

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** by accessing it through a web browser (see Figure 1), on your PC, or within your familiar CAD, CAE, or PLM software (see Figures 2 and 3).
- **Export key material property data** to 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, aerospace materials, electromagnetic materials, medical materials, and more.

See the next pages for the detailed Materials Data listing.

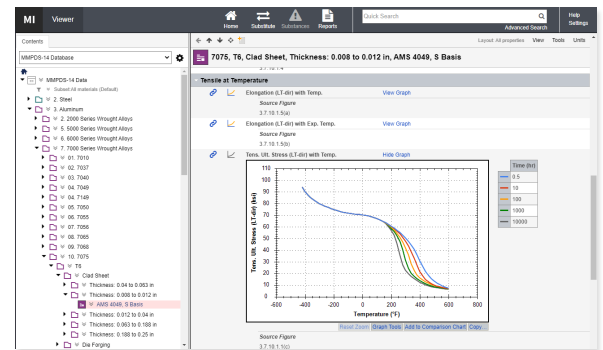


Figure 1. Data in Ansys Granta MI™ can be searched, browsed and, applied via web apps.

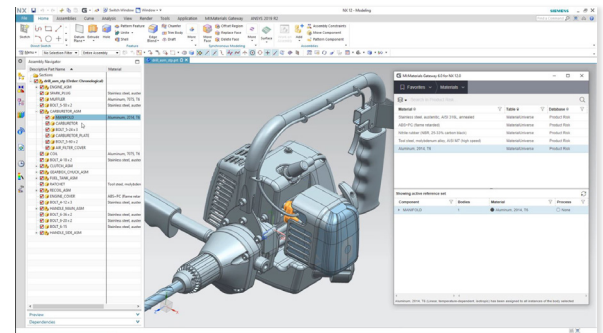


Figure 2. Allocate data directly within your CAD, CAE or PLM systems.

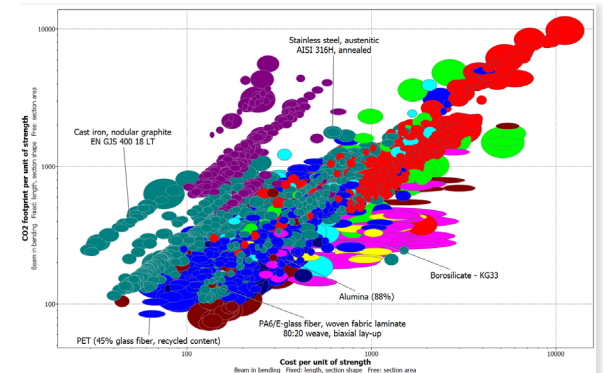


Figure 3. Leverage powerful tools to choose the right materials with Granta Selector.

/ Ansys Granta Materials Data Listing

This following listing details all available datasets 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 more than 14,500 metals, ceramics, polymers, composites, elements, and functional materials. Includes mechanical, thermal, physical, electrical, fatigue, creep, stress-strain, and magnetic properties for a range of physical states and temperatures. Included as standard in all Granta MI and Selector products.
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 1,800+ industrial machines and more than 4,200+ compatible materials.
	Advanced Material Data	Test data on commercially additively manufactured nickel-based and titanium-based alloys - tensile, physical, creep, fatigue and fracture data plus general process and feedstock information. Presented in combination with the machine used for additive manufacturing.
Advanced Materials Data — Aerospace	Metallic Materials Property Development and Standardization	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 more than 425 sheet metal/fastener combinations.
	Coatings	Covers more than 140 different types of coatings used in the aerospace and defense industries, with information on properties, applications, and substitutes.
Advanced Materials Data — Composites	MIL-Handbook-17	An authoritative source of composite test data. Contains more than 1,000 datasheets for polymer matrix, metal matrix, and ceramic matrix composites.
	Firehole Composites	Data on more than 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 only in Granta MI™.
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.

<i>Advanced Materials Data — Electromagnetics</i>	Electromagnetic Materials	Over 9,400 records covering 1,900+ materials 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.
<i>Advanced Materials Data — ESDU</i>	ESDU Metallic Materials Data Handbook	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 more than 3,000 datasheets covering nearly 600 materials in various forms, thicknesses, and statistical basis.
<i>Advanced Materials Data – High Temperature Alloys</i>	High Temperature Alloy Data	Detailed and in-depth temperature-dependent data on 70+ different alloys, including stainless steels, superalloys and cast irons, using GE licensed materials data. Curve data is provided for a variety of properties relevant to simulation including thermal performance, stress/strain, low-cycle fatigue, high-cycle fatigue and creep.
<i>Advanced Materials Data — Medical</i>	ASM Medical Materials	Authoritative data on materials for cardiovascular, orthopedic, neurological, surgical, otolaryngological, and urological devices.
	Human Biological Materials	Mechanical properties of human tissues, including bone, cartilage, ligaments, tendons, circulatory, and dental. Available only in Granta MI.
<i>Advanced Materials Data — Metals</i>	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 more than 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 more than 4,000 datasheets covering temperature-dependent performance.
	Powder Metallurgy	Information on over 550 ferrous and nonferrous 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 and Fatigue	Fully accessible raw metals data on creep and fatigue performance of ferrous and nonferrous alloys from Japan's National Institute for Material Science (NIMS). Available only in Granta MI.
<i>Advanced Materials Data — Polymers</i>	Global Polymers, Plastics	A global library of 107,000+ plastic and elastomer datasheets, including datasheets from manufacturers and specialty compounders. Provides information on performance, uses, key features, agency ratings, and global availability as well as simulation-ready data.
	Global Polymers, Additives	Key attributes and physical properties for more than 15,000 additive, Filler, and masterbatch products for polymers/plastics.

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