Material Safety Data Sheet

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name: MC 162
Chemical Name: 3-Mercaptopropyl trimethoxysilane
Company Identification: Primary Silane, 146 Cherokee Road, Hendersonville, Tennessee 37075
Contact: Phone: 615-430-6655 Fax: 615-523-2277 Emergency: 615-430-6655

SECTION 2 - COMPOSITION

CAS#: 4420-74-0
Components: 3-Mercaptopropyl trimethoxysilane, 95%

SECTION 3 - HAZARDS IDENTIFICATION

Ingestion: This product hydrolyzes in the stomach to form methanol. Effects of methanol include nausea, abdominal pain, vomiting, headache, dizziness, shortness of breath, weakness, fatigue, leg cramps, restlessness, confusion, drunken behavior, visual disturbances, drowsiness, coma, and death. There may be a delay of several hours between formation of methanol and the onset of signs and symptoms. The effects observed are in part due to acidosis and partially to cerebral edema. Visual effects include blurred vision, diplopia, changes in color perception, Restriction of visual fields, and complete blindness. Ingestion of moderate quantities of methanol also produces metabolic acidosis. Onset of symptoms may be delayed up to 48 hours. 60-200 ml of methanol is a fatal dose for most adults. Ingestion of as little as 10 ml has caused blindness. Kidney injury may occur, and with increased doses, heart muscle and liver damage may be present. Allergic reaction may occur upon ingestion.

Inhalation: Significant short-term exposure by inhalation is not normally experienced at ambient temperature. Inhalation of spray mist may irritate the nose and throat. This material is capable of forming methanol if hydrolyzed. Methanol vapor may cause dizziness, drowsiness, disturbances of vision, and tingling, numbness, and shooting pains in the hands and forearms.

Skin contact: Causes irritation with discomfort, local redness, and possible swelling. Defatting and drying of the skin may occur. Prolonged or widespread contact may result in the absorption of potentially harmful amounts of material.

Eye contact: Causes moderate irritation, experienced as discomfort of pain, excess blinking and tear production, with marked excess redness and swelling of the conjunctiva. Corneal injury, if not treated promptly, could result in permanent impairment of vision.

SECTION 4 - FIRST AID MEASURES

Ingestion: If patient is fully conscious, give two glasses of water. Induce vomiting. Obtain medical attention without delay. If medical advice is delayed, and if the person has swallowed a moderate volume of material (1-2 ounces), then give 3-4 ounces of hard liquor, such as whiskey. For children, give proportionally less liquor, according to weight.

Inhalation: Remove to fresh air. Obtain medical attention if symptoms persist.

Skin contact: Remove contaminated clothing. Wash skin with soap and water. Obtain medical attention if irritation persists. Wash clothing before reuse.

Eye contact: Immediately flush eyes with water and continue washing for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist.

Notes to physician: This product reacts with moisture in the acid contents of the stomach to form methanol. The combination of visual disturbances, metabolic acidosis, and formic acid in the urine is evidence of methanol poisoning. The therapeutic intravenous administration of ethanol (10 ml per hour) allows it to be preferentially oxidized and reduced production of methanol metabolites. Acidosis must be treated by means of intravenous sodium bicarbonate and methanol elimination may be increased by hemodialysis, as indicated. Treatment should be based on blood methanol levels and acid-base balance. Folates may be administered to enhance the metabolism of formaldehyde. 4-Methyl pyrazole has been suggested as an antidote: because of its alcohol dehydrogenase inhibiting effects, it reduces the production of formate and the development of metabolic acidosis. However, the value of this antidote remains to be proven in humans.

SECTION 5 - FIRE FIGHTING MEASURES

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.
Extinguishing Media: Do NOT use water directly on fire. Use foam, dry chemical, or carbon dioxide.
NFPA Rating: Health – 2, Flammability – 2, Reactivity – 1
Explosion Limits: Lower: N/A. Upper: N/A.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material, (e.g., dry sand or earth), then place into a chemical waste container.

SECTION 7 - HANDLING and STORAGE

Handling: Use adequate local ventilation. Keep containers tightly closed when not in use.
Storage: Store between 40 and 90°F out of direct sunlight.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Personal Protective Equipment
Eyes: Wear safety glasses and chemical goggles if splashing is possible.
Skin: Wear appropriate protective gloves and clothing to prevent skin exposure.
Clothing: Wear appropriate protective clothing to minimize contact with skin.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: colorless
Odor: skunk-like
Molecular weight: 196
Boiling point: 212^{o}C
Freezing point: <0^{o}C
Flash point: >85^{o}C
Flammability limits in air (% by volume): lower: not determined; upper: not determined
Specific gravity: 1.05 at 25^{o}C

Vapor pressure: <1.0 mm Hg at 20°C
Vapor density (air=1): >1
Evaporation rate (butyl acetate = 1): <1
Solubility in water (% by weight): reacts slowly
Percent volatiles: <2%

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Avoid elevated temperatures.
Incompatibilities with Other Materials: Strong oxidizing agents - moist air or water.
Hazardous Decomposition Products: methanol, carbon monoxide, carbon dioxide, silicone, silicon dioxide, sulfur oxides, and formaldehyde.
Hazardous Polymerization: Has not been reported.

SECTION 11 - ECOLOGICAL INFORMATION

Ecotoxicity: Not determined.

SECTION 12 - DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with federal, state, and local regulations. Not listed as a material banned from land disposal according to RCRA. Will cause offensive odors.

SECTION 13 - REGULATORY INFORMATION

Labeling: Irritating to eyes and skin. Avoid contact with skin. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. If swallowed seek medical advice immediately and show this container or label. Swallowed product will hydrolyze in the stomach and produce methanol, which is toxic. FOR INDUSTRIAL USE ONLY

Not listed with OSHA for specific chemical standards, Clean Air Act (112) de minimus level for air pollutants, CERCLA reportable quantities, or SARA Title III hazard classes or reportable substances.

CHEMICAL INVENTORY INFORMATION
EINECS: 224-588-5
TSCA: The ingredients of this product are on the TSCA inventory.
DSL: This product is on the DSL inventory.

SECTION 14 - TRANSPORT INFORMATION

Proper shipping name: Combustible liquid, N.O.S.
Class: Combustible liquid
UN#: 1993
Packaging group: III
Hazard label: None

SECTION 15 - ADDITIONAL INFORMATION

The information above is believed to be accurate and represents the best information currently available to Primary Silane. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall we be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, however arising, even if we have been advised of the possibility of such damages.