

## NORSODYNE 6311

### 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY UNDERTAKING

PRODUCT NAME : NORSODYNE 6311

CHEMICAL NAME OR GENERIC NAME :  
Unsaturated polyester resin

APPLICATIONS : Production of fibre reinforced composites.

SUPPLIER :  
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### 2. HAZARDS IDENTIFICATION

Flammable.  
- Xn; Harmful by inhalation.  
- Xi; Irritating to eyes and skin.

May produce an allergic reaction.

PHYSICAL RISKS.  
The mixture of product vapour and air could be explosive.  
Strongly exothermic polymerisation may be caused by:  
Heat.  
Free radical formers.  
Peroxides.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	EC No.	CAS No.	Content	Symbol	R-phrases
styrene		100-42-5	40-45 %	Xn	R-10, 20, 36/38
phthalic anhydride		85-44-9	0.05-0.2 %	Xn	R-22, 37/38, 41, 42/43

SEE SECTION 16 FOR EXPLANATIONS TO R-PHRASES

### 4. FIRST AID MEASURES

INHALATION :	Take person out of the contaminated area. Remove patient to fresh air. Call a doctor in case of doubt or if symptoms persist.
INGESTION :	DO NOT INDUCE VOMITING! Put under medical supervision. If swallowed, seek immediate medical advice and show container or label to the doctor.
SKIN :	Remove contaminated clothing. Wash with soap and water and rinse with water.
EYES :	Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Contact physician if irritation persists.

### 5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA :	RECOMMENDED : Powder, foam or CO <sub>2</sub> . Sand. Water spray. NOT SUITABLE : Water jet.
SPECIAL FIRE FIGHTING PROCEDURES :	Cool the container with sprayed water to avoid polymerisation. Eliminate all sources of combustion. Treat as hydrocarbon fire. Limit spreading of extinguishing fluids.
HAZARDOUS COMBUSTION PRODUCTS :	By combustion, formation of toxic products : carbon, carbon monoxide, carbon dioxide...
PROTECTIVE MEASURES IN FIRE :	Wear individual breathing apparatus.

## 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTION :	Avoid inhaling vapours. Wear protective equipment. Gloves - Goggles - Boots. Wear self-contained breathing apparatus.
ENVIRONMENTAL PROTECTION :	Do NOT discharge in sewers. Do not allow this chemical to enter the environment. If the product contaminates lakes, rivers or sewers, inform appropriate authorities in accordance with local regulations.
SPILL CLEANUP METHODS :	RECOVERY : Spread sand. Collect the product in a container pending future destruction. DISPOSAL : Burn in an approved installation for liquids. <b>INCOMPATIBLE</b> MATERIALS : Wood sawdust.

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## 7. HANDLING AND STORAGE

USAGE PRECAUTIONS :	Unloading recommended procedure : pumping or under nitrogen pressure. Collect vapours at source. Mechanical ventilation or local exhaust ventilation is required. Durind spraying wear suitable respiratory equipment. Do NOT smoke when using. Take precautionary measures against electrostatic discharges.
STORAGE PRECAUTIONS :	SUITABLE : Keep at temperature not exceeding 30 °C. Keep in cool, dry, ventilated storage and closed containers. Keep away from heat, sparks and open flame. No smoking. Equipment earthing.
STORAGE CRITERIA :	INCOMPATIBLE MATERIALS : Strong oxidizing agents. Catalysts and accelerators. PACKAGING MATERIALS RECOMMENDED : Metal packaging. GRP Tanks (Reinforced Glass Polyester). Except those not recommended. PACKAGING MATERIALS NOT SUITABLE : Aluminium. Copper or copper alloy and plastics.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredient name	CAS no.	Reference	Date	LT Exp 8 Hrs	ST Exp 15 Min
phthalic anhydride	85-44-9	EH 40 (HSE)	2005	4 mg/m <sup>3</sup>	12 mg/m <sup>3</sup>
styrene	100-42-5	EH 40 (HSE)	2005	100 ppm	250 ppm

### PROTECTIVE EQUIPMENT :



RESPIRATORS :	Do NOT breathe vapours. Wear suitable respiratory protection. (AB)
PROTECTIVE GLOVES :	Wear solvent-proof gloves. (Neoprene).
EYE PROTECTION :	Wear approved safety goggles.
OTHER PROTECTION :	Wear suitable protective clothing.
HYGIENIC WORK PRACTICES :	Change work clothing daily before leaving work place. Eating, smoking and water fountains prohibited in immediate work area.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE :	Liquid. Clear.
COLOUR :	Straw.
ODOUR :	Styrene.
PHYSICAL DATA COMMENTS :	(#) Values related to styrene, not to the preparation. Take precautionary measures against electrostatic discharges.
BOILING POINT (°C, INTERVAL) :	> 145°C Pressure :760mmHg
DENSITY/SPECIFIC GRAVITY (g/ml) :	1.05 - 1.2 Temperature (°C) :20°C
VAPOUR PRESSURE :	# 652 Pa Temperature (°C) :20°C

VISCOSITY (INTERVAL) :	8.0 - 12.0 dPa.s Temperature (°C) :25°C
SOLUBILITY DESCRIPTION :	Insoluble in water. Soluble in most organic solvents.
FLASH POINT (°C) :	31°C Method :DIN EN 22719 - ISO 2719
AUTO IGNITION TEMP. (°C) :	490°C #
FLAMMABILITY LIMIT - LOWER(%) :	1.1 #
FLAMMABILITY LIMIT - UPPER(%) :	6.1 #

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## 10. STABILITY AND REACTIVITY

STABILITY :	Stable under normal storage condition.
CONDITIONS TO AVOID :	Avoid heat. Light. Away from sources of ignition.
POLYMERISATION DESCRIPTION :	Exothermic polymerisation may occur by : Strong oxidizing agents. Peroxides. Radical formers.
HAZARDOUS DECOMP. PRODUCTS :	By thermal decomposition, formation of : Carbon. Carbon monoxide (CO). Carbon dioxide (CO <sub>2</sub> ).

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## 11. TOXICOLOGICAL INFORMATION

SENSITIZATION :	May produce an allergic reaction.
INHALATION :	Harmful by inhalation. Symptoms and signs include : headache, dizziness, tiring.
SKIN :	Irritating to skin.
EYES :	Irritating to eyes.

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## 12. ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION :	Do not discharge into drains or the environment ; dispose to an authorised waste collection point.
DEGRADABILITY :	(#) Easily biodegradable. (#) Values related to styrene, not to the preparation.

### 13. DISPOSAL CONSIDERATIONS

DISPOSAL METHODS : Incineration in approved installation.  
 Incineration for liquid resins. Crushing then incineration for solid resins.  
 Cleaned packaging may be recycled.  
 This material and its container must be disposed of as hazardous waste.

### 14. TRANSPORT INFORMATION

GENERAL : The data included in this section don't take into account the exemptions regarding each transport regulation.

LABEL FOR CONVEYANCE :



- ROAD TRANSPORT:

UN NO. ROAD : 1866  
 ADR CLASS NO. : 3  
 CLASSIFICATION CODE : F1  
 ADR PACKING GROUP : III  
 HAZARD NO. (ADR) : 30 Flammable liquid (flash point between 23°C and 61°C, inclusive) or flammable liquid or solid in the molten state with a flash point above 61°C, heated to a temperature equal to or above its flash point, or self heating liquid.  
 ADR LABEL NO. : 3  
 PROPER SHIPPING NAME (NATIONAL) : RESIN SOLUTION

- RAIL TRANSPORT:

RID CLASS NO. : 3  
 RID ITEM NO. : III  
 RID PACKING GROUP : III

- SEA TRANSPORT:

UN NO. SEA : 1866  
 IMDG CLASS : 3

IMDG PACKING GROUP : III  
EMS NO. : F-E, S-E  
MARINE POLLUTANT : No.  
- AIR TRANSPORT:  
UN NO., AIR : 1866  
IATA/ICAO CLASS : 3  
IATA/ICAO PACKING GROUP : III

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## 15. REGULATORY INFORMATION

SYMBOLS :



CONTAINS : styrene

RISK PHRASES : R-10 Flammable.  
R-20 Harmful by inhalation.  
R-36/38 Irritating to eyes and skin.

SAFETY PHRASES : Contains phthalic anhydride. May produce an allergic reaction.  
S-23 Do not breathe gas/fumes.  
S-36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

EU DIRECTIVES : Directive 91/155/EEC amended by Directive 93/112/EEC and Directive 2001/58/EC : Safety data sheets.  
Dangerous preparations : Directive 1999/45/EC amended by Directive 2001/60/EC - OJEC L226 - 22/08/2001.  
Commission Directive 2004/73/EC of 29 April 2004 adapting to technical progress for the 29th time Council Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (Official Journal L 216 - 16/06/2004).

## 16. OTHER INFORMATION

### EXPLANATIONS TO R-PHRASES IN SECTION 2 :

R-10 Flammable.  
R-20 Harmful by inhalation.  
R-36/38 Irritating to eyes and skin.  
R-22 Harmful if swallowed.  
R-37/38 Irritating to respiratory system and skin.  
R-41 Risk of serious damage to eye.  
R-42/43 May cause sensitization by inhalation and skin contact.

### USER NOTES:

This information ONLY applies to this product which conforms to the specification of CRAY VALLEY. In case of formulations or mixtures, the user must ensure that new hazards are not apparent in line with the above. The information contained herein is based on our knowledge of the product, at the date of publishing and it is given in good faith. Please note the possible risks involved if this product is used for applications other than those for which it is intended. This sheet shall only be used and reproduced for Health & Safety purposes. The references to legislative & regulatory information and codes of practice are not exhaustive. Other applicable regulations may be considered. It is the responsibility of the user to refer to existing legislation concerning the use, the storage and the safe handling of the product. It is also the responsibility of the user to communicate ALL information related to the protection of Health, Safety & the Environment contained within this Material Safety Data Sheet to those persons involved in the handling of this product.

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