

JIS

JAPANESE INDUSTRIAL STANDARD

**Methods for Determination of
Chromium in Zirconium and
Zirconium Alloys**

JIS H 1656—1989

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by

Japanese Standards Association

In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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Methods for Determination of Chromium
in Zirconium and Zirconium Alloys

H 1656-1989

1. Scope

This Japanese Industrial Standard specifies the method for determination of chromium contained in zirconium or zirconium alloys.

2. General Requirements

Requirements for the analysis method in general shall be in accordance with JIS H 1650.

3. Classification of Methods

The determination of chromium shall be in accordance with either of the following two methods.

- (1) Diphenylcarbazide absorptiometry This method applies to the sample containing from 0.001 wt % or over to and excluding 0.2 wt % of chromium.
- (2) Inductively-coupled plasma emission absorptiometry This method applies to the sample containing from 0.01 wt % or over to and excluding 0.2 wt % of chromium.

4. Diphenylcarbazide Absorptiometry

4.1 Summary Decompose the sample with the mixed acid of hydrofluoric acid and boric acid, add sulfuric acid and potassium permanganate, and heat to oxidize chromium. Add urea, then decompose superfluous potassium permanganate by sodium nitrite, and add diphenylcarbazide to generate diphenylcarbazide chromium complex. Measure its absorbance using a photoelectric photometer.

4.2 Reagents The reagents shall be as follows:

- (1) Nitric acid

Applicable Standards:

JIS H 1650-General Rules for Chemical Analysis of Zirconium and Zirconium Alloys

JIS H 1654-Methods for Determination of Iron in Zirconium and Zirconium Alloys

JIS H 1655-Methods for Determination of Nickel in Zirconium and Zirconium Alloys

JIS H 1659-Methods for Determination of Tin in Zirconium Alloys

JIS K 8005-Standard Substances for Volumetric Analysis