A B S T R A C T

MANUFACTURING ETHYLENE OXIDE

Manufacturing ethylene oxide comprises allowing to react in a reactor (2) ethylene and free oxygen-containing gas to ethylene oxide in the presence of methane, argon and carbon dioxide; withdrawing from the reactor (2) a reactor effluent (4); removing (6) ethylene oxide from the reactor effluent to obtain a recycle stream (9); removing carbon dioxide (22) and argon (30) from the recycle stream to obtain a treated recycle stream (40) which is supplied to the reactor (2); and supplying (42) additional reactants and methane to the reactor(2), wherein removing argon comprises separating a side stream (16) from the recycle stream, passing the side stream (16) a membrane unit (30), removing an argon-containing stream from the permeate outlet (32), removing a retentate stream from the retentate outlet (33) which is added to the recycle stream (40), and purging the permeate side of the membrane unit (30) with inert gas.

(Figure)
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