

Electrolytic Etchant

Revision: 19th of August, 2020

PRODUCT NAME	ITEM NO.	SUPPLEMENTARY DETAILS
Barker ´s reagent	95006393	1 l

Description	Medium for electrolytic etching of materialographic samples. The etchant is used for the microstructural investigation of aluminum and aluminum alloys. It is based on an anodic precipitation that contrasts the grain surfaces.
Material	5-15% tetrafluoroboric acid Further additives do not surpass the threshold values for mandatory identification and can be considered nonhazardous additives.
Properties	Low viscosity, colorloess liquid, weak acidic smell, pH 2-4
Application	The medium is used for microetching of pure aluminum and aluminum alloys (Al-ZN, Al-Mg,Al-Mg-Si, difficult for Al-Cu alloys). To gain good results the sample should be ground with P1200 (at least) SiC-paper. The electrolyte can be used as received, it can be diluted with water. It should only be applied in a suitable fume-cupboard and a electrolytic etching machine. The parameter volatage, amperage, pump capacity and etching time vary between differing materials. Common settings are: etching time 45-60s, voltage 20-25 V DC, 45-50% pump capacity (Kristall 680). V2A Kathodes and corrosion resistant contacts for the sample should be used. It is advantageous to contact the sample directly. The etched sample should show a slightly matte surface finish. The sample is carefully cleaned with water and ethanol. Mois cotton is suitable for this purpose. Strong friction or water currents have to be avoided, since the anodized layer is noct mechanically stable. The etched sample is investigated with a microscope (linear polarized light(+ analyzer with quarter wave foil in incedent light microscopy)). The last grinding step can be repeated if the etching results are not acceptable.
Health and safety	The product should be used at a well-ventilated working place or in a suitable fume cupboard. Suitable protective clothing, protective gloves (nitrile rubber, 0.1 mm) and tightly fitting eye protection have to be worn. In case of dermal contact the affected area has to be thoroughly rinsed with water and soap. CO2, extinguishing powders and water-spray are suitable extinguishing agents. During thermal degradation no significant amounts of toxic decomposition products are released. Further information regarding first aid measures and safety instructions can be taken from the products SDS.
Environmental precautions	The product is classified as water hazard class 1. It should not be released in phreatic/surface waters and sewage systems. The electrolyte has to be collected separately. The disposal has to be carried out in accordance to local legislation.
Storage	The electrolyte is classified as storage class 12 (TGRS 510). It should be stored in tightly sealed containers in a cool (3-30°C) and dry environment. The product should not be stored next to strong bases. Further storage related information can be taken from the products SDS.