

# FOREXPAN S

Chemwatch Material Safety Data Sheet  
Issue Date: 27-Sep-2007  
NC317ECP

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## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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### PRODUCT NAME

FOREXPAN S

### SYNONYMS

"Class A foam concentrate"

### PRODUCT USE

The foam concentrate is diluted with water (to 0.1- 1%) and used to extinguish fires in Class A materials.

### SUPPLIER

Company:LSW  
Address:81 Gould St  
Campsie  
NSW 2193  
Telephone:(02) 9718 4900

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## Section 2 - HAZARDS IDENTIFICATION

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### STATEMENT OF HAZARDOUS NATURE

**HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.** According to the Criteria of NOHSC, and the ADG Code.

### POISONS SCHEDULE

None

### RISK

Irritating to eyes.

### SAFETY

To clean the floor and all objects contaminated by this material use water and detergent.  
If swallowed IMMEDIATELY contact Doctor or Poisons Information Centre (show this container or label).

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## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

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NAME	CAS RN	%
diethylene glycol monobutyl ether	112-34-5	10-30
lauryl alcohol surfactant	112-53-8	<10
ingredients determined not to be hazardous		< 25
water	7732-18-5	10-30
		< 30

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## Section 4 - FIRST AID MEASURES

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### 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.

### 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.
- Other measures are usually unnecessary.

### NOTES TO PHYSICIAN

Treat symptomatically.

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## Section 5 - FIRE FIGHTING MEASURES

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### EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

### FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
  - Wear breathing apparatus plus protective gloves for fire only.
  - Prevent, by any means available, spillage from entering drains or water courses.
  - Use fire fighting procedures suitable for surrounding area.
  - 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.
  - Equipment should be thoroughly decontaminated after use.
- This material is a fire fighting agent when diluted for use.

### FIRE/EXPLOSION HAZARD

- The material is not readily combustible under normal conditions.
- However, it will break down under fire conditions and the organic component may burn.

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Section 5 - FIRE FIGHTING MEASURES

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- Not considered to be a significant fire risk.
- Heat may cause expansion or decomposition with violent rupture of containers.
- Decomposes on heating and may produce toxic fumes of carbon monoxide (CO).
- May emit acrid smoke.

Other decomposition products include: carbon dioxide (CO<sub>2</sub>), other pyrolysis products typical of burning organic material.

## FIRE INCOMPATIBILITY

None known.

HAZCHEM: None

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## Section 6 - ACCIDENTAL RELEASE MEASURES

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### EMERGENCY PROCEDURES

#### MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable labelled container for waste disposal.

#### MAJOR SPILLS

Minor hazard.

- Clear area of personnel.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment as required.
- Prevent spillage from entering drains or water ways.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Absorb remaining product with sand, earth or vermiculite and place in appropriate containers for disposal.
- Wash area and prevent runoff into drains or waterways.
- If contamination of drains or waterways occurs, advise emergency services.

**Personal Protective Equipment advice is contained in Section 8 of the MSDS.**

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## Section 7 - HANDLING AND STORAGE

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### PROCEDURE FOR HANDLING

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure

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Section 7 - HANDLING AND STORAGE

safe working conditions are maintained.

DO NOT allow clothing wet with material to stay in contact with skin.

## SUITABLE CONTAINER

- Lined metal can, lined metal pail/ can.
  - Plastic pail.
  - Polyliner drum.
  - Packing as recommended by manufacturer.
  - Check all containers are clearly labelled and free from leaks.
- Stainless steel, glass fibre or bitumen lined tanks.

## STORAGE INCOMPATIBILITY

None known.

## STORAGE REQUIREMENTS

- Store in original containers.
  - Keep containers securely sealed.
  - Store in a cool, dry, well-ventilated area.
  - Store away from incompatible materials and foodstuff containers.
  - Protect containers against physical damage and check regularly for leaks.
  - Observe manufacturer's storing and handling recommendations.
- Store between -9 and 50 deg.C.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

Source	Material	TWA mg/m <sup>3</sup>
Australia Exposure Standards	lauryl alcohol (Inspirable dust (Not specified))	10

The following materials had no OELs on our records

- diethylene glycol monobutyl ether: CAS:112- 34- 5
- water: CAS:7732- 18- 5

### MATERIAL DATA

Not available. Refer to individual constituents.

#### INGREDIENT DATA

##### DIETHYLENE GLYCOL MONOBUTYL ETHER:

CEL TWA: 15.5 ppm, 100 mg/m<sup>3</sup>

In studies involving the inhalation toxicity of diethylene glycol monobutyl ether, exposure for 6 hours daily at 100 mg/m<sup>3</sup> had no effect.

This concentration is in the range of the saturated vapour concentration.

Local damage was produced following inhalation of concentrations higher than the saturated vapour concentrations, that is, during inhalation of the aerosol (350 mg/m<sup>3</sup>). Since the only potential effects of inhalation are restricted to local discomfort (in the aerosol concentration range) the substance is classified in category I for the limitation of exposure peaks.

Teratogenicity studies have not revealed prenatal toxic effects at high oral doses and this ether is classified in pregnancy risk group C.

##### LAURYL ALCOHOL:

Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

irritants have been based on observation of workers' responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no-observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals, has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five-category system based on intensive odour, local irritation, and elimination half-life. However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.

OSHA (USA) concluded that exposure to sensory irritants can:

- cause inflammation
- cause increased susceptibility to other irritants and infectious agents
- lead to permanent injury or dysfunction
- permit greater absorption of hazardous substances and
- acclimate the worker to the irritant warning properties of these substances thus

increasing the risk of overexposure.

WATER:

No exposure limits set by NOHSC or ACGIH.

## PERSONAL PROTECTION

### EYE

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

### HANDS/FEET

Suitability and durability of glove type is dependent on usage. Factors such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity,

are important in the selection of gloves.

Wear chemical protective gloves, eg. PVC.

Wear safety footwear or safety gumboots, eg. Rubber.

### OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

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## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### 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	A- P- - AUS	-
	A- P- - PAPR- AUS	-
50 x ES	-	A- P- - AUS
	-	A- P- - PAPR- AUS
100 x ES	-	A- P- - 2
	-	A- P- - 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 CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

### ENGINEERING CONTROLS

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.

Respirators should be approved to Standard AS 1716

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### APPEARANCE

Water white liquid with a sweet wax like odour; mixes with water.

### PHYSICAL PROPERTIES

Liquid.

Mixes with water.

Molecular Weight: Not applicable

Melting Range (°C): - 15

Solubility in water (g/L): Miscible

pH (1% solution): 7- 8

Volatile Component (%vol): Not available

Relative Vapour Density (air=1): Not available

Lower Explosive Limit (%): Not applicable

Autoignition Temp (°C): Not applicable

State: Liquid

Boiling Range (°C): 100

Specific Gravity (water=1): 1.03

pH (as supplied): 7- 8

Vapour Pressure (kPa): Not available

Evaporation Rate: Not available

Flash Point (°C): >116

Upper Explosive Limit (%): Not applicable

Decomposition Temp (°C): Not available

Viscosity: Not Available

## Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

### CONDITIONS CONTRIBUTING TO INSTABILITY

Product is considered stable and hazardous polymerisation will not occur.

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## Section 11 - TOXICOLOGICAL INFORMATION

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

##### SWALLOWED

Accidental ingestion of the material may be damaging to the health of the individual.  
At sufficiently high doses the material may be nephrotoxic (i.e. poisonous to the kidney).

##### EYE

The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

##### SKIN

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

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.

##### INHALED

Inhalation of vapour is more likely at higher than normal temperatures. Acute effects from inhalation of high vapour concentrations may be chest and nasal irritation with coughing, sneezing, headache and even nausea.

#### CHRONIC HEALTH EFFECTS

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.

The product is practically nonharmful when diluted for use.

#### TOXICITY AND IRRITATION

Not available. Refer to individual constituents.

##### DIETHYLENE GLYCOL MONOBUTYL ETHER:

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

##### TOXICITY

Oral (rat) LD50: 5660 mg/kg

Dermal (rabbit) LD50: 4120 mg/kg

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

##### IRRITATION

Eye (rabbit) : 5 mg - SEVERE

Eye (rabbit) : 20 mg/24h Moderate

##### LAURYL ALCOHOL:

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

##### TOXICITY

Oral (rat) LD50: 12800 mg/kg

Oral (Mouse) LD50: 1170 mg/kg

Oral (Rat) LD50: 4150 mg/kg

Intravenous (Rat) LD50: 390 mg/kg

Subcutaneous (Guinea pig) LD: 8000 mg/kg

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

##### IRRITATION

Skin (human): 75 mg/3d- I- SEVERE

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## Section 11 - TOXICOLOGICAL INFORMATION

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 mucus production.

The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.

### WATER:

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

No significant acute toxicological data identified in literature search.

## Section 12 - ECOLOGICAL INFORMATION

DO NOT discharge into sewer or waterways.

Refer to data for ingredients, which follows:

### DIETHYLENE GLYCOL MONOBUTYL ETHER:

DO NOT discharge into sewer or waterways.

log Kow 0.15-1.0

Koc: 75

Henry's atm m<sup>3</sup> /mol: 1.52E-09

BOD 5 if unstated: 0.25

COD: 2.08

log BCF: 0.46

### LAURYL ALCOHOL:

log Pow (Verschueren 1983): 5.13

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

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

log Kow: 5.13

Fish LC50 (96 h): 1.01 mg/l

Effects on algae and plankton: EC50(3) 6.38-6.82mg/L

## Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Authority for disposal.
- Bury or incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

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## Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:UN, IATA,  
IMDG

## Section 15 - REGULATORY INFORMATION

**POISONS SCHEDULE: None**

### REGULATIONS

Forexpan S (CAS: None):  
No regulations applicable

diethylene glycol monobutyl ether (CAS: 112-34-5) is found on the following regulatory lists;  
Australia High Volume Industrial Chemical List (HVICL)  
Australia Inventory of Chemical Substances (AICS)  
Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 5  
IMO MARPOL 73/78 (Annex II) - List of Other Liquid Substances  
OECD Representative List of High Production Volume (HPV) Chemicals

lauryl alcohol (CAS: 112-53-8) is found on the following regulatory lists;  
Australia Exposure Standards  
Australia Inventory of Chemical Substances (AICS)  
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk  
OECD Representative List of High Production Volume (HPV) Chemicals

water (CAS: 7732-18-5) is found on the following regulatory lists;  
Australia Inventory of Chemical Substances (AICS)  
Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix E (Part 2)  
Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix F (Part 3)  
OECD Representative List of High Production Volume (HPV) Chemicals

## Section 16 - OTHER INFORMATION

### Denmark Advisory list for selfclassification of dangerous substances

Substance	CAS	Suggested codes
lauryl alcohol	112- 53- 8	N; R51/53

### EXPOSURE STANDARD FOR MIXTURES

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

Composite Exposure Standard for Mixture (TWA) (mg/m<sup>3</sup>): 100 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: (%)
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Component	Breathing zone (ppm)	Breathing Zone (mg/m <sup>3</sup> )	Mixture Conc (%)
diethylene glycol monobutyl ether	15.50	100.0000	30.0

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>): 100 mg/m<sup>3</sup>

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification

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Section 16 - OTHER INFORMATION

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committee using available literature references.

A list of reference resources used to assist the committee may be found at:

[www.chemwatch.net/references](http://www.chemwatch.net/references).

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

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