

4. PRODUCTION, IMPORT, USE, AND DISPOSAL

4.1 PRODUCTION

1,1-Dichloroethane is produced commercially through the reaction of hydrogen chloride and vinyl chloride at 20°-55°C in the presence of an aluminum, ferric, or zinc chloride catalyst (Grayson 1978). Other production methods include the direct chlorination of ethane, the reaction of PCl₅ with acetaldehyde as a by-product during the manufacture of chloral (Browning 1965) and as an intermediate in the production of vinyl chloride and 1,1,1-trichloroethane by photochlorination (Windholz 1983).

Information regarding the volume of 1,1-dichloroethane production is limited. At least 4.55×10^{10} grams were produced in 1977 (HSDB 1988). No information was found regarding U.S. production volumes after this date.

Major companies producing 1,1-dichloroethane within the United States include PPG Industries, Inc., Continental Oil Company, and Vulcan Materials, all based in Louisiana, and Dow Chemical located in Texas. Each of these companies manufactures 1,1-dichloroethane primarily to be used as an intermediate in the manufacture of 1,1,1-trichloroethane.

4.2 IMPORT

No information was found concerning U.S. imports and exports of 1,1-dichloroethane.

4.3 USE

The largest individual use of 1,1-dichloroethane is as an intermediate in the manufacture of other products such as vinyl chloride, 1,1,1-trichloroethane, and to a lesser extent high vacuum rubber. It also has limited use as a solvent for plastics, oils, and fats, and thus is employed as both a cleaning agent and a degreaser. In the past, 1,1-dichloroethane was used as an anesthetic, but that use has been discontinued. Other uses of 1,1-dichloroethane include fabric spreading, varnish and finish removers, organic synthesis, ore flotation, and as a fumigant and insecticide spray (EPA 1985; Grayson 1978; HSDB 1988). No information is available regarding the use proportions among these categories.

4.4 DISPOSAL

1,1-Dichloroethane may be disposed of by atomization within a combustion chamber equipped with an appropriate effluent gas cleaning device, by hightemperature incineration with a hydrochloric acid scrubber, or by placing product residues and sorbent media into 17H epoxy-lined drums and disposing of

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them at an EPA-approved site. However, the criteria for treatment or sanitary landfill disposal practices are currently undergoing revision. Consultation with environmental regulatory agencies is advised (HSDB 1988; NIOSH 1978; OHMTADS 1988).