

**Revision:** 10<sup>th</sup> of August 2020

PRODUCT NAME	ITEM NO.	SUPPLEMENTARY DETAILS
<b>Alcoholic nitric acid 1% (Nital 1%)</b>	92002596	1 l
<b>Alcoholic nitric acid 3% (Nital 3%)</b>	92002597	1 l
<b>Alcoholic nitric acid 5% (Nital 5%)</b>	92002598	1 l

<b>Description</b>	Alcoholic nitric acids of differing concentrations. The products are used for visualizing perlitic-/ferritic and martensitic/bainitic microstructures of non and low alloyed steels. Cast iron alloys may also be etched by the chemical cold etchants.
<b>Material</b>	Nital 1%: Nitric acid 1%, ethanol 99% Nital 3%: Nitric acid 3%, ethanol 97% Nital 5%: Nitric acid 5%, ethanol 95%  Any further additives present in the products do not surpass the threshold values for mandatory identification and can be considered nonhazardous additives.
<b>Properties</b>	Low viscosity, colorless liquid (if used slightly yellowish), characteristic acidic alcoholic smell
<b>Application</b>	Alcoholic nitric acids are used as chemical etchants at room temperature. They are mainly used for micro etching, can however also be used for macro etching applications (such as visualizing weld-lines). If a microstructure is investigated the sample should be polished at 3 µm or finer. The sample is immersed in the etchant. It is moved. Swab etching (e.g. with drenched cotton) is also possible. The necessary etching times depend on the material and its heat-treatment. In most cases the etching time ranges between 1 and 10 s. the etched sample is rinsed with water and ethanol. After drying with hot air, a microscopic analysis can be conducted. If the result is not satisfying the sample must be polished with 3 or 1 µm suspensions until the etched layer is removed. Then the etching procedure can be repeated.
<b>Health and safety</b>	The products should only be used in a suitable fume cupboard. Protective clothing, protective gloves (Fluororubber, 0.4 mm) and a tightly sealed eye protection have to be worn. Inhalative exposition should be minimized. In case of dermal exposition, the affected area must be thoroughly rinsed with water and soap. The etchant is flammable and works as an oxidant. It should be kept away from ignition sources. You should not heat the products. During a fire toxic gas (CO, NO <sub>x</sub> ) is released. In this case a self-contained respiratory device should be worn. Water-spray, extinguishing powder or CO <sub>2</sub> are suitable extinguishing agents. Further information regarding First aid measures and safety instructions can be taken from the products SDSs.
<b>Environmental precautions</b>	The Products are assigned to water toxicity class 2 and 1. They should not be released into sewage systems, surface- and phreatic waters. They are hazardous waste and must be collected and disposed of separately. A disposal with domestic waste is not allowed. The disposal has to be conducted according to local legislation.

<b>Storage</b>	The products are assigned to storage class 3 (TGRS510). They have to be stored in tightly sealed containers in a ventilated, dry and cool (3-30°C) storage compartment. The storage should be secured against electrostatic charging. The products should not be stored next to strong oxidants (e.g. organic peroxides), ignition sources (e.g. flying sparks) and other flammable substances. Further storage related information can be taken from the products SDSs.
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