# Granta Materials Data

Materials experts, designers, engineers and simulation experts need top quality up-to-date technical, environmental and economic properties of materials – metals, plastics, composites, ceramics and more.

Such data informs critical decisions in design and materials selection and substitution. Additionally, it helps meet environmental and restricted substance regulations. Ansys Granta collaborates with leading data providers to maintain an unrivaled, diverse catalog of materials reference data, combined with flexible materials selection and data management software.

## Key Benefits of Granta Materials Data:

- **Use one trusted source** for materials property and process data on the full range of engineering materials, compiled by leading experts.

- **Utilize a broad coverage** of engineering materials (metals, plastics, composites, etc.) and processes.

- **Obtain data when and where you need it:** Access it through a web browser (see Figure 1), on your PC desktop, or within your familiar CAD, CAE or PLM software (see Figure 2 & 3).

- **Export key material property data** to the Ansys suite of simulation systems including Workbench, Mechanical, Fluent, Discovery, Electronics Desktop, Sherlock and Motor-CAD"

- **Supplement in-house materials data** with Granta Materials data.

- **Achieve speed and scalability** with fast access to the data you need for individuals and across teams, departments and enterprises.

- **Access the latest data** with regular updates.

- **Unlock your data's potential** with features available only with Ansys Granta software tools (see Figure 3).

## A Comprehensive Library to Choose From

Our **Core Materials Data** is included as standard in our **Granta MI™** and **Granta Selector** products. This includes our unique **MaterialUniverse™** as well as temperature-dependent curve data from **JAHM Software**.

The **Advanced Materials Data** can be purchased with **Granta MI™** and **Granta Selector™**. These include material data for: Metals, Polymers, Composites, Aero, Additive Manufacturing, Medical and Eco Design.

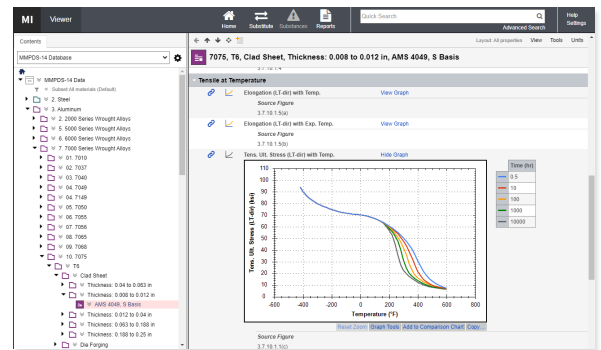*See next pages for detailed Material Data listing.*



Figure 1. Data in Ansys Granta MI™ can be searched, browsed and applied via web apps.
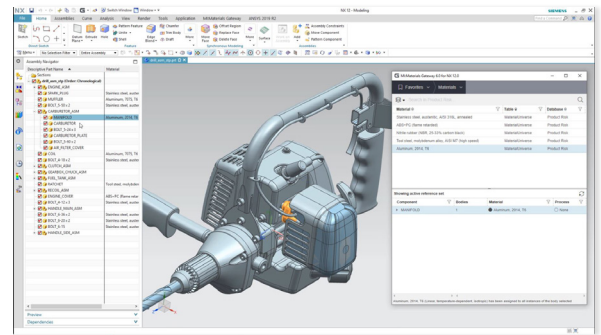


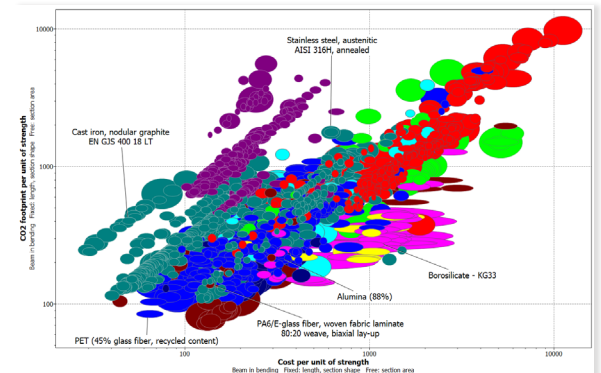Figure 2. Allocate data directly within your CAD, CAE or PLM systems.



Figure 3. Leverage powerful tools to choose the right materials with Granta Selector.

# Ansys Granta Materials Data Listing

This following listing details all available data sets in both Core and Advanced Materials Data. Core Data is included in Granta Selector™ and Granta MI™.

Some Advanced Materials Data is only available in Granta MI™.

| Data Offering | Included Data | Description and how to purchase |
|---|---|---|
| *Core Data* | **MaterialUniverse™** | Complete and comparable data for over **4,000** commercially available engineering materials. Each datasheet represents the technical, economic and environmental performance of the generic material type, with links to datasheets for individual grades and designations in the advanced data modules. Included as standard in all Granta MI and Selector products. |
| | **JAHM** | Provides temperature-dependent curve data for over **11,500** metals, ceramics, polymers, composites, elements and functional materials. Includes mechanical, thermal, physical, electrical, fatigue, creep, stress-strain and magnetic properties for a range or physical states and temperatures. Included as standard in all Granta MI and Selector products. |
| *Advanced Materials Data - Metals* | **Global Metals Specifications** | Compilation of over **100,000** metal standards and specifications from four unique collections: ASM Alloy Finder, MI-21, StahlDat SX and SteelSpec. Covers over **40** countries and international bodies and includes composition, processing, classification and mechanical/thermal/electrical properties. |
| | **ASME Boiler and Pressure Vessel Code II-D** | Provides rules for the design, fabrication and inspection of boilers and pressure vessels with over **4,000** datasheets covering temperature dependent performance. |
| | **Powder Metallurgy** | Information on over **550** ferrous and non-ferrous powder forged and metal injection molded (MIM) grades used in bearings (self-lubricating) and structural applications. |
| | **StahlDat Sheet Steels** | Mechanical and processing information on **36+** grades of sheet steels that are commonly used in the automotive and manufacturing industries. |
| | **NIMS Creep & Fatigue** | Fully accessible raw metals data on creep and fatigue performance of ferrous and non-ferrous alloys from Japan's National Institute for Material Science (NIMS). **Available in Granta MI™ ONLY.** |
| *Advanced Materials Data - Polymers* | **Global Polymers Plastics** | A global library of plastic and elastomer datasheets including **100,000+** datasheets from over **900** manufacturers and specialty compounders. Provides information on performance, uses, key features, agency ratings and global availability. |
| | **Global Polymers Additives** | Key attributes and physical properties for over **15,000** additive, filler and masterbatch products for polymers/plastics. |

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| *Advanced Materials Data - Composites* | **MIL-Handbook-17** | An authoritative source of composite test data. Contains over **1,000** datasheets for polymer matrix, metal matrix and ceramic matrix composites. |
| | **Firehole Composites** | Data on over **400** grades of continuous fiber reinforced polymer. Includes composition, processing, mechanical and thermal properties, regional availability and data rating. |
| | **Composites QED** | Traceable composite data from the NCAMP and AGATE projects to support qualification, equivalency and design. **Available in Granta MI™ only.** |
| *Advanced Materials Data - Aero* | **MMPDS** | The preeminent source for aerospace component design allowables relating to alloys and fasteners. Contains **2,600+** records of design data for aerospace alloys and a complete fastener database, comprising over **425** sheet metal/fastener combinations. |
| | **Coatings** | Covers over **140** different types of coatings used in the aerospace and defense industries with information on properties, applications and substitutes. |
| *Advanced Materials Data - Additive Manufacturing* | **Senvol Database™** | The most comprehensive source of data on industrial additive manufacturing (AM) machines and materials, containing supplier information on **1,480+** industrial machines and over **3,000+** compatible materials. |
| *Advanced Materials Data - Medical* | **ASM Medical Materials** | Authoritative data on materials for cardiovascular, orthopedic, neurological, surgical, ENT, urological devices, etc. |
| | **Human Biological Materials** | Mechanical properties of human tissues, including bone, cartilage, ligaments, tendons, circulatory and dental tissues. **Available in Granta MI™ ONLY.** |
| *Advanced Materials Data - Eco* | **ecoinvent database – key indicators** | Contains over **19,000** records on environmental impact classified by activity type with associated geographic location data - materials, processes, fuels, infrastructure, waste, water and more. Includes four key materials indicators - cumulative energy demand, global warming potential ($CO_2$), water consumption and abiotic depletion potential. |
| *Advanced Materials Data - ESDU* | **ESDU MMDH** | The preeminent European source of design strength data for aerospace alloys. Provides statistically derived design values on all major structural metallic used in aerospace applications. Includes over **2,600** datasheets, covering nearly **600** materials in various forms, thicknesses and statistical basis. |
| *Advanced Materials Data - Electromagnetics* | **Electromagnetic materials** | Information on **1,500+** grades of material for low and high frequency applications: printed circuit board materials, soft magnetic alloys, permanent magnets and electromagnetic shielding/absorbing materials. Includes frequency-dependent and magnetic response data. |