



U N I L A M I N T E R N A T I O N A L

UNILAM INTERNATIONAL LIMITED

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MATERIAL SAFETY DATA SHEET 2004: UNILAM 1418 RESIN:

1. Company Information

Company:

Unilam International Limited, Ravenscliffe Road, Calverley, Leeds, LS28 5RZ, United Kingdom

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2. Composition/Information On Ingredients

Substance: Preparation of dissolved polymers(s)

Ingredient:	CAS No:	Concentration %:	EG/CE No:	Symbol:	R Phrases:
1) Styrene	100-42.5	12.5-60%	202-851-5	Xn	R10, R20, R36/38

Volatile Organic Compounds:

Contains 40% Styrene Monomer. Specific Gravity: 0.903 g/cm³
Contents are measured at: 40% kg/kg and 44% vol / vol.

3. Hazard Identification

Main Hazards / Effects: Irritation of skin, eyes and respiratory tract. Affects (central) nervous system.

Swallowing: Sore throat, stomach- ache, headache, dizziness, vomiting and dullness.

Inhalation: Coughing, headache, drowsiness dizziness, unconsciousness, nausea and vomiting.

Skin: Dry skin, redness.

Eyes: Pain, redness.

4. First Aid Measures

Swallowing: **DO NOT INDUCE VOMITING BECAUSE OF RISK OF ASPIRATION!** Rinse mouth with water. Seek medical advice.

Inhalation: Move to fresh air, rest in half upright position, and loosen clothing. Apply artificial respiration in case of breathing difficulties. Seek medical advice after significant exposure.

Skin Contact: Wash immediately with soap and water and remove all contaminated clothing. Seek medical attention advice if irritation develops.

Eye Contact: Rinse immediately with plenty of water. Eyelids should be held away from the eyeball to ensure thorough rinsing. Always seek medical advice.

5. Fire Fighting Measures

Suitable Extinguishing Media: Powder, carbon dioxide, foam, water mist (only large amounts).

Special Fire Fighting Procedures: None

Protection Of Fire Fighters: Wear protective clothing and use self-contained breathing apparatus.

Hazardous Decomposition Products: In case of fire, toxic fumes might be formed.

6. Accidental Release Measures

Personal Precautions: Put on adequate protective equipment. Do not breathe vapour.

Environmental Precautions: Keep the material away from drains, surface water, ground water and soil.

Methods For Cleaning Up: Collect as much as possible in a clean container for disposal. Cover the remainder with inert absorbent. Dispose according to local regulations.

7. Handling And Storage

Handling: Keep away from heat. Keep away from sources of ignition. No smoking. Do not breathe vapour. Avoid contact with skin and eyes. Take precautionary measures against static discharges.

Storage: Keep in a cool, well-ventilated place, away from peroxides. Take precautionary measures against static discharges. The shelf life of styrene containing unsaturated polyesters will be significantly reduced when exposed to light. Store in dark 100% light tight containers only.

Storage Requirements: Store in dark 100% containers only

8. Exposure Controls/ Personal Protection

Exposure Limits:

OEL:	Ingredient:	TLV/PEL:	TLV/PEL:
	Styrene	TWA: 420 mg/m ³ (U.K.)	98 ppm (U.K.)

Personal Protection

Respiratory System: Never exceed the national Occupational Exposure Limit. Use local exhaust ventilation or handle in a ventilated enclosure. For greater protection, a face piece chemical cartridge respirator is recommended (A3).

Skin And Body: Chemical resistant protective suit. Chemical resistant boots.

Hands: Chemical resistant gloves (Butyl rubber, polyvinyl alcohol).

Eyes: Safety glasses with side shields.

9. Physical And Chemical Properties

Appearance: Liquid.

Colour: Yellow

Odour: Characteristic

Boiling Point: The lowest known value is 145°C (Styrene)

Melting Point: May start to solidify at - 31°C based on the data for Styrene

Bulk Density: 1.08 g/cm³ at 23°C

Vapour Density: The highest known value is 3.6 (Styrene) (Air =1)

Vapour Pressure: The highest known value is 0.6kPa @ 20°C (Styrene)

Solubility: Insoluble in water.

Flash Point: 31°C Closed Cup

Auto Flammability: The lowest known value is 490°C (Styrene)

Explosion Limits In Air: The greatest known range is Lower: 1.1% Upper: 8% (Styrene)

Viscosity: Dynamic <300 mPa.s at 23°C

Typical physical properties of cast unfilled resin

Property	Value	Unit	TM
Density, 25°C	1157	Kg/m ³	ISO 1183
Volume Shrinkage	6.6	%	ISO 3521
Hardness, 25°C	80	Shore A	ISO 868
Tensile Strength, 25°C	3.6	MPa	ISO 527-2
Tensile E-modulus, 25°C	12	MPa	ISO 527-2
Elongation at break, 25°C	160	%	ISO 527-2
Appearance, colourless, Tough, flexible solid			

Remarks

1.0% Medium Reactivity MEKP 50% as initiator, curing 24 hours at 20-25°C followed by either 3 hours at 60°C or 4 days at 20°C.

Appearance is colourless tough flexible solid.

10. Stability And Reactivity

Conditions And Materials To Avoid: Excessive heating. Protect against sunshine.

Hazardous Decomposition Products: None.

11. Toxicological Information

Acute Data (LD50, LC50) Toxicity Test On Animals:

Acute oral toxicity (LD50): 828 mg/kg (Mouse) (Calculated value for the mixture).

12. Ecological Information


Mobility:	Not available
Persistence / Degradability:	Not available
Bioaccumulative Potential:	Not available
Ecotoxicity:	Not available

13. Disposal Considerations


By controlled incineration. Empty drums contain solvent vapours, hazardous in respect of fire, explosion and noxiousness. Disposal only to licensed drum reconditioners.

14. Transport Information


Land (Road / Railway):

Proper Shipping Name:	Resins in solution.	<u>ADR/RID Label</u>
U.N. No.:	1866	
ADR / RID Class:	3	
ADR / RID Item Number:	Marginal 31c. Sub Marginal not available	
Packing Group:	III	
Hazard Identification Number:	30-1866	
Remark:	Not applicable	

Sea:

Proper Shipping Name:	RESIN SOLUTION, flammable	<u>IMDG Label</u>
U.N. No.:	1866	
IMDG Class:	3	
IMDG Page Number (GB):	3379	
Packing Group:	III	
Medical First Aid Guide (MFAG):	310	
Emergency Schedule (EmS):	3-05	
Marine Pollutant:	Pollutant	

Air:

Proper Shipping Name:	Resins in solution in flammable liquids	<u>IATA Label</u>
UN / ID Number:	1866	

IATA – DGR Class: 3
Packing Group: III

15. Regulatory Information

Contains: Styrene

Hazard Symbol:

XN



Risk Phrases: R10 Flammable
R20 - Harmful by Inhalation.
R36/38 - Irritating to skin and eyes.

Safety Phrases: S23 Do not breathe vapour.

16. Other Information

DISCLAIMER:

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

01 September 2004