STEULER KCH

PLASTICS ENGINEERING DIVISION

ALPHARESIST

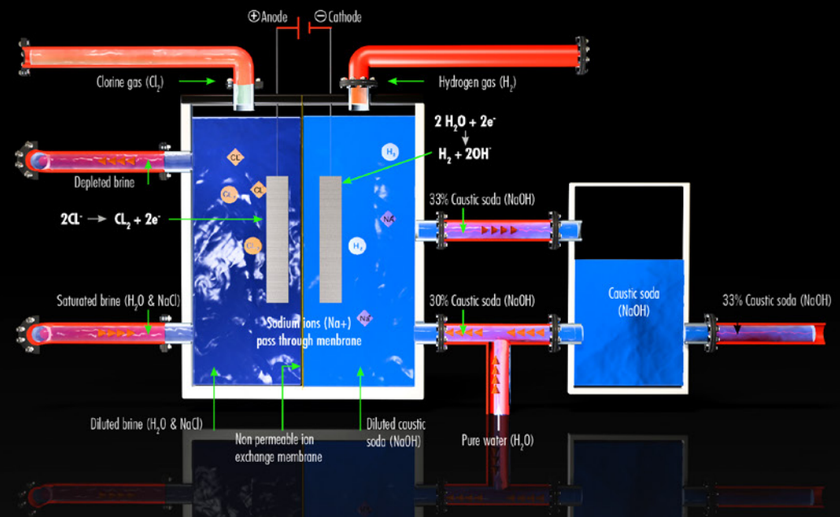
NEW GENERATION fibre free plastic piping for the chlor alkali electrolysis

Made by ALPHAPLAST S.L.U., a Member of the Steuler Group

ALPHA**RESIST**

NEW GENERATION FIBRE FREE PLASTIC PIPING FOR THE CHLOR ALKALI ELECTROLYSIS

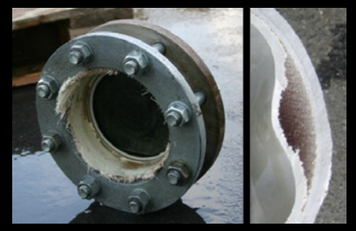
- Prolonged maintenance intervals
- Glass fibre free chemical protection layer
- No contamination or blockage with glass fibres
- Homogenous material system



In chlor alkali electrolysis plants anolyte and catholyte piping are normally made of glass fibre reinforced plastics (GRP).

Two different GRP systems are generally used for **ANOLYTE PIPING:** a dual-laminate system made of GRP with a lining of post chlorinated polyvinylchloride (CPVC) for low pH-values and a full GRP for higher values. CPVC is not resistant at higher pH-values due to the formation of hypochlorous acid. Full GRP itself shows only a limited resistance. The average removal rate is around 0.5 mm per year. The cell and the piping itself can be plugged with glass fibre removal and this can induce unwanted shutdowns of the electrolysis.

CATHOLYTE PIPING is often made of GRP with Polypropylene (PP) lining. There are two critical points for this system. One point is the heat ageing of the PP material, after a couple of years the material becomes brittle increasing the risk of stress cracking. The other critical point is the difference between the thermal expansion of PP and GRP, especially at high temperatures or abrupt temperature changes. Due to the different thermal expansion factors high shear stresses will be induced in the intermediate layer between PP and GRP, which may result in debonding of the PP.



The idea of **ALPHARESIST**, the new generation of piping, is to build a full GRP system with a special chemical resistance barrier made of vinyl ester without glass fibres. For a better resistance, only special fillers are used. Due to the new design plugging of the pipes should be nearly impossible.

The catholyte piping is designed in the same way but with a suitable epoxy resin because of the fact that vinyl ester and glass fibres are not resistant for the condition of the catholyte.

A first pipe for test purpose has already been installed and works successfully.

STEULER-KCH OFFERS ENGINEERING, MATERIALS AND KNOW-HOW FOR THE CHLORINE INDUSTRY

Perfect interplay in every detail - with competence and expertise

Cellheaders made of KERAVERIN® PP/GRP or full GRP

KERA® frames for HCl electrolysis

KERA ® is a phenolic resin-based thermoset material which provides customized shaping options for process equipment and piping

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