WESTOX D-LAM 100

INDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

HAZARDOUS ACCORDING TO WORKSAFE AUSTRALIA CRITERIA

SUPPLIER

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HAZARD RATINGS

Product Name:	Westox D-Lam 100
Other Names:	D-LAM CONCENTRATE
CAS RN No(s):	None
UN Number: _	1993
Packing Group:	III
Dangerous Goods Class:	3(3.2)
Subsidiary Risk:	None
Hazchem Code:	3[Y]
Poisons Schedule Number:	None

USE

Used in contaminant stripping and graffiti and paint removal.

PHYSICAL DESCRIPTION/PROPERTIES

APPEARANCE

Slight hazy flammable liquid; partly mixes with water.

Boiling Point (°C):	Not available
Melting Point (°C):	Not available
Vapour Pressure (kPa):	Not available

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INDENTIFICATION …

Specific Gravity:	1.0-1.1
Flash Point (°C):	52(PPMC)
Lower Explosive Limit:	Not Available
Upper Explosive Limit:	Not Available
Solubility in Water (g/L):	Partly Miscible

INGREDIENTS

NAME	CAS RN	%
Dibasic acid ester	Not avail.	>60
N-methyl-2-pyrrolidone	872-50-4	10-30
d-limonene	5989-27-5	10-30
additives unregulated		10-30

HEALTH HAZARD

ACUTE HEALTH EFFECTS

SWALLOWED

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

EYE

The liquid is highly discomforting to the eyes.
The vapour is discomforting to the eyes.
The material may produce moderate eye irritation leading to inflammation.
Repeated or prolonged exposure to irritants may produce conjunctivitis.

SKIN

The liquid is discomforting to the skin and may cause skin sensitisation.
Toxic effects may result from skin absorption.
Bare unprotected skin should not be exposed to this material. The material may accentuate any pre-existing skin condition.
Sensitisation may result in allergic dermatitis responses including rash, itching, hives or swelling of extremities.
The material may produce severe 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) thickening of the epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. Prolonged contact is unlikely, given the severity of response, but repeated exposures may produce severe ulceration.

INHALED

The vapour/mist is discomforting to the upper respiratory tract.
Acute effects from inhalation of high vapour concentrations may be chest and nasal irritation with coughing, sneezing, headache and even nausea.

CHRONIC HEALTH EFFECTS

Principal routes of exposure are usually by skin contact/absorption and inhalation of vapour.
Prolonged or continuous skin contact with the liquid may cause defatting with drying, cracking, irritation and dermatitis following.
Chronic solvent inhalation exposures may result in nervous system impairment and liver and blood changes. [PATTYS].
As with any chemical product, contact with unprotected bare skin; inhalation of vapour, mist or dust in work place atmosphere; or ingestion in any form, should be avoided by observing good occupational work practice.

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HEALTH HAZARD ...

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, and then provide liquid slowly and as much as casualty can comfortably drink.
Seek medical advice.

EYE

If this product comes in contact with the eyes:
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.

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

Treat symptomatically.

PRECAUTIONS FOR USE

EXPOSURE STANDARDS

None assigned. Refer to individual constituents.

REPRODUCTIVE HEALTH GUIDELINES

Established occupational exposure limits frequently do not take into consideration reproductive end points that are clearly below the thresholds for other toxic effects. Occupational reproductive guidelines (ORGs) have been suggested as an additional standard. These have been established after a literature search for reproductive no-observed-adverse effect-level (NOAEL) and the lowest-observed-adverse-effect-level (LOAEL). In addition the US EPA's procedures for risk assessment for hazard identification and dose-response assessment as applied by NIOSH was used in the creation of such limits.

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PRECAUTIONS FOR USE…

Ingredient	ORG	UF	Endpoint	CR	TLV Adeq
N-methyl-2-pyrrolido	0.91 mg/m³	1000	D	NA	-

These exposure guidelines have been derived from a screening level of risk assessment and should not be construed as unequivocally safe limits. ORGS represent an 8-hour time-weighted average unless specified otherwise.
CR = Cancer Risk/10000; UF = Uncertainty factor:
TLV believed to be adequate to protect reproductive health:
LOD: Limit of detection
Toxic endpoints have also been identified as:
D = Developmental; R = Reproductive; TC = Transplacental carcinogen
Jankavic J., Drake F.: A Screening Method for Occupational Reproductive
American Industrial Hygiene Association Journal 57: 641-649 (1996)

INGREDIENT DATA

DIBASIC ACID ESTER:
No exposure limits set by NOHSC or ACGIH
CEL TWA: 1.5ppm, 10 mg/m³ [Manuf. DU]

N-METHYL-2-PYRROLIDONE:
` ES TWA: 25 ppm, 103 mg/m³; STEL: 75 ppm, 309 mg/m³ SKIN
OES TWA: 25 ppm, 103 mg/m³; STEL: 75 ppm, 309 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.
WEEL TWA: 10 ppm, 40 mg/m³ recommended - under review
1994 REL TWA: 100 ppm, [GAF]
MAK value: 19 ppm, 80 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 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.
Reports of skin and eye irritation and chronic headaches have been reported in workers exposed to 1-methyl-2-pyrrolidone. The Australian ES is based on a 10-fold uncertainty factor of the no-observable-adverse effect level (NOAEL) of 24 ppm where adverse respiratory effects were observed in a 4-week inhalation study in rats.

D-LIMONENE:
No exposure limits set by NOHSC or ACGIH
CEL TWA: 30 ppm, 165.6 mg/m³ (compare WEEL-TWA*)
A Workplace Environmental Exposure Level* has been established by AIHA (American Industrial Hygiene Association) who have produced the following rationale:

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PRECAUTIONS FOR USE …

D-limonene is not acutely toxic. In its pure form it is not a sensitiser but is irritating to the skin. Although there is clear evidence of carcinogenicity in male rats; the effect has been attributed to an alpha-2u-globin (a2u-G) renal toxicity which is both species and gender specific. Humans do not synthesise a2u-G, and metabolism studies indicate

that 75% to 95% of d-limonene is excreted in 2-3 days with different metabolites identified between humans and rats. In a 2-year study, liver effects were noted in male mice at 500 mg/kg and reduced survival was noted in female rats at 600 mg/kg. The no observable effect levels (NOELs) were 250 and 300 mg/kg, respectively. A WEEL of 30 ppm is recommended to protect against these effects.

ENGINEERING CONTROLS

Use in a well-ventilated area.
General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection.
Provide adequate ventilation in warehouse or closed 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

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PRECAUTIONS FOR USE …

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; or as required, chemical goggles.
Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

HANDS/FEET

Do NOT use natural rubber.
Do NOT use Butyl rubber gloves.
Do NOT use nylon gloves.
DO NOT use this product to clean the skin.

OTHER

Overalls.
Eyewash unit.
Ensure there is ready access to an emergency shower.

RESPIRATOR

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

Protection Factor (Min)	Half-Face Respirator	Full-Face Respirator
10 x ES	AK-AUS	-
	AK-PAPR-AUS	-
50 x ES	-	AK-AUS
	-	AK-PAPR-AUS
100 x ES	-	AK-2
	-	AK-PAPR-2

^- 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 WESTLEGATE 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.

STORAGE INCOMPATIBILITY

Avoid storage with oxidizers and long term storage.
Attacks, softens and may dissolve rubber, many plastics, paints and coatings.

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STORAGE REQUIREMENTS

Store in original containers in approved flammable liquid storage area.
DO NOT store in pits, depressions, basements or areas where vapours may be trapped.
No smoking, naked lights, heat or ignition sources.
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

Slippery when spilt.
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

Slippery when spilt.
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.
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 vermiculite.
Collect solid residues and seal in labelled drums for disposal.
Wash area and prevent run off into drains.
If contamination of drains or waterways occurs, advise emergency services.

DISPOSAL

Consult manufacturer for recycling options and recycle where possible.
Consult State Land Waste Management Authority for disposal.
Incinerate residue at an approved site.
Recycle containers if possible, or dispose of in an authorised landfill.

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SAFE HANDLING …

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.
If safe, switch off electrical equipment until vapour fire hazard removed.
Use water delivered as a fine spray to control fire and cool adjacent area.
Avoid spraying water onto liquid pools.
DO NOT approach containers suspected to be hot.
Cool fire exposed containers with 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 flammable.
Moderate fire hazard when exposed to heat or flame.
Vapour forms an explosive mixture with air.
Moderate explosion hazard when exposed to heat or flame.
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).
Other combustion products include carbon dioxide (CO_2), aldehydes and nitrogen oxides (NO_x).

FIRE INCOMPATIBILITY

Avoid contamination with strong oxidising agents as ignition may result.
Dissolves most plastics and synthetic fibres.

HAZCHEM

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CONTACT POINT

COMPANY CONTACT:
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AUSTRALIAN POISONS INFORMATION CENTRE	
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POLICE, FIRE BRIGADE OR AMBULANCE:	000
NEW ZEALAND POISONS INFORMATION CENTRE	
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NZ EMERGENCY SERVICES:	111

End of Report
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