

## **INTRODUCTION**

Ethylene oxide ( $C_2H_4O$ ) is a widely used petrochemical compound derived from ethylene. This is one of the widely used organic oxides. Ethylene oxide was first prepared in 1859 by Wurtz from 2-Chloroethanol (ethylene chlorohydrin) and aqueous potassium hydroxide. Lefort achieved direct oxidation of ethylene-to-ethylene oxide using a silver catalyst. Although early manufacture of the ethylene oxide was accomplished by the chlorohydrin process, the direct oxidation has been widely used almost exclusively since 1940. Today about  $9.6 \times 10^6$  tones of ethylene oxide are produced each year worldwide.

According to the IUPAC nomenclature a compound containing oxygen atom linked to two of the carbon atoms in a carbon chain is denoted by the prefix 'epoxy'. Ethylene oxide is derived from the base organic compound ethane in which the two carbon atoms are linked to one oxygen atom. So ethylene oxide is known as epoxy ethane. Ethylene oxide is not a naturally occurring material. The basic raw material for the manufacture of ethylene oxide is ethylene, petrochemical compound obtained in the crude oil distillation. The primary use of ethylene oxide is in the manufacture of derivatives such as ethylene glycol, epoxy paints, surfactants, ethanolamines and acrylo nitrile.