

Design Study

Customer: AGA AB

Services Provided

- Design study

Benefits to Customer

- Costain cryogenic process technology know how
- State of the art process design based on well-proven design principles and equipment
- Accurate and comprehensive design information for business case evaluation

Background

Costain was commissioned to carry out a design study to identify the total installed cost for a Carbon Dioxide Recovery Plant to be located at the Kemira Fertiliser Complex at Rozenburg, Holland. AGA currently operates a carbon dioxide recovery facility at the site.

Project Description

The design study detailed a proposed plant for the purification and liquefaction of a crude carbon dioxide stream to produce 150,000 tonnes per annum (18750kg/h) of liquid carbon dioxide of food grade purity:

99.995%	CO ₂
<1 vpm	CO
<1 vpm	Total Hydrocarbons
<0.01 vpm	Oil
<1 vpm	Nitrous Oxides
<2 vpm	Oxygen
<2 vpm	Water
<0.1 vpm	Total Sulphur

The crude feed would be taken from an ammonia plant Catacarb wash tower.

The high purity liquid carbon dioxide product is to be produced for loading onto boats, into railcars or into road tankers.

The selected process utilities feed gas compression, dehydration and low temperature distillation. Refrigeration is provided by evaporating ammonia in a package refrigeration unit. A 1500m³ storage tank and product send out pumps are also included.

The cost estimate was presented for complete turnkey supply including all civil works, buildings and integration with the existing carbon dioxide production facilities. A preliminary plot layout and project programme were also presented.