

MATERIAL SAFETY DATA SHEET

Trade Name: **NCS 991 PAU**

Revision Date: 2019-03-25

Compilation Date: 2017-03-01

1. PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME

NCS 991PAU

MANUFACTURER

NCS Resins, Durban Head Office
9 Pineside Road, New Germany 3610
Kwa-Zulu Natal, South Africa

Tel: +27 031 713 0600 Fax: +27 031 705 8430

Emergency Telephone: +27 031 713 0600

SUPPLIER

Aurora Glass Fibre (NZ) Ltd
3/16 Zelanian Drive, East Tamaki,
Auckland 2013, New Zealand

Tel: +64 09 273-3540 Fax: +64 09 273-3565

Emergency Telephone No. +64 09 273-3540

Poisons Information Centre

0800 764 766 (from anywhere in New Zealand)

2. HAZARD IDENTIFICATION

Classified as Hazardous according to the New Zealand Hazardous Substances Regulations. Classified as Dangerous Goods for transport according to New Zealand Standard.

DG Classification: Class 3
UN Number: 1866, Resin Solution, Flammable
EPA New Zealand Approval Code: HSR001221



HSNO Classification:

- 3.1C Flammable Liquid
- 6.1E Acute Toxicity, Oral/Dermal
- 6.1D Acute Toxicity, Inhalation
- 6.3A Substance that is corrosive or irritating to the skin
- 6.4A Substance that is corrosive or irritating to the eye
- 6.6B Suspected human mutagen
- 6.7B Suspected human carcinogen
- 6.9B May cause damage to target organs through prolonged/repeated exposure
- 9.1C Aquatic ecotoxicity, Fish

Hazard Statement:

- H226 Flammable liquid and vapour
- H315 Causes skin irritation
- H317 May cause an allergic reaction
- H319 Causes serious eye irritation
- H332 Harmful if inhaled
- H351 Suspected of causing cancer
- H361 Suspected of damaging fertility or the unborn child

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H372 Causes damage to organs through prolonged or repeated exposure

Prevention:

- P201 Obtain special instruction before use
- P202 Do not handle until all safety precautions have been read and understood
- P210 Keep away from heat, sparks, open flames and hot surfaces. – No smoking
- P240 Ground/bond container and receiving equipment
- P241 Use explosion-proof electrical ventilating, lighting and other equipment
- P242 Use only non-sparking tools
- P243 Take precautionary measures against static discharge
- P260 Do not breath fumes, mists, vapours or spray
- P262 Do not get in eyes, on skin, or on clothing
- P270 Do not eat, drink or smoke when using this product
- P280 Wear protective gloves, protective clothing and eye or face protection

Response:

- P314 Get medical advice or attention if you feel unwell
- P330 Rinse mouth
- P362 Take off contaminated clothing and wash before reuse
- P301+P312 IF SWALLOWED: Call a Poison Centre or doctor
- P302+P352 IF ON SKIN: Wash with plenty of soap and water
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing
- P308+P313 If exposed or concerned: Get medical advice
- P333+P313 If skin irritation or rash occurs: Get medical advice
- P337+P313 If eye irritation persists: Get medical advice
- P370+P378 In case of fire, use carbon dioxide, dry chemical, water fog. Alcohol resistant foam is the preferred firefighting medium, but if it is not available, normal foam can be used

Storage:

- P405 Store locked up
- P422 Store contents below 25°C
- P403+P233 Store in well ventilated place. Keep container tightly closed

Disposal:

- P501 Dispose of contents to an approved waste disposal plant

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

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4. FIRST AID MEASURES

Eye Contact

Immediately flush 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 laboured, administer oxygen. Get medical attention immediately.

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

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 vapours and gases

Combustion/Explosion Hazards

Flammable. Vapours 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 Fire-Fighters

Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Thoroughly decontaminate all protective equipment after use. Evacuate all person 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.

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6. ACCIDENTAL RELEASE MEASURES

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

Other Information

All equipment used when handling the product must be grounded.

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 vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Methods for Containment

Prevent spilled material from contaminating soil, entering sanitary sewers, storm sewers, and drainage systems and 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

Handling

Do not breathe vapour 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 vapour). 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 product.

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).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Guidelines:

Components with workplace control parameters

Styrene (CAS #: 100-42-5)

Occupational Health and Safety Act, 1993

Regulations for Hazardous Chemical Substances, 1995 Table 1.

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TWA OEL CL	100ppm (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

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 vapour 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 and 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.

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.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Blue
Odour	Pungent
Odour Threshold	0.2 ppm (Styrene)
pH	Not applicable
Boiling Point/Range	146°C / 295°F (Styrene)
Melting/Freezing Point	No information available
Flash Point	32°C / 89°F
Flash Point Method	Seta closed cup

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Autoignition Temperature	490°C / 914°F (Styrene)
Flammability Limit in Air	
Lower	1.1% (Styrene)
Upper	6.1% (Styrene)
Explosive Properties	No information available
Oxidising Properties	No information available
Vapour Pressure	5 mmHg @ 20°C (Styrene) 6.7 hPa (Styrene)
Vapour Density	3.6 (Air = 1) (Styrene)
Solubility	Insoluble (Water)
Evaporation Rate	0.49 (BuAc = 1) (Styrene)
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 hazardous polymerization at temperatures about 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 oxidising 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 vapours.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Primary Routes of Entry

Eye contact, Ingestion, Inhalation, Skin Contact, Skin absorption

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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 vapour concentrations can cause CNS-depression and narcosis.

Ingestion

Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. 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 colour 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

Styrene

ACGIH	Group A4 – Not classified as human carcinogen.
IARC	Group 2B – Possibly carcinogenic to humans.
NTP	Reasonably anticipated to be human carcinogen.

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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 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-vapour)	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) (96h) flow-through LC50 19.03 – 33.53 mg/L (Lepomis macrochirus) (96h) static LC50 6.75 – 14.5 mg/L (Pimephales promelas) (96h) static LC50 58.75 – 95.32 mg/L (Poecilia reticulata) (96h) static Water Flea EC50 3.3 – 7.4 mg/L (48h)

Unknown Aquatic Toxicity

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

Persistence/Degradability	No Information available.
Bioaccumulation	No information available.
Other adverse effects	No information available.

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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 containers 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 – MFAG Table 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

15. REGULATORY INFORMATION

ECC Hazard Classification Flammable. Harmful. Irritant. [R10; Xn; Xi] (Styrene)

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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
Reference:	NCS Resins South Africa	MSDS on NCS 991 PAU	01 March 2017
Compiled by:	Aurora Glass Fibre (NZ) Ltd		
Preparation Date:	25 March 2019		

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