

HOUSE OF KOLOR KOSMIC KOLOR CLEAR LACQUER C-01

ChemWatch Material Safety Data Sheet

CHEMWATCH 5090-47

Date of Issue: Tue 12-Aug-2003

STATEMENT OF HAZARDOUS NATURE

HAZARDOUS ACCORDING TO WORKSAFE AUSTRALIA CRITERIA.

SUPPLIER

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SYNONYMS

SHIPPING NAME

PAINT None

Product Name: House of Kolor Kosmic Kolor Clear Lacquer C-01

Other Names: Product Code: C-01

CAS RN No(s): None None

UN Number: 1263

Packing Group: II

Dangerous Goods Class: 3

Subsidiary Risk: None, None

Hazchem Code: 3[Y]E

Poisons Schedule Number: None

USE

Used according to manufacturers directions.

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

For further information refer to the House of Kolor Technical Manual

PHYSICAL DESCRIPTION/PROPERTIES

APPEARANCE

Clear highly flammable liquid with a strong solvent odour; does not mix with water.

Boiling Point (°C):	Not Available
Melting Point (°C):	Not Available
Vapour Pressure (kPa):	Not Available
Specific Gravity:	0.926-0.927
Flash Point (°C):	-6.7 (MEK)
Lower Explosive Limit (%):	Not Available
Upper Explosive Limit (%):	Not Available
Solubility in Water (g/L):	Immiscible

INGREDIENTS

NAME	CAS RN	%
toluene	108-88-3	10-30
methyl ethyl ketone	78-93-3	10-30
n-butyl acetate	123-86-4	1-5
acetone	67-64-1	1-5
xylene	1330-20-7	<1
ethyl-3-ethoxypropionate	763-69-9	NotSpec
resin, unregulated		NotSpec

HEALTH HAZARD

ACUTE HEALTH EFFECTS

SWALLOWED

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.

Considered an unlikely route of entry in commercial/industrial environments. The liquid may produce gastrointestinal discomfort and may be harmful if swallowed. Ingestion may result in nausea, pain and vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis.

Central nervous system (CNS) depression may include nonspecific discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.

EYE

Evidence exists, or practical experience predicts, that the material may cause severe eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Eye contact may cause significant inflammation with pain. Corneal injury may occur; permanent impairment of vision may result unless treatment is prompt and adequate.

Repeated or prolonged exposure to irritants may produce conjunctivitis.

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.

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The liquid may produce eye discomfort and is capable of causing temporary impairment of vision and/or transient eye inflammation, ulceration

SKIN

Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.

The material may produce moderate skin irritation; limited evidence or practical experience suggests, that the material either:

- produces moderate inflammation of the skin in a substantial number of individuals following direct contact and/or
- produces significant, but moderate, inflammation when applied to the healthy intact skin of animals (for up to four hours), such inflammation being present twenty-four hours or more after the end of the exposure period.

Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis.

At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

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.

The material may cause skin irritation after prolonged or repeated exposure and

may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling the epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

INHALED

Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.

Inhalation of vapours, aerosols (mists, fumes) or dusts, generated by the material during the course of normal handling, may be harmful.

Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, drowsiness, reduced alertness, loss of reflexes, lack of coordination and vertigo.

If exposure to highly concentrated solvent atmosphere is prolonged this may lead to narcosis, unconsciousness, even coma and possible death.

Exposure to ketone vapours may produce nose, throat and mucous membrane irritation. High concentrations of vapour may produce central nervous system depression characterised by headache, vertigo, loss of coordination, narcosis and cardiorespiratory failure. Some ketones produce neurological disorders (polyneuropathy) characterised by bilateral symmetrical paresthesia and muscle weakness primarily in the legs and arms.

The main effects of simple aliphatic esters are narcosis and irritation and anaesthesia at higher concentrations. These effects become greater as the molecular weights and boiling points increase. Central nervous system depression, headache, drowsiness, dizziness, coma and neurobehavioral changes may also be symptomatic of overexposure. Respiratory tract involvement may produce mucous membrane irritation, dyspnea, and tachypnea, pharyngitis, bronchitis, pneumonitis and, in massive exposures, pulmonary oedema (which may be delayed). Gastrointestinal effects include nausea, vomiting, diarrhoea and abdominal cramps. Liver and kidney damage may result from massive exposures.

CHRONIC HEALTH EFFECTS

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

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern,

on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucous production.

Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).

Chronic solvent inhalation exposures may result in nervous system impairment and liver and blood changes. [PATTYS].

Chronic toluene habituation occurs following intentional abuse (glue sniffing) or from occupational exposure. Ataxia, incoordination and tremors of the hands and feet (as a consequence of diffuse cerebral atrophy), headache, abnormal speech, transient memory loss, convulsions, coma, drowsiness, reduced colour perception, frank blindness, nystagmus (rapid, involuntary eye-movements), decreased hearing loss leading to deafness and mild dementia have all been associated with chronic abuse. Peripheral nerve damage, encephalopathy, giant axonopathy electrolyte disturbances in the cerebrospinal fluid and abnormal computer tomographic (CT scans) are common amongst toluene addicts. Although toluene abuse has been linked with kidney disease, this does not commonly appear in cases of occupational toluene exposures. Cardiac and haematological toxicity are however associated with chronic toluene exposures. Cardiac arrhythmia, multifocal and premature ventricular contractions and supraventricular tachycardia are present in 20% of patients who abused toluene-containing paints. Previous suggestions that chronic toluene inhalation produced human peripheral neuropathy have been discounted. However central nervous system (CNS) depression is well documented where blood toluene exceeds 2.2 mg%. Toluene abusers can achieve transient circulating concentrations of 6.5 mg%. Amongst workers exposed for a median time of 29 years, to toluene, no subacute effects on neurasthenic complaints and psychometric test results could be established. The prenatal toxicity of very high toluene concentrations has been documented for several animal species and man. Malformations indicative of specific teratogenicity have not generally been found. Neonatal toxicity, described in the literature, takes the form of embryo death or delayed foetal growth and delayed skeletal system development. Permanent damage of children has been seen only when mothers have suffered from chronic intoxication as a result of "sniffing".

FIRST AID

SWALLOWED

If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

- 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.

EYE

If this product comes in contact with the eyes:

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- If pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin contact occurs:

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

INHALED

- 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.

ADVICE TO DOCTOR

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

for simple ketones:

BASIC TREATMENT

- Establish a patent airway with suction where necessary.
 - Watch for signs of respiratory insufficiency and assist ventilation as necessary.
 - Administer oxygen by non-rebreather mask at 10 to 15 l/min.
 - Monitor and treat, where necessary, for pulmonary oedema .
 - Monitor and treat, where necessary, for shock.
 - DO NOT use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5mL/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.
 - Give activated charcoal.
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ADVANCED TREATMENT

- Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
 - Consider intubation at first sign of upper airway obstruction resulting from oedema.
 - Positive-pressure ventilation using a bag-valve mask might be of use.
 - Monitor and treat, where necessary, for arrhythmias.
 - Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
 - Drug therapy should be considered for pulmonary oedema.
 - Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
 - Treat seizures with diazepam.
 - Proparacaine hydrochloride should be used to assist eye irrigation.
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EMERGENCY DEPARTMENT

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

BRONSTEIN, A.C. and CURRANCE, P.L.

EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994.

Following acute or short term repeated exposures to toluene:

- Toluene is absorbed across the alveolar barrier, the blood/air mixture being 11.2/15.6 (at 37 degrees C.) The concentration of toluene, in expired breath, is of the order of 18 ppm following sustained exposure to 100 ppm. The tissue/blood proportion is 1/3 except in adipose where the proportion is 8/10.
- Metabolism by microsomal mono-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

PRECAUTIONS FOR USE

EXPOSURE STANDARDS

No data for House of Kolor Kosmic Kolor Clear Lacquer C-01.

EXPOSURE STANDARDS FOR MIXTURE

"Worst Case" computer-aided prediction of vapour components/concentrations:

Composite Exposure Standard for Mixture (TWA) (mg/m³): 297.6162 mg/m³

If the breathing zone concentration of ANY of the components listed below is exceeded, "Worst Case" considerations deem the individual to be overexposed.

Component	Breathing Zone ppm	Breathing Zone mg/m ³	Mixture Conc: (%)
toluene	32.92	125.7533	30
xylene	0.96	4.1918	1
methyl ethyl ketone	42.39	125.7533	30
n-butyl acetate	4.41	20.9589	5
acetone	8.82	20.9589	5

Operations which produce a spray/mist or fume/dust, introduce particulates to the breathing zone.

If the breathing zone concentration of ANY of the components listed below is exceeded, "Worst Case" considerations deem the individual to be overexposed.

At the "Composite Exposure Standard for Mixture" (TWA) (mg/m³): 71 mg/m³

Component Breathing Zone ppm Breathing Zone mg/m³ Mixture Conc (%)

INGREDIENT DATA

TOLUENE:

TLV TWA: 50 ppm Skin;A4;BEI [ACGIH]

PEL: 8hr TWA 200 ppm ; Ceiling Conc: 300ppm ; Max excursion: 500 ppm for 10 minutes [OSHA Z2]

ES TWA: 50 ppm, 191 mg/m³; STEL 150 ppm, 574 mg/m³ SKIN

TLV TWA: 50 ppm, 188 mg/m³ SKIN A4

NOTE: This substance has been classified by the ACGIH as A4 NOT classifiable as causing Cancer in humans

OES TWA: 50 ppm, 191 mg/m³; STEL: 150 ppm, 574 mg/m³ SKIN

MAK value: 50 ppm, 190 mg/m³

MAK Category II Peak Limitation: For substances with systemic effects and with a half-life in humans ranging from two hours to shift-length.

Allows excursions of 5 times the MAK value, for 30 minutes (on average), twice per shift.

MAK Group C: There is no reason to fear risk of damage to the developing embryo when MAK and BAT values are observed.

MAK values, and categories and groups are those recommended within the Federal Republic of Germany

IDLH Level: 500 ppm

Odour Threshold Value: 0.16-6.7 (detection), 1.9-69 (recognition)

NOTE: Detector tubes measuring in excess of 5 ppm, are available.

Exposure limits with "skin" notation indicate that vapour and liquid may be absorbed through intact skin. Absorption by skin may readily exceed vapour inhalation exposure. Symptoms for skin absorption are the same as for inhalation. Contact with eyes and mucous membranes may also contribute to overall exposure and may also invalidate the exposure standard.

High concentrations of toluene in the air produce depression of the central nervous system (CNS) in humans. Intentional toluene exposure (glue-sniffing) at maternally-intoxicating concentration has also produced birth defects. Foetotoxicity appears at levels associated with CNS

narcosis and probably occurs only in those with chronic toluene-induced kidney failure. Exposure at or below the recommended TLV-TWA is thought to prevent transient headache and irritation, to provide a measure of safety for possible disturbances to human reproduction, the prevention of reductions in cognitive responses reported amongst humans inhaling greater than 40 ppm, and the significant risks of hepatotoxic, behavioural and nervous system effects (including impaired reaction time and incoordination). Although toluene/ethanol interactions are well recognised, the degree of protection afforded by the TLV-TWA among drinkers is not known.

METHYL ETHYL KETONE:

TLV TWA: 200 ppm BEI [ACGIH]

TLV STEL: 300 ppm BEI [ACGIH]

PEL TWA: 200 ppm, 590 mg/m³ [OSHA Z1]

TLV TWA: 200 ppm, 590 mg/m³; STEL: 300 ppm, 885 mg/m³

ES TWA: 150 ppm, 445 mg/m³; STEL: 300 ppm, 890 mg/m³

OES TWA: 200 ppm, 600 mg/m³; STEL: 300 ppm, 899 mg/m³ skin

MAK value: 200 ppm, 600 mg/m³

Designated H in List of MAK values: Danger of cutaneous absorption.

Absorption of such substances through the skin can pose an incomparably larger danger of toxicity than their inhalation. To avoid health risks when handling such substances, meticulous cleaning of the skin, hair and clothing is imperative.

MAK Category I Peak Limitation: For local irritants Allows excursions of twice the MAK value for 5 minutes at a time, 8 times per shift.

MAK Group C: There is no reason to fear risk of damage to the developing embryo when MAK and BAT values are observed.

MAK values, and categories and groups are those recommended within the Federal Republic of Germany

IDLH Level: 3000 ppm

Odour Threshold Value: Variously reported as 2 ppm and 4.8 ppm

Odour threshold: 2 ppm (detection); 5 ppm (recognition)

25 ppm (easy recognition); 300 ppm IRRITATING

Exposures at or below the recommended TLV-TWA are thought to prevent injurious systemic effects and to minimise objections to odour and irritation. Where synergism or potentiation may occur stringent control of the primary toxin (e.g. n-hexane or methyl butyl ketone) is desirable and additional consideration should be given to lowering MEK exposures.

N-BUTYL ACETATE:

TLV TWA: 150 ppm [ACGIH]

TLV STEL: 200 ppm [ACGIH]

PEL TWA: 150 ppm, 710 mg/m³ [OSHA Z1]

TLV TWA: 150 ppm, 713 mg/m³; STEL: 200 ppm, 950 mg/m³

ES TWA: 150 ppm, 713 mg/m³; STEL: 200 ppm, 950 mg/m³

OES TWA: 150 ppm, 724 mg/m³; STEL: 200 ppm, 966 mg/m³

MAK value: 100 ppm, 480 mg/m³

MAK Category I Peak Limitation: For local irritants Allows excursions of twice the MAK value for 5 minutes at a time, 8 times per shift.

MAK values, and categories and groups are those recommended within the Federal Republic of Germany

Odour Threshold Value: 0.0063 ppm (detection), 0.038-12 ppm (recognition)
IDLH Level: 1700 ppm (lower explosive limit)
Exposure at or below the recommended TLV-TWA is thought to prevent significant irritation of the eyes and respiratory passages as well as narcotic effects. In light of the lack of substantive evidence regarding teratogenicity and a review of acute oral data a STEL is considered inappropriate.

ACETONE:

TLV TWA: 500 ppm A4; BEI [ACGIH]

TLV STEL: 750 ppm A4; BEI [ACGIH]

PEL TWA: 1000 ppm, 2400 mg/m³ [OSHA Z1]

TLV TWA: 500 ppm, 1188 mg/m³; STEL: 750 ppm, 1782 mg/m³ A4

NOTE: This substance has been classified by the ACGIH as A4 NOT classifiable as causing Cancer in humans

ES TWA: 500 ppm, 1185 mg/m³; STEL: 1000 ppm, 2375 mg/m³

OES TWA: 750 ppm, 1810 mg/m³; STEL: 1500 ppm, 3620 mg/m³

NIOSH REL TWA: 250 ppm

MAK Value: 500 ppm, 1200 mg/m³

IDLH Level: 2500 ppm (lower explosive limit)

MAK Category I Peak Limitation: For local irritants Allows excursions of twice the MAK value for 5 minutes at a time, 8 times per shift.

MAK Group IIc: Substances with MAK Values but no pregnancy risk group classification. These are substances which have been investigated but for which no information regarding possible damage to the foetus/embryo was found. Mention calls attention to the absence of adequate data.

MAK values, and categories and groups are those recommended within the Federal Republic of Germany

Odour Threshold Value: 3.6 ppm (detection), 699 ppm (recognition)

Saturation vapour concentration: 237000 ppm @ 20 C

NOTE: Detector tubes measuring in excess of 40 ppm, are available.

Exposure at or below the recommended TLV-TWA is thought to protect the worker against mild irritation associated with brief exposures and the bioaccumulation, chronic irritation of the respiratory tract and headaches associated with long-term acetone exposures. The NIOSH REL-TWA is substantially lower and has taken into account slight irritation experienced by volunteer subjects at 300 ppm. Mild irritation to acclimatised workers begins at about 750 ppm - unacclimatised subjects will experience irritation at about 350-500 ppm but acclimatisation can occur rapidly. Disagreement between the peak bodies is based largely on the view by ACGIH that widespread use of acetone, without evidence of significant adverse health effects at higher concentrations, allows acceptance of a higher limit.

Half-life of acetone in blood is 3 hours which means that no adjustment for shift-length has to be made with reference to the standard 8 hour/day, 40 hours per week because body clearance occurs within any shift with low potential for accumulation.

A STEL has been established to prevent excursions of acetone vapours that could cause depression of the central nervous system.

XYLENE:

TLV TWA: 100 ppm A4;BEI [ACGIH]

TLV STEL: 150 ppm A4;BEI [ACGIH]

PEL TWA: 100 ppm, 435 mg/m³ [OSHA Z1]

TLV TWA: 100 ppm, 434 mg/m³; STEL: 150 ppm, 651 mg/m³ A4

NOTE: This substance has been classified by the ACGIH as A4 NOT classifiable as causing Cancer in humans

ES TWA: 80 ppm, 350 mg/m³; STEL: 150 ppm, 655 mg/m³ (Under review)

OES TWA: 100 ppm, 441 mg/m³; STEL: 150 ppm, 662 mg/m³ skin

Exposure limits with "skin" notation indicate that vapour and liquid may be absorbed through intact skin. Absorption by skin may readily exceed vapour inhalation exposure. Symptoms for skin absorption are the same as for inhalation. Contact with eyes and mucous membranes may also contribute to overall exposure and may also invalidate the exposure standard.

IDLH Level: 900 ppm

Odour Threshold Value: 20 ppm (detection), 40 ppm (recognition)

NOTE: Detector tubes for o-xylene, measuring in excess of 10 ppm, are available commercially. (m-xylene and p-xylene give almost the same response)

Xylene vapour is an irritant to the eyes, mucous membranes and skin and causes narcosis at high concentrations. Exposure to doses sufficiently high to produce intoxication and unconsciousness also produces transient liver and kidney toxicity. Neurologic impairment is NOT evident amongst volunteers inhaling up to 400 ppm though complaints of ocular and upper respiratory tract irritation occur at 200 ppm for 3 to 5 minutes. Exposure to xylene at or below the recommended TLV-TWA and STEL is thought to minimise the risk of irritant effects and to produce neither significant narcosis or chronic injury. An earlier skin notation was deleted because percutaneous absorption is gradual and protracted and does not substantially contribute to the dose received by inhalation.

ETHYL-3-ETHOXYPROPIONATE:

No exposure limits set by NOHSC or ACGIH

CEL TWA: 50 ppm, 300mg/m³ [Eastman]

ENGINEERING CONTROLS

For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid	0.5-1 m/s (100-200 f/min.)

fumes, pickling (released at low velocity into zone of active generation)
 direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion) 1-2.5 m/s (200-500 f/min.)

Within each range the appropriate value depends on:

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

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

PERSONAL PROTECTION

EYE

Safety glasses with side shields.
 Chemical goggles.
 Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them. DO NOT wear contact lenses.

HANDS/FEET

Wear chemical protective gloves, eg. PVC.
 Wear safety footwear or safety gumboots, eg. Rubber

OTHER

Overalls.
 PVC Apron.
 PVC protective suit may be required if exposure severe.
 Eyewash unit.
 Ensure there is ready access to a safety shower.

RESPIRATOR

Respiratory protection may be required when ANY "Worst Case" vapour-phase concentration is exceeded (see Computer Prediction in "Exposure Standards").

Protection Factor	Half-Face Respirator	Full-Face Respirator
10 x ES	AX-AUS AX-PAPR-AUS	-
50 x ES	Air-line*	-
100 x ES	-	AX-3
100+ x ES	-	Air-line**

* - Continuous-flow; ** - Continuous-flow or positive pressure demand

^ - Full-face

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

SAFE HANDLING

STORAGE AND TRANSPORT**SUITABLE CONTAINER**

Packing as supplied by manufacturer. Plastic containers may only be used if approved for flammable liquid. Check that containers are clearly labelled and free from leaks.

- For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : Where a can is to be used as an inner package, the can must have a screwed enclosure.
 - For materials with a viscosity of at least 2680 cSt. (23 deg. C)
 - For manufactured product having a viscosity of at least 250 cSt. (23 deg. C)
 - Manufactured product that requires stirring before use and having a viscosity of at least 20 cSt (25 deg. C)
- (i) : Removable head packaging;

(ii) : Cans with friction closures and

(iii) : low pressure tubes and cartridges may be used.

- Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages
- In addition, where inner packagings are glass and contain liquids of packing group I there must be sufficient inert absorbent to absorb any spillage, unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.

STORAGE INCOMPATIBILITY

Avoid reaction with oxidising agents

STORAGE REQUIREMENTS

- 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 storing and handling recommendations.

TRANSPORTATION

Class 3 - Flammable liquids shall not be loaded in the same vehicle or packed in the same vehicle or packed in the same freight container with:

Class 1 - Explosives;

Class 2.1 - Flammable gases (where both flammable liquids and flammable gases are in bulk);

Class 2.3 - Poisonous gases;

Class 4.2 - Spontaneously combustible substances;

Class 5.1 - Oxidising agents;

Class 5.2 - Organic peroxides;

Class 7 - Radioactive substances.

SPILLS AND DISPOSAL

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb small quantities with vermiculite or other absorbent material.

- Wipe up.
- Collect residues in a flammable waste container.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- Consider evacuation (or protect in place).
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Water spray or fog may be used to disperse /absorb vapour.
- Contain spill with sand, earth or vermiculite.
- Use only spark-free shovels and explosion proof equipment.
- Collect recoverable product into labelled containers for recycling.
- Absorb remaining product with sand, earth or vermiculite.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDLINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing life-threatening health effects is 1000 ppm
irreversible or other serious effects or symptoms
which could impair an individual's ability to take
protective action is 300 ppm
other than mild, transient adverse effects
without perceiving a clearly defined odour is 50 ppm
American Industrial Hygiene Association (AIHA)

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.
 - Dispose of by: Burial in a licenced land-fill or Incineration in a licenced apparatus (after admixture with suitable combustible material)
 - Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.
- Puncture containers to prevent re-use and bury at an authorised landfill.

FIRE FIGHTERS' REPORT

EXTINGUISHING MEDIA

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

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
 - May be violently or explosively reactive.
 - Wear breathing apparatus plus protective gloves.
 - 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.
- When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 500 metres in all directions.

FIRE/EXPLOSION HAZARD

- Liquid and vapour are highly flammable.
 - Severe fire hazard when exposed to heat, flame and/or oxidisers.
 - Vapour may travel a considerable distance to source of ignition.
 - Heating may cause expansion or decomposition leading to violent rupture of containers.
 - On combustion, may emit toxic fumes of carbon monoxide (CO).
- Combustion products include.
carbon dioxide (CO₂).
other pyrolysis products typical of burning organic material.
Contains low boiling substance: Closed containers may rupture due to pressure buildup under fire conditions.

FIRE INCOMPATIBILITY

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

HAZCHEM

3[Y]E

CONTACT POINT

COMPANY CONTACT

(+61 2) 9737 9422

AUSTRALIAN POISONS INFORMATION CENTRE

24 HOUR SERVICE: 13 11 26

POLICE, FIRE BRIGADE OR AMBULANCE: 000

NEW ZEALAND POISONS INFORMATION CENTRE

24 HOUR SERVICE: 0800 764 766

NZ EMERGENCY SERVICES: 111

End of Report

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