



# Release 2023 R1 Highlights

## Ansys Materials

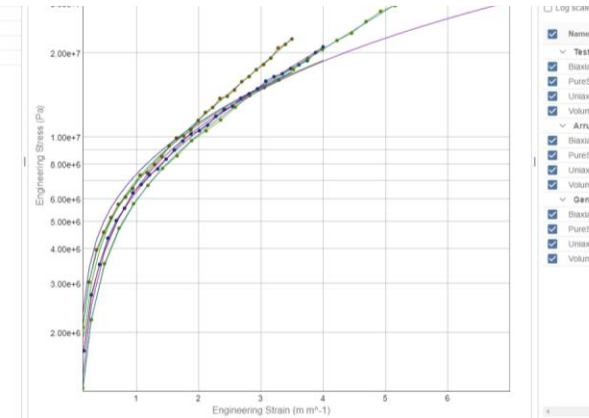
Ansys Granta MI, Selector, MDS, EduPack



# THE Authoritative Source of Truth for Materials



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## Enhanced UX for Authoritative Source of Truth for Materials

- ✓ Enhanced UX for Granta MI including new CAD Connectors.
- ✓ Experts can **configure, adapt and localize their authoritative source of truth** for materials.
- ✓ CAD Connectors **save time and guarantee traceability** for simulation analysts.
- ✓ Part of the **Ansys Connect** solution.
- ✓ The likes of **Ferrari** and **Baker Hughes** use Granta MI for **materials digital transformation**.

## Proactive Sustainability: now on the Cloud!

- ✓ Granta Selector with **updated eco data + Eco Audit**, now available on **Ansys Gateway**.
- ✓ Any engineer in any industry can make earlier, more informed product sustainability decisions.
- ✓ **Granta Selector + Ansys Discovery** for an enhanced product design strategy.
- ✓ See how **Deko** have used Selector to actively **reduce product CO2 footprint by 20%**.

## Help Simulation Accuracy with Materials

- ✓ Material Calibration '**initialize**' feature easily generates accurate coefficients: now in **Granta MI Pro**.
- ✓ Enables expert to easily calibrate a wider range of complex models.
- ✓ 300+ new **PCB and EM absorbing materials** for sensor, radar and 5G in high-tech and automotive.

# Designing for Proactive Sustainability

## Objective

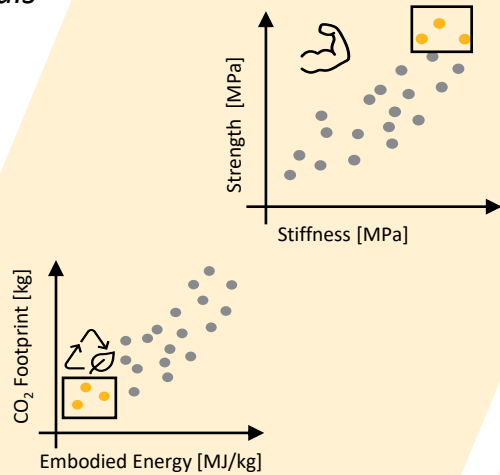


UN Sustainable Development Goals



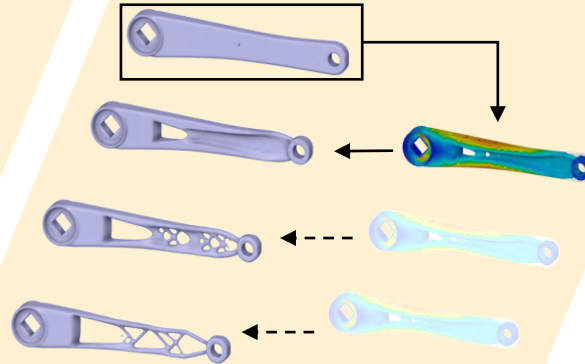
## Materials Selection

Using: Granta Selector



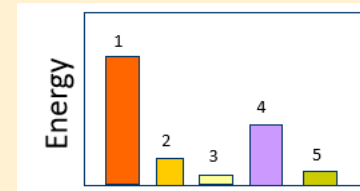
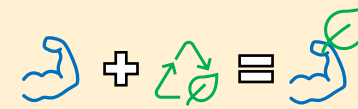
## Validation & Design Optimization

Using: Ansys Discovery

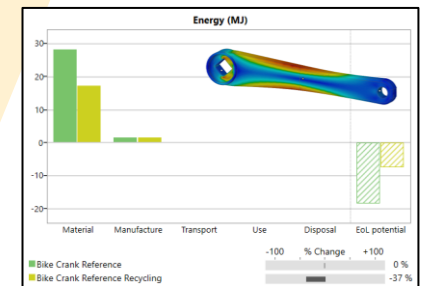


## Concept Assessment

Using: Granta Selector Eco Audit



## Optimal Design





# Product Release Detail



# New in 2023 R1: Granta MI Core

## What's New

- Enhanced UX with Explore app
  - Localization of display names for database schema items extended to Explore
  - New support for Version Control
  - New option to edit functional data
  - OneMI homepages for non-security groups (e.g. projects, teams)
- Deployment
  - New UI to simplify OIDC deployment
  - New support for Azure SQL Database for cloud deployments

## Business & User Benefits

- Enable multi-lingual user bases to see database items in their native language
- Create customized homepages for target groups, projects
- Enable customers using version control to deploy Explore
- Enhanced user experience
- Simplified deployment for OIDC and SSO

The image displays two screenshots from the Granta MI Core software. The top screenshot shows a 'Tensile Response' data series with a '2022 R2' callout and an 'Edit data' button with a '2023 R1' callout. The bottom screenshot shows the 'OIDC Settings' dialog box with various configuration options and a table of data points.

**OIDC Settings**

global	server	windowsclient	viewer	servicelayer	explore	gateway	matanalyzer	scripting
Authority	http://localhost:5000/							
Client id	mi							
Client secret	•••••							
Redirect uri	http://localhost/unused/signin-oidc							
Api audience								
Client id claim type	client_id							
Discovery address								
Enable user info	<input checked="" type="checkbox"/>							
Name claim type	sub							
Role claim type	role							
Scopes	openid profile offline_access							
Validate authority	<input checked="" type="checkbox"/>							
Validate client id	<input checked="" type="checkbox"/>							
Validate endpoints	<input checked="" type="checkbox"/>							
Validate issuer	<input checked="" type="checkbox"/>							
Enable http client logging	<input type="checkbox"/>							

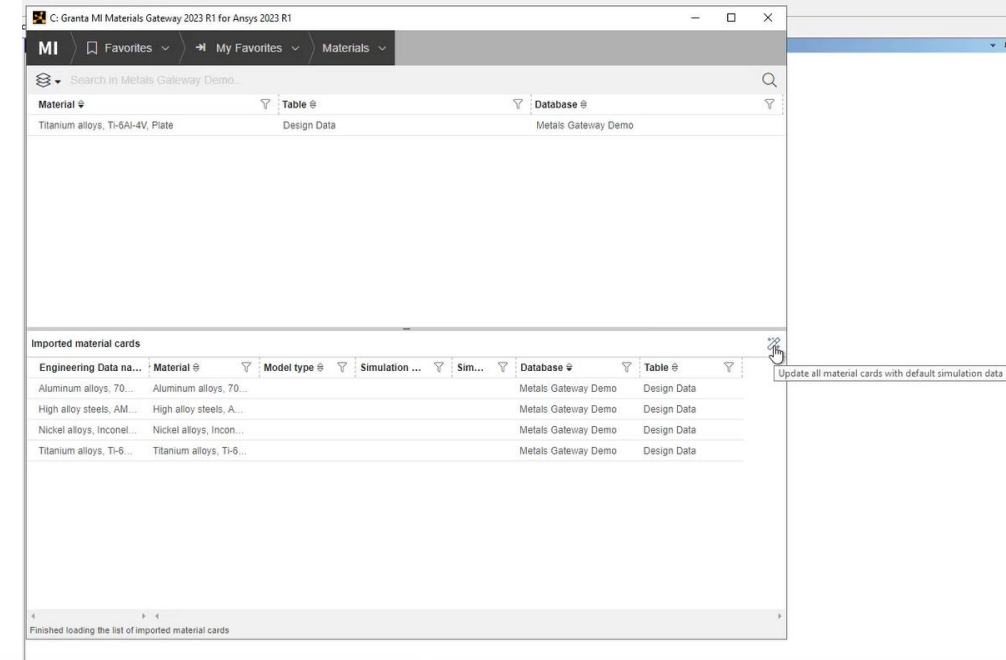
**Tensile Response (11 axis) Data Table**

Series (number of poi	Tensile Response (11 axis) (MPa)	Estimated	Strain (% strain)	Data Type
1 (358)	18.4995	<input type="checkbox"/>	0.0101347	
	23.121013641357422	<input type="checkbox"/>	0.0135113	
	27.7426	<input type="checkbox"/>	0.0168879	
	32.3641	<input type="checkbox"/>	0.0202645	
	36.9856	<input type="checkbox"/>	0.0236411	
	41.6072	<input type="checkbox"/>	0.0270177	
	46.2287	<input type="checkbox"/>	0.0303943	
	50.8502	<input type="checkbox"/>	0.033771	
	60.1	<input type="checkbox"/>	0.0371524	
	64.7215	<input type="checkbox"/>	0.040529	
	69.343	<input type="checkbox"/>	0.0439056	
	73.9646	<input type="checkbox"/>	0.0472823	
	78.5861	<input type="checkbox"/>	0.0506589	
	83.2077	<input type="checkbox"/>	0.0540355	

# What's New – Granta MI Integrations, Additive

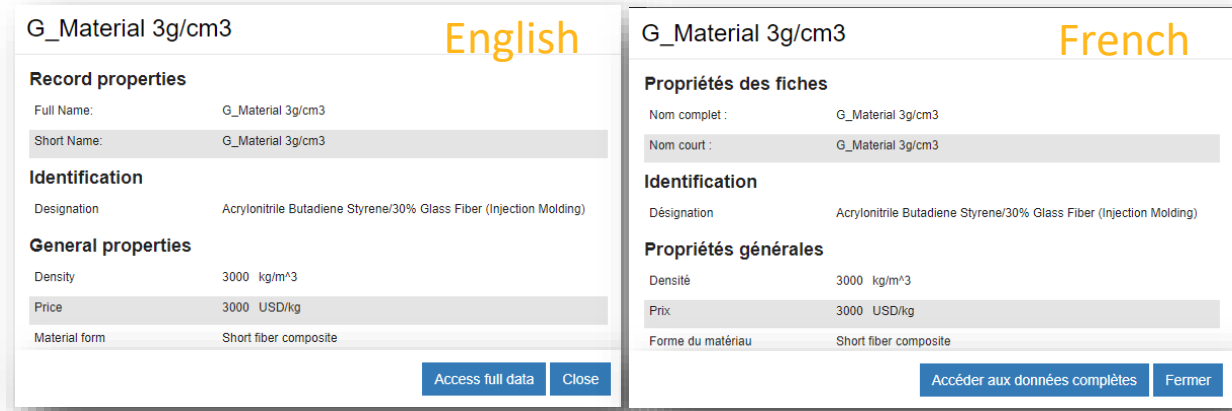
## What's New

- Integrations
  - CAD Connector Siemens NX to Ansys Workbench support for design and simulation data in the same table or separate tables
  - PTC Creo Family Table support
  - Gateway profiles at host level
  - Enhanced localization: translate the schema items
  - New version support (NX 2206, Teamcenter 14, Creo 9, Windchill 12.1, ANSA 23, Workbench and Electronics Desktop 23 R1)
- Additive Manufacturing
  - AM importer for EOS machines



## Business & User Benefits

- Streamlined workflow for transferring materials assignments from NX to Workbench
- Enhanced user experience
- Integrate with latest versions of engineering tools
- Enabling customers to import EOS AM machines data into Granta MI







Granta MI Materials Gateway  
NX to Ansys Workbench Connector

# New in 2023R1 – Granta MI Pro

## What's New

- Material Calibration App for complex Ansys Mechanical Materials Models (Hyperelasticity)
- New Electromagnetics Data Bundle
- Schema Updates to capture in-house materials data- Viscoelasticity, New Composite properties

## Business & User Benefits

- Fast-Start for Materials Intelligence
- Easy-to-Use app for converting materials test data in to simulation ready material models
- High quality reference data for EM simulations

The screenshot displays the Material Calibration software interface. At the top, a graph plots Engineering Stress (Pa) on the y-axis (ranging from 3.00e+5 to 6.00e+7) against Strain on the x-axis. The graph shows experimental data points and several fitted curves representing different material models. To the left of the graph, a table lists the material models and their parameters:

Name	Value	Unit	Residual
Arruda-Boyce			0.0221
Initial Shear Modulus Mu	3.28150e6	Pa	
Limiting Network Stretch	5.24111		
Incompressibility Parameter D1	9.98443e-1	/Pa	
Gent			0.0278
Initial Shear Modulus Mu	3.32208e6	Pa	
Limiting Value	109.567		
Incompressibility Parameter D1	9.98443e-1	/Pa	

Below the graph, there are buttons for 'Replot', 'Initialize', and 'Calibrate'. The bottom section of the interface shows various material constant tables:

**Tsai-Wu Constants**

Temperature	Coupling Coefficient		
	XY	YZ	XZ
°C			

**Puck Constants**

Temperature	Compressive		Tensile	
	XZ	YZ	XZ	YZ
°C				

**Additional Puck Constants**

Interface Weakening Factor	
Degradation Parameter s	
Degradation Parameter M	

**LaRc03/04 Constants**

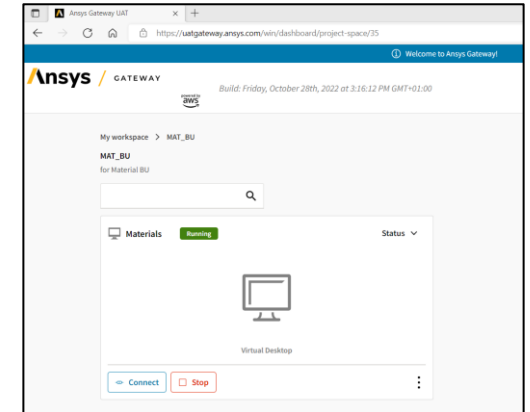
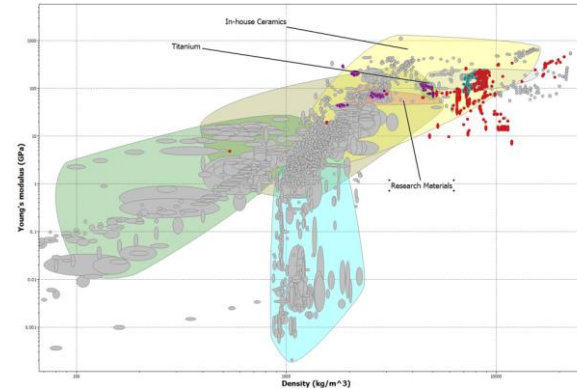
Temperature	Fracture Toughness Ratio	Longitudinal Friction	Transverse Friction Coeff.	Fracture angle Under
°C				



# New in 2023 R1: Ansys Granta Selector

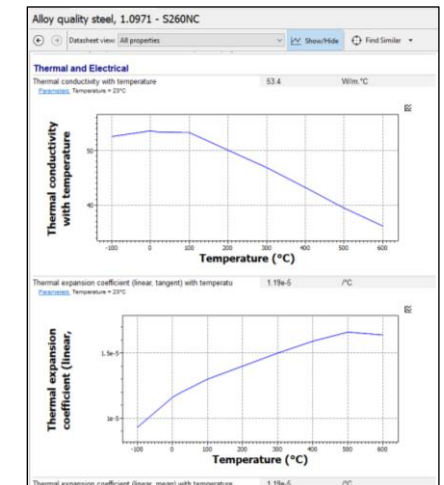
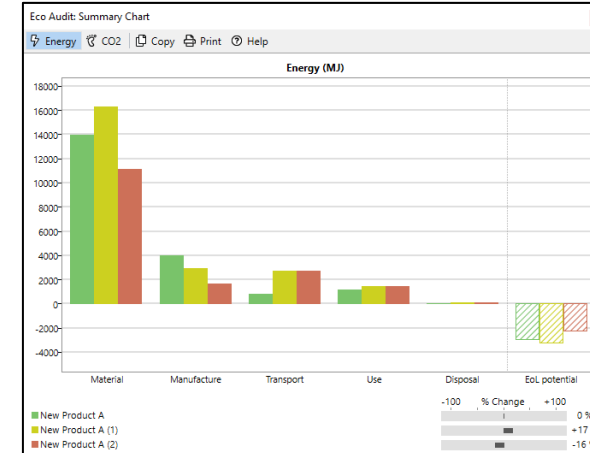
## What's New

- Use in-house data or reference data in **Eco Audit** – materials, component manufacturing processes and entire-product processes
- Updated and more granular data for Transport methods.
- Latest data for region-specific environmental impact for product use
- Improved user experience and logic for custom material envelopes for all Selector tables in the Chart/Select stage
- Granta Selector is now available as part of **Ansys Gateway**
- All the latest material data - updates to core data and Ansys Granta Advanced Materials - **Polymers, Metals, Aero, Electromagnetics, Additive Manufacturing** and **Medical** data add-ons



## User Benefits

- More powerful streamlined life cycle assessments – quickly explore 'what-ifs' and identify largest environmental impacts.
- Access Selector on the cloud – no local installation needed
- Illustrate material families and patterns easily
- Up to date comprehensive data library for material selection, environmental assessment, simulation and more; use in Selector or export to key Ansys and third party products.



Home Browse Search Chart/Select

Solver Eco Audit Synthesizer Tools Settings Help

Selection Project

1. Selection Data

Database: Polymers plus Change...

Select from: MaterialUniverse: All materials

Reference: Not set Set...

2. Selection Stages

Chart/Index Limit Tree

Stage 1: CO2 footprint per unit of stiffness vs. Mass per unit of stiffness

Stage 2: Price

3. Results: 3974 of 4226 pass

Show: Pass all Stages

Rank by: Alphabetical

Name

- 2024, T3 aluminum/aramid fibe...
- 2024, T3 aluminum/aramid fibe...
- 7075, T761 aluminum/aramid fi...
- 7075, T761 aluminum/aramid fi...
- ABS (10% carbon fiber, EMI s...
- ABS (10% carbon fiber, EMI s...
- ABS (10% stainless steel fiber)
- ABS (15% carbon fiber, EMI s...
- ABS (20% carbon fiber, EMI s...
- ABS (20% carbon fiber, EMI s...
- ABS (20% glass fiber, injection...
- ABS (20% glass fiber, injection...
- ABS (20% long glass fiber, inje...
- ABS (30% carbon fiber, EMI s...
- ABS (30% carbon fiber, EMI s...
- ABS (30% glass fiber, injection...
- ABS (40% aluminum flake)
- ABS (40% carbon fiber, EMI s...
- ABS (40% long glass fiber, inje...
- ABS (6% stainless steel fiber)
- ABS (7% stainless steel fiber)
- ABS (extrusion)
- ABS (flame retarded, molding ...
- ABS (heat resistant, injection ...
- ABS (high-impact, injection mol...
- ABS (injection molding, platable)
- ABS (medium-impact, injection ...
- ABS (rubber modified, injection...
- ABS foam (structural, 0.85)
- ABS+PA (unfilled)
- ABS+PBT (10% glass fiber)
- ABS+PBT (10% glass fiber, fla...
- ABS+PBT (20% glass fiber)
- ABS+PBT (30% glass fiber)
- ABS+PBT (impact modified)
- ABS+PBT (unfilled)
- ABS+PC (flame retarded)
- ABS+PC (injection molding and...
- ABS+PVC (flame retarded)
- Acrylic rubber (ACM, 30-40% ...
- Acrylic rubber (ACM, unreinfor...
- Aerated concrete
- AES (flame retarded)
- AES (high-impact)
- AES (unfilled)
- Afromosia (l)
- Afromosia (t)
- Al(2009)-15%SiC(n) MMC pow...
- Al(2009)-20%SiC(p) MMC pow...
- Al(2024)-30%SiC(p) MMC pow...
- Al(2124)-15%SiC(n) MMC pow...
- Al(2124)-20%SiC(p) MMC pow...
- Al(2618)-12%SiC(p) MMC pow...
- Al(6063)-10%SiC(p) MMC pow...

4. Report

Comparison... Selection...

### Eco Audit Project

Product definition Report

New Open Save Compare with...

#### Product information

Name: New Product A

#### Material, manufacture and end of life

[How do I use my own materials or processes?](#)

Components

Qty.	Component name	Material	Recycled content	Mass (kg)	Primary process	Secondary process	% removed	End of life	% recovered
50	Plastic Outer	ABS (extrusion)	10.0%	2	Polymer extrusion	Fine machining	5	Recycle	100

#### Joining and finishing

Name	Process	Amount	Unit

#### Transport

#### Use

#### Report

Summary chart



Image: Browse...

Note:

Detailed report

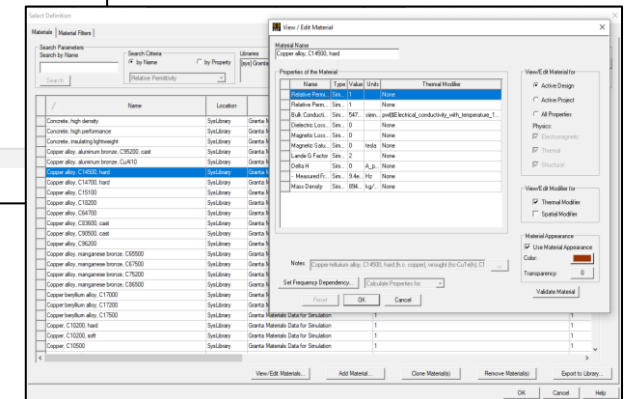
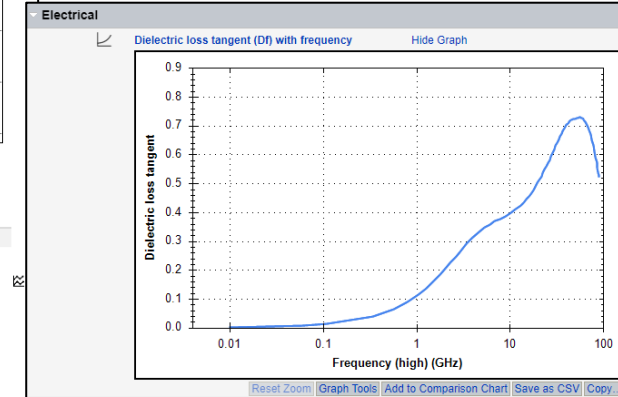
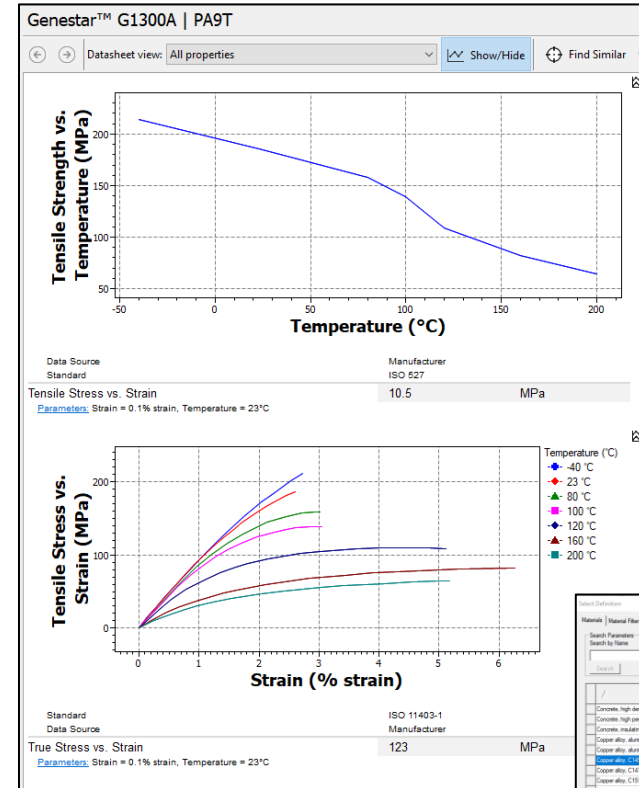
Clear

## What's New

- **Core Data (MaterialUniverse™)** – new steels, new process records and latest price and risk index information
- **Polymers** – all the latest polymers and additives from UL Proprietary, plus simulation-ready data from Sabic and Kuraray
- **Metals** – 3000+ updated records and 700+ new records. New mechanical, thermal and electrical curve data
- **Aero** – update to the latest version of MMPDS
- **Electromagnetics** – 320+ PCB material records, and new EM-absorbing materials
- **Additive Manufacturing** – 270+ new materials and 80+ new machines
- **Medical** – latest devices, producers, recalls and guidance documents.
- **MDS** – latest updates and new PCB material data

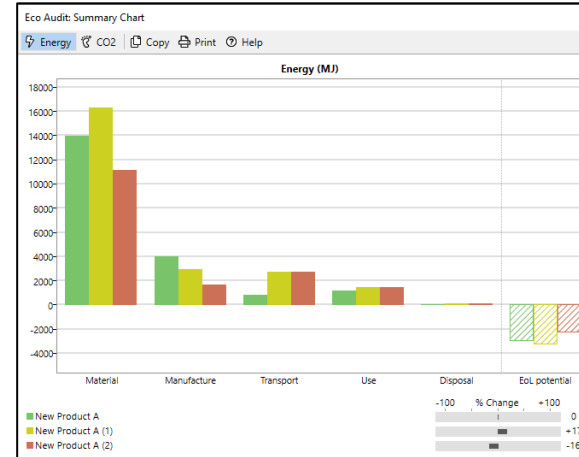
## User Benefits

- All the latest data for simulation, material selection, environmental assessment and more
- Transfer key materials property data to Ansys and third-party solvers – physical, thermal, electromagnetic, mechanical, etc.



## What's New

- Enhancements to **Eco Audit** allowing users to use more of their own data in the Manufacturing stage, plus updates to Transport methods and Country-specific data.
- **Portuguese** translation of user interface and introductory databases
- Merge of **Bioengineering** and **Medical Devices** databases, allowing device design considerations to be seamlessly included in teaching
- Improved user experience and logic for custom material envelopes for all tables in the Chart/Select stage
- All the latest material data - updates to core data in all databases and industry data in the Advanced databases



**Acrilonitrila butadieno estireno (ABS)**

Vista da folha de dados: Todas as propriedades

Polímeros e elastômeros > Polímeros > Termoplásticos >

**Descrição**

**Imagem**

**Legenda**

1. Pellets de ABS. © Shutterstock 2. A ABS permite moldagens com detalhes, aceita bem cores, não é tóxica e é resistente o suficiente para sobreviver tudo que as crianças façam com ela. © Gettyimages

**O material**

A ABS (Acrilonitrila butadieno estireno) é tenaz, resiliente e facilmente moldada. Usualmente é opaca, embora alguns tipos agora possam ser transparentes ou adquirir cores vividas. Ligas ABS-PVC são mais tenazes do que a ABS comum e, no caso dos tipos autoextinguíveis, são usadas em caixas para armazenamento de ferramentas elétricas.

**Composição (sumário)**

Terpolímero em bloco de acrilonitrila (15-35%), butadieno (5-30%) e estireno (40-60%).

## User Benefits

- More versatile streamlined life cycle modelling
- Teach in Portuguese for intro level classes
- Teach biomedical device design and material selection together
- Illustrate material families and patterns easily
- Up to date comprehensive data library for material selection, environmental assessment, simulation and more; use in EduPack or export to key Ansys and third party products.

**Endotracheal tube**

Datasheet view: Medical Devices

General Surgery > Therapeutic >

**General information**

**Image**

**Caption**

1) Endotracheal Tube; 2) Endotracheal Tube in-situ, entering via oral intubation

**Keywords**

General surgery, Anesthesiology, Breathing and Respiratory devices

**Typical materials**

Polyvinyl chloride PVC, Stainless steel

**Overview**

**Application**

An Endotracheal tube is designed for airway management by oral or nasal intubation of the trachea during anesthesia. It is typically used during operations where a high degree of flexibility is required, for example head and neck surgery.

**Description**

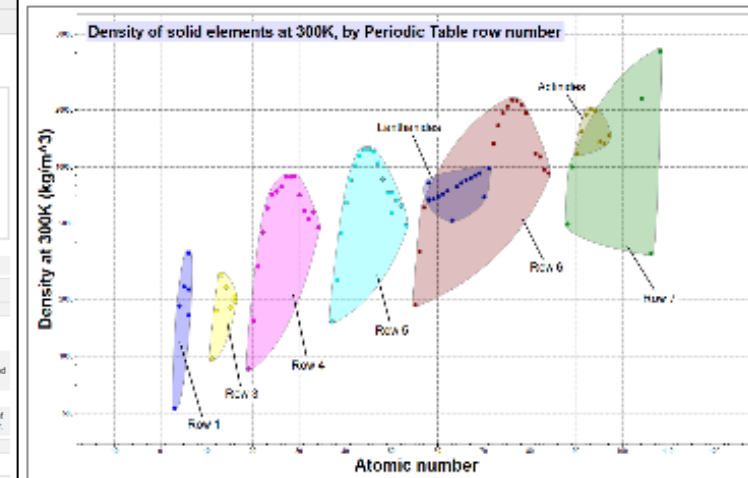
An endotracheal tube is a flexible polymer tube, predominantly made from polyvinyl chloride. Available in a range of sizes, the tubes are often assembled with a cuff, one-way valve, pilot balloon, inflating tube and standard connector.

**Duration of use**

Prolonged (24 hours - 30 days)

**Classification**

FDA Class II





**Ansys**

The Ansys logo is positioned on the left side of the slide. It features a yellow slanted bar to the left of the word "Ansys" in a bold, black, sans-serif font.