CLAIMS

1. A method for producing ethylene oxide, comprising:

a step of supplying ethylene oxide produced in an ethylene oxidation reaction step in an ethylene oxidation reactor, in which ethylene is subjected to contact gas-phase oxidation using molecular oxygen in the presence of a silver catalyst in an ethylene oxide absorption column to bring the ethylene oxide into contact with water as an absorption liquid supplied to the ethylene oxide absorption column, supplying an ethylene oxide in column bottom liquid of the ethylene oxide absorption column to an ethylene oxide purification system, and purifying the ethylene oxide in the ethylene oxide purification system; and

a step of supplying at least part of carbon dioxide discharged from a column top part of the ethylene oxide absorption column to a carbon dioxide gas absorption column to bring the carbon dioxide into contact with water as an absorption liquid, extracting the resulting carbon dioxide in the absorption liquid from a column bottom of the carbon dioxide gas absorption column and supplying the resulting carbon dioxide in the absorption liquid to an upper part of a carbon dioxide gas stripper column, and stripping the carbon dioxide and discharging the carbon dioxide from a column top part of the carbon dioxide gas stripper column as an exhaust gas,

the concentration of molecular oxygen (O_2) gas supplied from outside the system into the system being 99.7% by volume or more.

2. The method for producing ethylene oxide according to claim 1, wherein a raw material gas containing the ethylene is pressurized using a centrifugal compressor equipped with a dry gas sealing as a shaft sealing device, and the pressurized raw material gas is supplied to the ethylene oxidation reactor.

3. The method for producing ethylene oxide according to claim 2, being performed without argon purging.

4. The method for producing ethylene oxide according to claim 1, being performed while supplying nitrogen into the system together with the molecular oxygen.

5. The method for producing ethylene oxide according to claim 3, being performed while supplying nitrogen into the system together with the molecular oxygen.