

General information for electrolytic etching

What is electrochemical etching?

Electrochemical etching is used for direct part marking of electric conductive material surfaces. What we need for etching is a controller and some consumable material like Electrolyte, felt and stencils.

During the etching process the basic material of the material surface is rapidly forced to oxidation and that makes it possible to penetrate the material surface. The meaning oxidation originates from chemistry and means that an agent is combining with hydrogen i.e. a chemical reaction is released and hydrogen is delivered. Electrolytes are preparations made by different salts. Another description is: The electrolytic marking process is based on material remove (erosion) or on an oxidation attack to the basic material.

The advantages:

Most economic and reasonable direct part marking system.

No deformation stress, material cracking, structure alterations or thermal impairments on work piece surfaces are known.

The marking is completely edgeless (applied on precision gauges also).

The marking itself is permanent, sea-water resistant, acid-resistant and resistant on abrasion.

About pH:

The pH value of an Electrolyte has a major influence on the quality and on the sensitivity with regard to the corrosion of the marked metal parts. Electrolytes with a pH < 4 are a lot more aggressive, which means that the risk of corrosion is much higher. The oxidation (rust) can only be stopped by applying the Neutralyte carefully after the marking. Especially for marking on steels with a high content of carbon, we recommend to only use Electrolytes with a neutral pH, such as our new Electrolyte AE 35.

We recommend to use our corrosion poor Electrolyte AE 35 pH-neutral with very individual properties on different materials.

For etching of surgical instruments our Electrolytes AE 33 and AE 34 are also suitable.