

Dentsply VITA CERAMICS ETCH

Dentsply Sirona Pty Ltd

Chemwatch: 86-7086

Version No: 2.1.1.1

Safety Data Sheet according to WHS and ADG requirements

Chemwatch Hazard Alert Code: 4

Issue Date: 02/11/2017

Print Date: 01/05/2018

S.GHS.AUS.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name	Dentsply VITA CERAMICS ETCH
Synonyms	Not Available
Proper shipping name	CORROSIVE LIQUID, TOXIC, N.O.S. (contains sulfuric acid and hydrofluoric acid)
Other means of identification	Not Available

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Use according to manufacturer's directions. Use as laboratory reagent.
--------------------------	---

Details of the supplier of the safety data sheet

Registered company name	Dentsply Sirona Pty Ltd
Address	11-21 Gilby Road Mount Waverley VIC 3149 Australia
Telephone	1300 55 29 29
Fax	1300 55 31 31
Website	www.dentsply.com.au
Email	clientservices@dentsplysirona.com

Emergency telephone number

Association / Organisation	Not Available
Emergency telephone numbers	1300 55 29 29
Other emergency telephone numbers	Not Available

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

HAZARDOUS CHEMICAL. DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability	0	
Toxicity	3	
Body Contact	4	
Reactivity	1	
Chronic	3	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Poisons Schedule	S7
Classification [1]	Metal Corrosion Category 1, Acute Toxicity (Oral) Category 3, Acute Toxicity (Dermal) Category 3, Acute Toxicity (Inhalation) Category 2, Skin Corrosion/Irritation Category 1A, Serious Eye Damage Category 1, Carcinogenicity Category 1A
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HSIS ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI

Label elements

Hazard pictogram(s)	
SIGNAL WORD	DANGER

Hazard statement(s)

H290	May be corrosive to metals.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.

Continued...

Dentsply VITA CERAMICS ETCH

H330	Fatal if inhaled.
H314	Causes severe skin burns and eye damage.
H350	May cause cancer.

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.

Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
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 victim to fresh air and keep at rest in a position comfortable for breathing.

Precautionary statement(s) Storage

P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Precautionary statement(s) Disposal

P501	Dispose of contents/container in accordance with local regulations.
------	---

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
7664-93-9	5-<10	<u>sulfuric acid</u>
7664-39-3	1-<5	<u>hydrofluoric acid</u>
64-17-5	1-<5	<u>ethanol</u>

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	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. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
	If there is evidence of severe skin irritation or skin burns: ▶ Avoid further contact. Immediately remove contaminated clothing, including footwear. ▶ Flush skin under running water for 15 minutes. ▶ Avoiding contamination of the hands, massage <u>calcium gluconate gel</u> into affected areas, pay particular attention to creases in skin. ▶ Contact the Poisons Information Centre. ▶ Continue gel application for at least 15 minutes after burning sensation ceases. ▶ If pain recurs, repeat application of <u>calcium gluconate gel</u> or apply every 20 minutes. ▶ If no gel is available, continue washing for at least 15 minutes, using soap if available. If patient is conscious, give six <u>calcium gluconate</u> or <u>calcium carbonate</u> tablets in water by mouth. ▶ Transport to hospital, or doctor, urgently.
Inhalation	▶ 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. ▶ Transport to hospital, or doctor, without delay. ▶ 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. This must definitely be left to a doctor or person authorised by him/her. (ICSC13719) For massive exposures: ▶ If dusts, vapours, aerosols, 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.

Continued...

Dentsply VITA CERAMICS ETCH

	<ul style="list-style-type: none"> ► 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. ► If victim is conscious, give six calcium gluconate or calcium carbonate tablets in water by mouth. ► Transport to hospital, or doctor, urgently.
Ingestion	<ul style="list-style-type: none"> ► 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. ► Observe the patient carefully. ► Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ► Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ► Transport to hospital or doctor without delay.

Indication of any immediate medical attention and special treatment needed

Following acute or short term repeated exposure to hydrofluoric acid:

- Subcutaneous injections of Calcium Gluconate may be necessary around the burnt area. Continued application of Calcium Gluconate Gel or subcutaneous Calcium Gluconate should then continue for 3-4 days at a frequency of 4-6 times per day. If a "burning" sensation recurs, apply more frequently.
- Systemic effects of extensive hydrofluoric acid burns include renal damage, hypocalcaemia and consequent cardiac arrhythmias. Monitor haematological, respiratory, renal, cardiac and electrolyte status at least daily. Tests should include FBE, blood gases, chest X-ray, creatinine and electrolytes, urine output, Ca ions, Mg ions and phosphate ions. Continuous ECG monitoring may be required.
- Where serum calcium is low, or clinical, or ECG signs of hypocalcaemia develop, infusions of calcium gluconate, or if less serious, oral Sandocal, should be given. Hydrocortisone 500 mg in a four to six hourly infusion may help.
- Antibiotics should not be given as a routine, but only when indicated.
- Eye contact pain may be excruciating and 2-3 drops of 0.05% pentocaine hydrochloride may be instilled, followed by further irrigation

BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
1. Methaemoglobin in blood	1.5% of haemoglobin	During or end of shift	B, NS, SQ

B: Background levels occur in specimens collected from subjects **NOT** exposed.

NS: Non-specific determinant; Also seen after exposure to other materials

SQ: Semi-quantitative determinant - Interpretation may be ambiguous; should be used as a screening test or confirmatory test.

For acute or short term repeated exposures to fluorides:

- Fluoride absorption from gastro-intestinal tract may be retarded by calcium salts, milk or antacids.
- Fluoride particulates or fume may be absorbed through the respiratory tract with 20-30% deposited at alveolar level.
- Peak serum levels are reached 30 mins. post-exposure; 50% appears in the urine within 24 hours.
- For acute poisoning (endotracheal intubation if inadequate tidal volume), monitor breathing and evaluate/monitor blood pressure and pulse frequently since shock may supervene with little warning. Monitor ECG immediately; watch for arrhythmias and evidence of Q-T prolongation or T-wave changes. Maintain monitor. Treat shock vigorously with isotonic saline (in 5% glucose) to restore blood volume and enhance renal excretion.
- Where evidence of hypocalcaemic or normocalcaemic tetany exists, calcium gluconate (10 ml of a 10% solution) is injected to avoid tachycardia.

BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
Fluorides in urine	3 mg/gm creatinine 10mg/gm creatinine	Prior to shift End of shift	B, NS B, NS

B: Background levels occur in specimens collected from subjects **NOT** exposed

NS: Non-specific determinant; also observed after exposure to other exposures.

SECTION 5 FIREFIGHTING MEASURES**Extinguishing media**

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.
Advice for firefighters	
Fire Fighting	<ul style="list-style-type: none"> ► 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	<ul style="list-style-type: none"> ► Non combustible. ► Not considered to be a significant fire risk. ► 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.
HAZCHEM	2X

Continued...

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	<ul style="list-style-type: none"> ► Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material. ► Check regularly for spills and leaks. ► Clean up all spills immediately. ► Avoid breathing vapours and contact with skin and eyes. ► Control personal contact with the substance, by using protective equipment. ► Contain and absorb spill with sand, earth, inert material or vermiculite.
Major Spills	<ul style="list-style-type: none"> ► Clear area of personnel and move upwind. ► Alert Fire Brigade and tell them location and nature of hazard. ► May be violently or explosively reactive. ► Wear full body protective clothing with breathing apparatus.

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

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ► 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.
Other information	<ul style="list-style-type: none"> ► Store in original containers. ► Keep containers securely sealed. ► Store in a cool, dry, well-ventilated area. ► Store away from incompatible materials and foodstuff containers.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ► 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. <p>For low viscosity materials</p> <ul style="list-style-type: none"> ► 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. <p>For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):</p> <ul style="list-style-type: none"> ► Removable head packaging; ► Cans with friction closures and ► low pressure tubes and cartridges <p>may be used.</p> <ul style="list-style-type: none"> ► Material is corrosive to most metals, glass and other siliceous materials.
Storage incompatibility	<ul style="list-style-type: none"> ► Inorganic acids are generally soluble in water with the release of hydrogen ions. The resulting solutions have pH's of less than 7.0. ► Inorganic acids neutralise chemical bases (for example: amines and inorganic hydroxides) to form salts - neutralisation can generate dangerously large amounts of heat in small spaces. ► The dissolution of inorganic acids in water or the dilution of their concentrated solutions with additional water may generate significant heat. ► Reacts with mild steel, galvanised steel / zinc producing hydrogen gas which may form an explosive mixture with air. ► Segregate from alkalies, oxidising agents and chemicals readily decomposed by acids, i.e. cyanides, sulfides, carbonates.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	sulfuric acid	Sulphuric acid	1 mg/m3	3 mg/m3 / - ppm	Not Available	Not Available
Australia Exposure Standards	hydrofluoric acid	Hydrogen fluoride (as F)	Not Available	Not Available	2.6 mg/m3 / 3 ppm	Not Available
Australia Exposure Standards	ethanol	Ethyl alcohol	1880 mg/m3 / 1000 ppm	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
sulfuric acid	Sulfuric acid	Not Available	Not Available	Not Available
hydrofluoric acid	Hydrogen fluoride; (Hydrofluoric acid)	Not Available	Not Available	Not Available
ethanol	Ethyl alcohol; (Ethanol)	Not Available	Not Available	15000 ppm

Continued...

Dentsply VITA CERAMICS ETCH

Ingredient	Original IDLH	Revised IDLH
sulfuric acid	15 mg/m ³	Not Available
hydrofluoric acid	30 ppm	Not Available
ethanol	3,300 [LEL] ppm	Not Available

Exposure controls

Appropriate engineering controls	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.
Personal protection	    
Eye and face protection	<ul style="list-style-type: none"> 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. 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.
Skin protection	See Hand protection below
Hands/feet protection	<ul style="list-style-type: none"> Elbow length PVC gloves When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots. <p>Personal hygiene is a key element of effective hand care.</p>
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> Overalls. PVC Apron. PVC protective suit may be required if exposure severe. Eyewash unit.

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

Dentsply VITA CERAMICS ETCH

Material	CPI
NEOPRENE	A
PVC	B
BUTYL	C
BUTYL/NEOPRENE	C
NAT+NEOPR+NITRILE	C
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NEOPRENE/NATURAL	C
NITRILE	C
NITRILE+PVC	C
PE	C
PE/EVAL/PE	C
SARANEX-23	C
VITON/NEOPRENE	C

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Respiratory protection

Type ABE-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	ABE-AUS P2	-	ABE-PAPR-AUS / Class 1 P2
up to 50 x ES	-	ABE-AUS / Class 1 P2	-
up to 100 x ES	-	ABE-2 P2	ABE-PAPR-2 P2 ^

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Light red acidic liquid with characteristic odour; miscible with water.
------------	---

Continued...

Dentsply VITA CERAMICS ETCH

Physical state	Liquid	Relative density (Water = 1)	1.06
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	2.0	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	100	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Applicable	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Applicable	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Applicable	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	<110	Gas group	Not Available
Solubility in water (g/L)	Miscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	► Contact with alkaline material liberates heat ► Unstable in the presence of incompatible materials. ► Product is considered stable. ► Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may produce toxic effects. Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage. There may be dizziness, headache, nausea and weakness.
Ingestion	Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual. Ingestion of acidic corrosives may produce burns around and in the mouth, the throat and oesophagus. Immediate pain and difficulties in swallowing and speaking may also be evident.
Skin Contact	Skin contact with the material may produce toxic effects; systemic effects may result following absorption. Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue. Fluorides are easily absorbed through the skin and cause death of soft tissue and erode bone. Healing is delayed and death of tissue may continue to spread beneath skin. Open cuts, abraded or irritated skin should not be exposed to this material. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	If applied to the eyes, this material causes severe eye damage.
Chronic	Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and/or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Prolonged exposure to ethanol may cause damage to the liver and cause scarring. It may also worsen damage caused by other agents. Extended exposure to inorganic fluorides causes fluorosis, which includes signs of joint pain and stiffness, tooth discolouration, nausea and vomiting, loss of appetite, diarrhoea or constipation, weight loss, anaemia, weakness and general unwellness. There may also be frequent urination and thirst. Hydrogen fluoride easily penetrates the skin and causes destruction and corrosion of the bone and underlying tissue. Ingestion causes severe pains and burns in the mouth and throat and blood calcium levels are dangerously reduced.

Dentsply VITA CERAMICS ETCH	TOXICITY	IRRITATION
	Not Available	Not Available
sulfuric acid	TOXICITY	IRRITATION
	Inhalation (guinea pig) LC50: 0.036 mg/l/8H ^[2]	Eye (rabbit): 1.38 mg SEVERE
	Oral (rat) LD50: 2140 mg/kg ^[2]	Eye (rabbit): 5 mg/30sec SEVERE
hydrofluoric acid	TOXICITY	IRRITATION

Continued...

Dentsply VITA CERAMICS ETCH

ethanol	Inhalation (rat) LC50: 0.275 mg/l/60M ^[2]	Eye (human): 50 mg - SEVERE
	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: 17100 mg/kg ^[1]	Eye (rabbit): 500 mg SEVERE
	Inhalation (rat) LC50: 63926.976 mg/l/4h ^[2]	Eye (rabbit): 100mg/24hr-moderate

Oral (rat) LD50: 7060 mg/kg ^[2]	Skin (rabbit): 20 mg/24hr-moderate
	Skin (rabbit): 400 mg (open)-mild

Legend:

1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

SULFURIC ACID	WARNING: For inhalation exposure <u>ONLY</u> : This substance has been classified by the IARC as Group 1: CARCINOGENIC TO HUMANS		
	Occupational exposures to strong inorganic acid mists of sulfuric acid:		
HYDROFLUORIC ACID	No significant acute toxicological data identified in literature search. The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function. (liver and kidney damage) [Manufacturer] for hydrogen fluoride (as vapour)		
SULFURIC ACID & HYDROFLUORIC ACID	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia.		
Acute Toxicity	✓	Carcinogenicity	✓
Skin Irritation/Corrosion	✓	Reproductivity	∅
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	∅
Respiratory or Skin sensitisation	∅	STOT - Repeated Exposure	∅
Mutagenicity	∅	Aspiration Hazard	∅

Legend:  - Data available but does not fill the criteria for classification
 - Data available to make classification
 - Data Not Available to make classification

SECTION 12 ECOLOGICAL INFORMATION**Toxicity**

Dentsply VITA CERAMICS ETCH	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
sulfuric acid	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	=8mg/L	1
	EC50	48	Crustacea	=42.5mg/L	1
	EC0	24	Crustacea	=30mg/L	1
hydrofluoric acid	NOEC	7200	Fish	0.13mg/L	2
	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	51mg/L	2
	EC50	48	Crustacea	=270mg/L	1
ethanol	NOEC	504	Fish	4mg/L	2
	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	42mg/L	4
	EC50	48	Crustacea	2mg/L	4

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

Prevent, by any means available, spillage from entering drains or water courses.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Continued...

Dentsply VITA CERAMICS ETCH

Ingredient	Persistence: Water/Soil	Persistence: Air
ethanol	LOW (Half-life = 2.17 days)	LOW (Half-life = 5.08 days)

Bioaccumulative potential

Ingredient	Bioaccumulation
ethanol	LOW (LogKOW = -0.31)

Mobility in soil

Ingredient	Mobility
ethanol	HIGH (KOC = 1)

SECTION 13 DISPOSAL CONSIDERATIONS**Waste treatment methods**

Product / Packaging disposal	<ul style="list-style-type: none"> Containers may still present a chemical hazard/ danger when empty. Return to supplier for reuse/ recycling if possible. <p>Otherwise:</p> <ul style="list-style-type: none"> If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. Where possible retain label warnings and SDS and observe all notices pertaining to the product. DO NOT allow wash water from cleaning or process equipment to enter drains. It may be necessary to collect all wash water for treatment before disposal. In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. Where in doubt contact the responsible authority. 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 licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material).

SECTION 14 TRANSPORT INFORMATION**Labels Required**

		
Marine Pollutant	NO	
HAZCHEM	2X	

Land transport (ADG)

UN number	2922				
UN proper shipping name	CORROSIVE LIQUID, TOXIC, N.O.S. (contains sulfuric acid and hydrofluoric acid)				
Transport hazard class(es)	<table border="0"> <tr> <td>Class</td> <td>8</td> </tr> <tr> <td>Subrisk</td> <td>6.1</td> </tr> </table>	Class	8	Subrisk	6.1
Class	8				
Subrisk	6.1				
Packing group	II				
Environmental hazard	Not Applicable				
Special precautions for user	<table border="0"> <tr> <td>Special provisions</td> <td>274</td> </tr> <tr> <td>Limited quantity</td> <td>1 L</td> </tr> </table>	Special provisions	274	Limited quantity	1 L
Special provisions	274				
Limited quantity	1 L				

Air transport (ICAO-IATA / DGR)

UN number	2922						
UN proper shipping name	Corrosive liquid, toxic, n.o.s. * (contains sulfuric acid and hydrofluoric acid)						
Transport hazard class(es)	<table border="0"> <tr> <td>ICAO/IATA Class</td> <td>8</td> </tr> <tr> <td>ICAO / IATA Subrisk</td> <td>6.1</td> </tr> <tr> <td>ERG Code</td> <td>8P</td> </tr> </table>	ICAO/IATA Class	8	ICAO / IATA Subrisk	6.1	ERG Code	8P
ICAO/IATA Class	8						
ICAO / IATA Subrisk	6.1						
ERG Code	8P						
Packing group	II						
Environmental hazard	Not Applicable						
Special precautions for user	<table border="0"> <tr> <td>Special provisions</td> <td>A3 A803</td> </tr> <tr> <td>Cargo Only Packing Instructions</td> <td>855</td> </tr> <tr> <td>Cargo Only Maximum Qty / Pack</td> <td>30 L</td> </tr> </table>	Special provisions	A3 A803	Cargo Only Packing Instructions	855	Cargo Only Maximum Qty / Pack	30 L
Special provisions	A3 A803						
Cargo Only Packing Instructions	855						
Cargo Only Maximum Qty / Pack	30 L						

Continued...

Dentsply VITA CERAMICS ETCH

Passenger and Cargo Packing Instructions	851
Passenger and Cargo Maximum Qty / Pack	1 L
Passenger and Cargo Limited Quantity Packing Instructions	Y840
Passenger and Cargo Limited Maximum Qty / Pack	0.5 L

Sea transport (IMDG-Code / GGVSee)

UN number	2922
UN proper shipping name	CORROSIVE LIQUID, TOXIC, N.O.S. (contains sulfuric acid and hydrofluoric acid)
Transport hazard class(es)	IMDG Class: 8 IMDG Subrisk: 6.1
Packing group	II
Environmental hazard	Not Applicable
Special precautions for user	EMS Number: F-A , S-B Special provisions: 274 Limited Quantities: 1 L

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

SECTION 15 REGULATORY INFORMATION

Safety, health and environmental regulations / legislation specific for the substance or mixture

SULFURIC ACID(7664-93-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6
Australia Inventory of Chemical Substances (AICS)	International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)	International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft

HYDROFLUORIC ACID(7664-39-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 3
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4
Australia Inventory of Chemical Substances (AICS)	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 7
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix J (Part 2)	International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 2	

ETHANOL(64-17-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix B (Part 3)
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)
Australia Inventory of Chemical Substances (AICS)	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N (ethanol; sulfuric acid; hydrofluoric acid)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	Y
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y
Legend:	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

Continued...

Dentsply VITA CERAMICS ETCH

SECTION 16 OTHER INFORMATION

Revision Date	02/11/2017
Initial Date	Not Available

Other information**Ingredients with multiple cas numbers**

Name	CAS No
hydrofluoric acid	7664-39-3, 790596-14-4
ethanol	64-17-5, 2348-46-1

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.

The 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. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC – TWA: Permissible Concentration-Time Weighted Average
PC – STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any process without written permission from CHEMWATCH.
TEL (+61 3) 9572 4700.