



Safety Data Sheet

Hydrofluoric Acid Etching Gel

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Hydrofluoric Acid Etching Gel

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

Used for etching of various types of resin bonded porcelain/ceramic restorations (conventional feldspathic porcelain, Leucite glass ceramic, lithium disilicate, zirconia reinforced lithium silicate glass-ceramic, fluorapatite glass ceramic, etc.) prior to the bonding and cementation procedure.

1.3. Details of the supplier of the safety data sheet

Company Name: Rizhao HuGe Biomaterials Co., Ltd.
Address: 2 North Zhaoyang Road, Donggang District
City, State, Zip Code: Rizhao City, Shandong Province, China, 276800
Telephone: Tel: 86-633-2277268, Fax: 86-633-2277298
Email address: marketing@hugedental.com
Website: www.hugedental.com

SECTION 2: Hazards identification

2.1 Health Hazard

OSHA/HCS status This material is considered hazardous and toxic by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture SKIN CORROSION - Category 1 SERIOUS EYE DAMAGE - Category 1 CARCINOGENICITY - Category 2

Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 91%

GHS label elements

Hazard pictograms



Signal word Hazard statements Danger
Causes severe skin burns and eye damage.
Suspected of causing cancer.

Precautionary statements

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Wash hands thoroughly after handling.

Response IF exposed or concerned: Get medical attention. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.



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Storage Store locked up.
 Disposal Dispose of contents and container in accordance with all local, regional, national and international regulations.
 Supplemental label elements Do not taste or swallow. Wash thoroughly after handling.
 Hazards not otherwise classified Causes digestive tract burns.

SECTION 3: Composition/information on ingredients

Substance/mixture : Mixture
 Other means of identification : Not available.
 CAS number/other identifiers CAS number : Not applicable.
 Product code : Not available.

Active Ingredient name	Other names	%	CAS number
Hydrofluoric Acid	-	5-10	7664-39-3
Water	-	89-94	7732-18-5
Other	-	1	-

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

SECTION 4: First aid measures

Description of necessary first aid measures

Eye contact Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

Inhalation Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.



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Skin contact Get medical attention immediately. Call a poison center or physician. Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed Potential acute health effects

Eye contact Inhalation Causes serious eye damage.
May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system.

Skin contact Causes severe burns.
Ingestion Corrosive to the digestive tract. Causes burns. May cause burns to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact Adverse symptoms may include the following: pain
watering
redness

Inhalation No specific data.
Adverse symptoms may include the following:

Skin contact pain or irritation
redness
blistering may occur

Ingestion



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Ingestion Adverse symptoms may include the following: stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

SECTION 5: Firefighting measures

N/A: Nonflammable substance

Suitable extinguishing : Use an extinguishing agent suitable for the surrounding fire.

Media Unsuitable extinguishing :

Specific hazards arising : In a fire or if heated, a pressure increase will occur and the container may burst. from the chemical

Hazardous thermal decomposition products : decomposition products Decomposition products may include the following materials:

carbon dioxide

carbon monoxide

Fluorine

metal oxide/oxides

hydrogen.

Special protective actions for fire-fighters : for fire-fighters Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : equipment for fire-fighters Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures



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For non-emergency : personnel	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders :	<p>If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".</p>
Environmental precautions :	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollutior (sewers, waterways, soil or air).
Methods and materials for containment and cleaning up	
Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up	<p>if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Using a basic chemical such as baking soda, calcium hydroxide to blend with the material and neutralize the acid. Dispose of via a licensed waste disposal contractor.</p>
Large spill : Stop leak if without risk. Move containers from spill area. Approach release from	<p>upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for</p>

SECTION 7: Handling and storage

Precautions for safe handling	Put on appropriate personal protective equipment. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container.
Protective measures :	
Advice on general occupational hygiene	: Eating, drinking and smoking should be prohibited in areas where this material is handled stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.



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Conditions for safe storage, incompatibilities : Store between the following temperatures: 2 to 25°C (35.6 to 77°F). Store in including any accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials and food and drink. Store locked up. Separate from alkalis. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Hydrofluoric acid	<p>OSHA PEL = 3 ppm (averaged over an 8 hour work shift)</p> <p>NIOSH IDLH (immediately dangerous to life or health) = 30 ppm</p> <p>AIHA ERPG-2 (emergency response planning guideline) (maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action) = 20 ppm</p>

Appropriate engineering controls If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures Hygiene measures products, before eating, smoking and using the lavatory and at the end of the working period.
Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/ or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Wash hands, forearms and face thoroughly after handling chemicals

Skin protection



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SECTION 9: Physical and chemical properties

Appearance

Physical state	Liquid. [Gel]
Color	Blue.
Odor	Odorless.
Odor threshold	Not available.
pH	1
Melting point	Not available.
Boiling point	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Lower and upper explosive (flammable) limits	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility	Soluble in the following materials: cold water and hot water.
Solubility in water	Not available.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
SADT	Not available.
Viscosity	Not available.
Density	1 g/cm3
Physical/chemical properties comments	Solvents: water, >90% Solid: <10%

SECTION 10 : Stability and reactivity

Reactivity	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.



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Conditions to avoid No specific data.

Incompatible materials Reactive or incompatible with the following materials: oxidizing materials, reducing materials, metals, acids, alkalis and moisture.

Incompatible with peroxides. Amines.

Hazardous decomposition : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11 : Toxicological information

Information on toxicological effects Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Hydrofluoric acid	Lowest Lethal Dose	Human, LCLo, Monkey	50 ppm/30 1780 ppm/1 hr	- Inhalation

Conclusion/Summary : Based on analysis and test results, this product is not considered as biocompatible per EN ISO 7405:2008 and EN ISO 10993-1:2009.

Information on toxicological effects Acute toxicity

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Reproductive toxicity

Product/ingredient name	OSHA	IARC	NTP

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.



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Aspiration hazard

Not available.

Information on the likely : Routes of entry anticipated: Oral, Dermal, Inhalation.

routes of exposure

Potential acute health effects

Eye contact :	Causes serious eye damage.
Inhalation :	May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system.
Skin contact :	Causes severe burns.
Ingestion :	Corrosive to the digestive tract. Causes burns. May cause burns to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact :	Adverse symptoms may include the following: pain watering redness
Inhalation :	No specific data.
Skin contact :	Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion :	Adverse symptoms may include the following: stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate : effects Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate : effects Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.



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Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

SECTION 12 : Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Hydrofluoric Acid	Acute EC50 105 ppm Fresh water Acute LC50 60 ppm Fresh water	Daphnia - Daphnia magna Fish - Lepomis macrochirus	48 hours 96 hours

Persistence and degradability
Not available.

Bioaccumulative potential
Not available.

Mobility in soil
Soil/water partition coefficient (Koc) : Not available.

Other adverse effects : No known significant effects or critical hazards.

SECTION 13 : Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.



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SECTION 14 : Transport information

	DOT Classification	IMDG	IATA
UN number	UN1790	UN1790	UN1790
UN proper shipping name	HYDROFLUORIC ACID	HYDROFLUORIC ACID	HYDROFLUORIC ACID
Transport hazard class(es)	8 (CT1) Corrosive substances	8 Corrosive substances.	8 Corrosive substances.
Packing group	II	II	II
Environmental hazards	No.	No.	No.
Additional information	Reportable quantity	Emergency schedules (EmS)	Passenger and Cargo Aircraft
		F-A, S-B · Limited quantities (LQ) 1L · Excepted quantities (EQ) Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml	Limited quantities (LQ) 1L · Excepted quantities (EQ) Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

Special precautions for user : Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according : Not available. to Annex II of MARPOL 73/78 and the IBC Code



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SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- Directive 2012/18/EU
- Qualifying quantity (tonnes) for the application of lower-tier requirements 50 t
- Qualifying quantity (tonnes) for the application of upper-tier requirements 200 t
- REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3
- 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

No further technical information

The present data sheet contains technical-scientific information processed at best of our knowledge. We recommend verifying national and regional regulations applicable to the specific utilize field as well as regulations relative hygienic and safety on work and environment worship.

All information contained in the present data sheet is correct and processed in good faith. However they do not involve any obligation, guarantee and patent concession.

The characteristics mentioned in the following document do not constitute contractual specifications.

The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.