CINDAS LLC
www.cindasdata.com

Industry Benchmark for Critically Evaluated Materials Properties Data

Now available on-line—CINDAS Microelectronics Packaging Materials Database (MPMD)

The Microelectronics Packaging Materials Database (MPMD) is a searchable, browsable on-line database that contains data about thermal, mechanical, electrical and physical properties of microelectronics packaging materials. The MPMD database contains over 1,025 materials, 358 properties and contains approximately 22,500 data curves.

The MPMD was developed under the sponsorship of the Semiconductor Research Corporation (SRC). The results of this research program were originally available only to SRC members. Now they are available to engineers and scientists worldwide.

Search and Browse the Microelectronics Packaging Materials Database by

Material Group
(Adhesives, Ceramics, Unfilled Epoxies, Semiconductors, etc.)
Material Name
(Silver-Filled Epoxy, Iron Aluminides Intermetallics, Germanium, etc.)
Property Group
(Electrical, Mechanical, Thermophysical, Optical, etc.)
Property Name
(Dielectric Constant, Leakage Conductance, Elastic Modulus, etc.)

Access

Costs of subscriptions to the CINDAS databases depend on the number of locations and the number of potential users at each location. Once subscribed, engineers, librarians, researchers, and scientists all have unlimited access to the databases by IP address/ranges.

Interface Tools

Save – data for further analysis.

Copy – graphs with ease into PowerPoint.

Project and Manipulate – the database content live.

Interface Features

Find – material group or property group by browsing, or material name or property name by searching.

View – the effects on a given property with changes in temperature or other independent variable.

Compare – multiple data curves of different materials on a single graph.

References – are available for every graph and description in the show text feature.

Complete Packages

The most complete package for research and applications includes all three complementing databases:

ASMD – Aerospace Structural Metals Database

TPMD – Thermophysical Properties of Matter Database

MPMD – Microelectronics Packaging Materials Database

The CINDAS databases give the composition and describe the test conditions of each material. They also present specific conditions for each desired material plotted on a graph.

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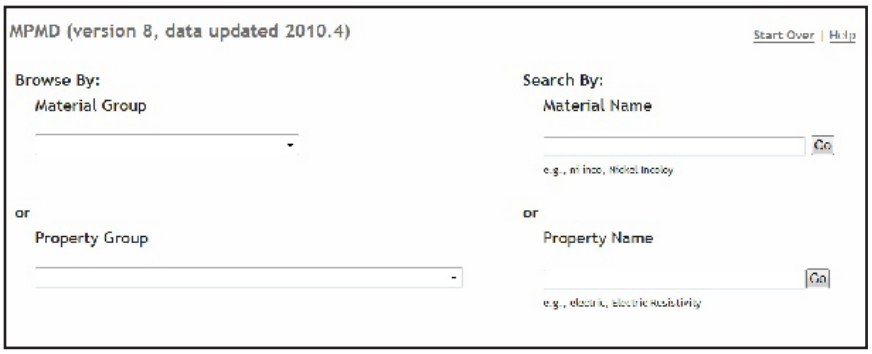
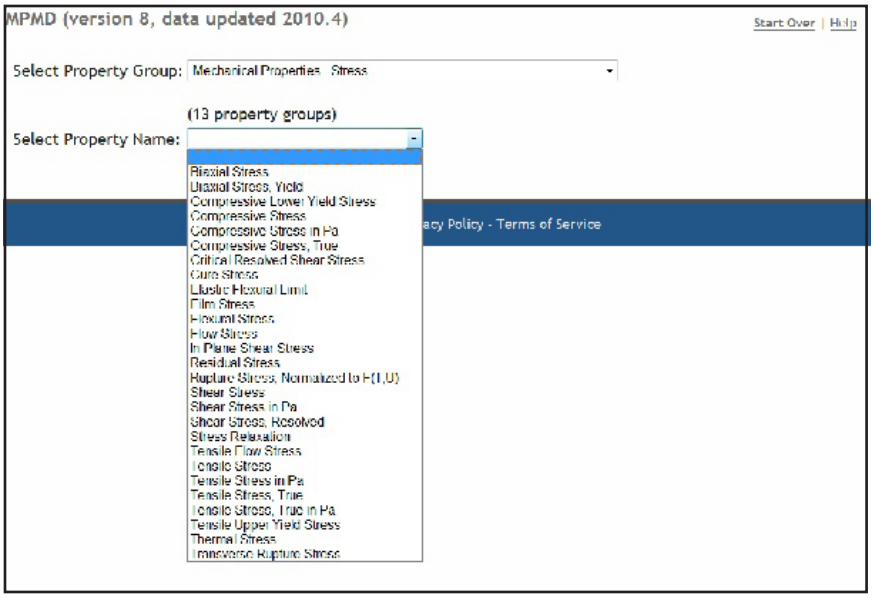
Searching and Browsing:
Microelectronics Packaging Materials Database (MPMD)
Finding Information

Search: Enter the full or partial name of the property or material.

Browse: Use the drop-down menu to find the property or material.

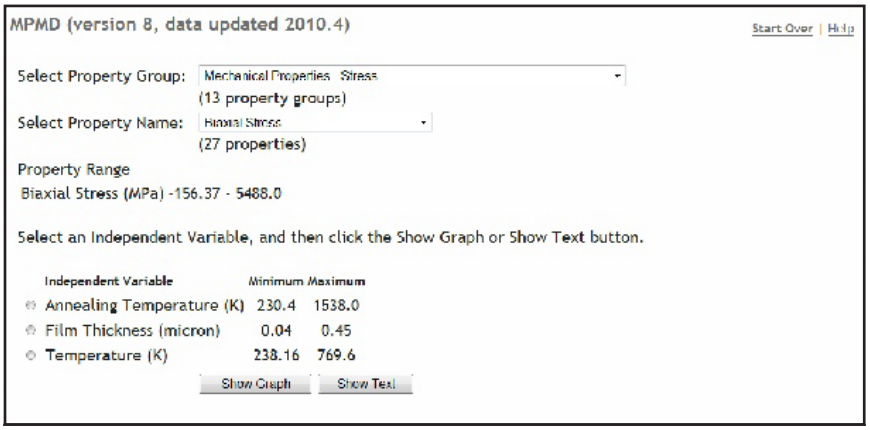
The Microelectronics Packaging Materials Database contains 1,025 materials in 25 material groups and 358 properties in 13 property groups.





Customizing Information

Select: The independent variable.



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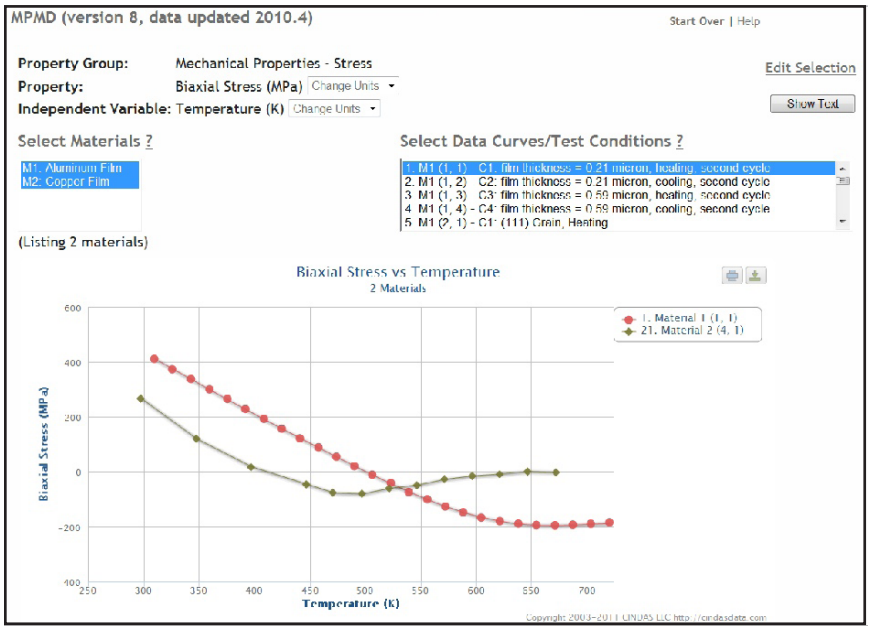
Viewing Information

The MPMD allows the user to view a property of multiple materials on one graph.

Step 1: Select Materials.

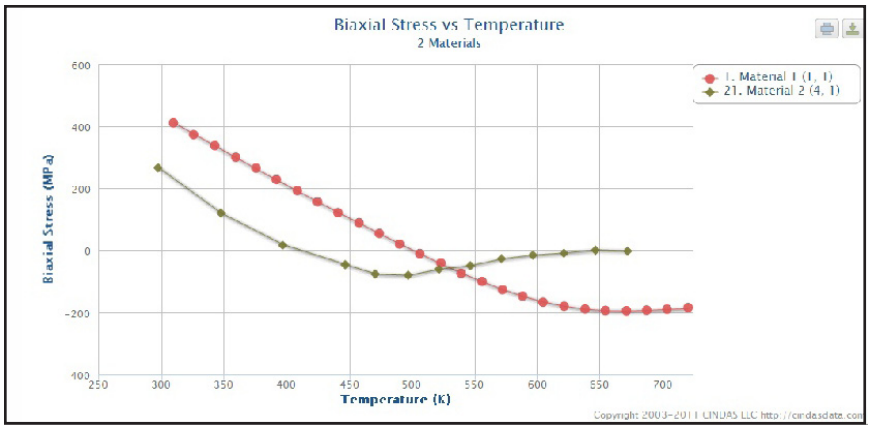
Step 2: Select Data Curves or Test Conditions.

Note: At any time, the user can click on the "Show Text" button to see the values of the data points, text description, references, etc.



Results: Graphic and Numeric

- Approximately 22,500 data curves
- Color-coded data curves
- Multiple curves of different materials per graph
- Hovering cursor to show X and Y values at each data point
- Unit conversion package
  - Contains both English and SI units
  - Shows all typically used units for the variables
  - Allows both X-axis and Y-axis selection



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Material Groups

The MPMD has over 1,025 materials classified into 25 material groups. The MPMD can be searched by material or property name. If the full name is used to search, the search will bring the user directly to that material. If a partial name is used, the search will return the closest matches.

Material Groups	*Number of Materials*
Adhesives	30
Ceramics: High K Oxides	16
Ceramics: Nitrides, Silicides, Carbides	29
Ceramics: Oxides	34
Ceramics: Other	19
Coating and Unfilled Epoxies	25
Composites: Laminates	138
Composites: Laminates (Glass/Epoxy)	74
Composites: Others	52
Composites: Thermal Management	46
Compounds: Molding	55
Elements	33
Encapsulants and Underfill Materials	26
Intermetallics: Aluminides	66
Intermetallics: Beryllides	35
Intermetallics: Miscellaneous	50
Intermetallics: Silicides	30
Liquids and Gases	5
Metal Alloys	49
Molding Compounds	55
Polymers: Others	20
Polymers: Polyimides	54
Semiconductors : Optical/Sensor	38
Solders: Leaded	41
Solders: Lead-free	57

Property Groups

The MPMD contains over 350 different properties. These properties are separated into 13 easy-to-navigate property groups. Alternatively, you can search the property names by using keywords which would bring you directly to the property you are seeking.

Property Type		*Number*
Thermophysical		37
Electrical		26
Mechanical		
	Modulus	51
	Strength	43
	Stress	29
	Hardness	8
	Fatigue	12
	Creep	16
	Others	60
Optical		11
Other		57
Thermoradiative		8

We Are Confident in Our Products

The MPMD is quick, efficient, and frequently updated, and is currently used by a growing list of universities, corporations and research facilities. Please visit www.cindasdata.com for a demo.

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