9610647-1

ABSTRACT

THE USE OF NITROGEN FROM AN AIR SEPARATION PLANT IN CARBON DIOXIDE REMOVAL FROM A FEED GAS TO A FURTHER PROCESS

A cryogenic air separation unit (ASU) provides flows of oxygen and nitrogen. The oxygen is used in a process such as COREX iron making or the partial oxidation of hydrocarbons, or in an oxycoal fuelled blast furnace, producing an off-gas containing useful components (H_2 and CO) and carbon dioxide. The carbon dioxide is removed by pressure swing adsorption using nitrogen from the ASU as a regeneration gas and the purified off-gas becomes a feed gas to a further process such as production of iron by direct reduction of iron ore or the production of a NH_3 making ammonia or is recycled into the first process as a feed gas.

(Figure 1)