NX I-deas Material Data Catalog

Benefits
- Gain easy access to mechanical and materials property data for engineering and analysis
- Get all the reference data you need for material properties from a single source
- Rely on current industry-standard data sources and governmental approval to ensure your material specs are up to code

Features
- Materials data library for analysis (MDLA) covers thermoplastics, thermosets, elastomers, ceramics, composites, metals, wood and glass
- The MIL5 library covers materials commonly used for aerospace applications, including steel, stainless steel, aluminum, magnesium, titanium, heat resistant alloys and special purpose alloys
- The Metals library covers aluminum, copper, steel, stainless steel, nickel and reactive alloys

Summary
NX™ I-deas™ Material Data Catalog software is a set of three independent add-on modules within NX I-deas software that is accessible via the Material Data System. To display the catalog entries you must have a license for one of these NX I-deas packages: NX I-deas Digital Product Design suite, NX I-deas MasterFEM, Artisan, or Master Modeler. Material Data Catalog consists of three libraries – materials data library for analysts, MIL5 library and Metals library – which enable you to access a wealth of information and references on materials and metals properties and manufacturers. Easy to use and aided by robust graphics, Material Data Catalog is a must for those using NX I-deas for engineering and analysis.

Linking master models to materials and metals properties
The Material Data Catalog enables users to link master models to materials and metals properties via three independent, add-on library modules: MDLA, MIL5 and Metals.

MDLA
Materials data library for analysts (MDLA) consists of more than 450 records covering thermoplastics, thermosets, elastomers, ceramics, composites, metals, wood and glass. The MDLA was developed and is maintained using the following data sources:
- Manufacturer's technical manuals and data sheets
- Direct contact with manufacturer's technical personnel
- In-house synthesis/interpolation techniques
- Recognized textbook sources
- Trade magazines
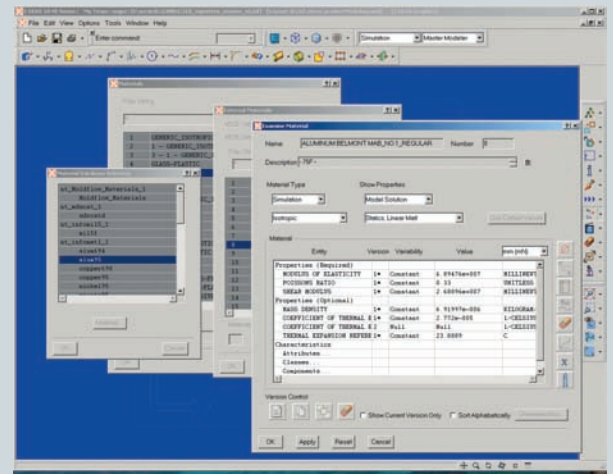
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Features *continued*
- For MIL5 and Metals you can access graphs of material characteristics, including stress versus strain at various temperatures and specific heat versus temperature

System requirements
Material Data Catalog shares the NX I-deas system requirements.

Recommended system configuration
For information on particular operating systems or graphics cards, please visit http://support.ugs.com/

Nominal properties and property ranges are provided for all MDLA materials. Temperature-dependent data, when available, is provided. The library references specific manufacturers.

MIL5 aerospace materials library
The MIL5 library consists of more than 1,370 records covering materials commonly used for aerospace applications, including steel, stainless steel, aluminum, magnesium, titanium, heat resistant alloys and special purpose alloys. MIL5 is compiled and updated on a regular basis using the U.S. Government MIL-HDBK-5. The data has been approved for use by all departments and agencies of the U.S. Department of Defense and Federal Aviation Administration.

Graphs of material characteristics include:
- Maximum stress versus fatigue life
- Room temperature strength versus temperature

- Thermal expansion versus temperature
- Specific heat versus temperature
- Thermal conductivity versus temperature
- Stress versus strain at various temperatures

Statistical A-, B- and S-basis property values are provided for all materials. MIL5 also provides references to specific thicknesses, tempers, test temperatures and test conditions.

Metal materials library
The Metals library consists of more than 2,640 records covering aluminum, copper, steel, stainless steel, nickel and reactive alloys. The records were compiled and are updated from manufacturer data sheets and industry-standard sources. The data

should be used for initial design analysis only and should not be considered design-allowable information.

Graphs of metal characteristics include:
- Strength versus temperature
- Coefficient of thermal expansion versus temperature
- Specific heat versus temperature
- Thermal conductivity versus temperature
- Stress versus strain at various temperatures

The Metals library refers to specific trade names and UNS designations, and, also, the library provides references to thicknesses, tempers, test temperatures and test conditions.

Material properties data for engineering and analysis

MDLA	MIL5	Metals
Young's modulus	Young's modulus	Young's modulus
Shear modulus	Shear modulus	Shear modulus
Poisson's ratio	Poisson's ratio	Poisson's ratio
Yield strength	Yield strength	Yield strength
Ultimate strength	Ultimate strength	Ultimate strength
Elongation	Elongation	Elongation
Density	Density	Density
Coefficient of thermal expansion	Coefficient of thermal expansion	Coefficient of thermal expansion
Thermal conductivity	Thermal conductivity	Thermal conductivity
Specific heat	Specific heat	Specific heat
	Material thickness	
	Ultimate bearing stress	
	Ultimate shear stress	
	Yield bearing stress	
	Yield compressive stress	

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