

Revision: 20th of August, 2020

PRODUCT NAME	ITEM NO.	SUPPLEMENTARY DETAILS
Kalling 1 etchant	95002313	1 l

Description	Etchant for visualizing microstructures. The commonly etched materials are corrosion resistant, martensitic steels. These often are highly Cr and Ni containing alloys.
Material	Ethanol 40-60%, hydrogen chloride 40-60%, copper dichloride 1-10% Further ingredients do not surpass the mandatory identification threshold values and can be considered nonhazardous additives.
Properties	Liquid with low viscosity, green, characteristic acidic/alcoholic smell. pH 1. The product may form explosive aerosols.
Application	Kalling 1 is mostly applied as received, dilution is possible. Etching dishes made from borosilicate glass and polypropylene/polyethylene can be used. A polished surface (at least 3 µm suspension) has to be present for microstructural investigations. During etching the sample is immersed in the medium and moved during this process. The etching time differs according to the chemical composition of the sample. The etching time ranges between seconds to a few minutes. The etched sample should display a glossy to slightly matte surface. The discoloration is either whitish or brownish. The sample then is rinsed with water and ethanol. After drying under a hot airstream, a microscopic evaluation of the sample can be conducted. The etching procedure can, after the removal of the etched layer, be repeated.
Health and safety	The etchant has to be applied in a sufficient fume- cupboard. Otherwise a sufficient ventilation of the working space has to be ensured. The legal threshold values for the contained hazardous substances cannot be surpassed under any circumstances. Besides protective clothing, closed eye protection and sufficient protective gloves (fluororubber 0.4 mm) have to be worn. In the case of dermal exposure, the exposed regions must be cleaned with water and soap. Further instructions for safety and first aid can be taken from the SDS.
Environmental precautions	Kalling 1 etchant should not be released into phreatic-/surface waters or concrete foundations. The product is classified as aquatic toxicity class 1. The product may not be deposited alongside domestic waste. The deposition must be conducted according to the legal regulations.
Storage	Kalling 1 etchant is assigned to storage class 3 (TGRS 510). It has to be stored in tightly sealed containers in a cool (3-30°C) and dry storage room. It must not be stored together with strong oxidants (e.g. organic peroxides). The presence of ignition sources (e.g. mechanically generated sparks) has to be avoided. If large quantities must be stored the storage facility has to be protected against static electricity. Further storage related information can be taken from the products SDS.