

The Hazards of Handling Fluoride Compounds

Excerpt from the Mosaic Material Safety Data Sheet (MSDS) for the hydrofluorosilicic acid purchased by the City of Lethbridge.

Potential Health Effects:

Prolonged or repeated overexposure to fluoride compounds may cause fluorosis. Fluorosis is characterized by skeletal changes, consisting of osteosclerosis (hardening or abnormal density of bone) and osteomalacia (softening of bones) and by mottled discoloration of the enamel of teeth (if exposure occurs during enamel formation). Symptoms may include bone and joint pain and limited range of motion. Conditions aggravated by exposure may include skin and respiratory (asthma-like) disorders.

Effects of overexposure may include severe irritation and burns of the mouth, nose, throat, respiratory and digestive tract. Symptoms of overexposure may include ulceration of the nose and throat, coughing, salivation, headache, fatigue, dizziness, nausea, shock and pulmonary edema (accumulation of fluid around the lungs.) May lead to coma or death. Onset of symptoms may be delayed.

Full MSDS available at www.mosaicco.com/images/Hydrofluosilicic_Acid_05_11.pdf

According to Workplace Hazardous Materials Information System (WHMIS), hydrofluorosilicic acid is a Class 3 Health Hazard, meaning that it is considered a serious hazard, with “major injury likely unless prompt action is taken and medical treatment is given.”

National Fire Protection Association (NFPA) rates hydrofluorosilicic acid as a class 3 hazard. “A rating of 3 or 4 is for highly to extremely toxic (deadly) material (and any carcinogen, mutagen, or teratogen). These materials will require specialized equipment (e.g. respirator (or exhaust hood), full face shield, rubber apron, specialized glove, handling tongs, etc) beyond that required for moderately toxic material. You must consult the MSDS and/or other safety information to determine the hazard (acute or chronic) and the proper PPE and engineering controls to safely use of this material.”

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