CINDAS LLC
www.cindasdata.com

Industry Benchmark for Critically Evaluated Materials Properties Data

Now available on-line—CINDAS Aerospace Structural Metals Database (ASMD)

The ASMD web-based database allows the user to instantly see the properties and relationships for 287 metal alloys with 98,815 data curves. This user-friendly interface enables ASMD subscribers to quickly select and compare the attributes of the alloys for which they are looking.

The ASMD provides numeric and graphic information as part of the database, including a comprehensive PDF consisting of additional information for each alloy.

ASMD Users

Universities	Course Material Aid
Technical Schools	Project Reference & Guide
Government Agencies	New Material Research
Aerospace Industry	Turbine Design
Automotive Industry	Developing Engines & Frame
Industrial Suppliers	Manufacturing, Machinery
Research Corporations	Research and Development

And many others...

About the Data

The ASMD was fully developed by CINDAS LLC from the widely used and highly respected Aerospace Structural Metals Handbook (ASMH).

CINDAS LLC completed and released the database under a Cooperative Research and Development Agreement (CRADA) with the United States Air Force Materials Directorate at Wright Patterson Air Force Base.

Search and Browse the Aerospace Structural Metals Database by

Material Group
(Aluminum, Titanium, Nickel Alloys, Stainless Steels, etc.)
Material Name
(Al6061, Ti-6Al-4V, AZ63A, etc.)
Property Group
(Mechanical, Thermophysical, etc.)
Property Name
(Yield Strength, Elongation, Fracture Toughness, etc.)

Property Groups

The ASMD contains 769 different properties. These properties are separated into 20 easy-to-navigate property groups. Alternatively, you can search the property names by using keywords which would bring you directly to the property you're interested in.

Thermophysical

Thermoradiative

Electrical and Nuclear

Mechanical Properties

> Strength, Stress, Hardness, Fatigue & Crack Growth, Impact Energy, Strain, Area Reduction, Deformation and others

Temperature

Time, Life to Failure

Corrosion, Oxidation, and Weight Change

Length, Thickness, Diameter, Size, and Grain Size

Content of Component, Phase

Plus others...

The Convergence Center, 101 Foundry Drive Suite 4700, West Lafayette IN 47906-3445 USA
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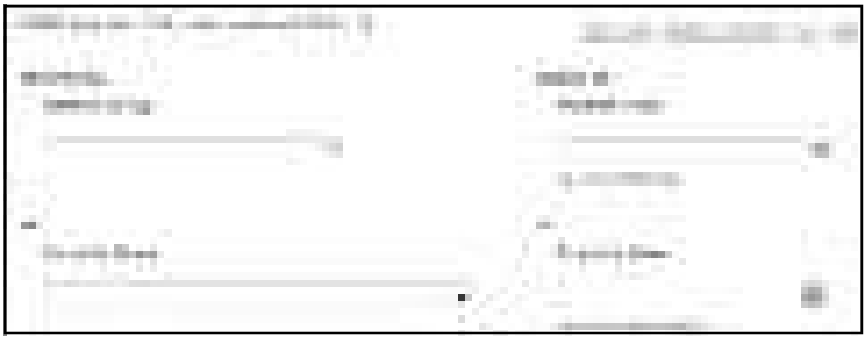
April 2025

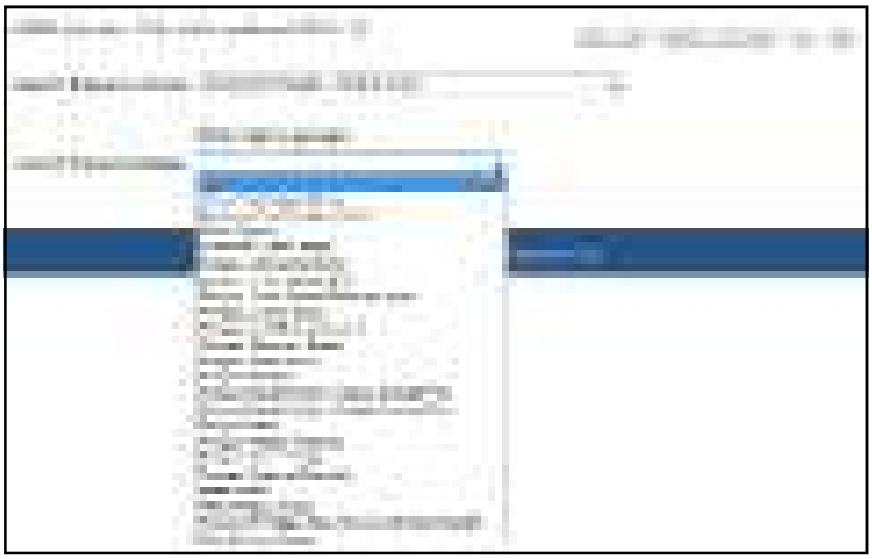
Searching and Browsing:
Aerospace Structural Metals Database (ASMD)
Finding Information

Search: Enter the full or partial name of the property or material.

Browse: Use the drop-down menu to find the property or material.

The Aerospace Structural Metals Database contains 287 metal alloys in 24 metal groups and 769 properties in 20 property groups.





Customizing Information

Select: The independent variable.

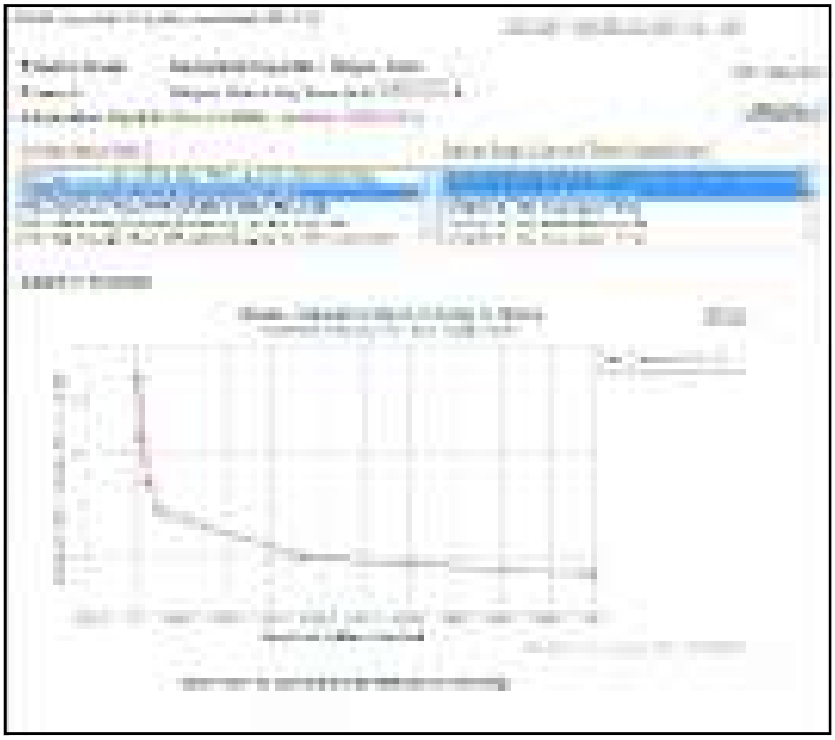
Viewing Information

The ASMD allows the user to view a property of multiple materials on one graph.

Step 1: Select Materials.

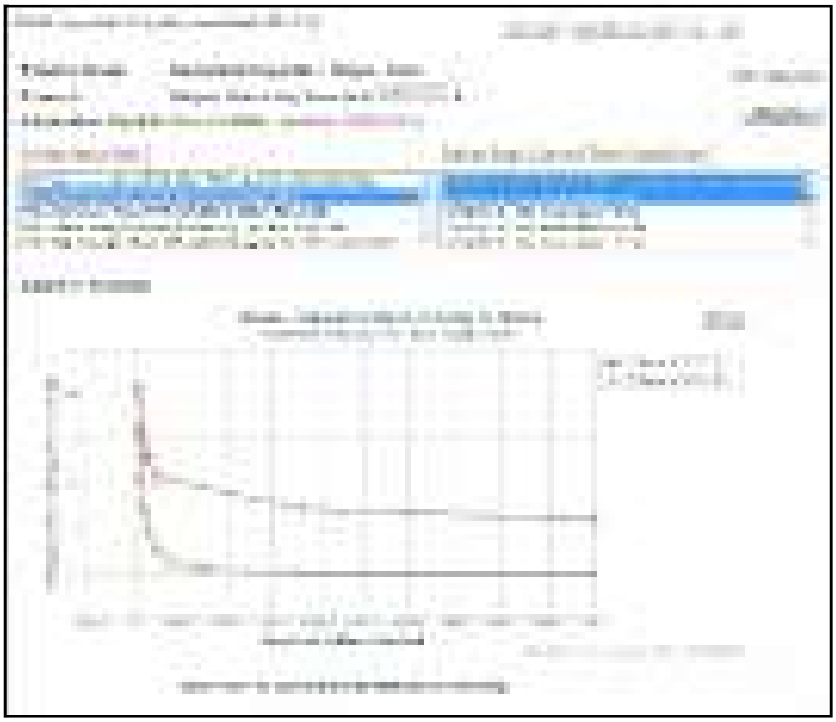
Step 2: Select Data Curves or Test Conditions.

Note: At any time, the user can click on the "Show Text" button to see the values of the data points, text description, references, etc.



Results: Graphic and Numeric

- 98,815data curves
- Color-coded data curves
- Multiple curves of different materials per graph
- Hovering cursor to show X and Y values of each data point
- Unit conversion package
  - Contains both English and SI units
  - Shows all typically used units for the variables
  - Allows both X-axis and Y-axis selection



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Materials Cross Index

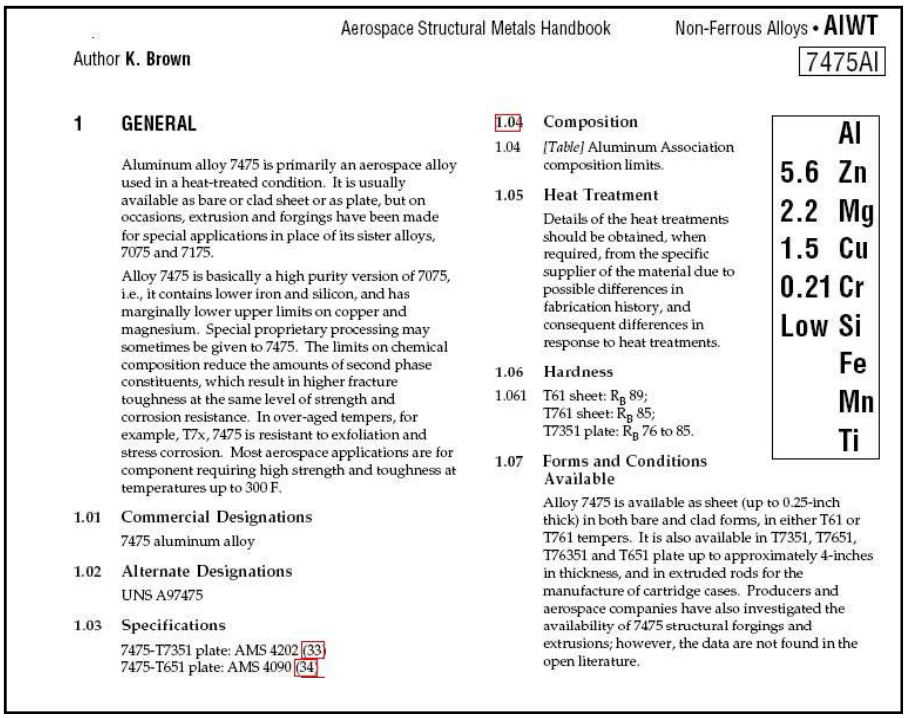
The materials cross index contains the commercial and alternative designations for all the metal alloys in the database. This feature can be used to find the correct metal alloy when only the trade name or commercial designation is available.

On-line Handbook

The Aerospace Structural Metals Database includes an interactive on-line version of the printed handbook. The on-line PDF handbook supplements the ASMD by providing additional information about the metal alloys.

- General Overview
- Commercial Designations
- Alternative Designations
- Metal Specifications
- Composition
- Heat Treatment
- Forms & Conditions
- Melting & Casting
- Fabrication
- Metal Treatments

And many others...



Aerospace Structural Metals Handbook Non-Ferrous Alloys • AlWT

Author **K. Brown** 7475Al

1 GENERAL

Aluminum alloy 7475 is primarily an aerospace alloy used in a heat-treated condition. It is usually available as bare or clad sheet or as plate, but on occasions, extrusion and forgings have been made for special applications in place of its sister alloys, 7075 and 7175.

Alloy 7475 is basically a high purity version of 7075, i.e., it contains lower iron and silicon, and has marginally lower upper limits on copper and magnesium. Special proprietary processing may sometimes be given to 7475. The limits on chemical composition reduce the amounts of second phase constituents, which result in higher fracture toughness at the same level of strength and corrosion resistance. In over-aged tempers, for example, T7x, 7475 is resistant to exfoliation and stress corrosion. Most aerospace applications are for component requiring high strength and toughness at temperatures up to 300 F.

1.01 Commercial Designations

7475 aluminum alloy

1.02 Alternate Designations

UNS A97475

1.03 Specifications

7475-T7351 plate: AMS 4202 (33)
7475-T651 plate: AMS 4090 (34)

1.04 Composition

1.04 *[Table]* Aluminum Association composition limits.

1.05 Heat Treatment

Details of the heat treatments should be obtained, when required, from the specific supplier of the material due to possible differences in fabrication history, and consequent differences in response to heat treatments.

1.06 Hardness

1.061 T61 sheet: R_B 89;
T761 sheet: R_B 85;
T7351 plate: R_B 76 to 85.

1.07 Forms and Conditions Available

Alloy 7475 is available as sheet (up to 0.25-inch thick) in both bare and clad forms, in either T61 or T761 tempers. It is also available in T7351, T7651, T76351 and T651 plate up to approximately 4-inches in thickness, and in extruded rods for the manufacture of cartridge cases. Producers and aerospace companies have also investigated the availability of 7475 structural forgings and extrusions; however, the data are not found in the open literature.

	Al
5.6	Zn
2.2	Mg
1.5	Cu
0.21	Cr
Low	Si
	Fe
	Mn
	Ti

We Are Confident in Our Products

The ASMD is quick, efficient, and frequently updated, and is currently used by a growing list of universities, corporations and research facilities. Please visit www.cindasdata.com for a demo.

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