

4. PRODUCTION, IMPORT, USE, AND DISPOSAL

4.1 PRODUCTION

All BCEE produced in the United States is made by direct chlorination of ethylene glycol (Buckman Laboratories 1988). BCEE can also be produced by the treatment of ethylene chlorohydrin or 2-chloroethanol with sulfuric acid, or by chlorination of ethylene chlorohydrin at 80°C. Production of BCEE in the United States in 1986 was estimated to be 1,200 kkg (Buckman Laboratories 1988).

4.2 IMPORT

Imports of BCEE in 1977 were estimated to be about 590 kkg (HSDB 1988). Imports of BCEE in 1986 were estimated to be about 60 kkg (Buckman Laboratories 1988).

4.3 USE

In the past, BCEE has been used as a solvent for fats, waxes, greases and esters (Schrenk et al. 1933). It has also been used as a constituent of paints and varnishes, as a cleaning fluid for textiles, in the purification of oils and gasoline, in the manufacture of medicines and pharmaceuticals, as an intermediate in the synthesis of other chemicals, and as an insecticide and a soil fumigant (Browning 1965; Hake and Rowe 1963; HSDB 1988; Verschueren 1977; Windholz 1983).

BCEE is currently used primarily as a chemical intermediate for the manufacture of pesticides. The two major pesticide products made from BCEE are WSCP, an isoprene polymer used primarily as an algicide, and CDQ, a diquatery ammonium compound used as a microbicide and corrosion inhibitor in the petroleum industry. A small amount of BCEE (about 1%) is still used as a solvent.

4.4 DISPOSAL

No information was located on the amounts of BCEE disposed of to the environment or to waste sites. Because BCEE is classified as a hazardous waste under the Resource Conservation and Recovery Act (RCRA), all BCEE waste must be disposed of in an authorized RCRA facility. Permitted disposal methods include incineration and land disposal, although EPA is currently considering possible restrictions on land disposal methods (40 CFR 268.11).

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4.5 ADEQUACY OF THE DATABASE

Section 104(i)(5) of CERCLA, directs the Administrator of ATSDR (in consultation with the Administrator of EPA and agencies and programs of the Public Health Service) to assess whether adequate information on the health effects of BCEE is available. Where adequate information is not available, ATSDR, in cooperation with the National Toxicology Program (NTP), is required to assure the initiation of a program of research designed to determine these health effects (and techniques for developing methods to determine such health effects). The following discussion highlights the availability, or absence, of exposure and toxicity information applicable to human health assessment. A statement of the relevance of identified data needs is also included. In a separate effort, ATSDR, in collaboration with NTP and EPA, will prioritize data needs across chemicals that have been profiled.

4.5.1 Data Needs

Production, Import, Use, and Disposal. Data are available on the production, import and general use patterns, but more complete information on present disposal volumes and methods would be valuable in estimating the likelihood and possible magnitude of further environmental contamination with BCEE.

According to the Emergency Planning and Community Right to Know Act of 1986 (EPCRTKA), (§313), (Pub. L. 99-499, Title III, §313), industries are required to submit release information to the EPA. The Toxic Release Inventory (TRI), which contains release information for 1987, became available in May of 1989. This database will be updated yearly and should provide a more reliable estimate of industrial production and emission.