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What is DataVis?

- DataVis is an interactive, web-based data visualization tool that transforms the way students learn about material properties.
- Users can instantly visualize property data in an interactive dot-plots and scatterplots across a wide range of materials.
- DataVis includes a curated dataset of 200 materials and 65 properties.
Available Visualizations

- Compare materials for a single property in a dot plot or compare two properties against each other in a scatterplot.

- In the top visualization to the right, you can see the density of all 200 materials being compared across material classes.

- In the bottom visualization to the right, you can see a comparison of fracture toughness vs. shear strength across all material classes (represented by different colors).

- Up to five visualizations can be added to a page in DataVis.
Creating a DataVis Project

Use DataVis to visually explore materials and their properties. Find and compare material property data, then save your interactive visualizations and share with others.

DataVis Project Library

Materials: More than a Name
This project investigates materials with similar names (aluminum, alumina, alumina (sapphire)), focusing on the fundamental differences between them.

Designed by Dr. Susan P. Gentry, University of California, Davis.

Open Project

Analysis, Stresses and Deflection of Beams
This project investigates analysis, stress and deflection calculations in beams made of different materials. Students will determine if the bending stress and shear stress of each beam is satisfactory for given factor of safety requirements.

Designed by Mustafa Mahamid, University of Illinois at Chicago.

Open Project

Properties for Aerospace Structures
This case study looks at properties for Aerospace applications.

Designed by Kathleen Kinn, Western Washington University.

Open Project
Creating a DataVis Project

1. From the DataVis homepage, select the option to compare properties
2. Choose a visualization (dot-plot or scatterplot)
3. Choose a property (or properties)
4. Use the menu to select a property from a category or search for a property using the search box
Creating a DataVis Project

The density dot plot has now been added to your project.

From here, you have several options:

1. Add another visualization
2. Name your project and add a description
3. Name your page and add a page description
4. Add more pages to your project
5. Add links to related materials to create context or provide references
Creating a DataVis Project

Once you have finished editing your project, you can save it to your personal account, share it with others, or export pages as a PDF.

Use the dropdown menu under My Account to view all your saved DataVis projects.
Visualization Tools

- **Zoom in or out**
- **Change property or discard visualization**
- **Shift visualization or reset**
- **Browse materials or drag to select/deselect**
- **Set axes to Linear or Logarithmic scale**
- **Click Edit to open More Settings**
- **Adjust the range for property values**
- **Set unit system**
- **Change units**
- **Breakout material categories**

**Elastic Modulus: Tension (GPa)**

- **Display Settings**
  - Default Units: S.I.
  - Reference Lines: Show

- **Property Range Settings**
  - Elastic Modulus: Tension
  - Units: GPa
  - Min: 0
  - Max: 950
Visualization Tools

Select or star this material

Search for materials or browse by category

Select or star materials

Display options to show all materials, only selected and in range, or only starred materials

Click on a dot to see material details
Tabular Data

See the full list of materials in a table below the visualizations.

Reorder columns or export data as a CSV file.

Sort by any column.

See if a material is in range and select, deselect, or star the material.

See more information on this material.
Search for a Property Value

1. Select “Find a property value for a single material” from the DataVis homepage

2. Enter the material and property to see the value (change the units using the dropdown menu)

3. Use the “Compare” button to generate a new project

4. The result for the material searched is highlighted in the visualization and listed at the top of the tabular data.
Pre-existing DataVis projects were created by faculty to demonstrate specific concepts.

Select from the library on the DataVis homepage or use the DataVis tab in search or browse results to view relevant projects.

All content in the projects can be edited to create your own version, which can then be saved to your projects or shared.
Sample DataVis Projects

All content in the projects can be edited to create your own version, which can then be saved to your projects or shared.

Projects have their own landing page in AccessEngineering, with a description, related searches, links to other projects in a series, and instructor resources including answer keys.
Questions?

Contact McGraw Hill’s Customer Success Team at customersuccess@mheducation.com for questions on using DataVis or requests for additional training.