kern s&d

Caustic Potash

PRODUCTION PLANTS

Engineering at service *of sustainability*

Caustic Potash

PRODUCTION PLANTS

KERN SD

develops on-site caustic potash production facilities tailored to meet the technical and economic needs of customers.

KERN SD plants are fully customisable in terms of production and concentration.

The overall reaction of the process is :

$$2\,KCl + 2\,H_2O + Energy \rightarrow Cl_2 + H_2 + 2\,KOH$$

- KERN SD has an **innovative on-site caustic potash production technology** consisting of a **bipolar membrane electrolyser** (no mercury).
- Plants designed and developed by KERN SD use safe, environmentally friendly and highly competitive technology due to their low investment and low operating costs (high electrical efficiency and degree of automation).
- Plants are delivered pre-assembled on modular ¨skids¨ and depending on the production the plants are assembled in containers (containerised plants).
- KERN SD technology complies with **the EU Best Available Technologies (BAT) Directives for the production of chlor-alkali (Directive 2010/75/EU).**

TECHNICAL SPECIFICATIONS OF THE PRODUCT (KOH)	
Appearance	White (solid)
Melting point	360 °C
Boiling point	1.320 ° C
Density	2,04 g/cm^3
Molar Mass	56,10 gr/mol
Water solubility	111 g/100 mL (20 °C)

Caustic Potash **Production Plants**

PLANT FEATURES

Output	From 100 kg/day to 12.000 kg/day of chlorine (end product: in solution or flakes)
Flexibility	50-100%
Concentration	32% (membrane) at the outlet of the electrolyser - up to 51% by subsequent concentration
Raw Materials	Salt, Water and Electricity
Materials	Built with high quality materials
Monitoring	Fully automated and monitored plants

- ☐ **ON-SITE PRODUCTION**
- ☐ **CONTAINERIZED OR FIXED PLANTS**
- ☐ **MODULAR AND SCALABLE**
- ☐ **AUTOMATIC CONTROL**
- ☐ **SAFE OPERATION**
- ☐ **ECONOMIC SAVINGS** (low operating and maintenance costs)
- ☐ **HIGH ENERGY EFFICIENCY**
- ☐ **SIGNIFICANT REDUCTION** of associated storage, handling and road transport risks
- ☐ **HIGH PURITY PRODUCT**
- ☐ **NO ENVIRONMENTAL IMPACT**

Caustic Potash
PRODUCTION PLANTS

According to the World Health Organisation (WHO), 'chlorine disinfection is the best guarantee of microbiologically safe water', the best option for water treatment and purification. Chlorine is highly effective in combating all types of microbes that may be contained in water, including bacteria, viruses, fungi and yeasts, and the algae and slime that proliferate inside pipes and in tanks.

SOME APPLICATIONS OF CAUSTIC POTASH

- **Potassium Carbonate -** which is applied in a wide variety of industrial uses (manufacture of special glasses, foodstuffs, dyes, titanium enamels, fire extinguishing powders...)
- **Potassium phosphates -** constituent elements in detergents and industrial cleaners, and in water treatment chemicals
- **Agricultural fertilisers** - source of potassium supply for crops sensitive to chloride ions
- **Soaps made from coconut oil fatty acid, vegetable oil, tall-oil and toluene sulphonic acid**
- **Others**
  - Electroplating
  - Herbicides
  - Catalysts
  - Oxidants
  - Medicines
  - Alkaline-electrolytic batteries