GRANTA SELECTOR

Release Notes

2021 R2

/ Easily incorporate materials selection and simulation with Ansys ››

Export key materials performance data into *Ansys Discovery*, enabling early-stage design, simulation and exploration of new component designs. Our *Ansys Workbench* exporter has also been updated to support improved curve data export and compatibility with *LS-Dyna*.

/ The latest data for aerospace and beyond ››

Access the latest data covering technical, environmental and economic materials performance. Upgrades include significant updates to core data, particularly environmental performance and the *Advanced Materials – Aero* and *Advanced Materials – Medical* data bundles.

/ Improved battery module selection ››

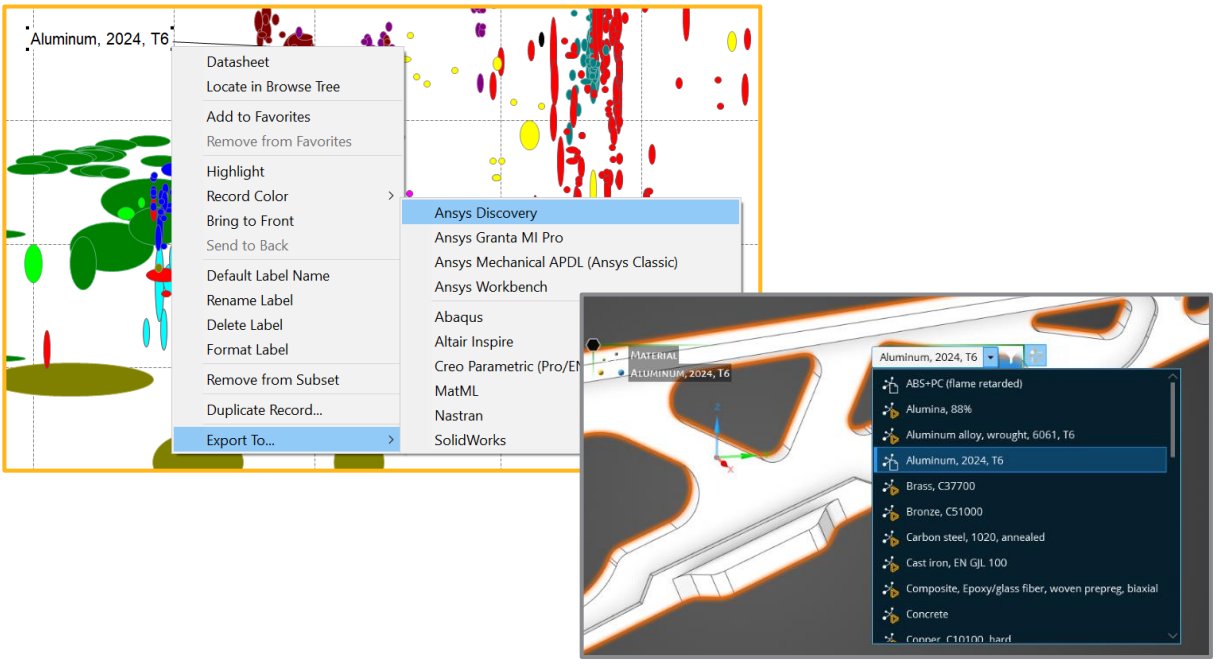
More attributes are now available for selection for Modules and Packs created using the Battery Designer tool, and more Design Notes have been added to the accompanying Battery Cells data table.

1 Detailed Descriptions

1.1 Incorporate materials into your simulations with Ansys

1.1.1 New exporter for *Ansys Discovery*

Ansys Granta Selector users can now export key materials properties into *Ansys Discovery*. Exported materials cards can easily be added to your Local and Shared libraries, and are then accessible via *Discovery*'s list of available materials for all simulation projects.

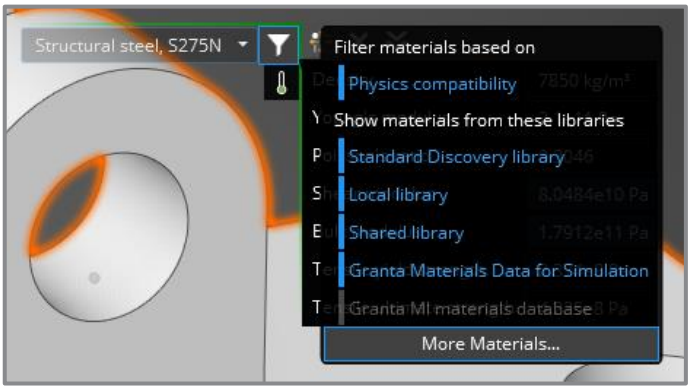


Benefits:

- Intelligently choose suitable materials for an application based on technical, environmental and economic requirements and explore the performance of these materials in *Ansys Discovery*
- Access to key performance data for all *MaterialUniverse* records in *Ansys Discovery*

1.1.2 Launch *Granta Selector* from within *Ansys Discovery*

Facilitate a natural workflow for materials selection within design projects and launch *Granta Selector* from within *Ansys Discovery* using the **More Materials** button.

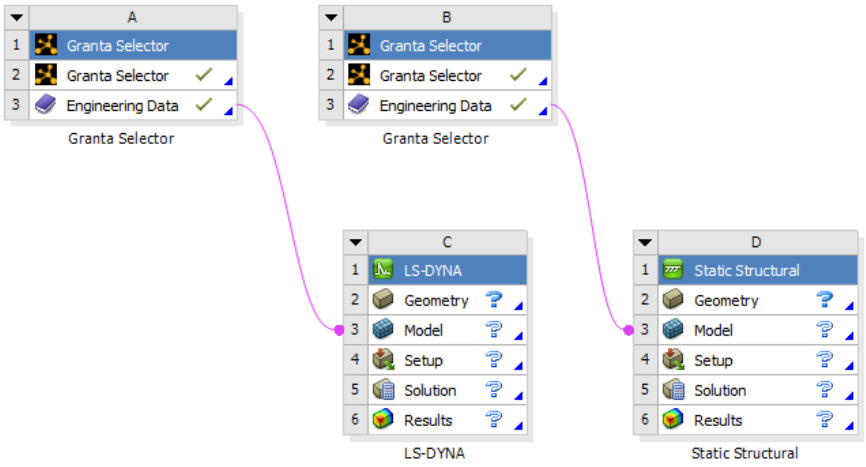


Benefits:

- User-friendly link between *Ansys Discovery* and *Ansys Granta Selector* allows you to easily carry out materials selection based on early-stage simulation results, or try out new materials.

1.1.3 Improved data export for *Ansys Workbench* and *LS-Dyna*

Granta Selector can now export relevant simulation-ready data directly into the *LS-Dyna* Engineering Data component in *Ansys Workbench*. There are also minor updates to export of temperature-dependent curve data from attributes that contain multiple temperature-dependent curves.



Benefits:

- Select, compare and export the right data to support simulation through *Ansys Workbench* – connect to *Ansys Mechanical*, *LS-Dyna* and more.

1.2 Improvements to the Battery Designer tool

1.2.1 More Module and Pack attributes available in Selection Stages

The Battery Designer tool and the datasheets it produces have been enhanced. Synthesized multi-cell battery modules and packs have several calculated attributes that are now fully selectable, for easier comparison between different module and/or pack designs. These include, but are not limited to, estimated *Discharge Time*, *Max internal temperature reached* and *Actual C-rate*.

Battery Module/Pack properties

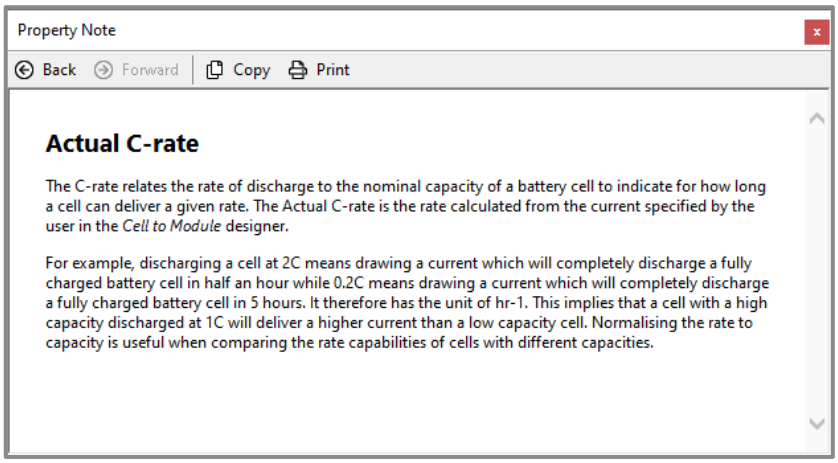
Actual C-Rate	0.53	C
Actual discharge current	7	A
Discharge Time	95.2	min
Max discharge power	242	W
Max internal temperature reached	40	°C
Percentage of max rate	22	%

Benefits:

- Assess the link between battery module design and performance
- Rapidly iterate multiple design configurations
- Enhanced equivalent comparison between different cells and module or pack designs

1.2.2 Design Notes for all attributes in the *Battery Cells* table

New Design Notes have been added to the *Battery Cells* table to cover all attributes, for quick reference and understanding of the meaning of each attribute.



Benefits:

- Improved documentation and understanding of relevant attributes for battery cells, modules and packs

1.3 Latest updates to core and specialist data

1.3.1 MaterialUniverse

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

In addition to new Design Notes in the *Battery Cells* table, the following improvements and updates have been made for this release:

- Extensive updates of embodied energy and carbon footprint data, incorporating the latest values from version 3.7.1 of *ecoinvent*. The updated 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)*
- True plastic stress-strain added to 25 polymer records, providing greater support for non-linear simulation of polymers. Includes several grades of ABS, PA, PC, PE HD, PEEK, POM and TPU.
- Widespread review of data has resulted in several minor updates:
    - Several high-temperature true plastic stress-strain curves have been updated, and high temperature curves for the following records have been removed:
        - *Aluminum alloy, wrought, 2014, T6* (149°C, 232°C and 316°C)
        - *Aluminum alloy, wrought, 2024, T3* (232°C, 316°C and 427°C)
        - *Aluminum alloy, wrought, 2024, T6* (232°C)
    - Updated thermal expansion coefficient values
    - True plastic stress-strain curves for *Stainless steel, austenitic, AISI 316, annealed* now extend until elongation at maximum strength only (at all temperatures)
    - True plastic stress-strain curves removed for *Nickel alloy, Haynes C263* and *Brass, C46400*

Benefits:

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

1.3.2 MMPDS-15

MMPDS-15 is part of the Advanced Materials – Metals bundle

This release of the *Advanced Materials – Metals* data bundle incorporates the latest version of the *Metallic Materials Properties Development and Standardization (MMPDS) Handbook*, including:

- Eight new 2043 and 42 new 7075 aluminum alloy records
- Removal of 6151 aluminum alloy (1 record) and AM 355 stainless steel SCT850 temper (2 records)
- All the latest changes and updates to the *MMPDS* dataset, including new or updated thermal data, strength and moduli.

Benefits:

- Access to the latest version of *MMPDS*, providing certified materials data for aircraft and aerospace vehicle applications.

1.3.3 ASM Medical Materials

ASM Medical Materials is part of the Advanced Materials – Medical data bundle, an online subscription accessible through links in relevant MaterialUniverse records

ASM Medical Materials brings to your desktop a comprehensive and authoritative set of mechanical, physical, biological response and drug compatibility properties for the materials and coatings used in medical devices. The latest update has:

- 497 new records added for devices approved according to FDA Emergency Use Authorization (EUA) directives, linked to EUA records providing more details about emergency guidance issued by the FDA
- New Emergency Guidance folder, helping customers to identify guidance and publications related to tackling the COVID-19 pandemic from the US Food and Drug Administration (FDA), UK Medicines and Healthcare products Regulatory Agency (MHRA), Australian Government: Therapeutic Goods Administration (TGA) and Health Canada
- Updates to the database with the latest FDA approved devices (510(k) and PMA) with links to associated materials, coatings and drugs. Includes new producers, recalls and guidance documents.

Benefits:

- Access the latest information on FDA-approved medical devices, including links to the materials, coatings and drugs used in their construction.

2 Feedback

Ansys welcomes 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/materials or email support@grantadesign.com.

Published in the U.S.A.

We welcome your feedback on this document. Please let us know if anything is unclear, if you spot an error, or have an idea for new content, by emailing granta-docs@ansys.com

Document version: SEL21-RN.02
Published: June 2021