

APPENDIX E

Ambient Air Quality and Odor Assessment at the
City of Albany Rapp Road Solid Waste Management Facility

FORMALDEHYDE LITERATURE

FORMALDEHYDE

CASRN: 50-00-0

For other data, click on the Table of Contents

Environmental Fate/Exposure Summary:

Formaldehyde is ubiquitous in the environment; it is an important endogenous chemical that occurs in most life forms, including humans. It is formed naturally in the troposphere during the oxidation of hydrocarbons. **Formaldehyde**'s production and use in the manufacture of resins, disinfectants, preservatives, and a variety of other chemicals may result in its release to the environment through various waste streams. **Formaldehyde**'s production and use as a fertilizer results in its direct release to the environment. If released to air, **formaldehyde** will exist solely as a gas in the ambient atmosphere. Gas-phase **formaldehyde** will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is 41 hrs. **Formaldehyde** absorbs ultraviolet radiation at wavelengths of >360 nm and is susceptible to direct photolysis. **Formaldehyde** has a half-life of 6 hrs in simulated sunlight. If released to soil, **formaldehyde** is expected to have very high mobility based upon an estimated Koc of 37. Volatilization from moist soil surfaces is not expected to be an important fate process based upon a Henry's Law constant of 3.4×10^{-7} atm-cu m/mole. **Formaldehyde** volatilizes from dry soil surfaces because it is a gas. If released into water, **formaldehyde** is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. **Formaldehyde** readily biodegrades under both aerobic and anaerobic conditions in the environment. **Formaldehyde** in aqueous effluent was degraded by activated sludge and sewage in 48-72 hr. In a die-away test using water from a stagnant lake, degradation was complete in 30 and 40 hrs under aerobic and anaerobic conditions, respectively. Volatilization from water surfaces is not expected to be an important fate process based upon this compound's Henry's Law constant. An estimated BCF of 3 suggests the potential for bioconcentration in aquatic organisms is low. **Formaldehyde** is not expected to undergo hydrolysis in the environment because of the lack of hydrolyzable functional groups. Occupational exposure to **formaldehyde** may occur through inhalation and dermal contact with this compound at workplaces where **formaldehyde** is produced or used. Monitoring data indicate that the general population is exposed to **formaldehyde** via inhalation of air, ingestion of food, and dermal contact with cosmetic and aerosol products containing **formaldehyde**. Concns of **formaldehyde** in outdoor and indoor air range from about 1 to 20 ug/cu m and 25 to 100 ug/cu m, respectively. (SRC)

PEER REVIEWED