

Aerospace series - Macrostructure of titanium and titanium alloy wrought products - Part 001: General requirements

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 2954-001:2010 sisaldab Euroopa standardi EN 2954-001:2010 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 30.09.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

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English Version

**Aerospace series - Macrostructure of titanium and titanium alloy
wrought products - Part 001: General requirements**

Série aérospatiale - Macrostructure de produits corroyés en
titane et en alliages de titane - Partie 001 : Exigences
générales

Luft- und Raumfahrt - Makrostruktur von geschmiedeten
Erzeugnissen aus Titan und Titanlegierungen - Teil 001:
Allgemeine Anforderungen

This European Standard was approved by CEN on 6 February 2010.

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Foreword

This document (EN 2954-001:2010) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2010, and conflicting national standards shall be withdrawn at the latest by September 2010.

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1 Scope

This standard specifies the conditions for the macrographic examination of titanium and titanium alloy bar, section, forging stock and forgings. Specific macrostructures are defined in EN 2954-002.

This standard shall be applied in conjunction with EN material standards and technical specifications, which define the acceptance criteria unless otherwise specified on the order.

2 Normative references

Not applicable.

3 Sampling

Sampling and its frequency is defined in the relevant material standard, technical specification or order. Samples shall be at least 10 mm thick. Unless otherwise agreed, samples from bar, section and forging stock must be cut in the transverse direction. For forgings, the sampling location is specified in the inspection schedule.

Samples shall preferably be taken by sawing. Cold-work hardened zones shall be avoided or removed. If the sample material is taken by abrasive cut-off or flame cutting, the resulting heat affected zone shall be removed completely in the course of sample preparation.

4 Preparation of samples for examination ¹⁾

4.1 Surface preparation

The sample surface to be examined shall be prepared by turning, planing, milling, grinding and/or polishing to ensure that the macrostructure is clearly detectable after etching. A surface finish of $R_a \leq 2 \mu\text{m}$ is recommended.

4.2 Etchants

Unless otherwise agreed between purchaser and manufacturer, the following etchant solution shall be used:

- Nitric acid + hydrofluoric acid ($\text{HNO}_3 + \text{HF}$) + water;
- 40 Vol. % nitric acid (65 %, $d = 1,365$);
- + 8 Vol. % hydrofluoric acid (40 %, $d = 1,13$);
- + water.

All equipment coming into contact with the etchant shall be made from acid resistant materials such as PVC. Baths shall be covered when not in use. They shall only be used for macro-etching and their composition shall be checked periodically. It is recommended that all operations are carried out under fume extraction.

4.3 Macro-etching

Macro-etching shall be carried out as follows:

- a) the sample shall be carefully cleaned of adhering dirt, then degreased and rinsed in running water;

1) Relevant official safety regulations shall be taken into account.