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**6Al-4V titanium alloys —  
Determination of aluminium and  
vanadium contents — Inductively  
coupled plasma atomic emission  
spectrometric method**

*6Al-4V alliages de titane — Détermination de la teneur en aluminium  
et en vanadium — Méthode par spectrométrie d'émission atomique  
avec plasma à couplage inductif*



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ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

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## Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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This document was prepared by Technical Committee ISO/TC 79, *Light metals and their alloys*, Subcommittee SC 11, *Titanium*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

# 6Al-4V titanium alloys — Determination of aluminium and vanadium contents — Inductively coupled plasma atomic emission spectrometric method

## 1 Scope

This document specifies an inductively coupled plasma atomic emission spectrometric method for the determination of the contents (mass fraction) of aluminium and vanadium in 6Al-4V titanium alloys.

This method is applicable to all kinds of 6Al-4V titanium alloys specified in ISO 23515 (designation of titanium alloys) for aluminium in the range from 4,70 % to 7,00 % and vanadium in the range from 3,00 % to 5,00 %.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 648, *Laboratory glassware — Single-volume pipettes*

ISO 1042, *Laboratory glassware — One-mark volumetric flasks*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

## 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

## 4 Principle

A test portion is dissolved with nitric and hydrofluoric acids. After suitable dilution and, if necessary, addition of an internal standard element, the solution is nebulized into an inductively coupled plasma atomic emission spectrometer and the intensity of the emitted light from each element is measured (including, where relevant, the intensity of the internal standard element).

## 5 Reagents

### 5.1 General

During the analysis, unless otherwise stated, use only reagents of recognized analytical grade and only grade 2 water as specified in ISO 3696.

### 5.2 Hydrochloric acid solution, 1+1

Add slowly 500 ml of hydrochloric acid ( $\rho_{20}$  1,16 g/ml to 1,19 g/ml) to 500 ml of water and mix.