Material Safety Data Sheet

Material Name: Volan Bonding Agent

* * * Section 1 - Chemical Product and Company Identification * * *

Manufacturer Information

Zaclon LLC
2981 Independence Road
Cleveland, OH 44115

Phone: 216-271-1569 or 800-356-7327
Fax: 216-271-1792
Emergency # 800-424-9300

* * * Section 2 - Hazards Identification * * *

Emergency Overview

Causes eye burns. Causes irritation of the skin, nose and throat.

Potential Health Effects: Eyes

Eye contact may cause eye corrosion with corneal or conjunctival ulceration, pain or blurred vision.

Potential Health Effects: Skin

Skin contact may cause skin irritation with discomfort or rash. There are rare inconclusive reports of human sensitization from skin contact with Isopropyl Alcohol. Repeated and/or prolonged exposure may cause: Defatting of the skin with itching, redness or rash.

Potential Health Effects: Ingestion

Ingestion may cause irritation of the digestive tract with stomach pain, heartburn, nausea, vomiting or diarrhea; or temporary central nervous system depression; however there may be no symptoms at all.

Potential Health Effects: Inhalation

Inhalation may cause irritation of the respiratory tract with coughing and discomfort; or temporary central nervous system depression with anaesthetic effects such as dizziness, headache, confusion, incoordination, drowsiness, and loss of consciousness.

Medical Conditions Aggravated by Exposure

Inhalation, ingestion, or skin contact to 2-Chloropropane may cause nonspecific effects such as headache, nausea and weakness, flushing of the face, or low blood pressure. Isopropyl chloride has been associated with abnormal liver and kidney function and temporary alteration of the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation.

HMIS Ratings: Health: 3 **Fire:** 3 **HMIS Reactivity** 1

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
67-63-0	Isopropyl alcohol	45-55
7732-18-5	Water	16-30
111031-82-4	Chromium, aqua chloro hydroxy methacrylate complexes	19-21
67-64-1	Acetone	10
78-95-5	Chloroacetone	0.3
75-29-6	2-Chloropropane	<0.1

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

First Aid: Skin

Wash skin with soap and plenty of water while removing contaminated clothing. Wash clothing before reuse.

First Aid: Ingestion

If swallowed, do not induce vomiting. Give two glasses of water or activated charcoal slurry. Call a physician Never give anything by mouth to an unconscious person.

First Aid: Inhalation

If large amounts are inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

First Aid: Notes to Physician

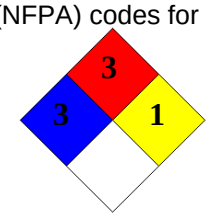
To prepare activated charcoal slurry, suspend 50 gm of activated charcoal in 400 mL of water in a bottle and shake well. Administer 5 mL/kg of body weight, or 350 mL for an average adult.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.

OSHA Class 1B Flammable Liquid. Follow appropriate National Fire Protection Association (NFPA) codes for handling and storage facilities.



Hazardous Combustion Products

Decomposes with heat; solvent vapors and gaseous hydrogen chloride will be emitted.

Extinguishing Media

Water, Foam, Dry Chemical, CO2.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective gear. Evacuate personnel to a safe area. Cool tank/container with water spray.

NFPA Ratings: Health: 3 **Fire:** 3 **Reactivity:** 1

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

* * * Section 6 - Accidental Release Measures * * *

Containment Procedures

Remove source of heat, sparks, flame, impact, friction or electricity.

Clean-Up Procedures

Wear protective clothing. Dike spill. Soak up with sand, earth, or other non-combustible material and dispose of in covered metal containers. Prevent liquid from entering sewers, waterways, or low areas. After bulk removal, flush spill area with plenty of water.

Evacuation Procedures

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus.

Special Procedures

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Do not get in eyes. Avoid breathing vapors or mist. Avoid contact with skin. Avoid contact with clothing. Wash thoroughly after handling. Use with adequate ventilation.

Storage Procedures

Keep away from heat, sparks, and flame. Keep containers tightly closed and in an upright position. Do not store or mix with oxidizing agents.

* * * Section 8 - Exposure Controls / Personal Protection * * *

A: Component Exposure Limits

Isopropyl alcohol (67-63-0)

ACGIH:	200 ppm TWA
	400 ppm STEL
OSHA:	400 ppm TWA; 980 mg/m3 TWA
	500 ppm STEL; 1225 mg/m3 STEL
NIOSH:	400 ppm TWA; 980 mg/m3 TWA
	500 ppm STEL; 1225 mg/m3 STEL

Acetone (67-64-1)

ACGIH: 500 ppm TWA
750 ppm STEL
OSHA: 750 ppm TWA; 1800 mg/m3 TWA
2400 mg/m3 STEL (The acetone STEL does not apply to the cellulose acetate fiber industry. It is in effect for all other sectors); 1000 ppm STEL
NIOSH: 250 ppm TWA; 590 mg/m3 TWA

Chloroacetone (78-95-5)

ACGIH: 1 ppm Ceiling
Skin - potential significant contribution to overall exposure by the cutaneous route

Engineering Controls

Good general ventilation should be provided to keep component concentrations below the recommended exposure limits and avoid flammable mixtures with air. Use explosion-proof motors, electrical fittings, and nonsparking tools and equipment. Containers should be grounded.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear safety glasses; chemical goggles (if splashing is possible).

Personal Protective Equipment: Skin

Neoprene, polyvinylchloride, or nitrile gloves. Wear flame resistant clothing.

Personal Protective Equipment: Respiratory

If direct inhalation exposure is likely, wear NIOSH approved respiratory protection.

Personal Protective Equipment: General

Eye wash fountain and emergency showers are recommended.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Blue-green	**Odor:**	Alcohol
Physical State:	Liquid	**pH:**	3
Vapor Pressure:	ND	**Vapor Density:**	2 (Air = 1)
Boiling Point:	77-79 C (171-174 F) @ 760 mm Hg	**Melting Point:**	NA
Solubility (H2O):	Soluble	**Specific Gravity:**	1.02
Evaporation Rate:	>1	**VOC:**	ND
Octanol/H2O Coeff.:	ND	**Flash Point:**	2 C (36 F)
Flash Point Method:	TCC	**Upper Flammability Limit (UFL):**	12
Lower Flammability Limit (LFL):	2	**Burning Rate:**	ND
Auto Ignition:	>399 C (>750 F)		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Chemical Stability: Conditions to Avoid

Avoid sources of ignition.

Incompatibility

Oxidizing agents

Hazardous Decomposition

Decomposes with heat; solvent vapors and gaseous hydrogen chloride will be emitted.

Possibility of Hazardous Reactions

Polymerization will not occur.

* * * Section 11 - Toxicological Information * * *

Acute Dose Effects

A: General Product Information

These products are eye corrosives and are skin irritants but not skin sensitizers in animals. Toxic effects in described in animals from single ingestion exposures include lacrimation, weakness, lethargy and slight weight loss. Although some Chromium Compounds (Cr VI) have demonstrated carcinogenic activity in animals, Chromium III Compounds have not.

The effects in animals from single ingestion exposure to ISOPROPYL ALCOHOL at near lethal doses include histopathological changes of the stomach, lungs, kidneys, incoordination, lethargy, gastrointestinal tract irritation, inactivity or anaesthesia. Long-term ingestion exposure caused incoordination, lethargy, and reduced weight gain. The effects in animals from single exposure by inhalation include inactivity or anaesthesia, histopathological changes of the nasal cavity, and auditory canal. Repeated inhalation exposure caused narcosis, incoordination, and degeneration of the liver. No adequate animal data are available to define the carcinogenic potential of isopropyl alcohol. Animal data show developmental effects only at exposure levels of isopropyl alcohol producing other toxic effects in the adult animal; reproductive data on rats show no change in reproductive performance. Tests have shown that isopropyl alcohol does not cause genetic damage in bacterial or mammalian cell cultures, or in animals.

Repeated dermal exposure of animals to ACETONE caused dry skin and cataracts. Long-term dermal exposure caused no significant toxicological effects. Repeated ingestion exposure to high doses of ACETONE caused kidney injury, reduced weight gain, and liver, hematological and testicular effects.

Single and repeated exposure by inhalation to high doses caused central nervous system depression, and decreased motor activity. Repeated exposures to higher concentrations caused incoordination and reduced weight gain. In animal testing ACETONE has not caused carcinogenicity. Limited data on the exposure of pregnant rats to ACETONE show developmental toxicity only at exposure levels producing other toxic effects in the adult animal. Limited data on the exposure of pregnant mice to ACETONE show a reduction of fetal body weight and an increase in the incidence of late resorptions.

The NOEL (No-Observed-Effect-Level) for developmental toxicity in the rat and mouse study was 2200 ppm. Limited data on the exposure of rats and mice to ACETONE show reproductive toxicity only at exposure levels producing other toxic effects in the adult animal. ACETONE does not cause genetic damage in bacterial cells. Test in mammalian cell cultures have been both positive and negative. Testing in yeast has also produced positive results.

B: Component Analysis - LD50/LC50

Isopropyl alcohol (67-63-0)
Inhalation LC50 Rat 72.6 mg/L 4 h; Oral LD50 Rat 4396 mg/kg; Dermal LD50 Rat 12800 mg/kg; Dermal LD50 Rabbit 12870 mg/kg

Water (7732-18-5)
Oral LD50 Rat >90 mL/kg

Acetone (67-64-1)
Oral LD50 Rat 5800 mg/kg

Chloroacetone (78-95-5)
Inhalation LC50 Rat 262 ppm 1 h; Oral LD50 Rat 100 mg/kg; Dermal LD50 Rabbit 141 mg/kg

2-Chloropropane (75-29-6)
Oral LD50 Rat 5 g/kg

Carcinogenicity

Component Carcinogenicity

Isopropyl alcohol (67-63-0)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 71 [1999]; Supplement 7 [1987]; Monograph 15 [1977] (Group 3 (not classifiable))

Acetone (67-64-1)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

No information available for the product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Isopropyl alcohol (67-63-0)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	9640 mg/L [flow-through]	
96 Hr LC50 Pimephales promelas	11130 mg/L [static]	
96 Hr LC50 Lepomis macrochirus	>1400000 µg/L	
96 Hr EC50 Desmodesmus subspicatus	>1000 mg/L	
72 Hr EC50 Desmodesmus subspicatus	>1000 mg/L	
48 Hr EC50 Daphnia magna	13299 mg/L	

Acetone (67-64-1)

Test & Species		Conditions
96 Hr LC50 Oncorhynchus mykiss	4.74 - 6.33 mL/L	
96 Hr LC50 Pimephales promelas	6210 - 8120 mg/L [static]	
96 Hr LC50 Lepomis macrochirus	8300 mg/L	
48 Hr EC50 Daphnia magna	10294 - 17704 mg/L [Static]	
48 Hr EC50 Daphnia magna	12600 - 12700 mg/L	

* * * Section 13 - Disposal Considerations * * *

US EPA Waste Number & Descriptions

Component Waste Numbers

Acetone (67-64-1)

RCRA: waste number U002 (Ignitable waste)

Disposal Instructions

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

* * * Section 14 - Transportation Information * * *

US DOT Information

Shipping Name: Flammable Liquid, n.o.s. (Isopropanol and Acetone)

UN/NA #: 1993 **Hazard Class:** 3 **Packing Group:** II

* * * Section 15 - Regulatory Information * * *

US Federal Regulations

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Isopropyl alcohol (67-63-0)

SARA 313: 1.0 % de minimis concentration (only if manufactured by the strong acid process, no supplier notification)

Acetone (67-64-1)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Isopropyl alcohol	67-63-0	Yes	Yes	Yes	Yes	Yes	Yes
Acetone	67-64-1	Yes	Yes	Yes	Yes	Yes	Yes
Chloroacetone	78-95-5	No	Yes	Yes	Yes	Yes	No
2-Chloropropane	75-29-6	No	Yes	No	Yes	Yes	No

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Isopropyl alcohol	67-63-0	1 %
Acetone	67-64-1	1 %

Additional Regulatory Information

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Isopropyl alcohol	67-63-0	Yes	DSL	EINECS
Water	7732-18-5	Yes	DSL	EINECS
Chromium, aqua chloro hydroxy methacrylate complexes	111031-82-4	Yes	DSL	No
Acetone	67-64-1	Yes	DSL	EINECS
Chloroacetone	78-95-5	Yes	DSL	EINECS
2-Chloropropane	75-29-6	Yes	DSL	EINECS

* * * Section 16 - Other Information * * *

Other Information

The data in this Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.