Technical specifications

HYDROCHLORIC ACID PRODUCTION

Solutions for the production of hydrochloric acid

KERN S & D S.L. develops facilities for the production of hydrochloric acid from chlorine gas and hydrogen. The KERN S&D systems are fully customizable in terms of production.

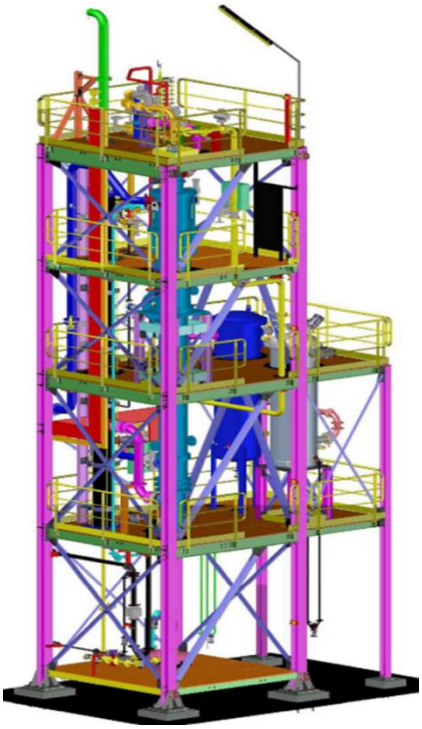
The overall reaction of the process is:

$$H_2 + Cl_2 \longrightarrow 2\,HCl + Heat$$

TECHNICAL SPECIFICATIONS	
Appearance	Colorless or slightly yellow liquid
Melting point	-26 ºC
Boiling point	48 º C
Density	1,157 g/cm^3 (32% solution)
Molar Mass	36,46 gr/mol
Viscosity	1,9
Formats	
33% aqueous solution	
Monitoring	
Fully automated and monitored plants	
Output	
According to the needs of the client	

- HIGH RELIABILITY
- EASY TO MAINTAIN
- AUTOMATIC CONTROL
- SAFE OPERATION
- NO ENVIRONMENTAL IMPACT
- MODULAR AND SCALABLE
- ECONOMIC SAVING (low operating & maintenance costs)
- HIGH ENERGY EFICIENCY
- SIGNIFICANT REDUCTION in the associated risks of storage, handling and road transport

PLANT FEATURES	
Output	1,4 to 150 tpd at 100% HCl
Flexibility	50-100%
Concentration	Up to 32%
Quality	Very pure synthesis product
Raw Materials	Chlorine gas and hydrogen gas
Supply	Pre-assembled Skids
Materials	Built with high quality materials



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General specifications

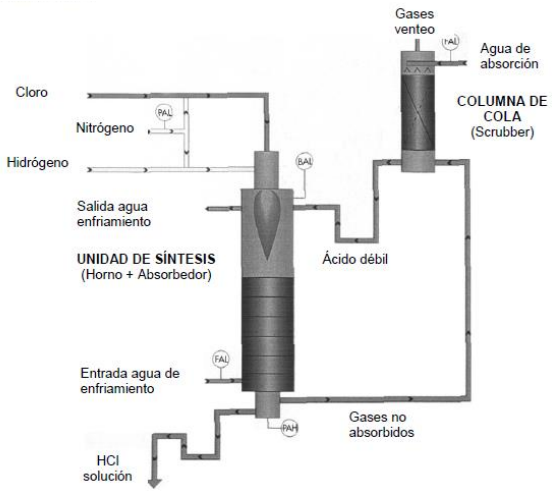
HYDROCHLORIC ACID PRODUCTION

Hydrochloric acid production technology

KERN supplies hydrochloric acid production plants, from the combustion of hydrogen and chlorine gases. The combustion process is controlled to provide maximum safety. During the combustion process, chlorine and hydrogen react in equal volumes to produce the HCl gas.

The reaction is exothermic and generates a flame temperature of around 2,500 °C and a heat of approximately 1,000 kCal/kg HCl, it is absorbed in water generating an aqueous solution with a maximum concentration of 37% HCl.

In the combustion process, a slight excess of H_2 is operated with respect to the stoichiometric conditions (normally 5%) in order to ensure that the combustion of Cl_2 is complete, preventing it from escaping into the atmosphere and producing a highly pure HCl.



Approximate layout of sodium HCl plant

Properties

Hydrochloric acid, also known as muriatic acid, or salfuman is one of the best-known strong acids that exist.

Its chemical formula is HCl (hydrogen chloride) and is a corrosive acid with a PH less than 1.

Uses of hydrochloric acid

It has multiple applications, among others the following:

- **It is mainly used as a chemical reagent in the chemical industry.**
- **Metallic surface preparation processes.**
- **Water treatment. It is the main compound used to adjust the pH for wastewater treatment, as well as in public swimming pools.**
- **It is also used in the food industry for food production.**
- **Cleaning of brick and tiles. It is widely used in the completion of the works for the removal of remains of paint and mortar in bricks and tiles.**
- **Coating and metallic engravings.**
- **Manufacture of metallic and non-metallic salts.**
- **Mining and oil processes**
- **Chemical and petrochemical processes.**
- **Regeneration of ion exchange resins**

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