

SAFETY DATA SHEET

SECTION 1 — IDENTIFICATION

Product Identifier	
Product Name	Aqua-Tool-Bond™
Product Code	Not applicable
Relevant identified uses of the substance or mixture and uses advised against	
Recommended use	Water soluble material for forming molds and cores.
Details of the supplier of the safety data sheet	
Manufacturer	Advanced Ceramics Manufacturing, LLC. 7800 South Nogales Highway Tucson, AZ 85756
Telephone (General)	520.547.0850
Emergency Telephone Number	
	800.554.9964 - Hazardous Materials Support Center 800.424.9300 - CHEMTREC (Spill related emergencies)

SECTION 2 — HAZARD(S) IDENTIFICATION

United States (US)	
Classification of the substance or mixture	
OSHA HCS 2012	Aqua-Tool-Bond™ has up to 90% Isopropyl Alcohol. Flammable Liquids 2 - H225 Skin Irritation 2 - H315 The formula is proprietary information and is the property of Advanced Ceramics Manufacturing.

Label Components

OSHA HCS 2012



Other Dangers

Eye Contact – Direct contact may cause irritation.
Skin Contact – Direct contact may cause irritation.
Inhalation – When machining in the cured state, repeated exposure to dust may cause delayed lung injury.
Ingestion – Direct contact may cause irritation.
Signs & Symptoms of Exposure to Airborne Dust – May result in cough, dyspnea, wheezing, or impaired pulmonary functions.

SECTION 3 — COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Characterization	Mixture (water-soluble core material)			
Mixtures				
Materials:	WT%	TLV (mg/m ³)	PEL (mg/m ³)	CAS Number
Non-toxic polymer (Trade Secret)	1%-30%	NE	NE	
Isopropyl Alcohol	10%-90%	400 ppm	1225	67-63-0
	(T) - Total	(R) - Respirable	(I) - Inhalable	(NE) - Not Established

SECTION 4 — FIRST-AID MEASURES

Contact with Eyes	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention
Contact with Skin	Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear
Ingestion	Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt, or waistband. Get medical attention if symptoms appear

Most important symptoms and effects, both acute and delayed
Refer to section 11 - Toxicological Information.

Indication of any immediate medical attention and special treatment needed
Refer to section 4.

SECTION 5 — FIRE-FIGHTING MEASURES

Extinguishing Media	
Suitable Extinguishing Media	For a small fire, use dry chemical powder. For a large fire, use water spray, fog, or foam.
Unsuitable Extinguishing Media	Avoid the use of streaming water, as this may spread the fire.

Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards

This product is flammable and may be combustible at high temperatures. Vapor may travel considerable distance to source of ignition and flash back. CAUTION: MAY BURN WITH NEAR INVISIBLE FLAME. Hydrogen peroxide sharply reduces the autoignition temperature of isopropyl alcohol. After a delay isopropyl alcohol ignites on contact with dioxigenyl tetrafluorborate, chromium trioxide, and potassium tert-butoxide. When heated to decomposition it emits acrid smoke and fumes. Secondary alcohols are readily autooxidized in contact with oxygen or air, forming ketones and hydrogen peroxide. It can become potentially explosive. It reacts with oxygen to form dangerously unstable peroxides which can concentrate and explode during distillation or evaporation. The presence of 2-butanone increases the reaction rate for peroxide formation. Explosive in the form of vapor when exposed to heat or flame. May form explosive mixtures with air. Isopropyl alcohol + phosgene forms isopropyl chloroformate and hydrogen chloride. In the presence of iron salts, thermal decomposition can occur, which in some cases can become explosive. A homogenous mixture of concentrated peroxides + isopropyl alcohol are capable of detonation by shock or heat. Barium perchlorate + isopropyl alcohol gives the highly explosive alkyl perchlorates. It forms explosive mixtures with trinitromethane and hydrogen peroxide. It produces a violent explosive reaction when heated with aluminum isopropoxide + crotonaldehyde. Mixtures of isopropyl alcohol + nitroform are explosive

Advice for Firefighters Always wear full fire prevention gear: hardhat with visor, fireproof clothing, work gloves and a respirator.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Ensure an adequate ventilation

Emergency Procedures Ensure an adequate ventilation

Environmental Precautions

No specific requirement

Methods and material for containment and cleaning up

Containment/Clean-up Measures

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of according to local and regional authority requirements. For large spills, keep away from heat and sources of ignition. Stop the leak if there is no risk. Absorb with dry earth, sand, or other non-combustible material. Prevent entry into sewers, basements, or confined areas. Be careful that the product is not present at a concentration level above TLV

SECTION 7 — HANDLING AND STORAGE

Precautions to be taken in Handling and Storing

Handling

Keep away from heat and sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe the gas/fumes/vapor/spray. Avoid contact with eyes and wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately. Keep away from incompatibles such as oxidizing agents, acids

Conditions for safe storage, including any incompatibilities

Storage

Store in tightly closed containers in a dry, cool and well-ventilated place. Keep away from sources of heat, sparks and flame.

Specific End Use

Not indicated.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

PNOS TLV-TWA_{ACGIH} = No exposure limit value known.
TLV-TWA_{ACGIH} = No exposure limit value known.

Exposure Control

Engineering Measures/Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure eyewash stations and safety showers are proximal to the workstation location.

Personal Protective Equipment Pictograms



Respiratory Protection

Use of a Class NIOSH N95 respirator where dust is generated is recommended.

Eye Protection

Chemical resistant safety glasses or goggles as a minimum.

Skin Protection

Rubber gloves should be worn to prevent excessive or repeated skin contact.

Other Clothing & Equipment

Work clothing or coveralls to minimize skin contact.

General Industrial Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco. Do not eat, drink or smoke during use. Keep away from food and feedstuffs. Do not breathe dust. Avoid creating dust.

Ventilation

Maintain positive ventilation.

Environmental Exposure Controls

Follow best practice for site management and disposal of waste.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Information on Physical and Chemical Properties

Appearance:	Clear liquid
Smell:	no detectable odor
Odor threshold:	not available
pH:	not available
Melting point / freezing point:	not available
Initial boiling point and boiling range:	not available
Flash point:	noncombustible
Evaporation rate:	not available
Flammability (solid, gas):	not available
Upper / lower flammability or explosive limits:	not available
Vapor pressure:	not available
Vapor density:	not available
Relative density:	0.819 g/cc
Solubility:	soluble in water
Partition coefficient n-octanol/water:	not available
Auto-ignition temperature:	not applicable
Decomposition temperature:	not available
Viscosity:	not applicable
Explosive properties:	not applicable
Oxidising properties:	not applicable

SECTION 10 — STABILITY AND REACTIVITY

Reactivity	Reacts violently with hydrogen + palladium combination, nitroform, oleum, COCl ₂ , aluminum triisopropoxide, oxidants. Incompatible with acetaldehyde, chlorine, ethylene oxide, isocyanates, acids, alkaline earth, alkali metals, caustics, amines, crotonaldehyde, phogene, ammonia. Asopropyl alcohol reacts with metallic aluminum at high temperatures. Isopropyl alcohol attacks some plastics, rubber, and coatings. Vigorous reaction with sodium dichromate + sulfuric acid.
Chemical stability	The product is stable under normal conditions of use and storage.
Possibility of hazardous reactions	Refer to Reactivity
Conditions to avoid	Refer to reactivity. Hygroscopic; keep container tightly closed
Incompatible materials	Refer to Reactivity.
Hazardous decomposition products	Not known
TSCA Listing	All ingredients are on the TSCA inventory, or exempt.

SECTION 11 — TOXICOLOGY INFORMATION

Information on toxicological effects	Acute potential health effects: Skin: may cause mild skin irritation, and sensitization. Eyes: can cause eye irritation. Inhalation: breathing in small amounts of this material during normal handling is not likely to cause harmful effects. However, breathing large amounts may be harmful and may affect the respiratory system and mucous membranes (irritation), behavior and brain (cns depression - headache, dizziness, drowsiness, stupor, incoordination, unconsciousness, coma and possible death), peripheral nerve and sensation, blood, urinary system, and liver. Ingestion: swallowing small amounts during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. Swallowing large amounts may cause gastrointestinal tract irritation, with nausea, vomiting and diarrhea, abdominal pain. It also may affect the urinary stem, cardiovascular system, sense organs, behavior or cns (somnolence, generally depressed activity, irritability, headaches, dizziness, drowsiness), liver, and respiratory system (breathing difficulty). Chronic potential health effects: may cause defatting of the skin and dermatitis and allergic reaction. May cause adverse reproductive effects based on animal data (studies)
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SECTION 12 - ECOLOGICAL INFORMATION

Toxicity	Isopropyl alcohol Ecotoxicity in water (LC50): 100000 mg/l 96 hours [Fathead Minnow]. 64000 mg/l 96 hours [Fathead Minnow]
Persistence and degradability	Information not available.
Bioaccumulative potential	Information not available.
Mobility in Soil	Information not available.
Other adverse effects	Information not available.
Other Information	Information not available.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste treatment methods	Disposal must be made according to national or local law. These provisions shall also apply to contaminated containers. It is therefore recommended to make contact with the authorities in charge or approved specialist companies that can give you guidance on how to prepare for disposal. Appropriate disposal could be combustion, recycling, disposal site.
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SECTION 14 - TRANSPORT INFORMATION

	U.S.A. DOT - Not regulated. General - Non-hazardous; non-restricted. The product is not classified as dangerous according to the provisions of existing legislation on the transport of dangerous goods by road (ADR) and by Rail (RID), by sea (IMDG Code) and by air (IATA).
UN Number	Not applicable.
UN Proper shipping name	Not applicable.
Transport hazard class(es)	Not applicable.
Packing group	Not applicable.
Environmental hazards	Not applicable.
Special precautions for user	Not applicable.

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

SECTION 15 - REGULATORY INFORMATION

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

- OSHA 29 CFR 1910.1200 HCS - Consolidated Safety at the workplace
- OSHA 29 CFR 1910.120 HCS - Hazardous Waste Operations and Emergency Response

SECTION 16 — OTHER INFORMATION

Last Revision Date 12/12/2023

Preparation Date 8/2/2016

Key literature references and sources for data:

- 29 CFR 1910.1200(f) and Appendix C of 29 CFR 1910.1200 (and subsequent amendments and adjustments)
- OSHA GHS (and subsequent amendments and adjustments)
- OSHA Hazard Communication Standard (HCS) (and subsequent amendments and adjustments)
- 1910 Subpart G - Occupation Health and Environment Control (and subsequent amendments and adjustments)
- Safety data sheet of the supplier of the product

Acronyms:

ACGIH:	American Conference of Governmental Industrial Hygienists
ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS:	Chemical Abstracts Service
CLP:	Classification, Labeling and Packaging
EINECS:	European Inventory of Existing Chemical Substances
IATA:	International Air Transport Association
IMDG Code:	International Maritime Code for Dangerous Goods
PBT:	Persistent, Bioaccumulative, Toxic
PEL:	Permissible Exposure Limit
PNOS:	Particles Not Otherwise Specified
RCRA:	Resource Conservation and Recovery Act
REACH:	Registration, Evaluation, Authorization and Restriction of Chemicals
RID:	Regulation on the Inland transport of Dangerous goods by rail
TLV:	Threshold Limit Value
TWA:	Time-Weighted Average
vPvB:	very Persistent, very Bioaccumulative
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