Materials are referenced throughout the product lifecycle, e.g., within CAD, PLM and CAE tools. These references may originate from multiple sources, creating inconsistencies and making change control difficult. GRANTA MI overcomes these challenges. From initial assignment to using its apps within CAD or PLM to choosing full material models for CAE tools, users rapidly access the right data which is fully traceable to its source.

The problem

- Without a controlled list of materials available in CAD, weight rollup is either impossible or unreliable. This can cause delays later in development.
- Designers often assign incorrect or inappropriate specifications. Time-consuming manual processes are required to correct the Bill of Materials.
- CAD libraries do not always contain the right data for early-stage simulation, causing delays or use of unvalidated data to fill gaps.
- Different material datasets are available within CAD and PLM, leading to mismatches and requiring extra release processes to validate the data.
- The PLM system does not represent materials effectively, limiting use of materials information across the product portfolio.
- CAD and CAE users work from different material datasets, making CAD-to-CAE transfer of geometry and materials error-prone.

Key benefits

- Create a single, consistent source for corporate materials data.
- Save time and avoid errors with fast and easy access in CAD, CAE or PLM.
- Obtain correct data on assignments to enable simulations or generate drawings.
- Analyze where materials are used in products to prioritize work and support impact analyses.
- Simplify material updates: common assignments and reporting across CAD & PLM.
- Avoid delays and inconsistencies by linking material datasets used in CAD and CAE.

Case studies

A major automotive OEM is saving time and ensuring consistency across its PLM system.
A manufacturer of electrical and electronic components is reducing cost and increasing efficiency.
The GRANTA MI Solution for Product Engineering

Based on industry-standard materials information management

GRANTA MI is the leading system for materials information management in engineering enterprises, used by top manufacturing organizations to create a single source for all corporate materials knowledge. It manages the full lifecycle for complex materials test data and supports analysis to derive accurate design data. It also integrates specifications, regulatory and environmental information, high quality reference data on material properties and much more. Subsets of this data, including preferred material lists are delivered in a controlled manner to designers — always retaining full traceability to the data's original source.

Fast, consistent, effective assignment in CAD

MI:Materials Gateway apps enable instant access to approved materials data from within leading CAD software. Connect direct to a corporate GRANTA MI database. Search and browse the available material and assign it to a model to radically reduce the time needed to locate information. Relevant data can be transferred along with the material assignment to ensure that the right material specifications and IDs are written onto drawings or that data required for early-stage simulation is available. Supported for NX®, Creo® and CATIA®.

Assigning materials in NX® CAD.

Consistency across CAD and PLM

Integrate GRANTA MI with a PLM system to ensure that the material assignments made and managed within PLM come from a corporate 'gold source' materials database. Ensure consistency and the use of accurate materials data throughout design and development. Keep CAD and PLM assignments synchronized and enable “where used?” queries and other analysis on your product portfolio in PLM. Integrate with Teamcenter®, Windchill® or 3DEXPERIENCE®.

Bridging the gap between design and simulation

GRANTA MI also provides tools that enable assignments made in CAD to be quickly reapplied in CAE. Because assignments originate from the same database, the right CAE models are presented for an analyst to choose from. This de-risks geometry transfer and avoids the need for time-consuming fixes when inconsistent data is used. CAE support for Abaqus/CAE®, ANSA, ANSYS® Workbench and HyperMesh®.

Integration options

Materials assignment in Creo® CAD

Because corporate PLM systems are not 'one size fits all', GRANTA MI's flexible integration technologies are matched to software environments and business processes. Key technologies include MI:Materials Gateway apps, which enable access to corporate databases directly within host systems and MI:Enterprise Connect, which synchronizes approved, traceable datasets between GRANTA MI and PLM.

What do you buy?

GRANTA MI - Enterprise Server is the core database system, including data import, export and analysis tools.

GRANTA MI - User enables users to access, query and use the data via web apps or via MI:Materials Gateway.

GRANTA MI - PLM Sync provides synchronization options with leading PLM environments.

Advanced Materials data bundles enable you to add reference data options.

GRANTA MI - Services are available to help you implement GRANTA MI and integrate with in-house tools and data sources.

Assigning materials in Creo® CAD.