WRCG850948
(9605)

Olin

MATERIAL SAFETY DATA

OCEAN NETWORK EMERGENCY PHONE 1-800-OLIN-911

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD,29 CFR 1910.1200.THIS PRODUCT MAY BE CONSIDERED TO BE A HAZARDOUS CHEMICAL UNDER THAT STANDARD.(REFER TO THE OSHA CLASSIFICATION IN SEC.I.)THIS INFORMATION IS REQUIRED TO BE DISCLOSED FOR SAFETY IN THE WORKPLACE.THE EXPOSURE TO THE COMMUNITY,IF ANY,IS QUITE DIFFERENT.

I. PRODUCT IDENTIFICATION

REVISION NO : 2
REVISION DATE : 3/28/96
PRODUCT CODE : JPE850948
FILE NUMBER : JPE01242.0001
PRODUCT NAME: QZ 3289 ADHESION CONCENTRATE

SYNONYMS: None
CHEMICAL FAMILY: Organosilane in aqueous solvent blend
FORMULA: Not Applicable/Mixture
USE DESCRIPTION: Polyimide adhesion promoter
OSHA HAZARD CLASSIFICATION: Flammable liquid; skin, eye and respiratory irritant; nervous system, liver toxin, teratogen.

II. COMPONENT DATA

PRODUCT COMPOSITION
CAS or CHEMICAL NAME: Ethanol
CAS NUMBER: 64-17-5
PERCENTAGE RANGE: 90-95%
HAZARDOUS PER 29 CFR 1910.1200: Yes
EXPOSURE STANDARDS:

	OSHA(PEL)		ACGIH(TLV)	
	ppm	mg/cubic-meter	ppm	mg/cubic-meter
TWA:	1000	1900	1000	1880
CEILING:	None		None	
STEL:	None		None	

CAS or CHEMICAL NAME: Organosilane compound
CAS NUMBER: 919-30-2
PERCENTAGE RANGE: 0.5-2%
HAZARDOUS PER 29 CFR 1910.1200: Yes
EXPOSURE STANDARDS: None established

CAS or CHEMICAL NAME: Water
CAS NUMBER: 7732-18-5
PERCENTAGE RANGE: 3-6%
HAZARDOUS PER 29 CFR 1910.1200: No
EXPOSURE STANDARDS: None established

III. PRECAUTIONS FOR SAFE HANDLING AND STORAGE

DO NOT TAKE INTERNALLY. AVOID CONTACT WITH SKIN, EYES AND CLOTHING. UPON CONTACT WITH SKIN OR EYES, WASH OFF WITH WATER.

STORAGE CONDITIONS:
STORE IN A COOL, DRY, WELL VENTILATED PLACE AWAY FROM ALL SOURCES OF IGNITION
OTHER: Outside or detached storage is preferable. Inside storage should be in a standard flammable liquids storage room.

PRODUCT STABILITY AND COMPATIBILITY
SHELF LIFE LIMITATIONS: 1 year
INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT: See Section VII.

IV. PHYSICAL DATA

APPEARANCE: Colorless liquid
FREEZING POINT: No Data
BOILING POINT: 79 Deg.C (174 Deg.F)
DECOMPOSITION TEMPERATURE: No Data
SPECIFIC GRAVITY: Approximately 0.8 (Water = 1)
BULK DENSITY: 0.8 (g/cc)
pH @ 25 DEG.C: Not Applicable
VAPOR PRESSURE @ 25 DEG.C: No Data
SOLUBILITY IN WATER: Miscible
VOLATILES, PERCENT BY VOLUME: 99%
EVAPORATION RATE: 7 (Butyl acetate = 1)
VAPOR DENSITY: 1.6 (Air = 6)
MOLECULAR WEIGHT: No Data
ODOR: Characteristic
COEFFICIENT OF OIL/WATER DISTRIBUTION: No Data

V. PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

PERSONAL PROTECTION FOR ROUTINE USE OF PRODUCT:
RESPIRATORY PROTECTION:
Wear a NIOSH/MSHA approved respirator if exposures above the TLV are possible.

VENTILATION:
Use explosion-proof local exhaust ventilation to maintain levels to below the TLV.

SKIN AND EYE PROTECTIVE EQUIPMENT:
Use chemical goggles and impermeable gloves.

EQUIPMENT SPECIFICATIONS (WHEN APPLICABLE):
RESPIRATOR TYPE: NIOSH/MSHA approved half-mask respirator with organic vapor cartridges.
PROTECTIVE CLOTHING TYPE (This includes: gloves, boots, apron, protective suit): Butyl rubber

VI. FIRE AND EXPLOSION HAZARD INFORMATION

FLAMMABILITY DATA:
EXPLOSIVE: No
FLAMMABLE: Yes
COMBUSTIBLE: Not Applicable
PYROPHORIC: No
FLASH POINT: 17 Deg.C (64 Deg.F) Test Method: Tag closed cup
AUTOIGNITION TEMPERATURE: No Data
FLAMMABLE LIMITS AT NORMAL ATMOSPHERIC TEMPERATURE AND PRESSURE (PERCENT VOLUME IN AIR): 3.3% LEL 19% UEL

NFPA RATINGS:
Not Established

HMIS RATINGS:
Health: 2
Flammability: 3
Reactivity: 0

EXTINGUISHING MEDIA:
Carbon dioxide, dry chemical, water spray, alcohol resistant foam

FIRE FIGHTING TECHNIQUES AND COMMENTS:
Use water to cool containers exposed to fire.
See Section XI for protective equipment for fire fighting.

VII. REACTIVITY INFORMATION

CONDITIONS UNDER WHICH THIS PRODUCT MAY BE UNSTABLE:
TEMPERATURES ABOVE: 15 Deg.C (60 Deg.F)
MECHANICAL SHOCK OR IMPACT: No
ELECTRICAL (STATIC) DISCHARGE: Yes
OTHER: Ignition sources of any kind, excess heat
HAZARDOUS POLYMERIZATION: Will not occur
INCOMPATIBLE MATERIALS: Strong oxidizers, inorganic acids
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon dioxide, carbon monoxide, aldehydes, nitrogen oxides

SUMMARY OF REACTIVITY:

EXPLOSIVE:	No
OXIDIZER:	No
PYROPHORIC:	No
ORGANIC PEROXIDE:	No
WATER REACTIVE:	No

VIII. FIRST AID

EYES:
Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If eye irritation develops, call a physician.

SKIN:
Immediately flush with water for 15 minutes. Wash the contaminated skin with soap and water. If irritation develops, call a physician. If clothing comes in contact with the product, the clothing should be laundered before re-use.

INGESTION:
Immediately drink water to dilute. Consult a physician if symptoms develop.

INHALATION:
If person experiences nausea, headache or dizziness, person should stop work immediately and move to fresh air until these symptoms disappear. If breathing is difficult, administer oxygen, keep the person warm and at rest. Call a physician. In the event that an individual inhales enough product to lose consciousness, person should be moved to fresh air at once and a physician should be called immediately. If breathing has stopped, artificial respiration should be given immediately. In all cases, ensure adequate ventilation and provide respiratory protection before the person returns to work.

IX. TOXICOLOGY AND HEALTH INFORMATION

ROUTES OF ABSORPTION
Inhalation, ingestion, skin and eye contact

WARNING STATEMENTS AND WARNING PROPERTIES
MAY CAUSE SKIN AND EYE IRRITATION. DO NOT INHALE MIST OR VAPORS. INHALATION OF HIGH CONCENTRATIONS CAN CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION. MAY CAUSE RESPIRATORY IRRITATION. CONTAINS ETHANOL WHICH CAN CAUSE BIRTH DEFECTS.

HUMAN THRESHOLD RESPONSE DATA
ODOR THRESHOLD: No data for product; ethanol - 5 ppm
IRRITATION THRESHOLD: No Data
IMMEDIATELY DANGEROUS TO LIFE OR HEALTH: The IDLH concentration has not been established for this product. The IDLH for ethanol is 3,300 ppm .

SIGNS, SYMPTOMS, AND EFFECTS OF EXPOSURE

INHALATION
ACUTE:
If inhaled, irritation may result to the nose, throat, and respiratory tract. Any irritation would be transient with no permanent damage expected. Inhalation of high concentrations may be narcotic and may cause CNS depression with symptoms including headache, breathing difficulty, dizziness, drowsiness, loss of coordination, weakness, nausea, and vomiting.
CHRONIC:
Chronic inhalation of ethanol vapors may result in liver damage.

SKIN
ACUTE:
Skin contact may cause irritation consisting of transient redness. This irritant effect would not result in permanent damage. Can be absorbed through skin.
CHRONIC:
Repeated or prolonged contact may cause a defatting action on the skin leading to dermatitis. Prolonged contact may also lead to skin absorption.

EYE

Contact with the eyes would be expected to cause irritation consisting of reversible redness, swelling, and mucous discharge to the conjunctiva. No corneal involvement or visual impairment would be expected.

INGESTION

ACUTE:

Ingestion may cause irritation to the throat, esophagus and gastrointestinal discomfort with any or all of the following symptoms: nausea, vomiting, lethargy, or diarrhea. Ingestion may cause CNS depression with symptoms similar to those listed under acute inhalation exposure.

CHRONIC:

There are no known or reported effects from chronic ingestion of this product. It would be expected to cause more serious CNS effects if repeatedly ingested. Prolonged repeated ingestion of ethanol in excessive amounts can cause liver injury.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Exposure may aggravate an existing dermatitis. Persons with a history of liver impairment may be at increased risk from exposure to ethanol.

INTERACTIONS WITH OTHER CHEMICALS WHICH ENHANCE TOXICITY

Ethanol potentiates the hepatotoxic effects of haloalkanes such as carbon tetrachloride and chloroform.

ANIMAL TOXICOLOGY

ACUTE TOXICITY:

Inhalation LC 50: No data
Dermal LD 50: Believed to be > 2 g/kg. (rabbit) based on constituents
Oral LD 50: Believed to be > 5 g/kg. (rat); may be harmful if swallowed based on constituents
Irritation: Irritant to skin and eyes

ACUTE TARGET ORGAN TOXICITY:

Irritation to skin, eyes, lungs and mucous membranes. Inhalation may cause CNS depression and narcotic effects at high exposure concentrations.

CHRONIC TARGET ORGAN TOXICITY:

Prolonged or repeated skin contact may cause dermatitis. Prolonged repeated ingestion of ethanol in excessive amounts can cause liver injury.

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY:

This product is not known or reported to cause effects on reproductive function or fetal development. Ingestion of ethanol has been reported to cause effects on the developing fetus. Ethanol has been tested in rats by the inhalation route of exposure. It was not teratogenic even at high concentrations which produced narcosis in the mothers.

CARCINOGENICITY:

This product is not known or reported to be carcinogenic by OSHA or NTP. IARC has classified ethyl alcohol as having inadequate evidence for carcinogenicity to laboratory animals. EPA has classified ethyl alcohol as having negative evidence for carcinogenicity in mice and limited evidence for carcinogenicity in rats.

MUTAGENICITY:

This product is not known or reported to be mutagenic. Ethyl alcohol has been tested in a battery of mutagenicity and genotoxicity assays. It has been shown to be non-mutagenic in the Ames assay, in several mammalian cell systems and in in vivo genotoxicity assays. It has been shown to be positive in the rodent dominant lethal assay. The weight of evidence suggests that ethyl alcohol is not a mutagenic or genotoxic hazard. It was found to be non-mutagenic in the Ames assay.

AQUATIC TOXICITY:

There is no available data for this product. Individual constituents are as follows:

Ethanol:

Brine shrimp, 48 hr. LC50: 25.5 mg/l (nominal, static)
Daphnia pulex, 18 hr. LC50: 12,100 mg/l (nominal, static)
Diatom, 120 hr. EC50: approx. 11,000 mg/l (nominal, static)
Daphnia Magna, 48 hr. EC50 (immobilization): > 10,000 mg/l (nominal static)
Fathead minnow, 96 hr. LC50: 14,700 mg/l (measured, flow-through)
Grass shrimp, 96 hr. LC50: > 250 mg/l (nominal, static)
Rainbow trout, 96 hr. LC50: 13,000 mg/l (nominal, static)
Ceriodaphnia dubia, 48 hr. LC50: 8,808 mg/l (nominal, static)
Daphnia magna, 48 hr. LC50 (mortality): 9,248 mg/l (nominal, static)

X. TRANSPORTATION INFORMATION

THIS MATERIAL IS REGULATED AS A DOT HAZARDOUS MATERIAL.

DOT DESCRIPTION FROM THE HAZARDOUS MATERIALS TABLE 49 CFR 172.101:
LAND: ETHANOL SOLUTIONS, 3, UN 1170, PG II

WATER: ETHANOL SOLUTIONS, 3.2, UN 1170, PG II

AIR: ETHANOL SOLUTIONS, 3, UN 1170, PG II

HAZARD LABEL/PLACARD: FLAMMABLE LIQUID
REPORTABLE QUANTITY: Not applicable (Per 49 CFR 172.101, Appendix)
EMERGENCY GUIDE NO: 26

XI. SPILL AND LEAKAGE PROCEDURES

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 800-424-9300.

REPORTABLE QUANTITY: (Per 40 CFR 302.4) Not Applicable

SPILL MITIGATION PROCEDURES:
Evacuation procedures must be placed into effect. Evacuate all non-essential personnel. Hazardous concentrations in air may be found in local spill area and immediately downwind. Remove all sources of ignition. Stop source of spill as soon as possible and notify appropriate personnel.

AIR RELEASE: Vapors may be suppressed by the use of water fog or spray. Contain all liquid for treatment and/or disposal as a (potential) hazardous waste.

WATER RELEASE: This material is lighter than and miscible with water. Notify all downstream users of possible contamination. Divert water flow around spill if possible and safe to do so. Continue to handle as described in land spill.

LAND SPILL: Create a dike or trench to contain materials. Spill materials may be absorbed using sand, clay or non-combustible commercial absorbent. Do not place spill materials back in their original containers. Containerize and label all spill materials properly, in approved DOT containers. Decontaminate all clothing and the spill area using a soap solution and flush with large amounts of water.
OTHER: Use non-sparking tools in clean-up procedure.

SPILL RESIDUES:
Dispose of per guidelines under Section XII, WASTE DISPOSAL.

PERSONAL PROTECTION FOR EMERGENCY SPILL AND FIRE-FIGHTING SITUATIONS:
In case of fire, use normal fire fighting equipment).

Additional protective clothing must be worn to prevent personal contact with this material. Those items include but are not limited to: boots, gloves, impervious clothing, i.e., chemically impermeable suit.

XII. WASTE DISPOSAL

If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste number: D001.

If this product becomes a waste, it will be a hazardous waste which is subject to the Land Disposal Restrictions under 40 CFR 268 and must be managed accordingly.

As a hazardous liquid waste, it must be disposed of in accordance with local, state and federal regulations in a permitted hazardous waste treatment, storage and disposal facility by incineration or treatment

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

XIII. ADDITIONAL REGULATORY STATUS INFORMATION

TOXIC SUBSTANCES CONTROL ACT:
The components of this product are listed on the Toxic Substance Control Act inventory.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT TITLE III:
HAZARD CATEGORIES, PER 40 CFR 370.2:
HEALTH:
Immediate (Acute)
Delayed (Chronic)
PHYSICAL:
Fire

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APP.A:
EXTREMELY HAZARDOUS SUBSTANCE - THRESHOLD PLANNING QUANTITY:
None Established

SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45:
None Established

XIV. ADDITIONAL INFORMATION

MSDS REVISION STATUS: Revision to Section IX (Toxicology); V (Protective Equipment); II (Exposure Standards) also Sections I, III and XV

XV. MAJOR REFERENCES

1. Nelson, B.K., et al., Teratological Assessment of Methanol and Ethanol at High Inhalation Levels in Rats, Fundamental and Applied Toxicology, Vol. 5, pp. 727-736, 1985.
2. McCann, Joyce, et al., Detection of Carcinogens as Mutagens in the Salmonella/Microsome test: Assay of 300 Chemicals, Proc. Nat. Acad. Sci. USA, Vol. 72, No. 12, pp. 5135-5139, December 1975.
3. Sittig, Marshall, Handbook of Toxic and Hazardous Chemicals and Carcinogens, 2nd Ed., Noyes Publications, Park Ridge, NJ, 1985.
4. Randall, Carrie, L. and W.J. Taylor, Prenatal Ethanol Exposure in Mice: Teratogenic Effects. Teratology, Vol. 19, pp. 305-312, 1979.

Additional reference available upon request.

THE INFORMATION IN THIS MATERIAL SAFETY DATA SHEET SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. OLIN BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION, BUT MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MATERIAL SAFETY DATA SHEET IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT OLIN AT THE PHONE NUMBER LISTED BELOW TO MAKE CERTAIN THAT THIS SHEET IS CURRENT.

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