

# HOUSE OF KOLOR SHIMRIN BASES - SG-101, SG-102

ChemWatch Material Safety Data Sheet

CHEMWATCH 5090-36

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## 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 Shimrin Bases - SG-101, SG-102

Other Names: Product Codes: SG-101, SG-102

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

Yellow 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:	1.149-1.239
Flash Point (°C):	15.6
Lower Explosive Limit (%):	Not Available
Upper Explosive Limit (%):	Not Available
Solubility in Water (g/L):	Immiscible

## INGREDIENTS

NAME	CAS RN	%
n-butyl acetate		10-30
xylene	1330-20-7	10-30
bismuth molybdate(VI)	12048-83-8	1-9
lead chromate	7758-97-6	10-30
acrylic resin	Various	10-30
cellulose acetate butyrate	9004-36-8	1-9
methyl isobutyl ketone	108-10-1	1-9
ethyl-3-ethoxypropionate	763-69-9	1-9

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## HEALTH HAZARD

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### ACUTE HEALTH EFFECTS

#### SWALLOWED

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

## **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 material may produce severe irritation to the eye causing pronounced inflammation. 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.

## **SKIN**

Skin contact with the material may be harmful; systemic effects may result following absorption.

Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. The material may accentuate any pre-existing dermatitis condition. 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**

The material may produce respiratory tract irritation. Symptoms of pulmonary irritation may include coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and a burning sensation.

Unlike most organs, the lung can respond to a chemical insult or a chemical agent, by first removing or neutralising the irritant and then repairing the damage (inflammation of the lungs may be a consequence).

The repair process (which initially developed to protect mammalian lungs from foreign matter and antigens) may, however, cause further damage to the lungs

(fibrosis for example) when activated by hazardous chemicals. Often, this results in an impairment of gas exchange, the primary function of the lungs. Therefore prolonged exposure to respiratory irritants may cause sustained breathing difficulties.

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.

Xylene is a central nervous system depressant. 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.

Headache, fatigue, lassitude, irritability and gastrointestinal disturbances (e.g., nausea, anorexia and flatulence) are the most common symptoms of xylene overexposure. Injury to the heart, liver, kidneys and nervous system has also been noted amongst workers. Transient memory loss, renal impairment, temporary confusion and some evidence of disturbance of liver function was reported in three workers overcome by gross exposure to xylene (10000 ppm). One worker died and autopsy revealed pulmonary congestion, oedema and focal alveolar haemorrhage. Volunteers inhaling xylene at 100 ppm for 5 to 6 hours showed changes in manual coordination reaction time and slight ataxia. Tolerance developed during the workweek but was lost over the weekend. Physical exercise may antagonise this effect. Xylene body burden in humans exposed to 100 or 200 ppm xylene in air depends on the amount of body fat with 4% to 8% of total absorbed xylene accumulating in adipose tissue.

## CHRONIC HEALTH EFFECTS

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

On the basis of epidemiological data, the material is regarded as carcinogenic to humans. There is sufficient data to establish a causal association between human exposure to the material and the development of cancer.

Exposure to the material may cause concerns for human fertility, generally on the basis that results in animal studies provide sufficient evidence to cause a strong suspicion of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects, but which are not a secondary non-specific consequence of other toxic effects.

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

Excessive exposure to lead can affect the blood, the nervous system, heart, endocrine organs and the immune system and the digestive system. The synthesis of haemoglobin is inhibited and can result in anaemia. If left untreated, neuromuscular dysfunction, possible paralysis and encephalopathy (brain tissue damage) may result. Other symptoms of overexposure include joint and muscle

pain, weakness of the extensor muscles (frequently the hand and wrist), headache, dizziness, abdominal pain, diarrhoea, constipation, nausea, vomiting, blue line on the gums, insomnia and metallic taste. High body levels produce cerebrospinal pressure, brain damage with stupor leading to coma and, in some cases, death. Early symptoms of lead poisoning ("plumbism") include anorexia and loss of weight, constipation, apathy or irritability, occasional vomiting, fatigue, headache, weakness, and a metallic taste in the mouth. Advanced poisonings are characterised by intermittent vomiting, irritability, nervousness, myalgia of the arms and legs (often with wrist and foot drop). Severe poisonings may produce persistent vomiting, ataxia, stupor or lethargy, visual disturbances progressing to optic neuritis and atrophy, hypertension, papilloedema, cranial nerve paralysis, delirium, convulsions and coma. Neurological effects include mental retardation, seizures, cerebral palsy and marked muscular contractions that distort the spine, limbs, hips and sometimes the cranial innervated muscles (dystonia musculorum deformans). Industrial exposure has been associated with irreversible kidney damage. Lead is a cumulative poison with adverse effects in pregnancy [NIOSH/TIC] Lead salts have been reported to cross the placenta and induce embryo- and foeto-mortality. They also may have a teratogenic effect (causing birth deformities) in certain animal species. Organometallic lead may not produce these effects. Adverse effects of lead on human reproduction, embryonic and foetal development and postnatal mental development have also been recorded. Foetal exposure to lead may result in birth defects, mental retardation, behavioural disorders and death during the first year of childhood. Paternal effects may include reduced sex drive, impotence, sterility and adverse effects on the sperm which in turn may increase the potential for increased birth defects. Maternal effects may include miscarriage and stillbirth in exposed women, or women whose husbands might be exposed, sterility or decreased fertility, and abnormal menses. Exposure by both parents to lead may exacerbate the reproductive effects.

## FIRST AID

### SWALLOWED

- 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.

## 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.

Severe bismuth intoxication may be treated with dimercaptol (BAL in oil). Induction of acidosis by administration of ammonium chloride has been claimed to promote mobilisation of bismuth from tissue depots and increase the rate of urinary excretion.

[Martindale: The Extra Pharmacopoeia]

In mouse models D-penicillamine (Cuprimine M.S. & D) is a useful chelating agent. [Ellenhorn & Barceloux: Medical Toxicology].

For acute or short term repeated exposures to dichromates and chromates:

- Absorption occurs from the alimentary tract and lungs.
- The kidney excretes about 60% of absorbed chromate within 8 hours of ingestion. Urinary excretion may take up to 14 days.
- Establish airway, breathing and circulation. Assist ventilation.
- Induce emesis with Ipecac Syrup if patient is not convulsing, in coma or

obtunded and if the gag reflex is present.

- Otherwise use gastric lavage with endotracheal intubation.
- Fluid balance is critical. Peritoneal dialysis, haemodialysis or exchange transfusion may be effective although available data is limited.
- British Anti-Lewisite, ascorbic acid, folic acid and EDTA are probably not effective.
- There are no antidotes.
- Primary irritation, including chrome ulceration, may be treated with ointments comprising calcium-sodium-EDTA. This, together with the use of frequently renewed dressings, will ensure rapid healing of any ulcer which may develop. The mechanism of action involves the reduction of Cr (VI) to Cr(III) and subsequent chelation; the irritant effect of Cr(III)/ protein complexes is thus avoided. [ILO Encyclopedia]

[Ellenhorn and Barceloux: Medical Toxicology].

For acute or short term repeated exposures to xylene:

- Gastro-intestinal absorption is significant with ingestions. For ingestions exceeding 1-2 ml (xylene)/kg, intubation and lavage with cuffed endotracheal tube is recommended. The use of charcoal and cathartics is equivocal.
- Pulmonary absorption is rapid with about 60-65% retained at rest.
- Primary threat to life from ingestion and/or inhalation, is respiratory failure.
- Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases ( $pO_2 < 50$  mm Hg or  $pCO_2 > 50$  mm Hg) should be intubated.
- Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.
- A chest x-ray should be taken immediately after stabilisation of breathing and circulation to document aspiration and detect the presence of pneumothorax.
- Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitisation to catecholamines. Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.

#### 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
Methylhippu-ric acids in urine	1.5 gm/gm creatinine	End of shift	
	2 mg/min	Last 4 hrs of shift	

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## PRECAUTIONS FOR USE

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## EXPOSURE STANDARDS

No data for House of Kolor Shimrin Bases - SG-101, SG-102.

### EXPOSURE STANDARDS FOR MIXTURE

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

Composite Exposure Standard for Mixture (TWA) (mg/m<sup>3</sup>): 300.7204 mg/m<sup>3</sup>

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 <sup>3</sup>	Mixture Conc:
methyl isobutyl ketone	13.75	56.3851	9
ethyl-3-ethoxypropionate	9.4	56.3851	9
xylene	42.96	187.9502	30

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/m<sup>3</sup>): 48 mg/m<sup>3</sup>

Component Conc (%)	Breathing Zone ppm	Breathing Zone mg/m <sup>3</sup>	Mixture
bismuth molybdate(VI)	6.265	1	0
lead chromate	62.6501	10	0
acrylic resin	187.9502	30	0
cellulose acetate butyrate	6.265	1	0

### INGREDIENT DATA

#### XYLENE:

TLV TWA: 100 ppm A4;BEI [ACGIH]

TLV STEL: 150 ppm A4;BEI [ACGIH]

PEL TWA: 100 ppm, 435 mg/m<sup>3</sup> [OSHA Z1]

TLV TWA: 100 ppm, 434 mg/m<sup>3</sup>; STEL: 150 ppm, 651 mg/m<sup>3</sup> 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/m<sup>3</sup>; STEL: 150 ppm, 655 mg/m<sup>3</sup> (Under review)

OES TWA: 100 ppm, 441 mg/m<sup>3</sup>; STEL: 150 ppm, 662 mg/m<sup>3</sup> 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.

#### BISMUTH MOLYBDATE(VI):

TLV TWA: 10 mg/m<sup>3</sup> (Inhalable fraction) [ACGIH]

TLV TWA: 3 mg/m<sup>3</sup> (R) Metal and Insoluble Compounds [ACGIH]

ES TWA: 10 mg/m<sup>3</sup>

OES TWA: 10 mg/m<sup>3</sup>; STEL: 20 mg/m<sup>3</sup>

IDLH Level: 5000 mg/m<sup>3</sup>

An increased incidence of non-specific symptoms including headache, weakness, fatigue, anorexia and joint and muscle weakness has been reported to occur in mining and metallurgy workers exposed to 60-600 mg (as Mo). Some investigators have attributed gout and elevated uric acid concentration found in some Armenians to result from exposures to Armenian soils rich in molybdenum, whilst exposure has been implicated as a cause of bone disease amongst Indians. "These involvements are speculative". [US National Research Council]. As far as it is known, the recommended TLV-TWA incorporates a large margin of safety against potential pulmonary or systemic effects.

#### LEAD CHROMATE:

TLV TWA: 0.012 mg/m<sup>3</sup> as Cr A2 [ACGIH]

TLV TWA: 0.05 mg/m<sup>3</sup> as Pb A2;BEI [ACGIH]  
as lead chromate

TLV TWA: 0.0745 mg/m<sup>3</sup>

ES TWA: 0.31 mg/m<sup>3</sup>

as Pb:

TLV-TWA: 0.05 mg/m<sup>3</sup>

as Cr:

TLV-TWA: 0.012 mg/m<sup>3</sup>

ES-TWA: 0.05 mg/m<sup>3</sup>

WARNING: This substance is classified by the NOHSC as Category 2 Probable Human Carcinogen.

WARNING: This substance has been classified by the ACGIH as A2 Suspected Human Carcinogen.

MAK IIIB: Substances suspected of having carcinogenic potential

The TLV-TWA expressed as lead is recommended to minimise the potential from adverse health effects arising from exposure to lead. At this concentration the excess risk for lead and chromate induced cancers should also be reduced.

For each of the following

ACRYLIC RESIN:

CELLULOSE ACETATE BUTYRATE:

TLV TWA: 10 mg/m<sup>3</sup> (Value for particulate matter containing no asbestos and <1% crystalline

silica, Inhalable fraction) [ACGIH]

TLV TWA: 3 mg/m<sup>3</sup> (Value for particulate matter containing no asbestos and <1% crystalline

silica, Respirable fraction) [ACGIH]

No exposure limits set by NOHSC or ACGIH.

Dusts not otherwise classified, as inspirable dust;

ES TWA: 10 mg/m<sup>3</sup>

METHYL ISOBUTYL KETONE:

TLV TWA: 50 ppm BEI [ACGIH]

TLV STEL: 75 ppm BEI [ACGIH]

PEL TWA: 100 ppm, 410 mg/m<sup>3</sup> [OSHA Z1]

TLV TWA: 50 ppm, 205 mg/m<sup>3</sup>; STEL: 75 ppm, 307 mg/m<sup>3</sup>

ES TWA: 50 ppm, 205 mg/m<sup>3</sup>; STEL: 75 ppm, 307 mg/m<sup>3</sup> (Under review)

PROPOSED CHANGE - ADDITION

ES TWA 50 ppm, 205 mg/m<sup>3</sup>; STEL: 75 ppm, 307 mg/m<sup>3</sup> SKIN

OES TWA: 50 ppm, 208 mg/m<sup>3</sup>; STEL: 100 ppm, 416 mg/m<sup>3</sup> 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.

MAK value: 20 ppm, 83 mg/m<sup>3</sup>

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: 500 ppm

Unfatigued, odour recognition threshold (100% test panel) is 0.3 - 0.5 ppm.

Distinct odour at 15 ppm.

Odour is objectionable and vapours are irritating to eyes at 200 ppm.

NOTE: Detector tubes for methyl isobutyl ketone, measuring in excess of 50 ppm, are commercially available.

Exposure at or below the recommended TLV-TWA should provide sufficient protection against the potential irritant effects, headache and nausea, neurasthemic symptoms and other systemic toxicities (including liver and kidney damage) produced by MIBK.

## ETHYL-3-ETHOXYPROPIONATE:

No exposure limits set by NOHSC or ACGIH  
 CEL TWA: 50 ppm, 300mg/m<sup>3</sup> [Eastman]

**ENGINEERING CONTROLS**

General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in special circumstances. If risk of overexposure exists, wear approved respirator. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection. Provide adequate ventilation in warehouses and enclosed storage areas. 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 fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion)	2.5-10 m/s (500-2000 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.

- Employees exposed to confirmed human carcinogens should be authorized to do so by the employer, and work in a regulated area.
  - Work should be undertaken in an isolated system such as a "glove-box" .
- Employees should wash their hands and arms upon completion of the assigned task and before engaging in other activities not associated with the isolated system.
- Within regulated areas, the carcinogen should be stored in sealed containers, or enclosed in a closed system, including piping systems, with any sample ports or openings closed while the carcinogens are contained within.
  - Open-vessel systems are prohibited.
  - Each operation should be provided with continuous local exhaust ventilation so that air movement is always from ordinary work areas to the operation.
  - Exhaust air should not be discharged to regulated areas, non-regulated areas or the external environment unless decontaminated. Clean make-up air should be introduced in sufficient volume to maintain correct operation of the local exhaust system.
  - For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.
  - Except for outdoor systems, regulated areas should be maintained under negative pressure (with respect to non-regulated areas).
  - Local exhaust ventilation requires make-up air be supplied in equal volumes to replaced air.
  - Laboratory hoods must be designed and maintained so as to draw air inward at an average linear face velocity of 150 feet/ min. with a minimum of 125 feet/ min. Design and construction of the fume hood requires that insertion of any portion of the employees body, other than hands and arms, be disallowed.

## **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

- Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood.

- Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood. Overalls.

PVC Apron.

PVC protective suit may be required if exposure severe.

Eyewash unit.

Ensure there is ready access to a safety shower.

- Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area.

- Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted.

- Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely.

## 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	A-AUS A-PAPR-AUS	-
50 x ES	Air-line*	-
100 x ES	-	A-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.

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## SAFE HANDLING

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## 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.

## **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**

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**

**WARNING:** In use may form flammable/ explosive vapour-air mixtures.

- 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 (CO<sub>2</sub>).

metal oxides.

other pyrolysis products typical of burning organic material

## **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

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## **CONTACT POINT**

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### 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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