotension and ventricular tachycardia that require vasopressor and antiarrhythmic therapy, respectively, can occur.
- Respiratory arrest, ventricular dysrhythmias, seizures and metabolic acidosis may complicate severe phenol exposures so the initial attention should be directed towards stabilisation of breathing and circulation with ventilation, intubation, intravenous lines, fluids and cardiac monitoring as indicated.
- [Vegetable oils retard absorption; do NOT use paraffin oils or alcohols. Gastric lavage, with endotracheal intubation, should be repeated until phenol odour is no longer detectable; follow with vegetable oil. A saline cathartic should then be given.]*
ALTERNATIVELY: Activated charcoal (1g/kg) may be given. A cathartic should be given after oral activated charcoal.
- Severe poisoning may require slow intravenous injection of methylene blue to treat methaemoglobinaemia.
- [Renal failure may require haemodialysis.]*
- Most absorbed phenol is biotransformed by the liver to ethereal and glucuronide sulfates and is eliminated almost completely after 24 hours. [*Ellenhorn and Barceloux: Medical Toxicology*] * [*Union Carbide*]

BIOLOGICAL EXPOSURE INDEX - BEI

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

| Determinant | Index | Sampling Time | Comments |
|--------------------------|----------------------|---------------|----------|
| 1. Total phenol in blood | 250 mg/gm creatinine | End of shift | B, NS |

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

NS: Non-specific determinant; also seen in exposure to other materials

For acute or short-term repeated exposures to highly alkaline materials:

- Respiratory stress is uncommon but present occasionally because of soft tissue edema.
- Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary.
- Oxygen is given as indicated.
- The presence of shock suggests perforation and mandates an intravenous line and fluid administration.
- Damage due to alkaline corrosives occurs by liquefaction necrosis whereby the saponification of fats and solubilisation of proteins allow deep penetration into the tissue.

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Alkalis continue to cause damage after exposure.

INGESTION:

- Milk and water are the preferred diluents

No more than 2 glasses of water should be given to an adult.

- Neutralising agents should never be given since exothermic heat reaction may compound injury.

* Catharsis and emesis are absolutely contra-indicated.

* Activated charcoal does not absorb alkali.

* Gastric lavage should not be used.

Supportive care involves the following:

- Withhold oral feedings initially.
- If endoscopy confirms transmucosal injury start steroids only within the first 48 hours.
- Carefully evaluate the amount of tissue necrosis before assessing the need for surgical intervention.
- Patients should be instructed to seek medical attention whenever they develop difficulty in swallowing (dysphagia).

SKIN AND EYE:

- Injury should be irrigated for 20-30 minutes.

Eye injuries require saline. [Ellenhorn & Barceloux: Medical Toxicology]

For amines:

- Certain amines may cause injury to the respiratory tract and lungs if aspirated. Also, such products may cause tissue destruction leading to stricture. If lavage is performed, endotracheal and/or esophagosopic control is suggested.
- No specific antidote is known.
- Care should be supportive and treatment based on the judgment of the physician in response to the reaction of the patient.

Laboratory animal studies have shown that a few amines are suspected of causing depletion of certain white blood cells and their precursors in lymphoid tissue. These effects may be due to an immunosuppressive mechanism.

Some persons with hyperreactive airways (e.g., asthmatic persons) may experience wheezing attacks (bronchospasm) when exposed to airway irritants.

Lung injury may result following a single massive overexposure to high vapour concentrations or multiple exposures to lower concentrations of any pulmonary irritant material.

Health effects of amines, such as skin irritation and transient corneal edema ("blue haze," "halo effect," "glauropsia"), are best prevented by means of formal worker education, industrial hygiene monitoring, and exposure control methods. Persons who are highly sensitive to the triggering effect of non-specific irritants should not be assigned to jobs in which such agents are used, handled, or manufactured.

Medical surveillance programs should consist of a pre-placement evaluation to determine if workers or applicants have any impairments (e.g., hyperreactive airways or bronchial asthma) that would limit their fitness for work in jobs with potential for exposure to amines. A clinical baseline can be established at the time of this evaluation.

Periodic medical evaluations can have significant value in the early detection of disease and in providing an opportunity for health counseling.

Medical personnel conducting medical surveillance of individuals potentially exposed to polyurethane amine catalysts should consider the following:

- Health history, with emphasis on the respiratory system and history of infections
- Physical examination, with emphasis on the respiratory system and the lymphoreticular organs (lymph nodes, spleen, etc.)
- Lung function tests, pre- and post-bronchodilator if indicated
- Total and differential white blood cell count
- Serum protein electrophoresis

Persons who are concurrently exposed to isocyanates also should be kept under medical surveillance.

Pre-existing medical conditions generally aggravated by exposure include skin disorders and allergies, chronic respiratory disease (e.g. bronchitis, asthma, emphysema), liver disorders, kidney disease, and eye disease.

Broadly speaking, exposure to amines, as characterised by amine catalysts, may cause effects similar to those caused by exposure to ammonia. As such, amines should be considered potentially injurious to any tissue that is directly contacted.

Inhalation of aerosol mists or vapors, especially of heated product, can result in chemical pneumonitis, pulmonary edema, laryngeal edema, and delayed scarring of the airway or other affected organs. There is no specific treatment.

Clinical management is based upon supportive treatment, similar to that for thermal burns.

Persons with major skin contact should be maintained under medical observation for at least 24 hours due to the possibility of delayed reactions.

Polyurethane Amine Catalysts: Guidelines for Safe Handling and Disposal Technical Bulletin June 2000
Alliance for Polyurethanes Industry

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SECTION 5 Fire-fighting measures**Extinguishing media**

- Foam.
- Dry chemical powder.

Special hazards arising from the substrate or mixture

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| Fire Incompatibility | <ul style="list-style-type: none"> ▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |
|-----------------------------|--|

Special protective equipment and precautions for fire-fighters

| | |
|------------------------------|--|
| Fire Fighting | <ul style="list-style-type: none"> ▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear full body protective clothing with breathing apparatus. <p>For amines:</p> <ul style="list-style-type: none"> ▸ For firefighting, cleaning up large spills, and other emergency operations, workers must wear a self-contained breathing apparatus with full face-piece, operated in a pressure-demand mode. ▸ Airline and air purifying respirators should not be worn for firefighting or other emergency or upset conditions. |
| Fire/Explosion Hazard | <ul style="list-style-type: none"> ▸ Combustible. ▸ Slight fire hazard when exposed to heat or flame. <p>Combustion products include: carbon dioxide (CO₂) aldehydes nitrogen oxides (NO_x) other pyrolysis products typical of burning organic material. May emit corrosive fumes.</p> <p>WARNING: Long standing in contact with air and light may result in the formation of potentially explosive peroxides.</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

| | |
|---------------------|---|
| Minor Spills | <p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"> ▸ Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material. ▸ Check regularly for spills and leaks. ▸ Clean up all spills immediately. ▸ Avoid breathing vapours and contact with skin and eyes. <p>for amines:</p> <ul style="list-style-type: none"> ▸ If possible (i.e., without risk of contact or exposure), stop the leak. ▸ Contain the spilled material by diking, then neutralize. |
| Major Spills | <p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"> ▸ Clear area of personnel and move upwind. ▸ Alert Fire Brigade and tell them location and nature of hazard. |

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For amines:

- First remove all ignition sources from the spill area.
- Have firefighting equipment nearby, and have firefighting personnel fully trained in the proper use of the equipment and in the procedures used in fighting a chemical fire.

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 | <ul style="list-style-type: none"> ▸ Avoid all personal contact, including inhalation. ▸ Wear protective clothing when risk of exposure occurs. ▸ 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. ▸ Keep containers securely sealed. ▸ DO NOT store near acids, or oxidising agents ▸ No smoking, naked lights, heat or ignition sources. |

Conditions for safe storage, including any incompatibilities

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|--------------------------------|--|
| Suitable container | <ul style="list-style-type: none"> ▸ Glass container is suitable for laboratory quantities ▸ Lined metal can, lined metal pail/ can. ▸ Plastic pail. <p>For low viscosity materials</p> <ul style="list-style-type: none"> ▸ Drums and jerricans must be of the non-removable head type. ▸ Where a can is to be used as an inner package, the can must have a screwed enclosure. |
| Storage incompatibility | <p>Benzyl alcohol:</p> <ul style="list-style-type: none"> ▸ may froth in contact with water ▸ slowly oxidises in air, oxygen forming benzaldehyde ▸ is incompatible with mineral acids, caustics, aliphatic amines, isocyanates ▸ reacts violently with strong oxidisers, and explosively with sulfuric acid at elevated temperatures ▸ corrodes aluminium at high temperatures ▸ is incompatible with aluminum, iron, steel ▸ attacks some nonfluorinated plastics; may attack, extract and dissolve polypropylene <p>Benzyl alcohol contaminated with 1.4% hydrogen bromide and 1.2% of dissolved iron(II) polymerises exothermically above 100 deg. C.</p> <p>p-tert-Butylphenol:</p> <ul style="list-style-type: none"> ▸ is incompatible with strong acids, caustics, aliphatic amines, amides, oxidisers, steel, brass, copper and its alloys. ▸ Phenols are incompatible with strong reducing substances such as hydrides, nitrides, alkali metals, and sulfides. ▸ Avoid use of aluminium, copper and brass alloys in storage and process equipment. ▸ Avoid oxidising agents, acids, acid chlorides, acid anhydrides, chloroformates. ▸ Avoid contact with copper, aluminium and their alloys. <p>Amines are incompatible with:</p> <ul style="list-style-type: none"> · isocyanates, halogenated organics, peroxides, phenols (acidic), epoxides, anhydrides, and acid halides. · strong reducing agents such as hydrides, due to the liberation of flammable gas. |

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

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INGREDIENT DATA

| Source | Ingredient | Material name | TWA | STEL | Peak | Notes |
|--|--------------------|--|---------------------------------|---------------|-----------------------|----------------|
| US OSHA Permissible Exposure Limits (PELs) Table Z-1 | p-tert-butylphenol | Particulates Not Otherwise Regulated (PNOR)- Respirable fraction | 5 mg/m ³ | Not Available | Not Available | Not Available |
| US OSHA Permissible Exposure Limits (PELs) Table Z-1 | p-tert-butylphenol | Particulates Not Otherwise Regulated (PNOR)- Total dust | 15 mg/m ³ | Not Available | Not Available | Not Available |
| US OSHA Permissible Exposure Limits (PELs) Table Z-3 | p-tert-butylphenol | Inert or Nuisance Dust: Total Dust | 15 mg/m ³ / 50 mppcf | Not Available | Not Available | Not Available |
| US OSHA Permissible Exposure Limits (PELs) Table Z-3 | p-tert-butylphenol | Inert or Nuisance Dust: Respirable fraction | 5 mg/m ³ / 15 mppcf | Not Available | Not Available | Not Available |
| US NIOSH Recommended Exposure Limits (RELs) | p-tert-butylphenol | Particulates not otherwise regulated | Not Available | Not Available | Not Available | See Appendix D |
| US NIOSH Recommended Exposure Limits (RELs) | m-xylenediamine | m-Xylene-alpha,alpha'-diamine | Not Available | Not Available | 0.1 mg/m ³ | [skin] |

Emergency Limits

| Ingredient | TEEL-1 | TEEL-2 | TEEL-3 |
|--------------------|-----------------------|----------------------|-----------------------|
| p-tert-butylphenol | 1.5 mg/m ³ | 40 mg/m ³ | 240 mg/m ³ |
| benzyl alcohol | 30 ppm | 52 ppm | 740 ppm |

| Ingredient | Original IDLH | Revised IDLH |
|--------------------|---------------|---------------|
| p-tert-butylphenol | Not Available | Not Available |
| m-xylenediamine | Not Available | Not Available |
| benzyl alcohol | Not Available | Not Available |


Occupational Exposure Banding

| Ingredient | Occupational Exposure Band Rating | Occupational Exposure Band Limit |
|----------------|-----------------------------------|----------------------------------|
| benzyl alcohol | E | ≤ 0.1 ppm |

Notes:

Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.

Exposure controls

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|---|---|
| Appropriate engineering controls | Enclosed local exhaust ventilation is required at points of dust, fume or vapour generation. HEPA terminated local exhaust ventilation should be considered at point of generation of dust, fumes or vapours. |
| Individual protection measures, such as personal protective equipment |  |

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| Eye and face protection | <p>When handling very small quantities of the material eye protection may not be required.</p> <p>For laboratory, larger scale or bulk handling or where regular exposure in an occupational setting occurs:</p> <ul style="list-style-type: none"> ▸ Chemical goggles. <p>For amines:</p> <p>SPECIAL PRECAUTION:</p> <ul style="list-style-type: none"> ▸ Because amines are alkaline materials that can cause rapid and severe tissue damage, wearing of contact lenses while working with amines is strongly discouraged. Wearing such lenses can prolong contact of the eye tissue with the amine, thereby causing more severe damage. |
| Skin protection | See Hand protection below |
| Hands/feet protection | <ul style="list-style-type: none"> ▸ Elbow length PVC gloves ▸ When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots. <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> <ul style="list-style-type: none"> ▸ Rubber gloves (nitrile or low-protein, powder-free latex, latex/ nitrile). Employees allergic to latex gloves should use nitrile gloves in preference. <p>For amines:</p> <ul style="list-style-type: none"> ▸ Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. |
| Body protection | See Other protection below |
| Other protection | <ul style="list-style-type: none"> ▸ Overalls. ▸ PVC Apron. |

Respiratory protection

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

- Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

Where engineering controls are not feasible and work practices do not reduce airborne amine concentrations below recommended exposure limits, appropriate respiratory protection should be used. In such cases, air-purifying respirators equipped with cartridges designed to protect against amines are recommended.

SECTION 9 Physical and chemical properties**Information on basic physical and chemical properties**

| | | | |
|------------------------|---------------|--|---------------|
| Appearance | Not Available | | |
| Physical state | Liquid | Relative density (Water = 1) | Not Available |
| Odour | Not Available | Partition coefficient n-octanol / water | Not Available |
| Odour threshold | Not Available | Auto-ignition temperature (°C) | Not Available |

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|---|----------------|---|---------------|
| pH (as supplied) | Not Available | Decomposition temperature (°C) | Not Available |
| Melting point / freezing point (°C) | Not Available | Viscosity (cSt) | Not Available |
| Initial boiling point and boiling range (°C) | Not Available | Molecular weight (g/mol) | Not Available |
| Flash point (°C) | >93 | Taste | Not Available |
| Evaporation rate | Not Available | Explosive properties | Not Available |
| Flammability | Not Applicable | Oxidising properties | Not Available |
| Upper Explosive Limit (%) | Not Available | Surface Tension (dyn/cm or mN/m) | Not Available |
| Lower Explosive Limit (%) | Not Available | Volatile Component (%vol) | Not Available |
| Vapour pressure (kPa) | Not Available | Gas group | Not Available |
| Solubility in water | Not Available | pH as a solution (1%) | Not Available |
| Vapour density (Air = 1) | Not Available | VOC g/L | 109 |

SECTION 10 Stability and reactivity

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|---|--|
| Reactivity | See section 7 |
| Chemical stability | <ul style="list-style-type: none"> ▸ Unstable in the presence of incompatible materials. ▸ Product is considered stable. |
| 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

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|----------------|--|
| Inhaled | <p>The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.</p> <p>Inhaling corrosive bases may irritate the respiratory tract. Symptoms include cough, choking, pain and damage to the mucous membrane.</p> <p>Inhalation of amine vapours may cause irritation of the mucous membrane of the nose and throat, and lung irritation with respiratory distress and cough. Swelling and inflammation of the respiratory tract is seen in serious cases; with headache, nausea, faintness and anxiety.</p> <p>Inhalation of epoxy resin amine hardeners (including polyamines and amine adducts) may produce bronchospasm and coughing episodes lasting several days after cessation of the exposure. Even faint traces of these vapours may trigger an intense reaction in individuals showing 'amine asthma'.</p> |
|----------------|--|

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| | <p>Exposure to high levels of p-tert-butylphenol dust may result in spasm of the bronchi and lung swelling. Vapours and mist may irritate the nose and throat.</p> <p>The compound causes intestinal irritation due to its caustic nature. Lower doses may cause impaired appetite, sluggish reaction to stimuli and reduced alertness.</p> <p>Inhalation of benzyl alcohol may affect breathing (causing depression and paralysis of breathing and lower blood pressure).</p> |
| Ingestion | <p>Ingestion of alkaline corrosives may produce burns around the mouth, ulcerations and swellings of the mucous membranes, profuse saliva production, with an inability to speak or swallow. Both the oesophagus and stomach may experience burning pain; vomiting and diarrhoea may follow.</p> <p>Amines without benzene rings when swallowed are absorbed throughout the gut. Corrosive action may cause damage throughout the gastrointestinal tract.</p> <p>Ingestion of amine epoxy-curing agents (hardeners) may cause severe abdominal pain, nausea, vomiting or diarrhoea. The vomitus may contain blood and mucous.</p> <p>Ingestion of p-tert-butylphenol may cause fatigue, muscle weakness, laboured breathing and gastrointestinal irritation.</p> <p>The material has NOT been classified by EC Directives or other classification systems as 'harmful by ingestion'. This is because of the lack of corroborating animal or human evidence.</p> <p>Swallowing large doses of benzyl alcohol may cause abdominal pain, nausea, vomiting and diarrhea. It may affect behaviour and/or the central nervous system, and cause headache, sleepiness, excitement, dizziness, inco-ordination, coma, convulsions and other symptoms of central nervous system depression.</p> |
| Skin Contact | <p>The material can produce severe chemical burns following direct contact with the skin.</p> <p>Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.</p> <p>Amine epoxy-curing agents (hardeners) may produce primary skin irritation and sensitisation dermatitis in predisposed individuals. Cutaneous reactions include erythema, intolerable itching and severe facial swelling.</p> <p>Skin contact with p-tert-butylphenol may result in severe irritation or ulceration and burns, and sensitization has been known to occur. Skin inflammation may also result from less severe exposures.</p> <p>Undiluted benzene-1,3-dimethanamine may be corrosive to the skin. Concentrated solution of the material produces severe reddening and irritation.</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>Skin contact with alkaline corrosives may produce severe pain and burns; brownish stains may develop. The corroded area may be soft, gelatinous and necrotic; tissue destruction may be deep.</p> <p>Volatile amine vapours produce irritation and inflammation of the skin. Direct contact can cause burns.</p> |
| Eye | <p>If applied to the eyes, this material causes severe eye damage.</p> <p>Direct eye contact with corrosive bases can cause pain and burns. There may be swelling, epithelium destruction, clouding of the cornea and inflammation of the iris.</p> <p>Vapours of volatile amines irritate the eyes, causing excessive secretion of tears, inflammation of the conjunctiva and slight swelling of the cornea, resulting in 'halos' around lights. This effect is temporary, lasting only for a few hours.</p> <p>Eye contact with p-tert-butylphenol may cause severe pain and eye damage. If concentrated, the vapour will irritate the eyes and cause inflammation of the conjunctiva and excessive tear secretion.</p> |
| Chronic | <p>Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue.</p> <p>Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems.</p> <p>Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.</p> |

Continued...

VAPOR SOLVE LOW PERM 'B'

| | |
|--|---|
| | <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. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.</p> <p>Exposure to alkyl phenolics is associated with reduced sperm count and fertility in males. Prolonged or repeated exposure to benzyl alcohol may cause allergic contact dermatitis (skin inflammation). Prolonged or repeated swallowing may affect behaviour and the central nervous system with symptoms similar to acute swallowing.</p> <p>Long-term exposure to phenol derivatives can cause skin inflammation, loss of appetite and weight, weakness, muscle aches and pain, liver damage, dark urine, loss of nails, skin eruptions, diarrhoea, nervous disorders with headache, salivation, fainting, discolouration of the skin and eyes, vertigo and mental disorders, and damage to the liver and kidneys.</p> |
|--|---|

| | | |
|---------------------------------|-----------------|-------------------|
| VAPOR SOLVE LOW PERM 'B' | TOXICITY | IRRITATION |
| | Not Available | Not Available |

| | | |
|---------------------------|---|---|
| p-tert-butylphenol | TOXICITY | IRRITATION |
| | Dermal (rabbit) LD50: 2288 mg/kg ^[2] | Eye (rabbit) 0.05 mg/24h - SEVERE |
| | Oral (Rat) LD50: >2000 mg/kg ^[1] | Eye (rabbit): 10 mg - SEVERE |
| | | Eye: adverse effect observed (irritating) ^[1] |
| | | Skin (rabbit): 500 mg/4h - mild |
| | | Skin: adverse effect observed (irritating) ^[1] |

| | | |
|------------------------|---|---|
| m-xylenediamine | TOXICITY | IRRITATION |
| | Dermal (rabbit) LD50: 2000 mg/kg ^[2] | Eye (rabbit): 0.05 mg/24h SEVERE |
| | Inhalation (Rat) LC50: 0.8 mg/4h ^[1] | Eye: adverse effect observed (irritating) ^[1] |
| | Oral (Rat) LD50: >200 mg/kg ^[1] | Skin (rabbit): 0.75 mg/24h SEVERE |
| | | Skin: adverse effect observed (corrosive) ^[1] |
| | | Skin: adverse effect observed (irritating) ^[1] |

| | | |
|-----------------------|---|--|
| benzyl alcohol | TOXICITY | IRRITATION |
| | Dermal (rabbit) LD50: 2000 mg/kg ^[2] | Eye (rabbit): 0.75 mg open SEVERE |
| | Inhalation (Rat) LC50: >4.178 mg/L4h ^[2] | Eye: adverse effect observed (irritating) ^[1] |
| | Oral (Rat) LD50: 1230 mg/kg ^[2] | Skin (man): 16 mg/48h-mild |
| | | Skin (rabbit): 10 mg/24h open-mild |
| | | Skin: no adverse effect observed (not irritating) ^[1] |

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

| | |
|---------------------------|--|
| P-TERT-BUTYLPHENOL | <p>These substances are intravenous anaesthetic agents. They have a very low level of acute toxicity; they may cause skin irritation.</p> <p>For p-tert-butylphenol: p-tert-butylphenol has low acute toxicity via all routes. It irritates the skin, eyes and airway.</p> |
|---------------------------|--|

Continued...

VAPOR SOLVE LOW PERM 'B'

| | |
|--|--|
| M-XYLENEDIAMINE | <p>Allergic reactions involving the respiratory tract are usually due to interactions between IgE antibodies and allergens and occur rapidly. Allergic potential of the allergen and period of exposure often determine the severity of symptoms.</p> <p>Attention should be paid to atopic diathesis, characterised by increased susceptibility to nasal inflammation, asthma and eczema.</p> <p>Exogenous allergic alveolitis is induced essentially by allergen specific immune-complexes of the IgG type; cell-mediated reactions (T lymphocytes) may be involved. Such allergy is of the delayed type with onset up to four hours following exposure.</p> <p>For benzene-1,3-dimethanamine (m-xylene-alpha,alpha -diamine):</p> <p>Animal testing showed that benzene-1,3-methanamine caused tissue damage to the digestive and respiratory organs, if given by mouth or inhaled, respectively. The chemical is corrosive to animal skin, and may cause sensitization.</p> <p>The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.</p> |
| BENZYL ALCOHOL | <p>The aryl alkyl alcohol (AAA) fragrance ingredients have diverse chemical structures, with similar metabolic and toxicity profiles. The AAA fragrances demonstrate low acute and subchronic toxicity by skin contact and swallowing.</p> <p>This is a member or analogue of a group of benzyl derivatives generally regarded as safe (GRAS), based partly on their self-limiting properties as flavouring substances in food. In humans and other animals, they are rapidly absorbed, broken down and excreted, with a wide safety margin.</p> <p>Unlike benzylic alcohols, the beta-hydroxyl group of the members of benzyl alkyl alcohols contributes to break down reactions but do not undergo phase II metabolic activation. Though structurally similar to cancer causing ethyl benzene, phenethyl alcohol is only of negligible concern due to limited similarity in their pattern of activity.</p> <p>For benzoates:</p> <p>Benzyl alcohol, benzoic acid and its sodium and potassium salt have a common metabolic and excretion pathway. All but benzyl alcohol are considered to be unharmed and of low acute toxicity.</p> |
| VAPOR SOLVE LOW PERM 'B' & P-TERT-BUTYLPHENOL & M-XYLENEDIAMINE | <p>Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound.</p> |
| VAPOR SOLVE LOW PERM 'B' & BENZYL ALCOHOL | <p>Adverse reactions to fragrances in perfumes and fragranced cosmetic products include allergic contact dermatitis, irritant contact dermatitis, sensitivity to light, immediate contact reactions, and pigmented contact dermatitis. Airborne and connubial contact dermatitis occurs.</p> <p>Fragrance allergens act as haptens, low molecular weight chemicals that cause an immune response only when attached to a carrier protein. However, not all sensitizing fragrance chemicals are directly reactive, but require previous activation.</p> <p>CYP1A2 is a member of the cytochrome P450 super family, is one of the best characterized. It is responsible for the metabolism of commonly drugs belonging to classes such as antidepressants, antipsychotics, mood stabilizers, beta blockers and sedative/hypnotics CYP1A2 also metabolises a number of procarcinogens (such as those in cigarettes).</p> <p>Inhibition of NF-kB in vivo can be detrimental. NF-kB controls multiple functions in homeostasis including a functional immune response, cell cycle, and cell death.</p> |
| VAPOR SOLVE LOW PERM 'B' & M-XYLENEDIAMINE | <p>Overexposure to most of these materials may cause adverse health effects.</p> <p>Many amine-based compounds can cause release of histamines, which, in turn, can trigger allergic and other physiological effects, including constriction of the bronchi or asthma and inflammation of the cavity of the nose. Whole-body symptoms include headache, nausea, faintness, anxiety, a decrease in blood pressure, rapid heartbeat, itching, reddening of the skin, urticaria (hives) and swelling of the face, which are usually transient.</p> <p>There are generally four routes of possible or potential exposure: inhalation, skin contact, eye contact, and swallowing.</p> <p>Inhalation: Inhaling vapours may result in moderate to severe irritation of the tissues of the nose and throat and can irritate the lungs.</p> |

VAPOR SOLVE LOW PERM 'B'

| | |
|---|--|
| P-TERT-BUTYLPHENOL & M-XYLENEDIAMINE | The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. |
| P-TERT-BUTYLPHENOL & BENZYL ALCOHOL | 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. |
| M-XYLENEDIAMINE & BENZYL ALCOHOL | The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. |

| | | | |
|--|---|---------------------------------|---|
| 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 either not available or does not fill the criteria for classification
 ✓ – Data available to make classification

SECTION 12 Ecological information

Toxicity

| VAPOR SOLVE LOW PERM 'B' | Endpoint | Test Duration (hr) | Species | Value | Source |
|--------------------------|----------|--------------------|---------------|---------------|---------------|
| | | Not Available | Not Available | Not Available | Not Available |

| p-tert-butylphenol | Endpoint | Test Duration (hr) | Species | Value | Source |
|--------------------|-----------|--------------------|-------------------------------|-------------|--------|
| | NOEC(ECx) | 3072h | Fish | 0.01mg/L | 2 |
| | EC50 | 72h | Algae or other aquatic plants | ~2.4mg/l | 2 |
| | EC50 | 48h | Crustacea | 3.4-4.5mg/l | 4 |
| | LC50 | 96h | Fish | >1mg/l | 2 |

| m-xylenediamine | Endpoint | Test Duration (hr) | Species | Value | Source |
|-----------------|-----------|--------------------|-------------------------------|----------|--------|
| | EC50 | 72h | Algae or other aquatic plants | 12mg/l | 2 |
| | EC50 | 48h | Crustacea | 15.2mg/l | 2 |
| | NOEC(ECx) | 504h | Crustacea | 4.7mg/l | 2 |
| | LC50 | 96h | Fish | 75mg/l | 2 |
| BCF | 1008h | Fish | <0.3 | 7 | |

| benzyl alcohol | Endpoint | Test Duration (hr) | Species | Value | Source |
|----------------|----------|--------------------|-------------------------------|---------|--------|
| | EC50 | 72h | Algae or other aquatic plants | 500mg/l | 2 |
| | LC50 | 96h | Fish | 10mg/l | 2 |
| | EC50 | 48h | Crustacea | 230mg/l | 2 |
| NOEC(ECx) | 336h | Fish | 5.1mg/l | 2 | |

Continued...

VAPOR SOLVE LOW PERM 'B'

| | | | | | |
|--|------|-----|-------------------------------|------------|---|
| | EC50 | 96h | Algae or other aquatic plants | 76.828mg/l | 2 |
|--|------|-----|-------------------------------|------------|---|

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

Very toxic to aquatic organisms.

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.

Toxic to soil organisms.

For p-tert-butylphenol

log Kow : 3.31-3.65

Environmental Fate: If p-tert-butyl phenol is released into water or soil, it is unlikely to be distributed into other compartments. If p-t-butyl phenol is released into air, it is likely to be transported to other compartments.

For Alkylphenols:

Environmental Fate: The alkylphenolics may be divided into three groups. Group I: Ortho-substituted mono-alkylphenols.

For Alkylphenols and their Ethoxylates, or Propoxylates (APE):

Environmental fate: Alkylphenols are found everywhere in the environmental, when released. Releases are generally as wastes; they are extensively used throughout industry and in the home.

For benzene-1,3-dimethanamine (m-xylene-alpha,alpha'- diamine)

Environmental fate:

The chemical has a log Pow value of 0.18 at 2 a vapour pressure 5 C, of 0.04 hPa at 25 C, and a water solubility of > 100 000 mg/L.

Fugacity model Mackay level III calculations suggest that the majority of the chemical would distribute to soil if released to soil and/or air compartment(s), and water if released to aquatic compartment.

For Phenols:

Ecotoxicity - Phenols with log Pow >7.4 are expected to exhibit low toxicity to aquatic organisms however; the toxicity of phenols with a lower log Pow is variable. Dinitrophenols are more toxic than predicted from QSAR estimates.

For benzyl alcohol: log Kow : 1.1Koc : <5Henry's atm m3 /mol: 3.91E-07BOD 5: 1.55-1.6,33-62%COD : 96%ThOD : 2.519BCF : 4

Bioaccumulation: Not significant

Anaerobic Effects: Significant degradation.

Effects on algae and plankton: Inhibits degradation of glucose

Degradation Biological: Significant processes

Abiotic: RxnOH*,no photochem

Ecotoxicity: Fish LC50 (48 h): fathead minnow 770 mg/l; (72 h): 480 mg/l; (96 h) 460 mg/l.

Prevent, by any means available, spillage from entering drains or water courses.

DO NOT discharge into sewer or waterways.

Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|--------------------|-------------------------|------------------|
| p-tert-butylphenol | HIGH | HIGH |
| m-xylenediamine | HIGH | HIGH |
| benzyl alcohol | LOW | LOW |

Bioaccumulative potential

| Ingredient | Bioaccumulation |
|--------------------|--------------------|
| p-tert-butylphenol | LOW (BCF = 240) |
| m-xylenediamine | LOW (BCF = 2.7) |
| benzyl alcohol | LOW (LogKOW = 1.1) |

Mobility in soil

| Ingredient | Mobility |
|------------|----------|
|------------|----------|

Continued...

VAPOR SOLVE LOW PERM 'B'

| Ingredient | Mobility |
|--------------------|-----------------------|
| p-tert-butylphenol | LOW (Log KOC = 1912) |
| m-xylenediamine | LOW (Log KOC = 914.6) |
| benzyl alcohol | LOW (Log KOC = 15.66) |



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.</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. ▸ 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. |
|------------------------------|--|

SECTION 14 Transport information

Labels Required

| | |
|------------------|---|
| |  |
| Marine Pollutant |  |

Shipping container, transport vehicle placarding, and labeling may vary from the below information. This depends on the quantity shipped, the applicability of excepted quantity requirements, limited quantity requirements, and/or special provisions according to US DOT, IATA and IMDG regulations. In case of reshipment, it is the responsibility of the shipper to determine the appropriate labels and markings in accordance with applicable transport regulations.

Land transport (DOT)

| | | |
|------------------------------------|--|--------------------|
| 14.1. UN number or ID number | 2735 | |
| 14.2. UN proper shipping name | Amines, liquid, corrosive, n.o.s. (contains m-xylenediamine) | |
| 14.3. Transport hazard class(es) | Class | 8 |
| | Subsidiary Hazard | Not Applicable |
| 14.4. Packing group | III | |
| 14.5. Environmental hazard | Environmentally hazardous | |
| 14.6. Special precautions for user | Hazard Label | 8 |
| | Special provisions | IB3, T7, TP1, TP28 |

Air transport (ICAO-IATA / DGR)

Continued...

VAPOR SOLVE LOW PERM 'B'

| | | |
|------------------------------------|--|----------------|
| 14.1. UN number | 2735 | |
| 14.2. UN proper shipping name | Amines, liquid, corrosive, n.o.s. * (contains m-xylenediamine) | |
| 14.3. Transport hazard class(es) | ICAO/IATA Class | 8 |
| | ICAO / IATA Subsidiary Hazard | Not Applicable |
| | ERG Code | 8L |
| 14.4. Packing group | III | |
| 14.5. Environmental hazard | Environmentally hazardous | |
| 14.6. Special precautions for user | Special provisions | A3 A803 |
| | Cargo Only Packing Instructions | 856 |
| | Cargo Only Maximum Qty / Pack | 60 L |
| | Passenger and Cargo Packing Instructions | 852 |
| | Passenger and Cargo Maximum Qty / Pack | 5 L |
| | Passenger and Cargo Limited Quantity Packing Instructions | Y841 |
| | Passenger and Cargo Limited Maximum Qty / Pack | 1 L |

Sea transport (IMDG-Code / GGVSee)

| | | |
|------------------------------------|--|----------------|
| 14.1. UN number | 2735 | |
| 14.2. UN proper shipping name | AMINES, LIQUID, CORROSIVE, N.O.S. (contains m-xylenediamine) | |
| 14.3. Transport hazard class(es) | IMDG Class | 8 |
| | IMDG Subsidiary Hazard | Not Applicable |
| 14.4. Packing group | III | |
| 14.5 Environmental hazard | Marine Pollutant | |
| 14.6. Special precautions for user | EMS Number | F-A , S-B |
| | Special provisions | 223 274 |
| | Limited Quantities | 5 L |

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

Not Applicable

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

| Product name | Group |
|--------------------|---------------|
| p-tert-butylphenol | Not Available |
| m-xylenediamine | Not Available |
| benzyl alcohol | Not Available |

14.7.3. Transport in bulk in accordance with the IGC Code

| Product name | Ship Type |
|--------------------|---------------|
| p-tert-butylphenol | Not Available |

Continued...

VAPOR SOLVE LOW PERM 'B'

| Product name | Ship Type |
|-----------------|---------------|
| m-xylenediamine | Not Available |
| benzyl alcohol | Not Available |

SECTION 15 Regulatory information

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

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

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

US - Alaska Air Quality Control - Concentrations Triggering an Air Quality Episode for Air Pollutants Other Than PM-2.5

US DOE Temporary Emergency Exposure Limits (TEELs)

US NIOSH Recommended Exposure Limits (RELs)

US OSHA Permissible Exposure Limits (PELs) Table Z-1

US OSHA Permissible Exposure Limits (PELs) Table Z-3

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

m-xylenediamine is found on the following regulatory lists

US - Massachusetts - Right To Know Listed Chemicals

US NIOSH Recommended Exposure Limits (RELs)

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

benzyl alcohol is found on the following regulatory lists

US - Massachusetts - Right To Know Listed Chemicals

US AIHA Workplace Environmental Exposure Levels (WEELs)

US DOE Temporary Emergency Exposure Limits (TEELs)

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

US Toxicology Excellence for Risk Assessment (TERA) Workplace Environmental Exposure Levels (WEEL)

Additional Regulatory Information

Not Applicable

Federal Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Section 311/312 hazard categories

| | |
|---|----|
| Flammable (Gases, Aerosols, Liquids, or Solids) | No |
| Gas under pressure | No |
| Explosive | No |
| Self-heating | No |
| Pyrophoric (Liquid or Solid) | No |
| Pyrophoric Gas | No |
| Corrosive to metal | No |
| Oxidizer (Liquid, Solid or Gas) | No |
| Organic Peroxide | No |
| Self-reactive | No |
| In contact with water emits flammable gas | No |
| Combustible Dust | No |

Continued...

VAPOR SOLVE LOW PERM 'B'

| | |
|--|-----|
| Carcinogenicity | No |
| Acute toxicity (any route of exposure) | Yes |
| Reproductive toxicity | Yes |
| Skin Corrosion or Irritation | Yes |
| Respiratory or Skin Sensitization | Yes |
| Serious eye damage or eye irritation | Yes |
| Specific target organ toxicity (single or repeated exposure) | No |
| Aspiration Hazard | No |
| Germ cell mutagenicity | No |
| Simple Asphyxiant | No |
| Hazards Not Otherwise Classified | No |

US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)

None Reported

US. EPCRA Section 313 Toxic Release Inventory (TRI) (40 CFR 372)

None Reported

Additional Federal Regulatory Information

Not Applicable

State Regulations**US. California Proposition 65**

None Reported

Additional State Regulatory Information

Not Applicable

National Inventory Status

| National Inventory | Status |
|---|--|
| Australia - AIIC / Australia Non-Industrial Use | Yes |
| Canada - DSL | Yes |
| Canada - NDSL | No (p-tert-butylphenol; m-xylenediamine; benzyl alcohol) |
| China - IECSC | Yes |
| Europe - EINEC / ELINCS / NLP | Yes |
| Japan - ENCS | Yes |
| Korea - KECI | Yes |
| New Zealand - NZIoC | Yes |
| Philippines - PICCS | Yes |
| USA - TSCA | Yes |
| Taiwan - TCSI | Yes |
| Mexico - INSQ | Yes |
| Vietnam - NCI | Yes |
| Russia - FBEPH | Yes |

Continued...

VAPOR SOLVE LOW PERM 'B'

| National Inventory | Status |
|--------------------|---|
| Legend: | Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration. |

SECTION 16 Other information

| | |
|---------------|------------|
| Revision Date | 06/19/2024 |
| Initial Date | 11/04/2019 |

CONTACT POINT

PLEASE NOTE THAT TITANIUM DIOXIDE IS NOT PRESENT IN CLEAR OR NEUTRAL BASES

SDS Version Summary

| Version | Date of Update | Sections Updated |
|---------|----------------|---|
| 7.14 | 06/19/2024 | Hazards identification - Classification, Name |

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.

Definitions and abbreviations

- PC - TWA: Permissible Concentration-Time Weighted Average
- PC - STEL: Permissible Concentration-Short Term Exposure Limit
- IARC: International Agency for Research on Cancer
- ACGIH: American Conference of Governmental Industrial Hygienists
- STEL: Short Term Exposure Limit
- TEEL: Temporary Emergency Exposure Limit,
- IDLH: Immediately Dangerous to Life or Health Concentrations
- ES: Exposure Standard
- OSF: Odour Safety Factor
- NOAEL: No Observed Adverse Effect Level
- LOAEL: Lowest Observed Adverse Effect Level
- TLV: Threshold Limit Value
- LOD: Limit Of Detection
- OTV: Odour Threshold Value
- BCF: BioConcentration Factors
- BEI: Biological Exposure Index
- DNEL: Derived No-Effect Level
- PNEC: Predicted no-effect concentration

- AIIC: Australian Inventory of Industrial Chemicals
- DSL: Domestic Substances List
- NDSL: Non-Domestic Substances List
- IECSC: Inventory of Existing Chemical Substance in China
- EINECS: European INventory of Existing Commercial chemical Substances
- ELINCS: European List of Notified Chemical Substances
- NLP: No-Longer Polymers
- ENCS: Existing and New Chemical Substances Inventory
- KECI: Korea Existing Chemicals Inventory
- NZIoC: New Zealand Inventory of Chemicals
- PICCS: Philippine Inventory of Chemicals and Chemical Substances

Continued...

VAPOR SOLVE LOW PERM 'B'

- ▶ TSCA: Toxic Substances Control Act
- ▶ TCSI: Taiwan Chemical Substance Inventory
- ▶ INSQ: Inventario Nacional de Sustancias Químicas
- ▶ NCI: National Chemical Inventory
- ▶ FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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