



GRANTA SELECTOR

Release Notes

2022 R1

/ New: Electromagnetic Materials data table >>

Our new *Ansys Granta Advanced Materials – Electromagnetics* bundle in Granta Selector provides key properties for 1500+ grades of material for low and high frequency electromagnetic applications. Includes printed circuit board materials (prepreg, core and laminate), soft magnetic alloys, permanent magnets and EM shielding/absorbing materials.

/ Updated and simulation-ready data for polymeric materials >>

Global Polymers data has been updated to include the latest polymers information in the *Ansys Granta Advanced Materials – Polymers* data bundle, both plastics and additives. Several enhancements have been made to better support use of the data in simulation and make it more accessible to the user.

/ The latest data for sustainability, additive manufacturing and more >>

Access the latest data covering technical, environmental and economic materials performance. Upgrades include further updates to core data (particularly environmental performance and price data) and the *Ansys Granta Advanced Materials – Additive Manufacturing* data bundle.

What's new?

1 Electromagnetic Materials

1.1 New: Electromagnetic Materials data table

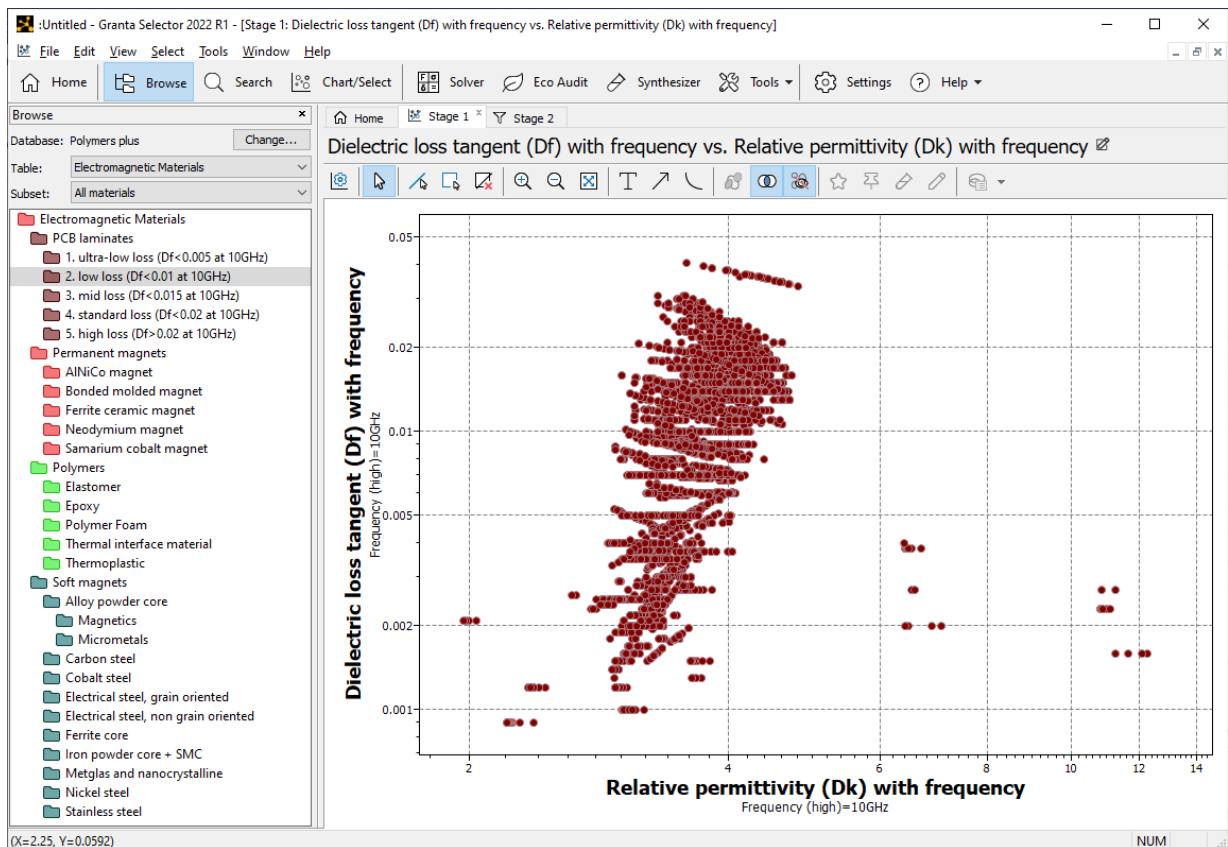
Electromagnetic Materials is part of the Ansys Granta Advanced Materials – Electromagnetics data bundle

This first release of the Electromagnetic Materials data table includes the following classes of material:

- Printed circuit board (PCB) materials – prepreg, and core – 5200+ records.
- Soft magnetic alloys – 650+ records
- Permanent magnets – 1300+ records
- EM shielding/absorbing materials – 60+ records

Attributes populated for a particular material will depend on both the manufacturer and on the material type, however a typical material may include the following information and/or curve data.

- General information – manufacturer, grade
- Resin type, IPC Slash Sheet, Thickness (PCB materials only)
- Density (Magnets only)
- Mechanical properties
- Thermal properties – maximum service temperature, glass transition temperature, thermal expansion coefficient (PCB materials only)
- Electrical conductivity/resistivity (Magnets only)
- Frequency-dependent properties – Dielectric loss tangent with frequency, Df and relative permittivity with frequency, Dk (non-magnets only)
- Magnetic properties – coercivity, remanence, B-H curve and core loss
- Durability – time to decomposition at 260°C and 288°C, water absorption and CAF resistance (PCB materials only)

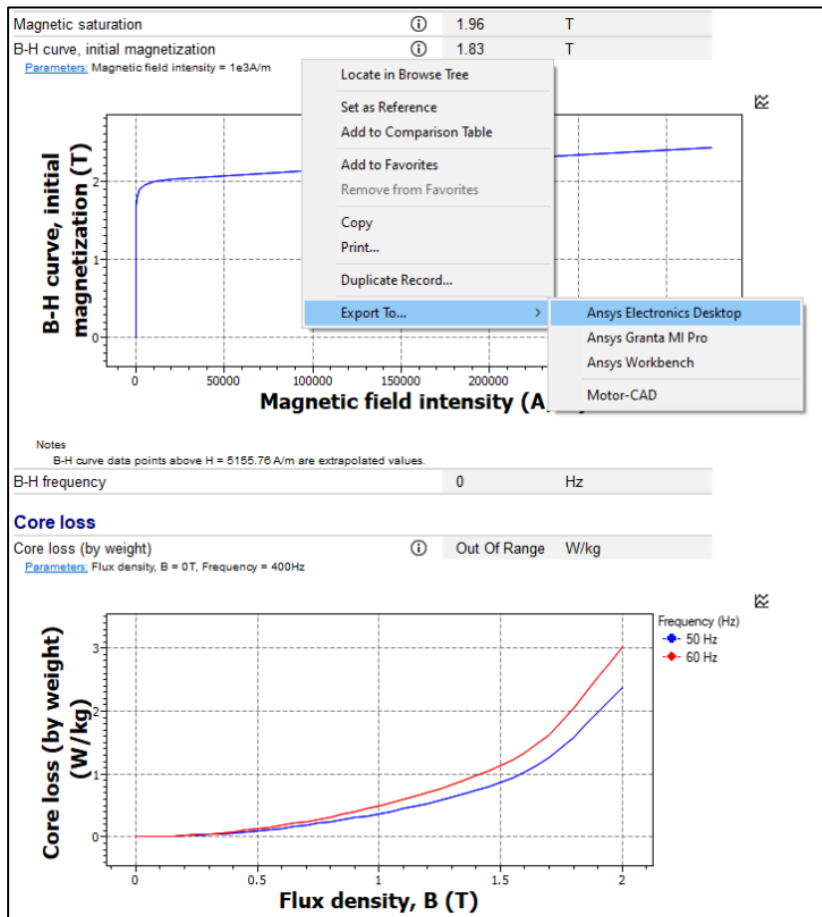


Benefits:

- Find and view information on specific grades of PCB, magnet and EM-absorbing material
- Identify, compare and select PCB material grades for your application based on resin type, thermal performance, frequency-dependent performance and durability.
- Identify, compare and select magnetic materials for key applications based on magnetic, mechanical and electrical properties.

1.2 New and updated exporters

Key technical properties from the Electromagnetic materials data table may now be exported for further design and simulation in compatible products and solvers such as Ansys HFSS, Ansys Maxwell and Ansys Mechanical.



The following exporters have been updated:

- Ansys Workbench
- Ansys Granta MI Pro

The following new exporters are included:

- Ansys Electronics Desktop
- MotorCAD

Benefits:

- Use relevant technical property data for electromagnetic materials in Ansys electromagnetic, thermal and mechanical simulations.

2 Simulation-ready data for polymeric materials

2.1 Global Polymers - Plastics

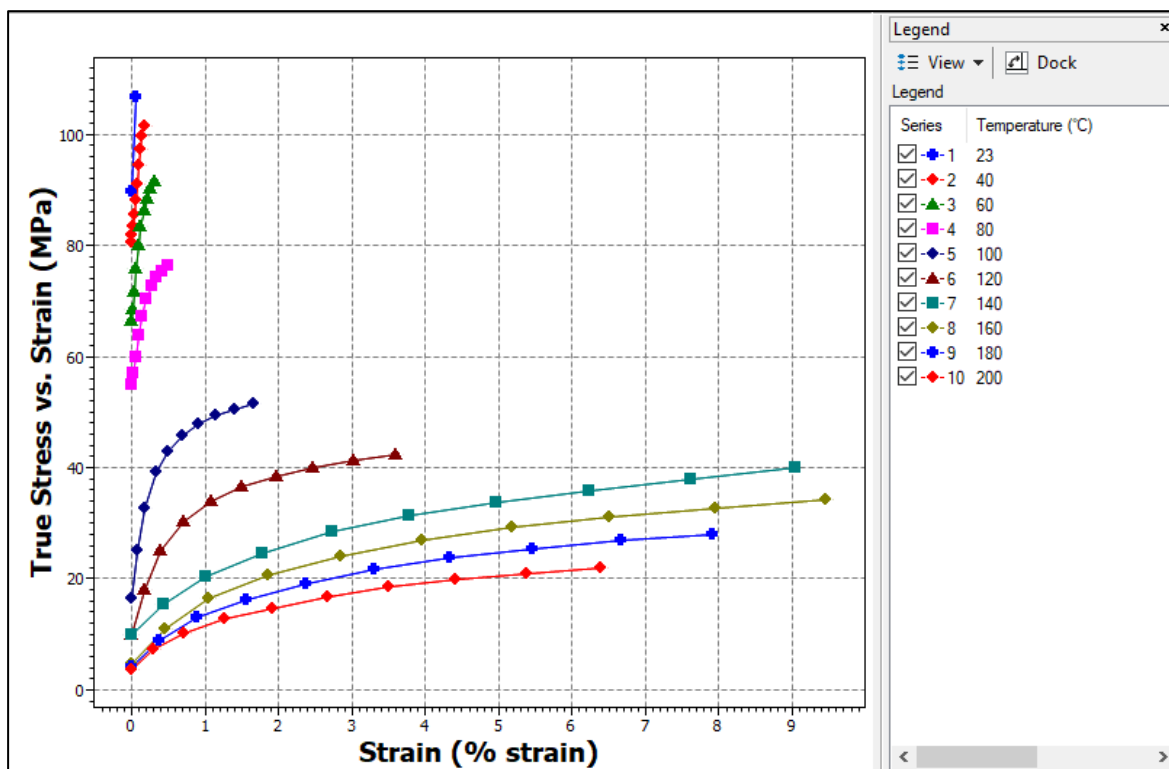
Global Polymers Plastics is part of the Ansys Granta Advanced Materials – Polymers data bundle

Data has now been updated to include the latest data and addition of new plastics datasheets from UL Prospector, bringing the total number to over 105,000 manufacturer datasheets

The *Global Polymers – Plastics* data table has also been enhanced to better support use of the data in simulation. Both the original data and ‘simulation-ready’ data is presented, where the simulation-ready data has undergone transforms to ensure it can be used in FEA material models. Previously, some of these transforms were done during the export process.

Simulation-ready data exists for:

- True stress – plastic strain transformed from tensile stress vs. strain – over 7300 curves now available across over 1500 records.
- Creep Model Parameters from a creep model applied to tensile creep test data



A new Subset called *Nonlinear simulation* enables users to find records that have simulation-ready attributes populated easily. A corresponding Layout called *Simulation properties* allows simulation-ready attributes to be easily found on datasheets, and as part of these changes, curve data attributes have been moved on the datasheet to sit alongside relevant point data values.

Several new grades of plastic have been added from Mocom (formerly Albis)

- 11 grades for ABS+PC, PA6, PA66, PP+EPDM, PP and PPS
- Non-linear data for the following has been added:
 - Tensile stress vs. strain
 - Tensile modulus vs. temperature
 - Specific heat capacity vs. temperature
 - Thermal expansion coefficient vs. temperature
 - Thermal conductivity vs. temperature

Benefits:

- Use the latest data to compare and select plastics grades from different producers
- Find alternative polymer grades based on property profile, using the 'Find Similar' tool
- Identify plastic grades based on application, key features, performance, agency ratings, regional availability...
- Export key technical linear and non-linear properties for simulation

2.2 Global Polymers - Additives

Global Polymers Additives is part of the Ansys Granta Advanced Materials – Polymers data bundle

Data has now been updated to include the latest data and new additives datasheets from UL Prospector. The *Global Polymers – Additives* table now includes over 15,600 additive datasheets

Benefits:

- Use the most up to date information to identify additives with the right characteristics for your polymers, select the correct additives for use in polymer blends and obtain compatibility information on additives.

3 Latest data and software updates

3.1 MaterialUniverse

MaterialUniverse is part of the Core Materials bundle (always available with Ansys Granta Selector)

The following updates and improvements have been made for this release:

- Updated Embodied Energy and CO2 Footprint with ecoinvent 3.7.1
An extensive update of the embodied energy and CO2 footprint data has been performed incorporating the latest values from version 3.7.1 of ecoinvent. The impacted attributes are:
 - Embodied energy, primary production (virgin grade)

- CO2 footprint, primary production (virgin grade)
- Embodied energy, primary production (typical grade)
- CO2 footprint, primary production (typical grade)
- Updated Material prices
 - New prices are available for all 4,000+ materials in *MaterialUniverse*. These have been generated using a price model, based on data from the world commodity markets.
- Links to Electromagnetic Materials database
 - Magnets, FR-4 epoxy/glass fiber PCB and polyimide PCB materials in *MaterialUniverse* are linked to specific grades in the new *Electromagnetic Materials* table.

Benefits:

- Access the latest version of this unique dataset that covers technical, economic, and environmental properties for over 4,000 materials.
- Up to date price and environmental data enabling better selection for sustainability, economy and use with Eco Audit functionality.

3.2 Senvol

Senvol is part of the Ansys Granta Advanced Materials – Additive Manufacturing data bundle

This updated version of Senvol Database™ includes:

- Data added for 206 new materials processed by additive manufacturing – increasing the dataset to over 3400 AM materials. Updates to existing AM materials, including 3 being discontinued.
- Data added for 114 new industrial AM machines – increasing the dataset to over 1600 AM machines. Updates to existing machines, including 8 being discontinued.

Benefits:

- Access the latest data on materials and industrial machines in the rapidly developing field of additive manufacturing.
- Compare performance between materials produced by additive manufacturing and by conventional technology.
- Quickly search, identify and compare additive manufactured material grades based on their general material type (e.g. Titanium alloy Ti-6Al-4V)
- Differentiate between true grades and grades with similar characteristics. (e.g. ABS vs ABS-like)

3.3 Other

- The 'PMP-HDBK Design Data' and 'PMP-HDBK Graphical Data' tables are no longer included in the *Ansys Granta Advanced Materials – Aero* data bundle in Granta Selector 2022 R1.
- The Granta Constructor software package has reached end-of-life and is no longer available or included in Granta Selector 2022 R1 downloads. Databases created or edited in Granta Constructor are no longer supported.

Feedback

We welcome your feedback on any improvements you would like to see in the *Granta Selector* system, its data, or documentation.

Please send us your suggestions at [ansys.com](https://www.ansys.com) or email support@grantadesign.com.

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