GRANTA SELECTOR

Release Notes

2022 R2

/ Eco Audit projects with custom materials and processes ››

Carry out enhanced environmental assessment of your products, components and systems by including environmental data on the energy consumption and carbon footprint of your own custom materials or your own custom manufacturing and machining processes.

/ Updated and simulation-ready specialist data ››

Access the latest key environmental indicators in the ecoinvent database, the latest versions of MMPDS, JAHM Curve Data and ASME BPVC, and expanded coverage in several other key databases in *Granta Selector*.

/ More options for material selection ››

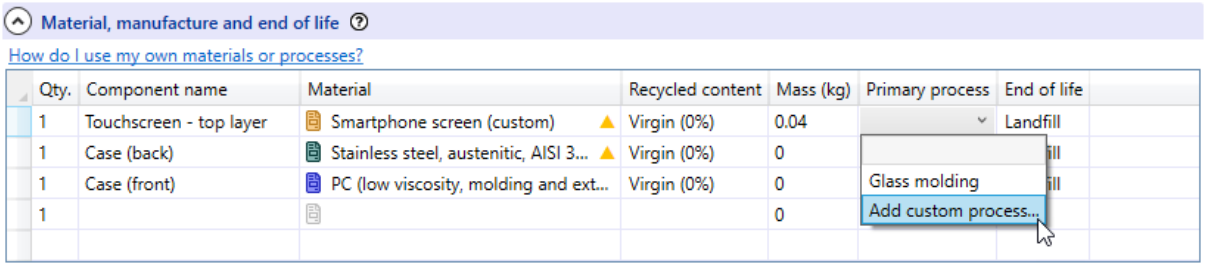
Discover new options for intelligent material selection – define your own material family envelopes for selection charts, use AND/OR logic in Limit Stages and utilize our improved integration with Ansys Workbench.

1 What's new?

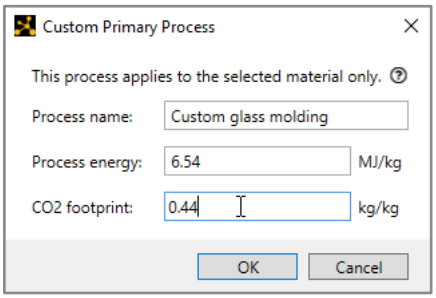
1.1 Add custom materials and processes to Eco Audit projects

1.1.1 Include user-defined materials in Eco Audit products

Compare the footprint of specific grades or quantify the ecological impact of a material in development by adding user-defined records to a product in Eco Audit.



1.1.2 Add custom processes to Eco Audit projects



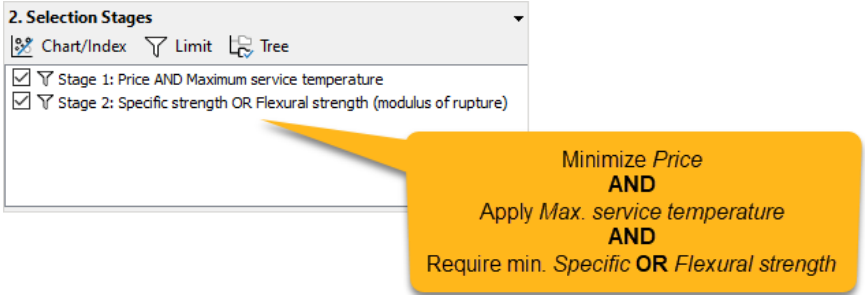
You can now add custom processes to Eco Audit, for example in-house processes for more accurate estimates of energy usage and CO_2 footprint, or new processes to accompany user-defined materials.

Custom processes are added to the Eco Audit product itself and can only be assigned to the material you created them for.

1.2 More materials selection and reporting options

1.2.1 Use OR logic in Limit Stages

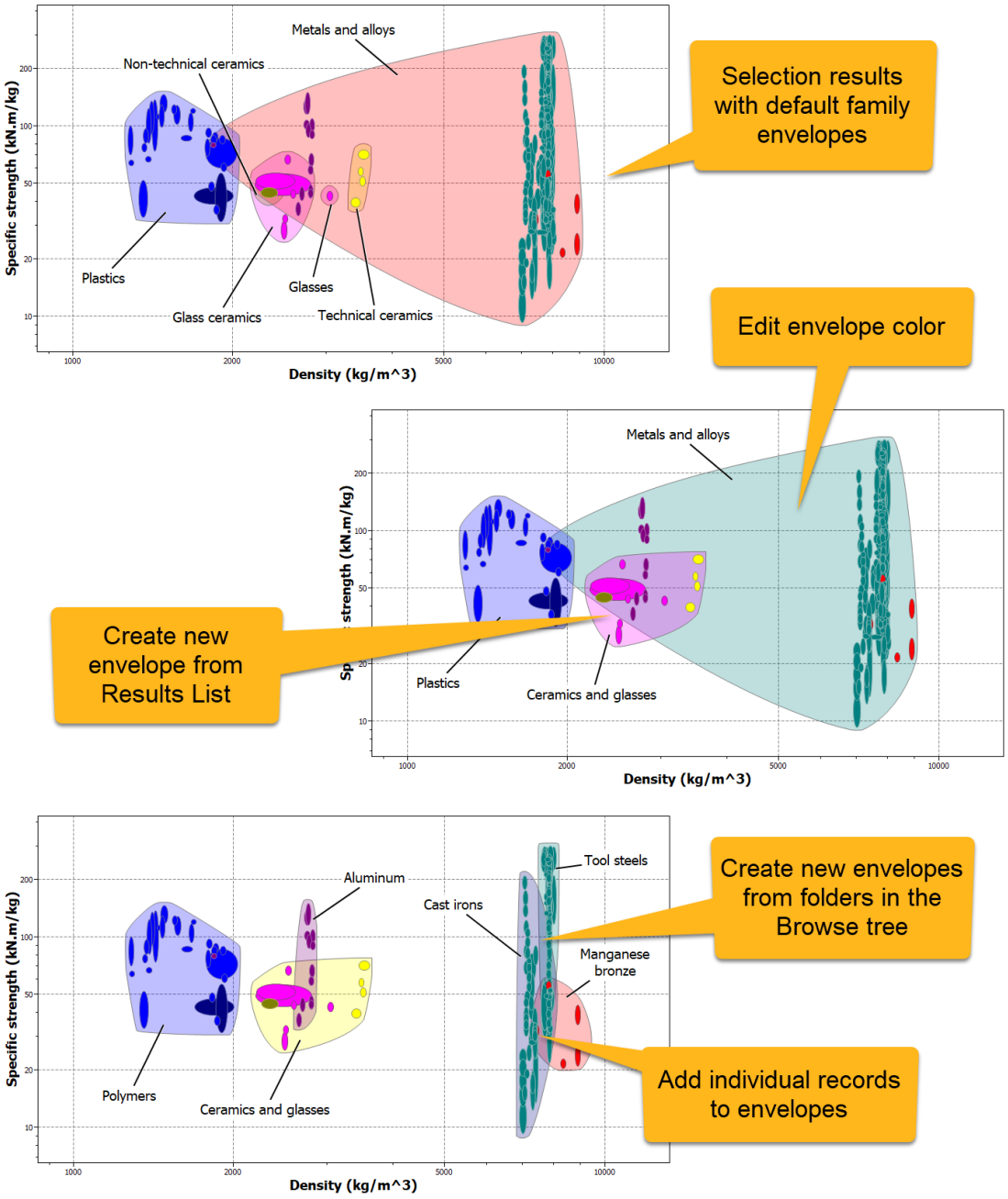
Apply selection criteria with more flexibility using Limit Stage "OR" logic. Previously, each Limit Stage applied all criteria, but now you can choose to select on at least one of a set of criteria. Logic between limit stages is still "AND" logic – all enabled Limit Stages are always applied.



1.2.2 Customize material family envelopes in Chart Stages

Material family envelopes in Chart Stages can now be created and edited, allowing for more personalised data visualization and reporting. New options include:

- Show or hide individual envelopes on charts
- Change envelope display colors
- Add or remove individual records from envelopes
- Create new envelopes from folders in the Browse tree or a Results List of candidate materials
- Manage and customize envelopes for each data table independently



1.2.3 Updates to *Ansys Workbench* integration

In *Ansys Workbench*, Engineering Data provided by *Granta Selector* now connects directly to the Engineering Data of other components, making it even easier to integrate materials data into your simulation workflow.

1.2.4 More properties calculated by the Synthesizer multi-layer model

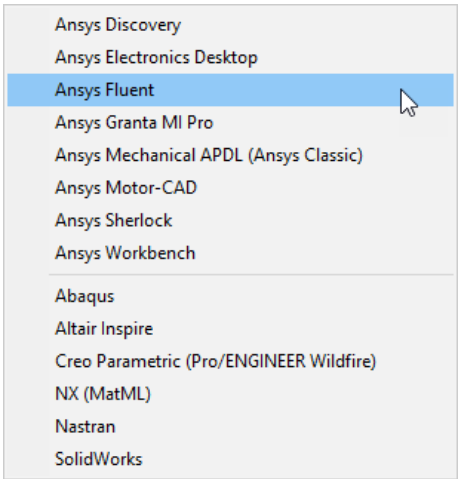
All multi-layer material models (2, 3, 4, 5, 6 and 7-layer) now calculate through-thickness *Permeability (CO2)* and *Permeability (N2)* where that data exists in source records, in addition to *Permeability (O2).*

1.3 Stay simulation-ready with specialist data

1.3.1 New and updated material card exporters

Quickly and accurately export data to:

- **Ansys Fluent** from *MaterialUniverse* and *JAHM Curve Data*
- **Ansys Sherlock** from *MaterialUniverse* and *Electromagnetic Materials*
- **Ansys Electronics Desktop** from *MaterialUniverse* and *JAHM Curve Data*



1.3.2 Latest versions of specialist materials databases

ecoinvent database – key indicators

Part of the Advanced Materials – Eco data bundle

The *ecoinvent database – key indicators* table contains information on four key environmental indicators and associated data from version 3.8 of the *ecoinvent* database. Highlights include:

- More than 18,000 new records covering over a dozen sectors, from farming and fishing to energy and infrastructure.
- Records are associated with geographic locations (country, region and/or province or state).
- Records are classified by different activity types, which have different definitions of environmental indicator:
    - **Transforming** activity includes all input data for making a product, excluding transport processes.
    - **Market activity** includes production and transport inputs, representing the average consumption mix of a product in a geographical area.
    - **Production mix** averages the inputs of the suppliers of a specific product within a geographical area.
- Attributes and datasheet layout have been reviewed for usability and transparency.

JAHM Curve Data

Part of the Core Materials data (always available in Granta Selector)

The latest data for the JAHM Curve Data database is now available. Highlights include:

- 11,627 materials covered (up from 8,500):
    - Circuit boards and antenna substrates (336 new records)
    - Metals (803 new records)
    - Polymers (1182 new records)
    - Many oxides, silicates and electro-ceramics
- New attributes added:
    - Dielectric constant vs frequency
    - Dissipation factor vs frequency
    - Core Loss vs flux density
    - Creep modulus
    - Specific volume
    - Equivalence attributes:
        - ASTM
        - AMS
        - AISI

- Improved coverage for existing attributes:
    - Tensile Engineering Stress vs Strain
    - Compression Engineering Stress vs Strain
    - Thermal Expansion
    - Extra granularity in *Export analysis type*: Creep, Elastic, Electrical, Fatigue, High-frequency electrical, Magnetic, Simple failure, Steady-state thermal, Stress-strain, Thermal, Thermomechanical, Transient thermal, Weight.

MMPDS-16

Part of the Advanced Materials – Aerospace data bundle

The latest version of the Metallic Materials Properties Development & Standardization (MMPDS) Handbook. MMPDS-16 includes:

- One new aluminum alloy, 2297 T87 (12 records).
- Two new tempers for 7160 aluminum alloy, T7351 and T7451 (24 records).
- Increased granularity of data for 2219 aluminum alloy.
- New fatigue data for A206 cast aluminum alloy.
- New and updated thermal, strength and moduli data across the database.
- Changes to low alloy steel folders and records, to match changes in Handbook chapter structure.

ASME BPVC 2021 Edition

Part of the Advanced Materials – Metals data bundle

The 2021 edition of the Boiler and Pressure Vessel Code II-D consists of nearly 5,000 records. Changes since the 2019 edition include:

- Two new materials:
    - Nickel alloy N08354
    - High alloy steel S32053
- Around 300 new records for different forms or thicknesses of existing materials.
- Updated data for around 400 graphs of:
    - Tensile strength vs temperature
    - Yield strength vs temperature
    - Other properties including design stress intensity or maximum allowable stress

1.3.3 Additional data updates

MaterialUniverse

Part of the Core Materials data (always available in Granta Selector)

Updates this release focus on improved coverage of materials used in automotive, aerospace and high-technology applications, and greater support for non-linear simulation of polymers:

- **53 new records** added, including:
  - Filled polymers suitable for metal replacement (35 records)
  - PLA variants for packaging and additive manufacturing applications (4 records)
  - Additional Neodymium magnets (8 records)
  - New FR 4.1 PCB laminates (6 records)
- **True plastic stress-strain data** added to 40 polymer records; some of these records have also had mechanical and thermal temperature-dependent curves added.
- **Typical uses data** updated for over 900 records
- **Tradenames data** updated for over 1700 records

Electromagnetic Materials

Part of the Advanced Materials – Electromagnetics data bundle

Highlights include:

- New iron powder core + SMC materials added (28 records)
- New bonded molded magnet materials added (5 records)
- Increased data coverage for properties including:
  - Density
  - Mechanical properties with estimations
  - Thermal properties with estimations
- Manufacturer is now a discrete attribute, to improve searching

Global Polymers - Plastics

Part of the Advanced Materials – Polymers data bundle

Five new records added, with non-linear data:

- Four grades of Polyethylenimine (PEI)
  - ULTEM™ Resin 1000
  - ULTEM™ Resin 1010
  - ULTEM™ Resin 2300
  - ULTEM™ Resin 9085
- Polyamide 9T (PA9T) Genestar™ G1300A-M41

2 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 or email granta-support@ansys.com.

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