



Etchants

Revision: September 29th, 2019

PRODUCT NAME	ITEM NO.	SUPPLEMENTARY DETAILS
Etchant Visipro II.	95014348 95014349	500 ml 1 l

Description	Etchant for visualization of prior austenite grain boundaries in heat treated steels with bainitic and martensitic microstructures.
Material	Aqueous solution of the following hazardous substances. Other components can be considered as non-critical additives: 2,4,6-trinitrophenol 1-2%, copper(II)chloride < 1%
Properties	Transparent, greenish liquid with low viscosity and characteristic, acidic smell. After several applications the etchant changes its color to a dark green. This does not influence the functionality of the etchant. pH value at 20°C between 1,9-3 (according to age of the solution).
Application	<p>Visipro II. comes as a ready to use product. Etching dishes based on polyolefines or borosilicate glass may be used. Even though the solution changes its color to a dark green, the functionality of the etchant is not influenced. A scratch free, polished specimen surface is mandatory for a successful application of the etchant (The sample surface should at least be polished with 3 µm diamond suspension). Visipro II. is only suited for micro-etching. The sample is dipped into the etchant and stirred to guarantee a homogeneous contact with Visipro II. After the initial phase the sample can be positioned on the bottom of the etching dish. The total immersion time ranges between 2 to 40 min according to alloy composition.</p> <p>The etched sample is rinsed with water. The segregation of a copper layer can be observed on the sample surface. This layer is removed with cotton wool or a fine cloth. After cleaning the sample with water and ethanol a microscopic analysis (preferably DIC-techniques) is possible. If the prior grain boundaries are not visible properly, the etching procedure can be repeated until a satisfying result is obtained.</p>
Health and Safety	Visipro II. is strongly acidic. The Etchant should only be handled inside a suitable fume cupboard or while wearing a respiratory protective device (filter class E). The time frame of exposition should be considered for choosing a respiratory device. Protective clothing, close fitting safety glasses and protective gloves (Nitrile rubber) should be worn.
Environmental precautions	Visipro II. can not be disposed directly into sewers, surface- or phreatic waters. The disposal must be handled according to local legislation. Visipro I. must be treated as acidic, aqueous waste. A neutralization of the used etchant should be conducted before disposal. Solutions of strong bases like NaOH can be used for this purpose.
Storage	The storage must fulfill the requirements of storage class 8B (TGRS 510). Visipro II. should always be stored at a cool (3-30°C) and dry place. The containers should always be tightly closed.