Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
DENTSPLY AUSTENAL ELECTRO POLISHING SOLUTION

SYNONYMS
"Product number: N046001, N046045"

PROPER SHIPPING NAME
SULPHURIC ACID or BATTERY FLUID, ACID

PRODUCT USE
Electropolishing solution.

SUPPLIER
Company: DENTSPLY (AUSTRALIA) PTY LTD
Address:
11 - 21 Gilby Road
Mount Waverley
VIC 3149
AUSTRALIA
Telephone: 1300 55 29 29
Emergency Tel: 1300 55 29 29 (Hours of operation: Monday - Friday 9:00 am - 5:00 pm EST; General information only)
Fax: +61 3 9538 8260

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE
HAZARDOUS SUBSTANCE. DANGEROUS GOODS. According to NOHSC Criteria, and ADG Code.
COMBUSTIBLE LIQUID, regulated under AS1940 for Bulk Storage purposes only.

POISONS SCHEDULE
S6

RISK
■ Harmful if swallowed.
■ Causes severe burns.
■ Risk of serious damage to eyes.
■ HARMFUL- May cause lung damage if swallowed.

SAFETY
■ Keep locked up.
■ Do not breathe gas/fumes/vapour/spray.
■ Use only in well ventilated areas.

■ Keep container in a well ventilated place.

■ Avoid exposure - obtain special instructions before use.
■ To clean the floor and all objects contaminated by this material use water.
■ Keep container tightly closed.
■ Take off immediately all contaminated clothing.
■ In case of accident or if you feel unwell IMMEDIATELY contact Doctor or Poisons Information Centre (show label if possible).
■ This material and its container must be disposed of as hazardous waste.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
ethylene glycol	107-21-1	70-90
sulfuric acid	7664-93-9	10-20

Section 4 - FIRST AID MEASURES

SWALLOWED
• For advice, contact a Poisons Information Centre or a doctor at once.
• Urgent hospital treatment is likely to be needed.
• If swallowed do NOT induce vomiting.
• If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

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EYE
■ If this product comes in contact with the eyes:
• Immediately hold eyelids apart and flush the eye continuously with running water.
• Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
• Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
• Transport to hospital or doctor without delay.

SKIN
■ If skin or hair contact occurs:
• Immediately flush body and clothes with large amounts of water, using safety shower if available.
• Quickly remove all contaminated clothing, including footwear.
• Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
• Transport to hospital, or doctor.

INHALED
• If fumes or combustion products are inhaled remove from contaminated area.
• Lay patient down. Keep warm and rested.
• Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
• Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
• Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema.
• Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).
• As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested.
• Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.

NOTES TO PHYSICIAN
■ Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or pharmacologically.
For acute or short term repeated exposures to ethylene glycol:
• Early treatment of ingestion is important. Ensure emesis is satisfactory.
• Test and correct for metabolic acidosis and hypocalcaemia.
• Apply sustained diuresis when possible with hypertonic mannitol.
• Evaluate renal status and begin haemodialysis if indicated. [I.L.O].
For acute or short term repeated exposures to strong acids:
• Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially.
• Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling
• Intravenous lines should be established immediately in all cases where there is evidence of circulatory compromise.
• Strong acids produce a coagulation necrosis characterised by formation of a coagulum (eschar) as a result of the dessicating action of the acid on proteins in specific tissues.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
• Alcohol stable foam.
• Dry chemical powder.
• BCF (where regulations permit).
• Carbon dioxide.

FIRE FIGHTING
• Alert Fire Brigade and tell them location and nature of hazard.
• Wear full body protective clothing with breathing apparatus.
• Prevent, by any means available, spillage from entering drains or water course.
• Use fire fighting procedures suitable for surrounding area.

FIRE/EXPLOSION HAZARD
• Combustible.
• Slight fire hazard when exposed to heat or flame.
• Acids may react with metals to produce hydrogen, a highly flammable and explosive gas.
• Heating may cause expansion or decomposition leading to violent rupture of containers.
Combustion products include: carbon monoxide (CO), carbon dioxide (CO_2), sulfur oxides (SOx), other pyrolysis products typical of burning organic material.

FIRE INCOMPATIBILITY
• Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

HAZCHEM
2R

PERSONAL PROTECTION

Glasses:	Gloves:	Respirator:
Full face- shield.	1.NATURAL+NEOPRENE 2.NEOPRENE	Type AE- P Filter of sufficient capacity

continued...

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
• Clean up all spills immediately.
• Avoid breathing vapours and contact with skin and eyes.
• Control personal contact by using protective equipment.
• Contain and absorb spill with sand, earth, inert material or vermiculite.

MAJOR SPILLS
• Clear area of personnel and move upwind.
• Alert Fire Brigade and tell them location and nature of hazard.
• Wear full body protective clothing with breathing apparatus.
• Prevent, by any means available, spillage from entering drains or water course.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
• DO NOT allow clothing wet with material to stay in contact with skin.
• Avoid all personal contact, including inhalation.
• Wear protective clothing when risk of exposure occurs.
• Use in a well-ventilated area.
• WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material.

SUITABLE CONTAINER
• DO NOT use aluminium or galvanised containers.
• Check regularly for spills and leaks.
• Lined metal can, lined metal pail/ can.
• Plastic pail.
• Polyliner drum.
• Packing as recommended by manufacturer.
For low viscosity materials
• Drums and jerricans must be of the non-removable head type.
• Where a can is to be used as an inner package, the can must have a screwed enclosure. <</>.

STORAGE INCOMPATIBILITY
• Segregate from alkalies, oxidising agents and chemicals readily decomposed by acids, i.e. cyanides, sulfides, carbonates.
• Avoid strong acids, bases.
• Avoid storage with reducing agents.

STORAGE REQUIREMENTS
• Material is hygroscopic, i.e. absorbs moisture from the air. Keep containers well sealed in storage.
• Store in original containers.
• Keep containers securely sealed.
• Store in a cool, dry, well-ventilated area.
• Store away from incompatible materials and foodstuff containers.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Notes
Australia Exposure Standards	ethylene glycol (Ethylene glycol (vapour))	20	52	40	104	Sk
Australia Exposure Standards	ethylene glycol (Ethylene glycol (particulate))		10			Sk
Australia Exposure Standards	sulfuric acid (Sulphuric acid)		1		3	

PERSONAL PROTECTION

RESPIRATOR
Type AE-P Filter of sufficient capacity

EYE
• Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure

continued...

• Chemical goggles.whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted
• Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection.
• Alternatively a gas mask may replace splash goggles and face shields.

HANDS/FEET
• Elbow length PVC gloves.
• When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.
Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:
• frequency and duration of contact,
• chemical resistance of glove material,
• glove thickness and
• dexterity.

OTHER
• Overalls.
• PVC Apron.
• PVC protective suit may be required if exposure severe.
• Eyewash unit.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS
■ Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE
Clear, colourless to light yellow liquid; mixes with water.

PHYSICAL PROPERTIES
Liquid.
Mixes with water.
Corrosive.
Acid.

State	Liquid	Molecular Weight	Not Applicable
Melting Range (℃)	Not Available	Viscosity	Not Available
Boiling Range (℃)	>195	Solubility in water (g/L)	Miscible
Flash Point (℃)	111 (TCC)	pH (1% solution)	Not Available
Decomposition Temp (℃)	Not Available	pH (as supplied)	~0.2
Autoignition Temp (℃)	398	Vapour Pressure (kPa)	Not Availa ble
Upper Explosive Limit (%)	15.3 (ethylene glycol)	Specific Gravity (water=1)	1.24
Lower Explosive Limit (%)	3.2 (ethylene glycol)	Relative Vapour Density (air=1)	Not Available
Volatile Component (%vol)	>80	Evaporation Rate	Not Available

ethylene glycol
■ log Kow (Prager 1995): - 1.36
■ log Kow (Sangster 1997): - 1.36

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY
• Presence of heat source and direct sunlight.
• Presence of incompatible materials.
• Product is considered stable.
• Hazardous polymerisation will not occur.
For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS
ACUTE HEALTH EFFECTS
■ Harmful if swallowed.
■ Causes severe burns.
■ HARMFUL- May cause lung damage if swallowed.
■ Risk of serious damage to eyes.
■ Vapours may cause dizziness or suffocation.

CHRONIC HEALTH EFFECTS
■ Not applicable.

continued...

TOXICITY AND IRRITATION
SULFURIC ACID:
ETHYLENE GLYCOL:
■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.
For ethylene glycol:
Ethylene glycol is quickly and extensively absorbed through the gastrointestinal tract. Limited information suggests that it is also absorbed through the respiratory tract; dermal absorption is apparently slow.

ETHYLENE GLYCOL:

TOXICITY
Oral (rat) LD50: 4700 mg/kg
Oral (human) LDLo: 398 mg/kg
Oral (child) TDLo: 5500 mg/kg
Inhalation (human) TCLo: 10000 mg/m³
Dermal (rabbit) LD50: 9530 mg/kg
Inhalation (rat) LC50: 50100 mg/m³/8 hr

IRRITATION
Skin (rabbit): 555 mg(open)- Mild
Eye (rabbit): 100 mg/1h - Mild
Eye (rabbit): 1440mg/6h- Moderate
Eye (rabbit): 500 mg/24h - Mild
Eye (rabbit): 12 mg/m³/3D

■ For ethylene glycol:
Ethylene glycol is quickly and extensively absorbed through the gastrointestinal tract. Limited information suggests that it is also absorbed through the respiratory tract; dermal absorption is apparently slow.
[Estimated Lethal Dose (human) 100 ml; RTECS quoted by Orica]
Substance is reproductive effector in rats (birth defects).
Mutagenic to rat cells.

SULFURIC ACID:

TOXICITY
Oral (rat) LD50: 2140 mg/kg
Inhalation (rat) LC50: 510 mg/m³/2h
Inhalation (human) TCLo: 3 mg/m³/24w

IRRITATION
Eye (rabbit): 1.38 mg SEVERE
Eye (rabbit): 5 mg/30sec SEVERE

■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.
WARNING: For inhalation exposure ONLY: This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS
The International Agency for Research on Cancer (IARC) has classified occupational exposures to respirable (<5 um) crystalline silica as being carcinogenic to humans . This classification is based on what IARC considered sufficient evidence from epidemiological studies of humans for the carcinogenicity of inhaled silica in the forms of quartz and cristobalite.
Occupational exposures to strong inorganic acid mists of sulfuric acid:

SKIN

ethylene glycol	ND	Notes	Sk

Section 12 - ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
ethylene glycol	LOW	MED	LOW	HIGH
sulfuric acid			LOW	

Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Treat and neutralise at an approved treatment plant. Treatment should involve: Neutralisation with soda-ash or soda-lime followed by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus
- Decontaminate empty containers with 5% aqueous sodium hydroxide or soda ash, followed by water. Observe all label safeguards until containers are cleaned and destroyed.

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Section 14 - TRANSPORTATION INFORMATION

Labels Required: CORROSIVE

HAZCHEM:
2R (ADG7)

ADG7:

Class or division:	8	Subsidiary risk:	None
UN No.:	2796	UN packing group:	II
Special provisions:	None	Packing Instructions:	None
Limited quantities:	1 L	Portable tanks and bulk containers - Instructions:	T8
Portable tanks and bulk containers - Special provisions:	TP2	Packagings and IBCs - Packing instruction:	P001; IBC02
Packagings and IBCs - Special packing provisions:	None		

Shipping Name:SULPHURIC ACID or BATTERY FLUID, ACID with not more than 51% acid

Land Transport UNDG:

Class or division:	8	Subsidiary risk:	None
UN No.:	2796	UN packing group:	II

Shipping Name:SULPHURIC ACID or BATTERY FLUID, ACID with not more than 51% acid

Air Transport IATA:

ICAO/IATA Class:	8	ICAO/IATA Subrisk:	None
UN/ID Number:	2796	Packing Group:	II
Special provisions:	None		

Shipping Name: BATTERY FLUID, ACID

Maritime Transport IMDG:

IMDG Class:	8	IMDG Subrisk:	None
UN Number:	2796	Packing Group:	II
EMS Number:	F- A , S- B	Special provisions:	None
Limited Quantities:	1 L		

Shipping Name: SULPHURIC ACID with not more than 51% acid or BATTERY FLUID, ACID

Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE
S6

REGULATIONS
Regulations for ingredients

ethylene glycol (CAS: 107-21-1) is found on the following regulatory lists;
"Australia Exposure Standards","Australia Hazardous Substances","Australia High Volume Industrial Chemical List (HVICL)","Australia Inventory of Chemical Substances (AICS)","Australia National Pollutant Inventory","Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix C","Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix E (Part 2)","Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 5","Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 6", "GESAMP/EHS Composite List - GESAMP Hazard Profiles","IMO IBC Code Chapter 17: Summary of minimum requirements","IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk","IMO Provisional Categorization of Liquid Substances - List 2: Pollutant only mixtures containing at least 99% by weight of components already assessed by IMO","International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD Representative List of High Production Volume (HPV) Chemicals"

sulfuric acid (CAS: 7664-93-9) is found on the following regulatory lists;
"Australia Exposure Standards","Australia Hazardous Substances","Australia High Volume Industrial Chemical List (HVICL)","Australia Illicit Drug Reagents/Essential Chemicals - Category III","Australia Inventory of Chemical Substances (AICS)","Australia National Pollutant Inventory","Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix E (Part 2)","Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix F (Part 3)","Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 6","GESAMP/EHS Composite List - GESAMP Hazard Profiles","IMO IBC Code Chapter 17: Summary of minimum requirements","IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk","International Air Transport Association (IATA) Dangerous Goods Regulations","International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List","International Council of Chemical Associations (ICCA) - High Production Volume List","OECD Representative List of High Production Volume (HPV) Chemicals","United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances - Table II","United Nations List of Precursors and Chemicals Frequently used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances Under International Control - Table II"

continued...

No data for Dentsply Austenal Electro Polishing Solution (CW: 4613-63)

Section 16 - OTHER INFORMATION

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

Issue Date: 20-Aug-2010
Print Date: 20-Aug-2010

This is the end of the MSDS.