

MATERIAL SAFETY DATA SHEET

Product Name: Simplex[®] HV Cement with Gentamicin

MSDS Date Created: 16 December, 2014

	Manufacturer	Australian Supplier:	New Zealand Supplier:
Name:	Biomaterials GmbH	Stryker Australia	Stryker New Zealand
Address:	Lagerstraße 11-15 64807 Dieburg	8 Herbert St, St Leonards, NSW, Australia, 2065	515 Mt Wellington Highway, Auckland, New Zealand, 1060
Phone No:	+49 6071 929 0	+61 02 9467 1000	+64 09 573 1890
Fax No:	+49 6071 929 100	+61 02 9467 1010	+64 09 573 1891

Simplex[®] HV Cement with Gentamicin is a two component product containing:

- Simplex[®] HV Cement Powder with Gentamicin
- Simplex[®] HV Liquid

This MSDS includes both components.

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name SIMPLEX[®] HV CEMENT POWDER WITH GENTAMICIN

1.2 Uses and uses advised against

Use(s) MEDICAL APPLICATIONS • ORTHOPAEDIC APPLICATIONS

1.3 Details of the supplier of the product

	Manufacturer	Australian Supplier	New Zealand Supplier:
Name:	Biomaterials GmbH	Stryker Australia	Stryker New Zealand
Address:	Lagerstraße 11-15 64807 Dieburg	8 Herbert Street, St Leonards, N.S.W., Australia, 2065	515 Mt Wellington Highway, Auckland, New Zealand, 1060
Phone No:	+49 6071 929-0	+61 02 9467 1000	+64 09 573 1890
Fax No:	+49 6071 929-100	+61 02 9467 1010	+64 09 573 1891
EMERGENCY	+352 323 3500	13 11 26	0800 764 766

Contact Person: biomaterials@aap.de

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO HAZARDOUS SUBSTANCES [CLASSIFICATION] REGULATIONS 2001 AND SAFEWORK AUSTRALIA CRITERIA

HSNO classification(s)

None allocated.

2.2 Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

Product is not explosive. However, formation of explosive powder/air mixtures is possible.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
ACRYLATE/METHACRYLATE COPOLYMERS	-	-	>80%
ZIRCONIUM OXIDE	1314-23-4	215-227-2	10-20%
DIBENZOYL PEROXIDE	94-36-0	202-327-6	<2%
GENTAMICIN SULPHATE	1405-41-0	215-778-9	0-3%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye Wash out immediately with water. If irritation continues, seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by a skilled personnel.

Inhalation Seek medical advice if any symptoms develops. Move the exposed person to fresh air at once.

Skin Wash with plenty of water. Remove contaminated clothing. Continue to rinse and seek medical advice if irritation persists

Ingestion Immediately give a glass of water. First aid is not generally required. If in doubt, contact a the emergency contact listed above or a doctor at once.

First aid facilities No information provided.

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

4.3 Immediate medical attention and special treatment needed

No further relevant information available.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire. Use water spray, dry chemical powder, carbon dioxide or appropriate foam. Do not use water jet.

5.2 Special hazards arising from the substance or mixture

No further relevant information available.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing

5.4 Hazchem code

None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Avoid inhalation of dusts. Ensure adequate ventilation. Evacuate danger area, observe emergency procedures, consult an expert. Advice for emergency responders: Protective equipment see Section 8.

6.2 Environmental precautions

Do not empty into drains.

6.3 Methods of cleaning up

Ventilate well. Cover drains. Collect, bind and pump off spills. Observe possible material restrictions (See sections 7.2 and 10.5). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Observe label precautions and good chemical hygiene practices. Provide good ventilation. Gloves and safety glasses should be worn.

7.2 Conditions for safe storage, including any incompatibilities

Keep away from heat and sources of ignition. Keep container tightly closed in a dry, well-ventilated and cool place. Do not breathe dust. Always store away from incompatible compounds such as acids.

7.3 Specific end use(s)

Simplex[®] is a fast setting plastic used in bone surgery.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m ³	ppm	mg/m ³
Zirconium Oxide	OES	--	10	--	5

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Technical measures and appropriate working operations should be given priority over the use of PPE.

PPE

Eye / Face	Safety glasses
Hands	Wear suitable protective gloves (glove material: Nitrile-rubber)
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	WHITE POWDER
Odour	SLIGHT SMELL
Odour threshold	NOT AVAILABLE
pH	NOT AVAILABLE
Melting point	NOT AVAILABLE
Boiling point	NOT AVAILABLE
Flash point	NOT RELEVANT
Evaporation rate	NOT AVAILABLE
Flammability	NON FLAMMABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Vapour pressure	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Solubility (water)	INSOLUBLE
Partition coefficient	NOT AVAILABLE
Autoignition temperature	>400°C
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Specific gravity	NOT AVAILABLE

9.2 Other information

Relative density	NOT AVAILABLE
% Volatiles	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Powder may form explosive mixture with air. Reaction with acids.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) and recommended use.

10.3 Possibility of hazardous reactions

No hazardous reactions known.

10.4 Conditions to avoid

No decomposition if used and stored according to specifications.

10.5 Incompatible materials

Reactive with acids

10.6 Hazardous decomposition products

No further relevant information available.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity	No further relevant information available
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eye	May cause irritation
Sensitization	No further relevant information available
Mutagenicity	No evidence of mutagenic effects.
Carcinogenicity	No evidence of carcinogenic effects.
Reproductive	No evidence of reproductive effects.
STOT – single exposure	No known effects from this product.
STOT – repeated exposure	No known effects from this product.
Aspiration	This product does not present an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No information available.

12.2 Persistence and degradability

No information available.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Small quantities can be polymerized with matching system components and the cured solid material can be disposed of with the regular garbage. Larger quantities must be disposed of following the regulations of the local authorities.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD ACCORDING TO LAND TRANSPORT RULE:
DANGEROUS GOODS 2005; NZS 5433:2012, UN, IMDG OR IATA; OR THE ADG CODE.

	LAND TRANSPORT (NZS 5433)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None Allocated	None Allocated	None Allocated
14.2 Proper Shipping Name	None Allocated	None Allocated	None Allocated
14.3 Transport hazard class	None Allocated	None Allocated	None Allocated
14.4 Packing Group	None Allocated	None Allocated	None Allocated

No information provided

14.5 Environmental hazards**14.6 Special precautions for user**

Hazchem code None Allocated

15. REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

Approval code None allocated.

Group standard None allocated.

Inventory listing(s) **NEW ZEALAND: NZIoC (New Zealand Inventory of Chemicals)**
All components are listed on the NZIoC inventory, or are exempt.

AUSTRALIA: AICS (Australian Inventory of Chemical Substances)
All components are listed on the AICS inventory, or are exempt.

16. OTHER INFORMATION

Additional information This product is used in conjunction with Simplex[®] HV Liquid.

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CCID	Chemical Classification and Information Database (HSNO)
CNS	Central Nervous System
EC No.	EC No - European Community Number
EPA	Environmental Protection Authority [New Zealand]
GHS	Globally Harmonized System
HSNO	Hazardous Substances and New Organisms
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m ³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
PEL	Permissible Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
REACH	Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
TLV	Threshold Limit Value
TWA	Time Weighted Average

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name SIMPLEX® HV LIQUID

1.2 Uses and uses advised against

Use(s) MEDICAL DEVICES

1.3 Details of the supplier of the product

	Manufacturer	Australian Supplier	New Zealand Supplier:
Name:	Biomaterials GmbH	Stryker Australia	Stryker New Zealand
Address:	Lagerstraße 11-15 64807 Dieburg	8 Herbert Street St Leonards, N.S.W. Australia, 2065	515 Mt Wellington Highway, Auckland, New Zealand, 1060
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2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO HAZARDOUS SUBSTANCES [CLASSIFICATION] REGULATIONS 2001 AND SAFEWORK AUSTRALIA CRITERIA.

HSNO classification(s)

3.1B	Flammable liquids: high hazard.
6.1D (inhalation)	Substances that are acutely toxic - Harmful.
6.1E (oral)	Substances that are acutely toxic - May be harmful.
6.3B	Substances that are mildly irritating to the skin.
6.4A	Substances that are irritating to the eye.
6.5B	Substances that are contact sensitisers.
6.9B (inhalation repeated)	Harmful to human target organs or systems.
9.1D (H401)	Toxic to aquatic life.

2.2 Label elements

Signal word **DANGER**

Pictogram(s)



Hazard

H225	Highly flammable liquid and vapour.
H303	May be harmful if swallowed.
H316	Causes mild skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H401	Toxic to aquatic life.

Prevention

P102	Keep out of reach of children.
P103	Read label before use.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response

P101	If medical advice is needed, have product container or label at hand.
P314	Get medical advice/attention if you feel unwell.
P321	Specific treatment is advised - see first aid instructions.
P331	Do NOT induce vomiting.
P363	Wash contaminated clothing before reuse.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P370 + P378	In case of fire: Use appropriate media for extinction.

Storage

P403 + P235	Store in a well-ventilated place. Keep cool.
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Disposal

P501	In the case of a substance that is in compliance with a HSNO approval other than a Part 6A (Group Standards) approval, a label must provide a description of one or more appropriate and achievable methods for the disposal of a substance in accordance with the Hazardous Substances (Disposal) Regulations 2001. This may also include any method of disposal that must be avoided.
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2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS**3.1 Substances / Mixtures**

Ingredient	CAS Number	EC Number	Content
METHYL METHACRYLATE	80-62-6	201-297-1	approx. 97.5%
N,N-DIMETHYLTOLUDINE	99-97-8	202-805-4	<3%
HYDROQUINONE	123-31-9	204-617-8	<1%

4. FIRST AID MEASURES**4.1 Description of first aid measures**

Eye	Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyelids widely. Call in an ophthalmologist if necessary.
Inhalation	Seek medical advice if any symptoms develop. Move the exposed person to fresh air at once.
Skin	Wash off with plenty of water. Remove contaminated clothing. Continue to rinse and seek medical advice if irritation persists
Ingestion	Caution if victim vomits. Risk of aspiration. Keep airway free. Pulmonary failure possible after aspiration vomit. Immediately rinse mouth and drink plenty of water. Call a physician immediately.
First aid facilities	No information provided

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

CO₂, Fight larger fires with water jet or alcohol resistant foam. Dry agent, sand, extinguishing powder.

5.2 Special hazards arising from the substance or mixture

Combustible material, vapours are heavier than air and may spread along floors. Forms explosive mixtures with air at ambient temperatures. Pay attention to flashback. Development of hazardous combustion or gases or vapours possible if in the event of fire.

5.3 Advice for firefighters

Special protective equipment for fire-fighters – Stay in danger area only with self-contained breathing apparatus. Prevent fire extinguishing water from contaminating surface water on the ground water system. Cool closed containers exposed to fire with water spray.

5.4 Hazchem code

3YE

3	Foam
Y	Self Contained Breathing apparatus and protective gloves.
E	Evacuation of people in the vicinity of the incident should be considered.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapours, aerosols. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: Protective equipment see Section 8.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

Ventilate well. Cover drains. Collect, bid and pump off spills. Observe possible material restrictions (see sections 7.2 and 10.5). Take up with liquid absorbent material. Dispose of properly. Clean u affected area.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Keep away from heat and sources of ignition. Keep container tightly closed in a dry and well-ventilated place. Store between 0°C and 25°C.

7.3 Specific end use(s)

No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m ³	ppm	mg/m ³
Hydroquinone	WES (NZ)	--	.5	--	--
Methyl methacrylate	WES (NZ)	50	208	100	416

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical explosion proof extraction ventilation is recommended. Flammable/explosive vapours may accumulate in poorly ventilated areas. Vapours are heavier than air and may travel some distance to an ignition source and flash back. Maintain vapour levels below the recommended standard.

PPE

- Eye / Face** Wear safety glasses. When using large quantities or where heavy contamination is likely, wear a faceshield.
- Hands** Wear PVA gloves.
- Body** Wear coveralls. When using large quantities or where heavy contamination is likely, wear rubber boots and a rubber apron. If spraying, with prolonged use, or if in confined areas, wear impervious coveralls.
- Respiratory** Wear a Type A-Class P1 (Organic gases/vapours and Particulate) respirator. At high vapour levels, wear a Type A (Organic vapour) respirator. If spraying, with prolonged use, or if in confined areas, wear an Air-line respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	COLOURLESS LIQUID
Odour	CHARACTERISTIC ODOUR
Odour threshold	NOT AVAILABLE
pH	NOT AVAILABLE
Melting point	-48°C
Boiling point	100.5°C
Flash point	10°C
Evaporation rate	NOT AVAILABLE
Flammability	HIGHLY FLAMMABLE
Upper explosion limit	12.5 % (Methyl methacrylate)
Lower explosion limit	2.1 % (Methyl methacrylate)
Vapour pressure	53 hPa @ 20°C
Vapour density	NOT AVAILABLE
Solubility (water)	15g/l @ 20°C
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Specific gravity	0.949

9.2 Other information

% Volatiles	NOT AVAILABLE
Density	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Vapours may form explosive mixture with air. Reaction with: Acids, Oxidising materials.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) and recommended use.

10.3 Possibility of hazardous reactions

Hazardous Polymerisation: If stored longer than recommended and/or above recommended temperature, product may polymerise generating heat.

Polymerisation Description: Avoid exposure to acids, heat, peroxides, free radical initiators/

10.4 Conditions to avoid

Warming. (A range from approx.. 15 Kelvin below flash point is to be rated as critical), Exposure to light, contact with acid and oxidizing substances, contact with catalysts, peroxides, free radical initiators.

10.5 Incompatible materials

Rubber, various plastics

10.6 Hazardous decomposition products

No data available.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Eye	Irritating to eyes	
Inhalation	Harmful by inhalation. Prolong inhalation of traces of vapour should be avoided.	
Skin	Harmful in contact with skin. Sensitizing effect by skin contact is possible by prolonged or repeated exposure	
Ingestion	Harmful if swallowed. Ingestion of large quantities may cause liver or kidney damage.	
Toxicity data	METHYL METHACRYLATE (80-62-6)	
	LD50 (Oral)	7872 mg/kg (rat)
	LC50 (Inhalation)	78000 mg/m ³ /4h (rat)
	N,N-DIMETHYLTOLUDINE (99-97-8)	
	LD50 (Oral)	1650 mg/kg (rat)
	LC50 (Inhalation)	1400 mg/m ³ /4h (rat)

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.

12.2 Persistence and degradability

Biodegradability: Readily biodegradable (>95%, exposure time: 28d)

12.3 Bioaccumulative potential

Bioaccumulation is not expected

12.4 Mobility in soil

Do not allow concentrate to enter watercourse, drains or soil.

12.5 Other adverse effects

If emitted into the atmosphere it will rapidly photodegrade. If released into soil or water methyl methacrylate will be principally lost by volatilisation, though in soil some leaching to groundwater will occur. Will biodegrade at a moderate rate. Not expected to bioconcentrate in fish.

13. DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods**

Waste disposal	After use, ampoules containing residual product should be disposed of as "chemically contaminated waste" in accordance with local and national regulations.
Legislation	Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD ACCORDING TO LAND TRANSPORT RULE:
DANGEROUS GOODS 2005; NZS 5433:2012, UN, IMDG OR IATA;



	LAND TRANSPORT (NZS 5433)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	1247	1247	1247
14.2 Proper Shipping Name	METHYL METHACRYLATE MONOMER, INHIBITED	METHYL METHACRYLATE MONOMER, INHIBITED	METHYL METHACRYLATE MONOMER, INHIBITED
14.3 Transport hazard class	3	3	3
14.4 Packing Group	II	II	II

14.5 Environmental hazards Not a Marine Pollutant

14.6 Special precautions for user

Hazchem code	3YE
EMS	F-E, S-D

15. REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

Approval code	HSR002495
Group standard	Additives, Intermediates, Process Chemicals and Raw Materials (Flammable) Group Standard 2006

- Inventory listing(s)** **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.
- NEW ZEALAND: NZIoC (New Zealand Inventory of Chemicals)**
All components are listed on the NZIoC inventory, or are exempt.

16. OTHER INFORMATION

Additional information **ACRYLIC - ACRYLAMIDE RESINS:** These resins are generally of low toxicity. Toxicity increases with presence of significant concentrations of acrylic - acrylamide monomers. These monomers have been linked with the development of skin sensitisation.

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

Abbreviations	ACGIH	American Conference of Governmental Industrial Hygienists
	CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
	CCID	Chemical Classification and Information Database (HSNO)
	CNS	Central Nervous System
	EC No.	EC No - European Community Number
	EPA	Environmental Protection Authority [New Zealand]
	GHS	Globally Harmonized System
	HSNO	Hazardous Substances and New Organisms
	IARC	International Agency for Research on Cancer
	LC50	Lethal Concentration, 50% / Median Lethal Concentration
	LD50	Lethal Dose, 50% / Median Lethal Dose
	mg/m ³	Milligrams per Cubic Metre
	OEL	Occupational Exposure Limit
	PEL	Permissible Exposure Limit
	pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
	ppm	Parts Per Million
	REACH	Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals
	STEL	Short-Term Exposure Limit
	STOT-RE	Specific target organ toxicity (repeated exposure)
	STOT-SE	Specific target organ toxicity (single exposure)
	TLV	Threshold Limit Value
	TWA	Time Weighted Average

Revision history

Revision	Description
1.0	Initial MSDS Creation

END OF MSDS