



Trade Name: **SILANE BOND ENHANCER**

1.0 Commercial Product Name and Supplier				
1.1	Commercial product name / designation	Silane Bond Enhancer		
1.2	Application / Use	Dental material for use by dental professionals.		
1.2.2	SIC	851 Human health activity		
1.2.3	Use Category	55		
1.3	Manufacturer	Telephone: 1 617 926-6666 / Fax: 1 617 926-6262		
	<b>Pulpdent Corporation</b>	Email: <a href="mailto:Pulpdent@pulpdent.com">Pulpdent@pulpdent.com</a>		
	80 Oakland Street, P.O. Box 780			
	Watertown, MA 02472 USA			
1.4	Emergency Telephone Number	1-800-535-5053 (24 Hour / USA)		
1.5	Authorized European Representative	Advena Ltd.		
		Pure Offices, Plato Close		
		Warwick, CV34 6WE		
		United Kingdom		
2.0 Hazards Identification				
2.1	Classification			
2.1.1	Classification according to Regulation (EC) No. 1272/2008 [CLP]	<u>Hazard Class</u>	<u>Hazard Category</u>	<u>Hazard Statement</u>
		Flammable liquid	2	H225
		Eye irritation	2	H319
		STOT SE	3	H335
		Skin irritation	2	H315; EUH066
2.1.2	Classification according to Directive 67/548/EEC (See SECTION 16 for full text of risk phrases)	Flammable (F) R11 Irritant (Xi) R36 / 37 / 38 – 66		
2.2	<b>GHS Label Elements</b>			
	Hazard Pictograms			
	 			
	Signal Word: <b>DANGER</b>			
	<b>Restricted to use by dental professional only</b>			
	<b>Hazard Statements:</b>			
	H225: Highly flammable liquid and vapor. Category 2.			
	H319: Causes serious eye irritation. Category 2.			
	H335: Specific Target Organ Toxicity (STOT), single exposure, respiratory tract, Category 3: May cause respiratory irritation.			
	H315: Causes skin irritation. Category 2.			
	EUH066: Repeated exposure may cause skin dryness or cracking.			
	<b>Precautionary Statements:</b>			
	P210: Keep away from heat, sparks, open flame, hot surfaces. No smoking.			
	P403+P233: Store in a well-ventilated place. Keep container tightly closed.			
	P261: Avoid breathing fumes.			
	P280: Wear protective gloves/ clothing and eye protection.			
	P304+P340: If inhaled, remove victim 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.			
	P303+P361+P353: If on skin or hair, remove contaminated clothing. Rinse skin with water.			

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P370+P378: In case of fire, use dry chemical, alcohol foam, or carbon dioxide for extinction.

3.0	Composition				
3.1	Chemical characterization of the preparation:		Denatured ethyl alcohol preparation.		
3.2	Hazardous ingredients				
	CAS Number	Name of the Ingredient	Concentration	Classification per 67/548/EEC	Classification per Regulation (EC) No.1272/2008 (CLP).
	64-17-5	Ethyl alcohol	92%	Flammable (F); Irritant (Xi). R11- 36/ 37/38-66	Flammable liquid, Category 2 Eye irritation, Category 2 STOT SE, Category 3 Skin irritation Category 2.
	67-64-1	Acetone (denaturant)	7%	Flammable (F); Irritant (Xi). R11- 36/ 37/38-66	Flammable liquid, Category 2 Eye irritation, Category 2 STOT SE, Category 3 Skin irritation Category 2.
4.0	First Aid Measures				
4.1	General Information		May cause irritation of eyes or skin on contact. May cause irritation of respiratory tract if inhaled. Ethanol exposure >1000 ppm may cause headache, drowsiness, lassitude, appetite loss. Show this safety data sheet to medical personnel. Get medical attention in case of uncertainty.		
4.2	Eye Contact		Keep eyelids apart; flush with running water for 15+ minutes. Get medical attention.		
4.3	Skin Contact		Remove contaminated clothing. Immediately wash with soap, running water. Use hand cream. Get medical attention if irritation persists.		
4.4	Ingestion		Rinse mouth with water. Do not induce vomiting. Get immediate medical attention. Never give anything by mouth to an unconscious person.		
4.5	Inhalation		Move to fresh air. If necessary, administer oxygen and/or artificial respiration; seek medical attention.		
4.6	Precautions for first responders		Ventilate the area. Wear safety glasses and gloves.		
4.7	Information for physicians				
	Symptoms		Contact with material may cause irritation or redness in eyes or on skin. Inhalation may cause irritation of respiratory tract.		
	Hazards		Exposure to ethanol >1000 ppm may cause headache, drowsiness, lassitude, appetite loss. Persons with chronic respiratory or skin disease are at increased risk with prolonged and/or repeated contact.		
	Treatment		Same as above under First Aid		
5.0	Fire Fighting Measures				
5.1	Suitable extinguishing media		Use dry chemical, alcohol foam, carbon dioxide.		
5.2	Extinguishing media to avoid		Water may be ineffective, but will keep fire-exposed containers cool.		
5.3	Special exposure hazards in a fire		Carbon monoxide, carbon dioxide from incomplete combustion		
5.4	Special protective equipment for fire-fighters		Self-contained breathing apparatus.		
6.0	Accidental Release Measures				

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6.1	Personal precautions.	Wear chemical splash goggles and gloves.
6.2	Environmental precautions	Avoid releasing large quantities into environment.
6.3	Method for clean up	For small quantities: Ventilate area. Wear safety glasses, lab coat, gloves. Wipe up with absorbent material (paper or cloth towels). Rinse area of spill with water. Place all material in closed container away from heat, sparks, sun and oxidizers.
<b>7.0</b>	<b>Handling and Storage</b>	
7.1	Handling	For use by dental professionals only. Remove applicator tip and recap immediately after use. Do not use in presence of ignition sources. Take same precautions when container is emptied, as residual product is hazardous.
7.2	Storage	Remove applicator tip after use. Keep tightly capped in original container. Store at cool room temperature in a well-ventilated area. Avoid extreme temperatures (>27°C/80°F, <5°C/40°F), sparks, direct sunlight, oxidizing agents. Vapor may form flammable mixtures with air.
7.3	Specific uses	Dental material used to enhance bonding to porcelain.
<b>8.0</b>	<b>Exposure Controls / Personal Protection</b>	
8.1	Exposure limit values	Ethanol: 1000 ppm; Acetone: 750 ppm
8.2	Exposure controls	
8.2.1	Occupational exposure controls	No special equipment or ventilation required under normal conditions of use. For large quantities/prolonged exposure, use enclosure, local ventilation, dilution to reduce concentration below TLV.
8.2.1.1	Respiratory protection	Good general ventilation is sufficient to control any airborne vapors.
8.2.1.2	Hand protection	No special requirements other than surgical gloves.
8.2.1.3	Eye protection	No special requirements other than safety glasses.
8.2.1.4	Skin protection	No special requirements other than good hygiene and safety practices.
8.2.1.5	Other controls	Emergency eye wash fountain should be close by. Wash hands after use.
8.2.2	Environmental exposure controls	Follow all government regulations.
<b>9.0</b>	<b>Physical and Chemical Properties</b>	
9.1	Characteristics	
9.1.1	Appearance / Color / Physical state	Clear, colorless liquid
9.1.2	Odor	Characteristic, sweet, ethanol odor
9.2	Important health, safety and environmental information	
9.2.1	pH	Not applicable
9.2.2	Boiling point	Boiling Point: 173°F / 78.3°C
9.2.3	Flash point	43°F / 6°C (Tag closed cup)
9.2.4	Ignition temperature	423°C
9.2.5	Explosive properties	LEL: 3.3; UEL: 19
9.2.6	Odor threshold	159 ppm
9.2.7	Vapor pressure	44.6 mm Hg / 59 mbar / Id: E
9.2.8	Specific gravity	0.795

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9.2.9	Solubility in water	Slight
9.2.10	Partition coefficient	Not determined
9.2.11	Viscosity	Not determined
9.2.12	Vapor density	1.59
9.2.13	Evaporation rate	Not determined

#### **10.0 Stability and reactivity**

10.1	Conditions to avoid	Heat, sparks, open flame, any ignition source.
10.2	Materials to avoid	Acetyl chloride and a wide range of oxidizing agents.
10.3	Hazardous decomposition products	Carbon monoxide, carbon dioxide from incomplete combustion.
10.4	Further information	Stable if stored and used as directed.

#### **11.0 Toxicological information**

11.1	Acute toxicity	Minimal health hazard under normal conditions of use. Ethanol: LD <sub>50</sub> in young rats: 10.6 g/kg orally; LD <sub>50</sub> in old rats: 7.06 g/kg orally. Acetone: LD <sub>50</sub> in rats : 10.7 ml/kg orally
11.2	Irritation and corrosiveness	May cause irritation/redness of eyes or skin on contact. May cause irritation of respiratory tract if inhaled.
11.3	Sensitization	Not applicable.
11.4	Sub-acute, sub-chronic and prolonged toxicity	No chronic health hazard under normal conditions of use.
11.5	Carcinogenicity, Mutagenicity, Reproductive Toxicity	Not a carcinogen under normal conditions of use. Large quantities of ethanol, ingested over time, may be carcinogenic or a cause of Fetal Alcohol Syndrome. IARC has reported a relationship between habitual drinking of significant quantities of alcoholic beverages and cancer of oral cavity, pharynx, esophagus, liver.
11.6	Empirical data	None available
11.7	Clinical experience	<i>Silane</i> and similar products have been used in dentistry for decades with no reported problems.

#### **12.0 Ecological Information**

12.1	Ecotoxicity	Follow good work practices and government regulations. Avoid release into environment.
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#### **13.0 Disposal Considerations**

13.1	Regulations	Follow all local and national government regulations in disposing material or contaminated packaging.
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#### **14.0 Transport Information**

14.1	UN Number	1170
14.2	Technical name	Ethyl alcohol
14.3	Packing group	II
14.4	IATA class	3

#### **15.0 Regulatory Information**

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15.1	EU	Class IIa medical device under MDD 93/42/EEC.
15.2	US FDA	Class II medical device
15.3	Health Canada	Class III medical devices
<b>16.0 Other information</b>		
16.1	List of relevant R phrases	R11: Highly flammable R36/37/38: Irritating to eyes, respiratory system and skin. R66: Repeated exposure may cause skin dryness or cracking.
16.2	Hazard Statements	H225: Highly flammable liquid and vapor. Category 2. H319: Causes serious eye irritation. Category 2. H335: Specific Target Organ Toxicity (STOT), single exposure, respiratory tract, Category 3: May cause respiratory irritation. H315: Causes skin irritation. Category 2. EUH066: Repeated exposure may cause skin dryness or cracking.
16.3	Precautionary Statements	P210: Keep away from heat, sparks, open flame, hot surfaces. No smoking. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P261: Avoid breathing fumes. P280: Wear protective gloves/ clothing and eye protection. P304+P340: If inhaled, remove victim 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. P303+P361+P353: If on skin or hair, remove contaminated clothing. Rinse skin with water. P370+P378: In case of fire, use dry chemical, alcohol foam, or carbon dioxide for extinction.
16.4	Restrictions on use	Pulpdent dental materials, such as Silane, are to be sold to and used by dental professionals only.
16.5	Further information	The information presented herein is believed to be factual as it has been derived from the works of persons believed to be qualified experts. However, nothing contained in this information is to be taken as a warranty or representation for which Pulpdent Corporation bears legal responsibility. The user should review any recommendations in the specific context of the intended use to determine whether they are appropriate.
16.6	Sources of key data	National Institute for Occupational Safety (NIOSH) US Occupational Safety and Health Administration (OSHA) Eur-Lex European Union Law: Regulation (EC) No. 1272/2008 (CLP) and Regulation (EC) No. 1907/2006 (REACH). Guidance on the compilation of safety data sheets. Version 1.1; December 2011. European Chemicals Agency
16.7	Information which has been added, deleted or revised.	This Safety Data Sheet has been revised to meet the requirements of the GHS SDS format, Regulations (EC) No. 1272/2008 (CLP) and (EC) No. 1907/2006 (REACH). Specifically, Sections 2.1, 2.2, 3.2, 16.2, 16.3 have been modified.