

English Version

**Destructive tests on welds in metallic materials - Etchants for  
macroscopic and microscopic examination (ISO/TR 16060:2003)**

Essais destructifs des soudures sur matériaux métalliques -  
Réactifs pour examens macroscopique et microscopique  
(ISO/TR 16060:2003)

Zerstörende Prüfung von Schweißverbindungen an  
metallischen Werkstoffen - Ätzungen für die  
makroskopische und mikroskopische Untersuchung  
(ISO/TR 16060:2003)

This Technical Report was approved by CEN on 18 August 2014. It has been drawn up by the Technical Committee CEN/TC 121.

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## Foreword

The text of ISO/TR 16060:2003 has been prepared by Technical Committee ISO/TC 44 "Welding and allied processes" of the International Organization for Standardization (ISO) and has been taken over as CEN ISO/TR 16060:2014 by Technical Committee CEN/TC 121 "Welding and allied processes" the secretariat of which is held by DIN.

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This document supersedes CR 12361:1996.

### Endorsement notice

The text of ISO/TR 16060:2003 has been approved by CEN as CEN ISO/TR 16060:2014 without any modification.

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# Destructive tests on welds in metallic materials — Etchants for macroscopic and microscopic examination

## 1 Scope

This Technical Report gives a non-exhaustive list of etchants that can be used for the macroscopic and microscopic examination of welds in accordance with ISO 17639 for the following groups of materials:

- carbon steels and low-alloy steels;
- stainless steels;
- nickel and nickel alloys;
- titanium and titanium alloys;
- copper and copper alloys;
- aluminium and aluminium alloys.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 17639, *Destructive tests on welds in metallic materials — Macroscopic and microscopic examination of welds*

## 3 General

Where details of concentration or waters of crystallization of reagents are not defined in the annexes, Table 1 is applicable. These values should be confirmed by the suppliers of each etchant.

## 4 Etchants for carbon steels and low-alloy steels

The etchants for carbon and low alloyed steels are given in Annex A.

## 5 Etchants for stainless steels

The etchants for stainless steels are given in Annex B.