Teamcenter Integrated Material Management
What's New
# Integrated Material Management

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Integrated Material Management
Refresher
Material Data
What does it mean?

Material Information

- Machining Parameter
- Alternate Materials
- Logistic Guidelines
- Application Area
- Sustainability Parameter
- Compliance Indicator
- Handling Parameter
- Export Restrictions
- Technical Parameter
- Process Parameter
- Quality Information
- Chemical Composition
- Site Availability
- Price/Cost Information
Innovate with Materials Data Management
Same material definition

To efficiently innovate and create a winning product, companies must thread material aspects throughout the product lifecycle.
Integrated Material Management

The missing piece
Material Assignment Use Case

Create and track material assignments

Designer

CAD

Teamcenter materials library

Design part in CAD program. Check material requirements.

Locate the desired material, create material assignment

Run material search in Teamcenter, view material properties, smart curves, etc.

Assignments tracked in Teamcenter
Design for Compliance and Sustainability Across the product life cycle

Teamcenter

- CAD: Compliance check
- Design BOM: Compliance check
- Eng. BOM: Compliance check
- Man. BOM: Compliance check

GaBi DfX
- Identify EcoDesign cost savings
- Produce EPD for manufactured product

IMDS/BOMcheck
- Select compliant & sustainable materials
- Purchase compliant components for product manufacturing

ERP
- Comply with recycling regulations for new product sales

IMM
- Material footprint data

GaBi Content
- Select compliant components in final product design

EC4P
Business Benefits: Managing Environmental Compliance in PLM

Reduce time & cost of changes by identifying issues early in the design.
Integrated Material Management
What's new in IMM11.4

What’s New
## IMM on Active Workspace

### What's new in IMM11.4 an AW4.0

**AWC Additional Use Cases**

- Support Material Creation in AWC
- Automatically attach parameters
- Populate IMM Parameters in AWC
- IMM Curves on AW

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### Table: Material Catalog Overview

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
<th>Release Status</th>
<th>Material Classes</th>
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<tr>
<td>IIAX</td>
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<td>NTIAC</td>
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LOV support for IMM Parameters
What's new in IMM11.4

**LOV Support**
- Classic and Dynamic LOVs can be attached to IMM String Parameters.
- Assure integration into subsequent systems.
Material Recipe
Trace your material Formulation

Plastic recipe for extruding
• Process parameters1

Plastic recipe for extruding
• Process parameters2

Plastic recipe for extruding
• Process parameters3

Formulation

Granulate

Coulor giving Material

Additives

Defines process and more detailed material properties

Defines material recipe/formulation

Homogenous material

Substance Level
Enhanced Material Recipe Support
What's new in IMM11.4

Export and Import Filters
- Stylesheet based technology.
  Pre-Configured, Easy extensible
- Assure integration into subsequent system
Improved NX UI
What's new in IMM11.4

IMM NX Plugin UI
- Improved Ribbon UI Experience
- Tab based material search
- Search Result columns can be configured
- Enhanced Update behavior
- Convergent body support
Enhanced Export Functionality
Export and Import Filter

Export and Import Filters
- Stylesheet based technology. Pre-Configured, Easy extensible
- Assure integration into subsequent system
Enhanced Export Functionality
Export Filter

Core IMM Export Formats used as the input for the transformation process

Text Dataset with XSL as named reference. Teamcenter Preference IMM_Export_Filters defines the mapping

Output can be retrieved from IMM Rich Client or Utility.

MatML

Translator

XSLTs

Java

C

Custom/Proprietary Format

Ansys, Abaqus, Nastran

Mass Excel
Detailed Excel

MatML
Enhanced Import Functionality
Import Filter

Custom/Proprietary Format
Ansys, Abaqus, Nastran ....

Mass Excel
Detailed Excel

MatML

Translator

XSLTs
Java
C

XML

Text Dataset with XSL as named reference. Teamcenter Preference IMM_Import_Filters defines the mapping

Output can be retrieved from IMM Rich Client or Utility.

Core IMM Export Formats used as the input for the transformation process
Combined GRANTA MI and Teamcenter IMM solution

Teamcenter Integrated Material Management
- Search and compare materials using tables and charts
- Assign materials to product design and analysis models
- Synchronize assignments between PLM and CAD
- Integrate with CAD and CAE
- Integrate with other systems supported by Teamcenter

Granta tools
- Analysis and visualization tools
  - E.g. risk dashboards and reporting, selection and substitution guidance
- Analysis and supply chain tools
  - E.g. supplier declarations, material and compliance analytics

Teamcenter tools
- MI:Enterprise Connect
  - Process ‘released’ materials lists, version control, upload, maintain synchronization
- Assignments include links back to full Granta data

GRANTA MI authoring of ‘material intelligence’
- Capture, manage, analyze, and update materials test and CAE data, from multiple in-house formats
- Collate and publish authoritative off-the-shelf reference data
- Provide systematic material selection guidance
- Derive preferred materials lists for release to PLM
- Leverage consortia-driven best practice data schemas and tools

Authorsing
- Designers, CAD and CAE engineers
- Materials specialists
- CAE materials specialists
- Product stewards, Materials specialists, Compliance officers

Traceability, feedback
**Enhanced Export Functionality**
**Enhanced Standalone utility**

**Import**
Import_material -u=test -p=test -g=dba (–importFilter=matml or –xslt=123.xslt) -file=C:/etamlDdoc1.xml (catalogName=Catalog1 or -catalogId=001355) -matType=Mat1Material -substanceType=Mat1Substance

**Export**
export_material -u=test -p=test –g=dba (–exportFilter=Ansys1 or -xslt= 123.xslt) -item_id=1234/A,5234/B -file=C:/etamlDdoc1.xml
Enhancements Import Export 11.4

What's new in IMM11.4

- Support Teamcenter Attributes and IMM Properties in MatML
- Re-designed Excel Import
  - Native XSLX
  - Bulk & Single Format
  - Single file
  - Custom Property support
Integrated Material Management

What's new in IMM11.4

- Performance improvements for high latencies networks
- More capabilities on Active Workspace
- Enhanced Material formulation and recipe support
- Part Planner support
- NX IMM Plugin
  - Improved look and feel
  - Convergent bodies
  - Configurable column's
- Import Export
  - Open framework for custom translator
  - Added Excel support
  - TC Native property support
- LOV Support IMM Parameters
- IMM Material Parameters seamlessly available in TC
Integrated Material Management

What's new in IMM11.4

Coming Soon
Composite Compound Formulation
Trace data from fiber to final model

Micro - Level

Single Ply and Multi-Ply

Final model

Fiber
Matrix
interphase

Single Ply

Multi-Ply

0°
-90°
+90°
0°
Material Lifecycle Process
From idea to knowledge

Formulation → Test Prototyping → Test Results
Test Machines → Test Standards → Material Definition

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>Youngs Modulus</td>
<td>3.43</td>
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<td>CO2 Emission</td>
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<td>MPa</td>
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<tr>
<td>Ductility</td>
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Application → System Analysis
- Profitable Analysis
- Application
- Optimizations
- Virtual Prototyping
- Impact Lifecycle

Iterate
Material Lifecycle Process
New Module – Laboratory Extension

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Material Definition

Application

System Analysis

IMM core 2017
IMM Laboratory Extension
IMM
IMM data model
Material test data, object structure

Material: 1E4140

Design: Shaft 2135

Test Definition: Fatigue

Test Result Sequence 5

Parameter
Table
Substance

Shaft 2135 – Rev A

Parameter
Table
Substance

Further Consumption

...
The Digital Material Twin

- Material Selection
- Material Testing
- Material Release & Obsolescence
- Virtual Prototyping
- Costing & Purchase
- Simulation
- Additive Manufacturing
- Compliance
- Lifecycle Impact
- Alternative Material
- Visualization
- Material Development

IMM
The Digital Material Twin
Thank You.