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Safety Data Sheet

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1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY

Product Identifier

Product Description: NCS 991 PAU - 40

Other Means of Identification:

Sage Code: R991-40---X----UK000
Chemical Family: Polyester Resin

Recommended use of the chemical and restrictions on use:

Intended use: General purpose laminating resin

Uses advised against: No information available.

Details of the supplier of the Safety Data Sheet

Manufacturer / Supplier

NCS Resins	TEL 031 713 0600	9 Pineside Road, New Germany 3610
Durban Head Office	FAX 031 705 9858	

Aurora Glass Fibre NZ Ltd	TEL +64 9 273-3540	3/16 Zelanian Drive, East Tamaki
	FAX +64 9 273-3565	Auckland 2013

EMERGENCY TELEPHONE No.: +64 9 273-3540

2. HAZARDS IDENTIFICATION

Classification

GHS Classification

Health

Acute toxicity - Dermal Category 4
Acute toxicity - Inhalation (Vapors) Category 4
Skin corrosion/irritation Category 2
Serious eye damage/eye irritation Category 2A
Carcinogenicity Sub-category 1B
Specific target organ toxicity (single exposure) Category 3
Specific target organ toxicity (repeated exposure) Category 1

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Environmental

Chronic aquatic toxicity Category 3

Physical

Flammability - Hazard category 3 Flammable liquid and vapour

GHS Labels / Pictograms

		
Appearance: Blue	Physical State: Liquid	Odour: Pungent

Emergency Overview Statements

Danger

Hazard Statements

Harmful if inhaled

Causes skin irritation

Causes serious eye irritation

May cause cancer

May cause respiratory irritation

Causes damage to hearing through prolonged or repeated exposure if inhaled

Harmful to aquatic life with long lasting effects

Flammable liquid and vapor

Precautionary Statements - Prevention

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Use personal protective equipment as required

Use only outdoors or in a well-ventilated area

Wash face, hands and any exposed skin thoroughly after handling

Wear protective gloves/protective clothing/eye protection/face protection

Do not breathe mist, vapors, spray

Do not eat, drink or smoke when using this product

Keep away from heat/sparks/open flames/hot surfaces. - No smoking

Keep container tightly closed

Ground/bond container and receiving equipment

Use explosion-proof electrical/ventilating/lighting equipment

Use only non-sparking tools

Take precautionary measures against static discharge



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Keep cool
Avoid release to the environment
Contaminated work clothing should not be allowed out of the workplace

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
If skin irritation or rash occurs: Get medical advice/attention
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
In CASE OF FIRE: Use CO2, dry chemical, or foam to extinguish

Precautionary Statements - Storage

Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

Do not discharge into lakes, streams, ponds and ground water supply. Dispose of in accordance with local statutory regulations

Hazards not otherwise classified (HNOC)

Other Information

Unknown acute toxicity 66.0% of the mixture consists of ingredient(s) of unknown toxicity.
Unknown aquatic toxicity 66.7% of the mixture consists of component(s) of unknown hazards to the aquatic environment.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
Polyester Resin	Proprietary	50 – 60
Styrene	100-42-5	40 – 50

4. FIRST - AID MEASURES

First Aid Measures

Eye Contact	Immediately flush eyes for at least 15 minutes. Get medical attention.
Skin Contact	Wash off with warm water and soap. Remove contaminated clothing and shoes. If skin irritation persists, call a physician. Wash contaminated clothing before reuse.
Inhalation	Remove person to fresh air. If signs/symptoms continue, get medical attention. Keep patient warm and at rest. If not breathing, give artificial respiration. If breathing is labored, administer oxygen. Get medical attention immediately.



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Ingestion Do not induce vomiting. Potential for aspiration if swallowed. This material may enter the lungs during vomiting. Never give anything by mouth to an unconscious person. GET IMMEDIATE MEDICAL ATTENTION.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects. No information available

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE - FIGHTING MEASURES

Suitable Extinguishing Media

Carbon dioxide (CO₂), Foam, Dry chemical, Water spray

Unsuitable Extinguishing Media

Do not use a solid water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

Hazardous combustion products Combustion may produce carbon monoxide, carbon dioxide and irritating or toxic vapors and gases

Combustion/Explosion Hazards Flammable. Vapors may form explosive mixture with air. Flash back possible over considerable distance. This material may polymerize (react) when its container is exposed to heat (as during a fire). This polymerization increases pressure inside a closed container and may result in the violent rupture of the container. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death.

Protective Equipment and Precautions for Firefighters:

Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Thoroughly decontaminate all protective equipment after use. Evacuate all persons from the fire area to a safe location. Move non-burning material, as feasible, to a safe location as soon as possible. Fire fighters should be protected from potential explosion hazard while extinguishing the blaze. DO NOT extinguish a fire resulting from the flow of this flammable liquid until the flow of liquid is effectively shut off. This precaution will help prevent the accumulation of an explosive vapor-air mixture after the initial fire is extinguished. Use water spray to cool fire-exposed containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Remove all sources of ignition. Evacuate personnel to safe areas. Avoid contact with skin and eyes. Use personal protective equipment as required. Ensure adequate ventilation. Keep people away



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from and upwind of spill/leak. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Other Information All equipment used when handling the product must be grounded.

Environmental Precautions

Environmental Precautions Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Prevent product from entering drains. Soak up with inert absorbent material and dispose of as hazardous waste. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Methods and material for containment and cleaning up

Methods for Containment Prevent spilled material from 1) contaminating soil, 2) entering sanitary sewers, storm sewers, and drainage systems, and 3) entering bodies of water or ditches that lead to waterways. Prevent spreading over a wide area (e.g. by containment or oil barriers).

Methods for Clean-up Soak up with inert absorbent material. Remove from surface water (e.g. by skimming or siphoning). Dispose of contaminated material as waste according to item 13.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Handling Do not breathe vapor or mist. Avoid contact with eyes, skin and clothing. Take off contaminated clothing and wash before reuse. Ensure adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion-proof equipment. Consult your supplier of promoters and catalysts for additional instructions on proper mixing and usage. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind, or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death. Empty drums should be completely drained and properly bunged. Empty drums should be promptly returned to a drum reconditioner or properly disposed. Do not use compressed air for filling, discharging or handling. Wash hands before breaks and immediately after handling the product.

Conditions for safe storage, including any incompatibilities

Storage Keep away from heat and sources of ignition. No smoking. Keep away from direct sunlight. Keep containers tightly closed in a cool, well-ventilated place. To ensure maximum stability and maintain optimum resin properties, resins should be stored in closed containers at temperatures below 77°F (25°C).



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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits:

Components with workplace control parameters
Styrene (CAS #: 100-42-5)

Occupational Health and Safety Act, 1993
Regulations for Hazardous Chemical Substances, 1995 Table 1.

TWA OEL CL	100 ppm	(styrene)
STEL OEL CL	200ppm	

Legend

TWA -Time-weighted average

STEL - Short Term Exposure Limit

OEL - Occupational Exposure Limit

Appropriate engineering controls

Engineering Controls Use general ventilation to maintain airborne concentrations to levels that are below regulatory and recommended occupational exposure limits. Local ventilation may be required during certain operations. Use explosion-proof equipment.

Individual protection measures, such as personal protective equipment

Eye/face Protection Safety glasses with side-shields. If splashes are likely to occur: Tight sealing safety goggles. Ensure that eyewash stations and safety showers are close to the workstation location.

Skin Protection Wear protective nitrile rubber or Viton™ gloves. Gloves made of nitrile rubber or polyvinyl chloride (PVC) may be used for splash protection and brief or intermittent contact with styrenated polyester resin. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. Impervious clothing. Rubber or plastic boots.

Respiratory Protection None required if hazards have been assessed and airborne concentrations are maintained below the exposure limits listed in Section 8. Wear an approved air-purifying respirator with organic vapor cartridges and particulate filters where airborne concentrations may exceed exposure limits in Section 8 and/or there is exposure to dust or mists due to sanding, grinding, cutting, or spraying. Use an approved positive-pressure air-supplied respirator with emergency escape provisions if there is any potential for an uncontrolled release, airborne concentrations are not known, or any other circumstances where air-purifying respirators may not provide adequate protection

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.



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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Blue
Odor	Pungent
Odor Threshold	0.2 ppm (Styrene)
Physical State	Liquid
pH	Not applicable
Flash Point	32 °C / 89 °F
Flash Point Method	Seta closed cup
Autoignition Temperature	490°C / 914°F (Styrene)
Boiling point / boiling range	146°C / 295°F (Styrene)
Melting point / Freezing point	No information available
Flammability Limit in Air	
Lower	1.1% (Styrene)
Upper	6.1% (Styrene)
Specific Gravity	1.06 - 1.10 @ 25°C
Solubility	Insoluble (Water)
Evaporation Rate	0.49 (BuAc = 1) (Styrene)
Vapor Pressure	5 mmHg @ 20°C (Styrene) 6.7 hPa (Styrene)
Vapor Density	3.6 (Air = 1) (Styrene)
Explosive Properties	No information available
Oxidizing Properties	No information available
Percent Volatile, wt. %	40 - 50 % by weight
VOC Content:	364 g/l (calculated) product as supplied
Viscosity	1000 - 14000 cps @ 25°C
Decomposition temperature	No information available

10. STABILITY AND REACTIVITY

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical Stability

Stable under normal conditions. Stable under recommended storage conditions.

Possibility of Hazardous Reactions

Hazardous Polymerization Polymerization can occur. Hazardous polymerization will occur if contaminated with peroxides, metal salts and polymerization catalysts. Hazardous polymerization may occur upon depletion of inhibitor - may cause heat and pressure build-up in closed containers. Product will undergo



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hazardous polymerization at temperatures above 65° C.

Conditions to Avoid

Heat, flames and sparks. Contamination by those materials referred to under Incompatible materials. Unstable upon depletion of inhibitor. Elevated temperatures.

Incompatible materials

Strong acids. Strong oxidizing agents. Metal salts. Polymerization catalysts.

Hazardous Decomposition Products

Hydrocarbons. Carbon monoxide. Carbon dioxide (CO₂). Thermal decomposition can lead to release of irritating and toxic gases and vapors.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Primary Routes of Entry Eye contact, Ingestion, Inhalation, Skin Contact, Skin absorption

Acute toxicity

Styrene

Oral LD50 = 5000 mg/kg (Rat)
Dermal LD50 > 2000 mg/kg (Rat)
Inhalation LC50 = 11.8 mg/l (4 H) (Rat)

Information on toxicological effects

Symptoms Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Eyes Irritating to eyes.

Skin Harmful by skin absorption. Contact causes skin irritation. Prolonged skin contact may defat the skin and produce dermatitis.

Inhalation Harmful by inhalation. May cause irritation of respiratory tract. Inhalation of high vapor concentrations can cause CNS-depression and narcosis.

Ingestion Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration hazard if swallowed - can enter lungs and cause damage. Ingestion is not an anticipated route of exposure for this material in industrial use.

Sensitization Not sensitizing.

Repeated dose toxicity In humans, styrene may cause a transient decrease in color discrimination and effects on hearing. Repeated or prolonged exposure may cause skin irritation and dermatitis, due to defatting properties of the product. May cause damage to the liver, eyes, brain, respiratory system, central nervous system through prolonged or repeated exposure if inhaled. May cause damage to the kidneys, liver, eyes, brain, respiratory system, central nervous system through prolonged or repeated exposure if inhaled.

Mutagenic effects Styrene has given mixed positive and negative results in a number of mutagenicity tests. Styrene was not mutagenic without metabolic activation but gave negative and positive mutagenic results with metabolic activation.

Carcinogenicity .



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Styrene

ACGIH Group A4 - Not classifiable as a human carcinogen.
IARC Group 2B - Possibly Carcinogenic to Humans
NTP Reasonably anticipated to be human carcinogen

Legend *IARC - International Agency for Research on Cancer*
NTP - National Toxicology Program

Reproductive Toxicity No information available.

Neurological Effects No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Target organ(s) Liver, Central nervous system (CNS), Respiratory system, Kidney.

Aspiration Hazard No information available.

Numerical measures of toxicity - Product Information

Unknown acute toxicity 60 - 70% of the mixture consists of ingredient(s) of unknown toxicity.

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 2923 mg/kg

ATEmix (dermal) 1967 mg/kg

ATEmix (inhalation-vapor) 11.4 mg/L

12. ECOLOGICAL INFORMATION

Ecotoxicity

Styrene

Log Kow 2.95

Bioconcentration factor (BCF) 74

Algae

EC50 = 1.4 mg/L (Pseudokirchneriella subcapitata) (72h)

EC50 0.46 - 4.3 mg/L (Pseudokirchneriella subcapitata) (72h)

Fish LC50 3.24 - 4.99 mg/L (Pimephales promelas) (96 h) flow-through

LC50 19.03 - 33.53 mg/L (Lepomis macrochirus) (96 h) static

LC50 6.75 - 14.5 mg/L (Pimephales promelas) (96 h) static

LC50 58.75 - 95.32 mg/L (Poecilia reticulata) (96 h) static

Water Flea EC50 3.3 - 7.4 mg/L 48 h

Unknown aquatic toxicity

66.7% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

Persistence/Degradability

No information available.

Bioaccumulation

No information available.



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Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal Considerations Hazardous waste. Can be incinerated, when in compliance with local regulations.

Contaminated packaging

Empty containers retain residue (liquid and/or vapour) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

14. TRANSPORT INFORMATION

NOT TO BE SENT BY MAIL

TARIFF No.		3907
UN No.		1866
Substance Identity No.	S.I.N. SANS 10232-3	1866
Emergency Action Code	EAC SANS 10232-3	26
SANS 10228:2006	S.I.N.	1866
SANS 10228:2006	Technical Name	Resin solution immiscible with water
SANS 10228:2006	Class	3
SANS 10228:2006	Danger Group	111
SANS 10228:2006	Subsidiary Risks	Nil
SANS 10228:2006	Packaging Methods SANS 10229	13.3
IMDG - SHIPPING NAME		Resin solution
IMDG - CODE		PAGE 3379
IMDG - CLASS		Class 3.3
IMDG - PACKAGING GROUP		111
IMDG - MARINE POLLUTANT		Yes
IMDG - EMS No.		<u>3-05</u>
IMDG - MFAGTABLE No.		310
IATA - SHIPPING NAME		Resin solution
IATA _ CLASS		Class 3
IATA - SUBSIDIARY RISK(S)		None
IATA - PACKAGING GROUP		111
IATA - PACKAGING INSTRUCTION	Passenger	309
IATA - PACKAGING INSTRUCTION	Cargo	310
TREMCARD No.		Not available



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15. REGULATORY INFORMATION

EEC HAZARD CLASSIFICATION Flammable. Harmful. Irritant. [R10; Xn; Xi] (Styrene)

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

SAFETY PHRASES Do not breathe vapour. [S: 23]

NATIONAL LEGISLATION South African Hazardous Substance Act 15 of 1973
South African Occupational Health & Safety Act (85 of 1993)

16. OTHER INFORMATION

NFPA Rating **Health 2** **Flammability 3** **Instability 1**

Prepared By: M.Jagath & based on data from Reichhold Product Regulatory Department

Phone Number: 031 713 0600

Revision Date: 1 March 2017

Revision Summary: 01

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End of Safety Data Sheet
