SAFETY DATA SHEET

Synacryl Hardener 103

1 Product and company identification.

PRODUCT NAME	Synacryl Hardener 103
SUPPLIER	Reactive Resins
Address	33 Normandy Way, Walker Lines Industrial Estate, Bodmin, Cornwall. PL31 1HA
Tel	+44 (0)1208 264999
Fax	+44 (0)1208 264998
E-mail	admin@reactiveresins.com
EMERGENCY TELEPHONE NUMBER	+44 (0)1208 264999

2 Hazards identification

MOST IMPORTANT HAZARDS

Adverse human health effects	Irritating to eyes and skin. May cause sensitization by skin contact.
Environmental effects	Harmful to aquatic organisms. May cause long-term adverse effects in the environment.
Physical and chemical hazards - Fire or explosion	Combustible liquid. On contact with water carbon dioxide is released.
Further.hazards	Hazardous reactions occur on contact with many common products. (Refer to the list of incompatible materials section 10: "Stability-Reactivity").
Specific hazards	According to EC criteria, this product is classified as : - IRRITANT. - SENSITIZING. -DANGEROUS FOR THE ENVIRONMENT.

3 Composition / information on ingredients

PREPARATION

Chemical nature	Aliphatic polyisocyanate in solution.
Components contributing to the hazard	Oligomers of isophorone diisocyanate (CAS : 53880-05-0) : 20% : Xi ; R43 -EC N° :500-125-5 Hexamethylene diisocyanate oligomers (CAS : 28182-81-2) : - 45 % Xi ; R43 - EC N° :500-060-2 Polyoxyethylene tridecyl ether phosphate. (CAS : 9046-01-9) : - 7 % Xi ; R38-41 - N ; R 51/53 N,N - dimethylcyclohexylamine (CAS : 98-94-2) : < 2 % - RI0 - Xn ; R20/21/22 - C ; R34 - N; R51/53 EC N° :202-715-5
Components presenting hazards	Isophorone diisocyanate (impurity) (CAS : 4098-71-9) : < 0.5% EC Classification : T ; R23 - Xi ; R36/37/38 , 42/43 - N ; R 51/53 EC N° :223-861-6 (29 R)§ Hexamethylene diisocyanate (CAS: 822-06-0): <0.5% - EC Classification: T ; R23 - Xi - R 36/37/38 -42/43 EC N° :212-485-8 (19 N)§
Further information	Total isocyanate content (Hexamethylene diisocyanate + Isophorone diisocyanate) : < 0,5 % § : (R) : Revision of the entry in the Adaptation to Technical Progress of Annexe I of Directive 67/548/EEC § : (N) : New entry in the Adaptation toTechnical Progress of Annexe I of Directive 67/548/EEC

4 First-aid measures

Inhalation	Not specifically applicable.
Skin contact	Remove all contaminated clothing and footwear. Use appropriate protective equipment when treating a contaminated person. Wash with soap and water. Wash immediately and thoroughly for a prolonged period (at least 15 minutes). In case of inflammation (redness, irritation, ...) obtain medical attention. Show this sheet to the doctor.
'Eye contact	Immediately rinse with plenty of running water for a prolonged period, (at least 15 minutes) whilst keeping the eyes wide open If irritation persists, consult a doctor. Show this sheet to the doctor.
Ingestion	NEVER attempt to induce vomiting. Do not give anything to drink.
Protection of first-aiders	- appropriate gloves. - gloves, boots. - glasses with side shields. - protective clothing (no turned-up sleeves).
Further information	Place contaminated clothing in a sealed bag for disposal. Use appropriate protective equipment when treating a contaminated person.

5 Fire - fighting measures

Extinguishing media	
- Suitable	Foam Powders Carbon dioxide (CO2)
- Not suitable	Water.
Specific hazards	Combustible. During combustion: Toxic vapours are released.
Specific fire fighting methods	Stay upwind. Evacuate the personnel away from the fumes. In case of fire close by: Cool down the containers/equipment exposed to heat with a water spray. Ensure that there is NO direct contact between the water and the product.
Protection of fire-fighters	Self-contained breathing apparatus. Boots, gloves, goggles.

6 Accidental release measures

Personal precautions	Avoid contact with skin and eyes. Do not breathe gas.
- -	Personal protective equipment: –respiratory protective device. - appropriate gloves. - safety glasses. - suitable protective clothing. Local evacuation is necessary (for people in close proximity to the spillage area).
Environmental precautions	Contain the spilled material by bunding.
Methods for cleaning up	For a large spillage, contain the spillage by bunding (product is hazardous for the environment).
- Recovery	Absorb the product onto porous material. Collect up the product and place it in a spare container: - suitably labelled.
- Neutralization	Absorb non-recoverable liquid with: - dry sand or dry inert absorbent.
-Cleaning/Decontamination	Wash contaminated area with large amounts of water. Recover the cleaning water for subsequent disposal.
- Disposal	For disposal of solid materials or residues refer to section 13: "Disposal considerations"

7 Handling and storage

HANDLING

Technical measures	Closed system, ventilation. Avoid contact with water or humidity.
Safe handling advice	Comply with instructions for use (refer to technical sheet). Ensure that there is a suitable ventilation system, when spraying a formulation of this product (possible generation of aerosol or vapour).

STORAGE

Technical measures .	The floor of the depot should be impermeable and designed to form a water-tight basin.
Storage conditions	
- Recommended I	Store: To guarantee the quality and properties of the product keep: - in a cool, well-ventilated area - the container tightly closed and dry.
-	- only in the original container
Incompatible products	Refer to the detailed list of incompatible materials (section 10 "Stability/Reactivity").
Packaging	Product must only be kept in the original packaging. -Metallic drums.
-	-Storage tank with a dry nitrogen blanket.
Packaging materials	
- Recommended	Aluminium. Steel.
-Not suitable .	Copper and its alloys. Tin

8 Exposure controls / personal protection

Engineering measures	Ensure good ventilation of the work station.
Control parameters	
Exposure limit values (Human Health)	
- Occupational exposure limit values	The recommended limits SHOULD NOT be exceeded.(for IPDI). VME: 0.09 mg/m3 (0.01 ppm) VLE: 0.18 mg/m3 (0.02 ppm). (for HDI) VME: 0.075 mg/m3 (0.01 ppm) VLE: 0.15 mg/m3 (0.02 ppm) (for the HDI prepolymer) : VLE : 1 mg/m3
Personal protective equipment -	
Respiratory protection	Keep the atmospheric concentration below the occupational exposure limits. When using a spray-gun, wear : Self-contained breathing apparatus. In the event of insufficient ventilation: Self-contained breathing apparatus.
- Hand protection	Protective gloves made of rubber. Long protective gloves, which go over the sleeves. Use suitable chemical-resistant protective gloves (compliant with Standard EN 374-1) The selection of gloves must take into account the extent and duration of use at the workstation. Protective gloves must be chosen according to the function of the work station: other chemicals which may be handled, physical protection necessary (resistance to cutting, puncture, heat), dexterity required.
- Eye protection	Goggles.
- Skin and body protection	Protective clothing with elasticated cuffs and closed neck.
Collective emergency equipment	Safety shower. Eye fountain. Emergency equipment and first-aid box with instructions readily available.
Hygiene measures	Always take a shower after work. Do NOT drink, eat or smoke in the workplace. Separate normal clothes from work-clothes. Use clean and correctly maintained personal protective equipement . Keep personal protective equipement in a clean place, away from the work area

9 Physical and chemical properties

APPEARANCE	
- Physical state	Liquid.
- Form	clear.
- Colour	colourless to pale yellow.
Odour	characteristic.
pH	Not applicable (reacts with water).

Specific temperatures	
Flammability characteristics	
- Flash point	76°C
Oxidizing properties	Non oxidizing material according to EC criteria.
Specific gravity	1080 kg/m3, at 25°C.
Solubility	
- in water	Reacts.
- in organic solvents	Soluble in: - ketones. - esters. - aromatic hydrocarbons.
Octanol/water partition coefficient	Not applicable (reacts with water and/or octanol)
Dynamic viscosity	approx. 200 mPa.s at 25°C.

10 Stability and reactivity

Stability	Stable at room temperature.
Hazardous reactions	
- Materials to avoid	Reacts violently on contact with water. - alcohols. - amines. - bases. - water and aqueous solutions. - protic solvents. with a great release of CO2, and hence a risk of a pressure build-up in confined areas.
- Hazardous decomposition products	On thermal decomposition (pyrolysis) releases: toxic gases. (Carbon dioxide (C02)). (Nitrogen oxides).

11 Toxicological information

Acute toxicity	Hexamethylene diisocyanate oligomersLD 50 oral: > 5000 mg/kg (Rat) (Unpublished reports) Not classified as harmful if swallowed (by calculation according to the conventional method) (internal evaluation)
Local effects	At high concentrations, the vapours can be irritating to the respiratory system. Irritating to the skin. Irritating to the eyes. (by calculation according to the conventional method)
Sensitisation	May cause sensitization on contact with skin. (by calculation according to the conventional method) May cause respiratory sensitisation phenomena (asthma) in sensitive individuals or those who have already been sensitised No pulmonary sensitisation was observed in guinea pigs after either intradermal injection or inhalation induction with HDI polyisocyanates.

12 Ecological information

MOBILITY	
Expected behaviour of the product	The product will be dispersed amongst the various environmental compartments (soil/water/air).
BIODEGRADABILITY	
- Ultimate aerobic biodegradability	Oligomers of isophorone diisocyanate Not biodegradable. Hexamethylene diisocyanate oligomers :Not biodegradable. (internal evaluation) Polyoxyethylene tridecyl ether phosphate. Inherently biodegradable. (Unpublished internal reports)
BIOACCUMULATION	
Octanol/water partition coefficient	According to the data on the components Not potentially bioaccumulable. (Unpublished reports)
ECOTOXICITY	
Effects on the aquatic environment	According to the data on the components Harmful to aquatic organisms. (Published data).
Further information	This preparation is classified as : - **DANGEROUS FOR THE ENVIRONMENT (no symbol)** Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment. (by calculation according to the conventional method)

13 Disposal considerations

RESIDUES FROM PRODUCT	
Prohibition	Discharging waste into rivers and drains is forbidden.
Destruction/Disposal	Neutralize with a mixture of ammonia solution (190g/l), water and ethanol (5%, 50% and 45%). Incinerate at a licensed installation.
CONTAMINATED PACKAGING	
Decontamination / cleaning	Allow it to drain thoroughly.
Destruction/Disposal	Incinerate drums and bottles at a licensed site.
NOTE	The user s attention is drawn to the possible existence of local regulations regarding disposal.

14 Transport information

INTERNATIONAL REGULATIONS	
Land	
Rail/road (RID/ADR)	NOT restricted.
Sea (IMO/IMDG)	NOT restricted.
Air (ICAO-IATA)	NOT restricted.
NOTE	The above regulatory prescriptions are those valid on the date of publication of this sheet. However, given the possible evolution of transport regulations for hazardous materials and in the event of the SDS in your possession dating back more than 12 months, it is advisable to check their validity.

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15 Regulatory information

LABELLING	
EC regulations	Mandatory labelling (self-classification) of hazardous preparations: **APPLICABLE**
Identification of the hazardous product	Contains: Hexamethylene diisocyanate oligomers Oligomers of isophorone diisocyanate
Classifications/Symbols	- **IRRITANT (Xi)** - **DANGEROUS FOR THE ENVIRONMENT (no symbol)**
R phrases	R 36/38: Irritating to eyes and skin. R 43: May cause sensitisation by skin contact. R 52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S phrases	S 7/8: Keep container tightly closed and dry. S 24/25: Avoid contact with skin and eyes. S 26: In case of contact with eyes, rinse immediately with plentyof water and seek medical advice. S 37/39: Wear suitable gloves and eye/face protection S 61: Avoid release to the environment. Refer to special instructions/safety data sheet.
Additional phrases	Contains isocyanates. See information supplied by the manufacturer.
NOTE	The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the Safety Data Sheet. The user s attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

Homeworker (DIY) applications.

R Phrases of § 2 & 3	R 23 : Toxic by inhalation. R 36/37/38: Irritating to eyes, respiratory system and skin. R 42/43: May cause sensitisation by inhalation and skin contact. R 51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R 20/21/22: Harmful by inhalation, in contact with skin and if swallowed. R 34: Causes burns. R 38: Irritating to skin. R 41: Risk of serious damage to eyes. R 43: May cause sensitisation by skin contact.

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfil his obligations regarding the use of hazardous products. This information is not exhaustive. This does not exonerate the user from ensuring that legal obligations, other than those mentioned, relating to the use and storage of the product, do not exist.This is solely his responsibility.