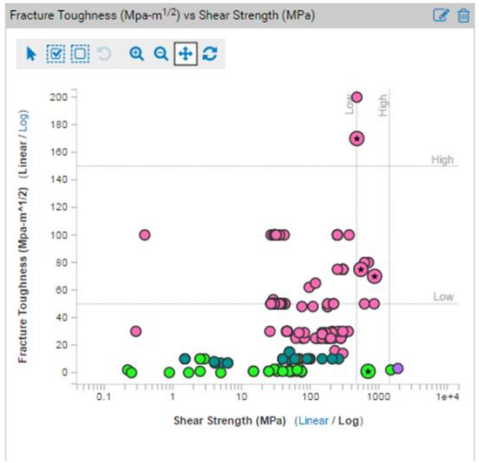
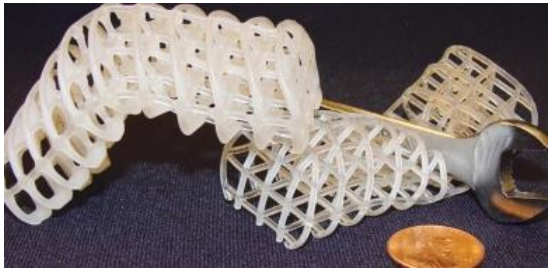



DataVis™
Material Properties
by ACCESS Engineering

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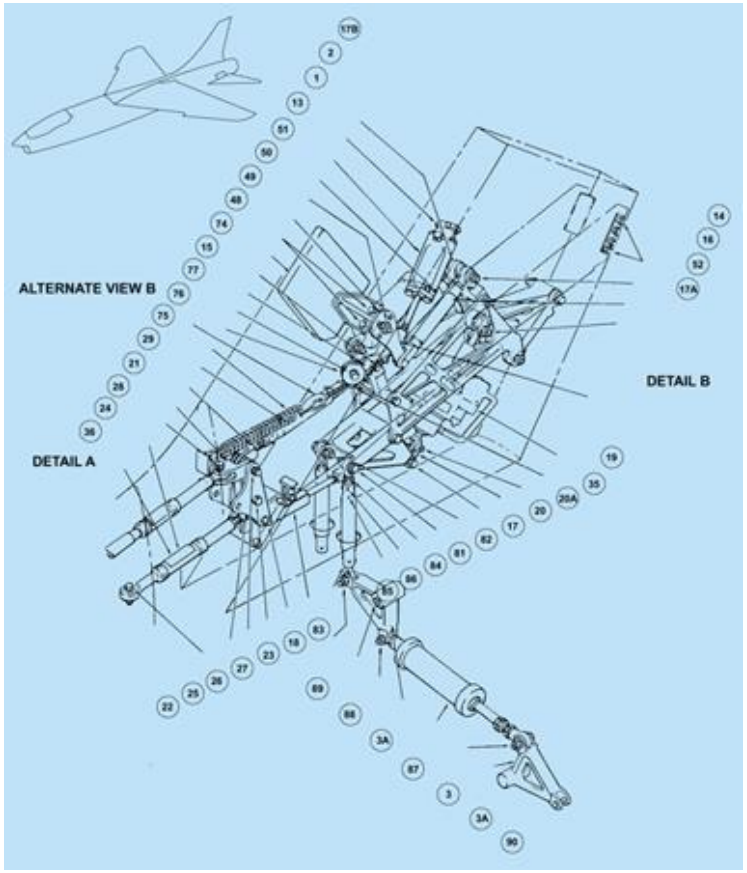
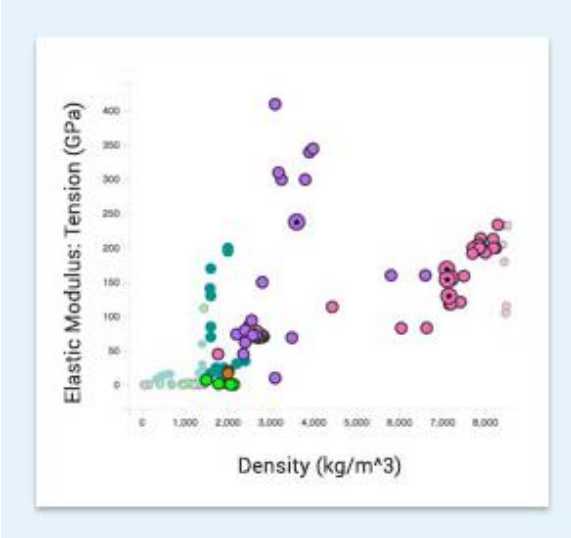
# Table of Contents





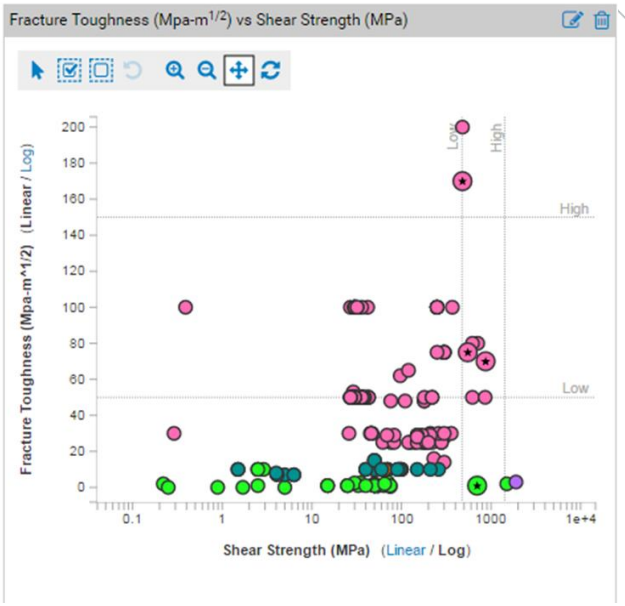
# What is DataVis?

- **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 interactive dot-plots and scatterplots across a wide range of materials.**
- **DataVis includes a curated dataset of 200 materials and 65 properties**

# Dot plot and Scatter plot visualizations

- **Compare materials for a single property in a dot plot or compare two properties against each other in a scatterplot**
- **On the right you can see the density of all 200 materials being compared against each other, as well as Fracture Toughness vs. Shear Strength**
- **Compare up to five visualizations in a page**




# Begin your DataVis project

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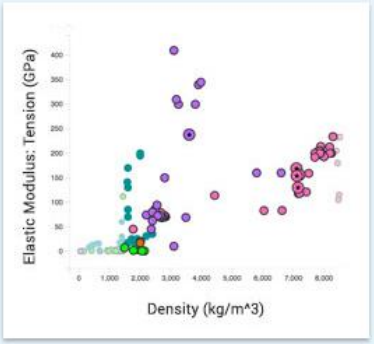


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Open Project

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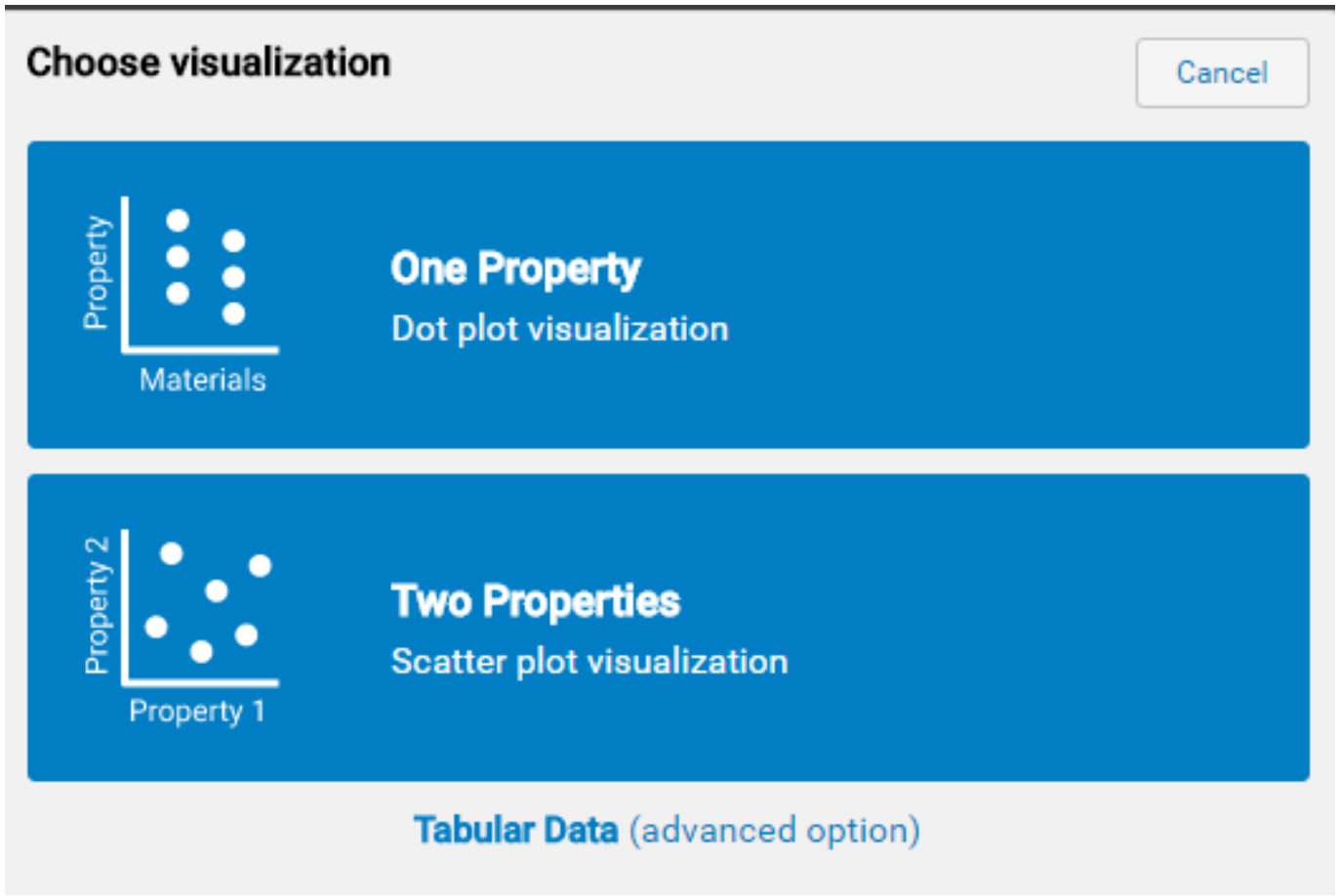
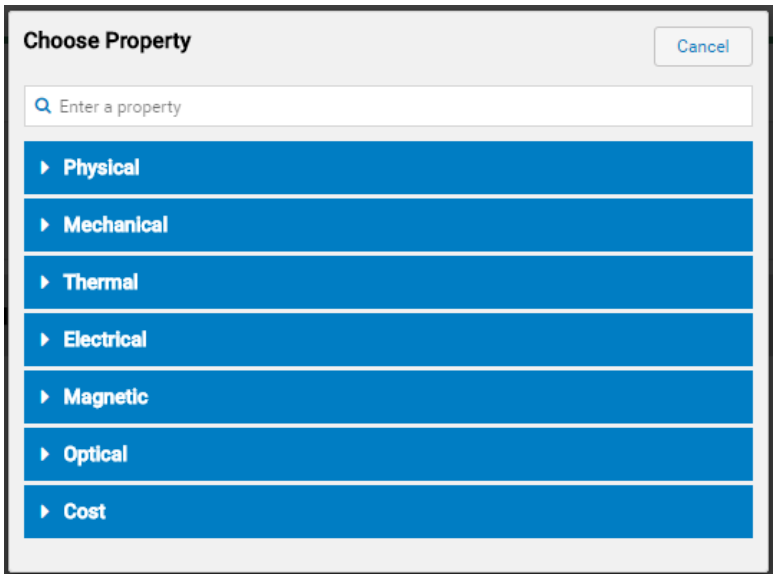
Open Project

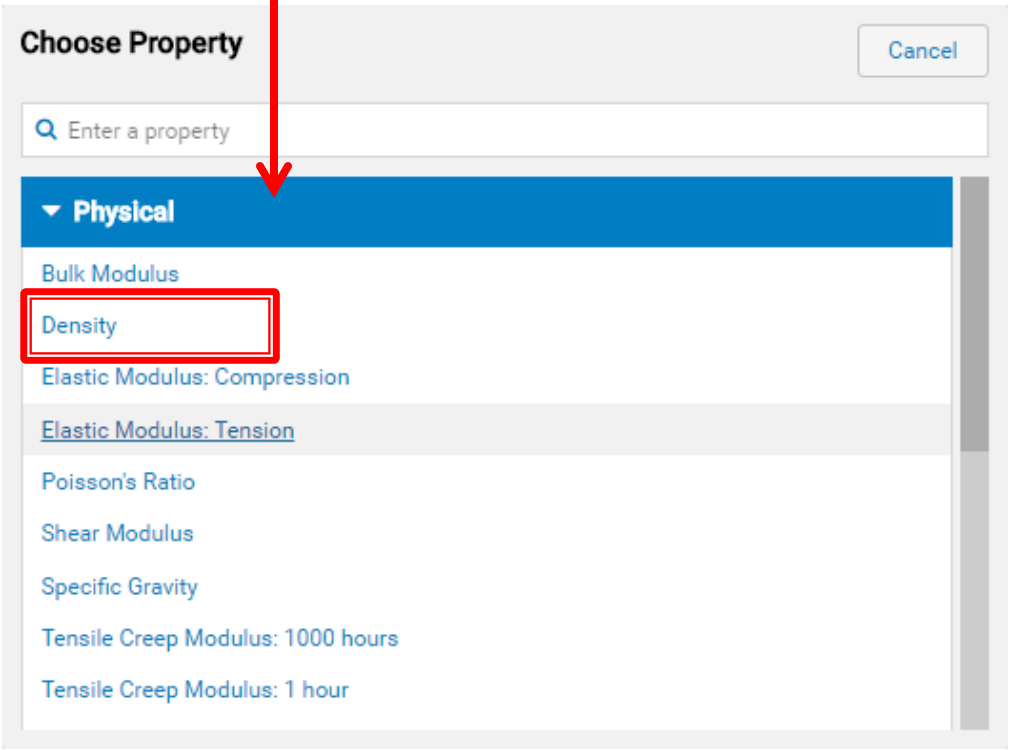
# Choose a visualization



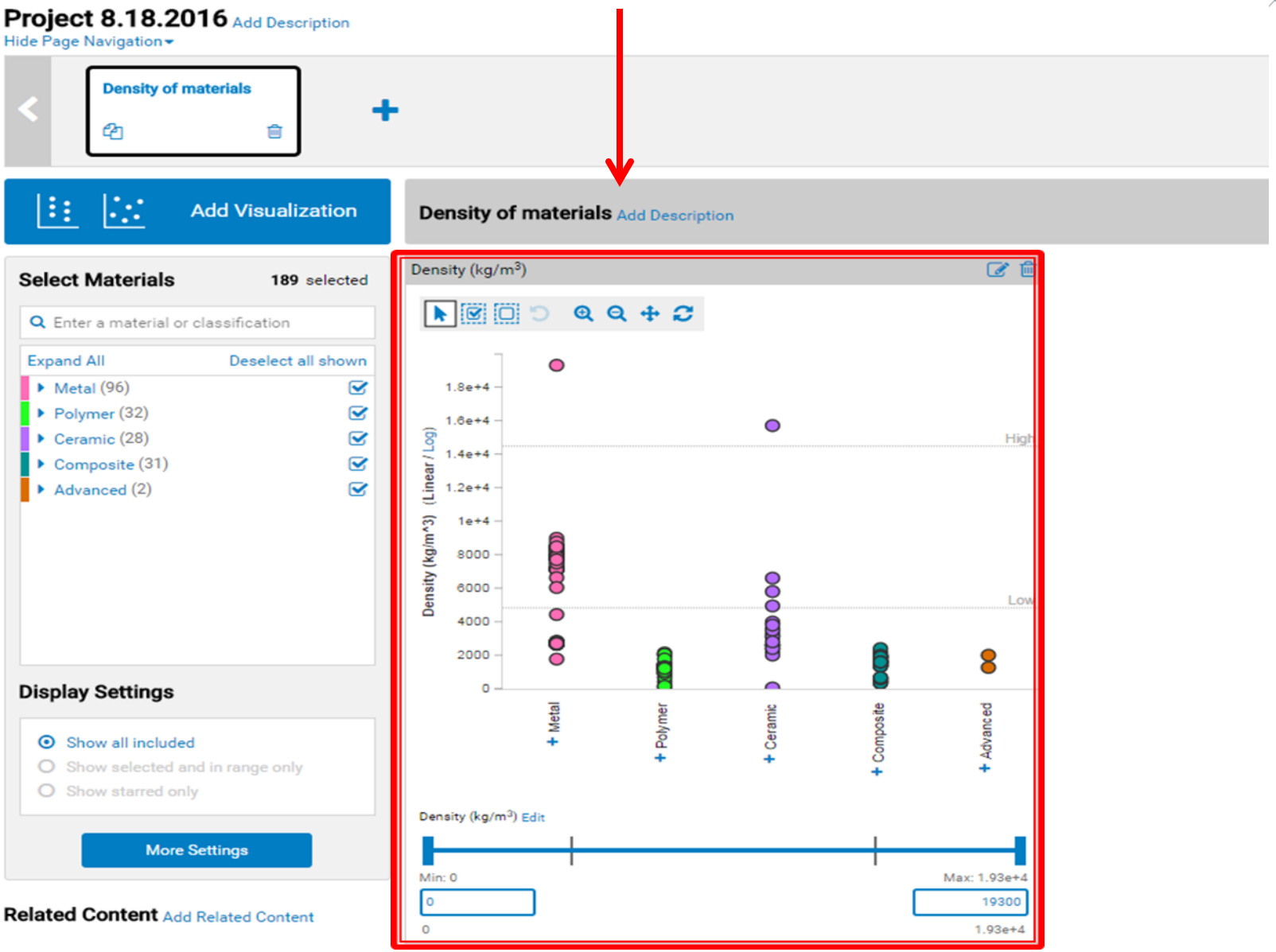
# Compare a single property



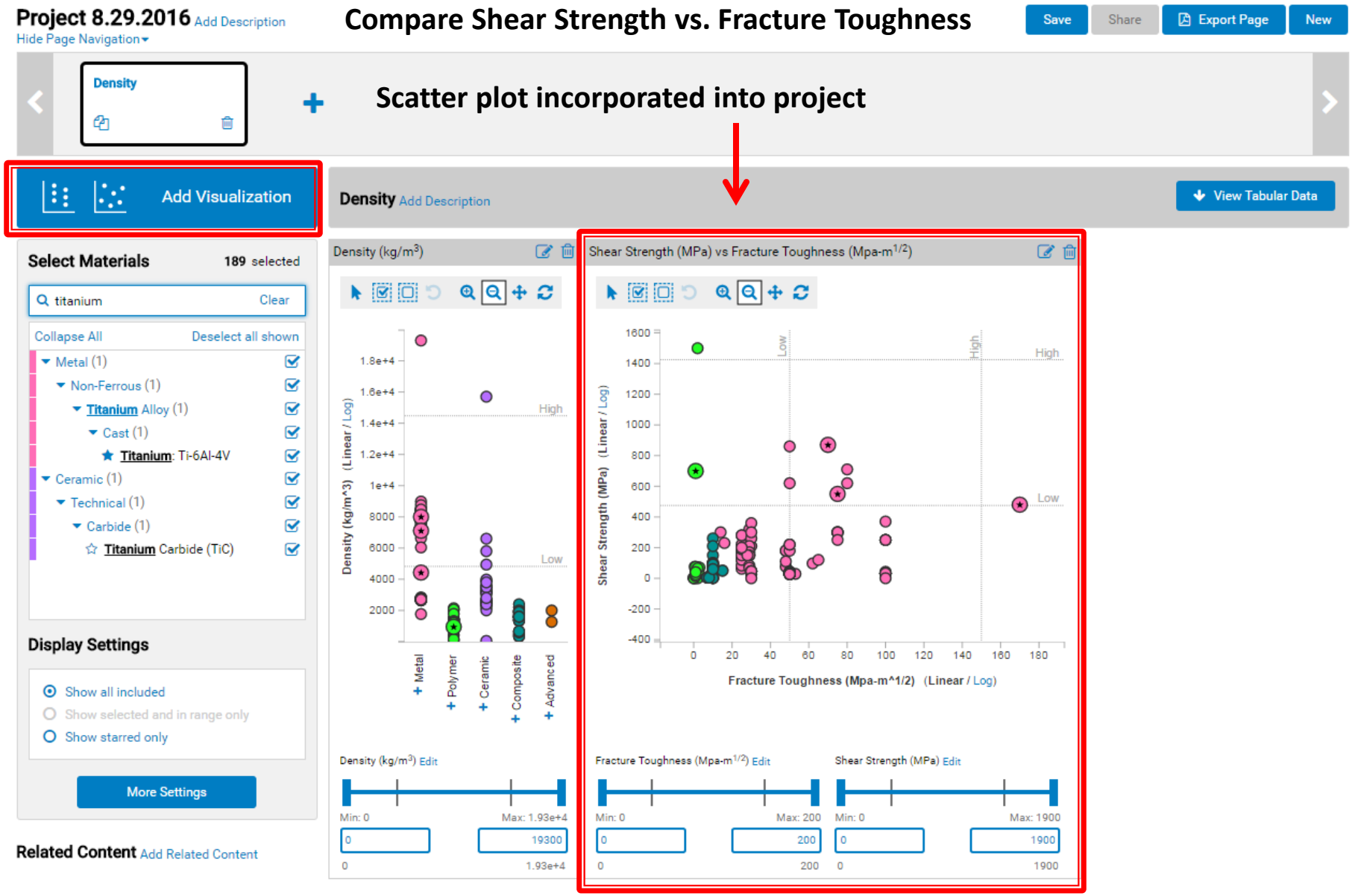

**Lets choose Density as an example to begin a project**



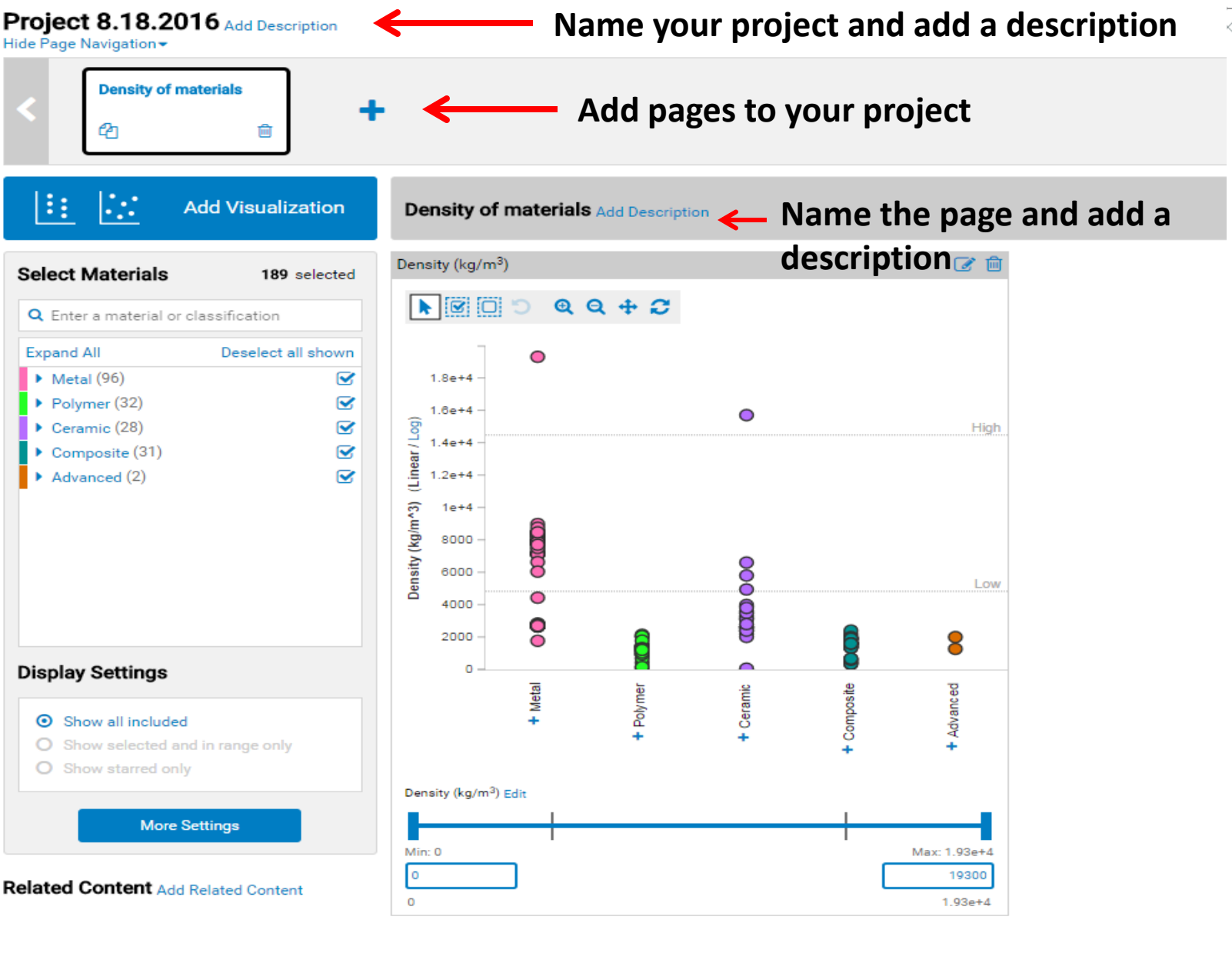
# Density dot plot incorporated into project



# Compare two properties



# Tools & Settings



# Additional Tools & Settings

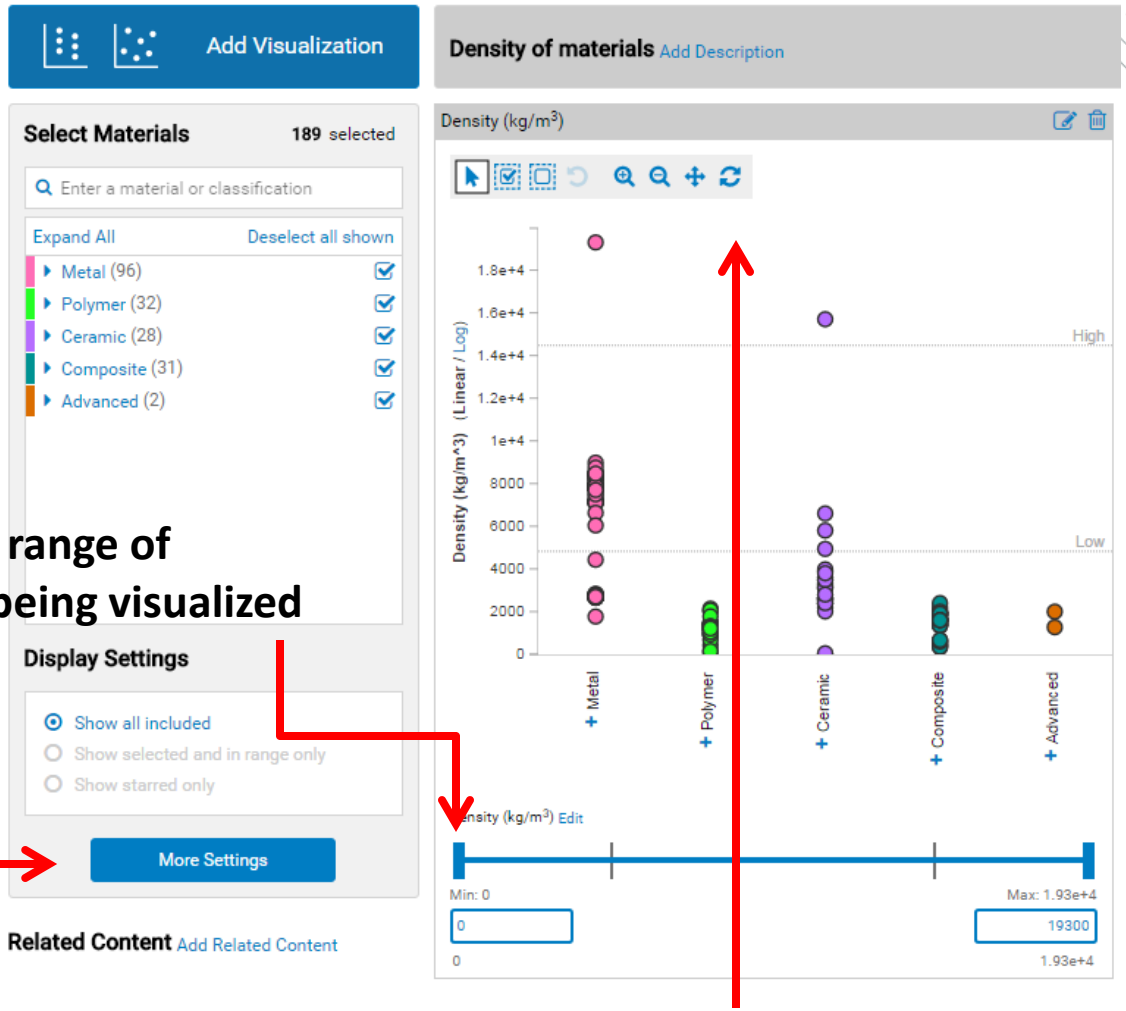
Add up to five visualizations in a page

Look up selected materials

Adjust the range of materials being visualized

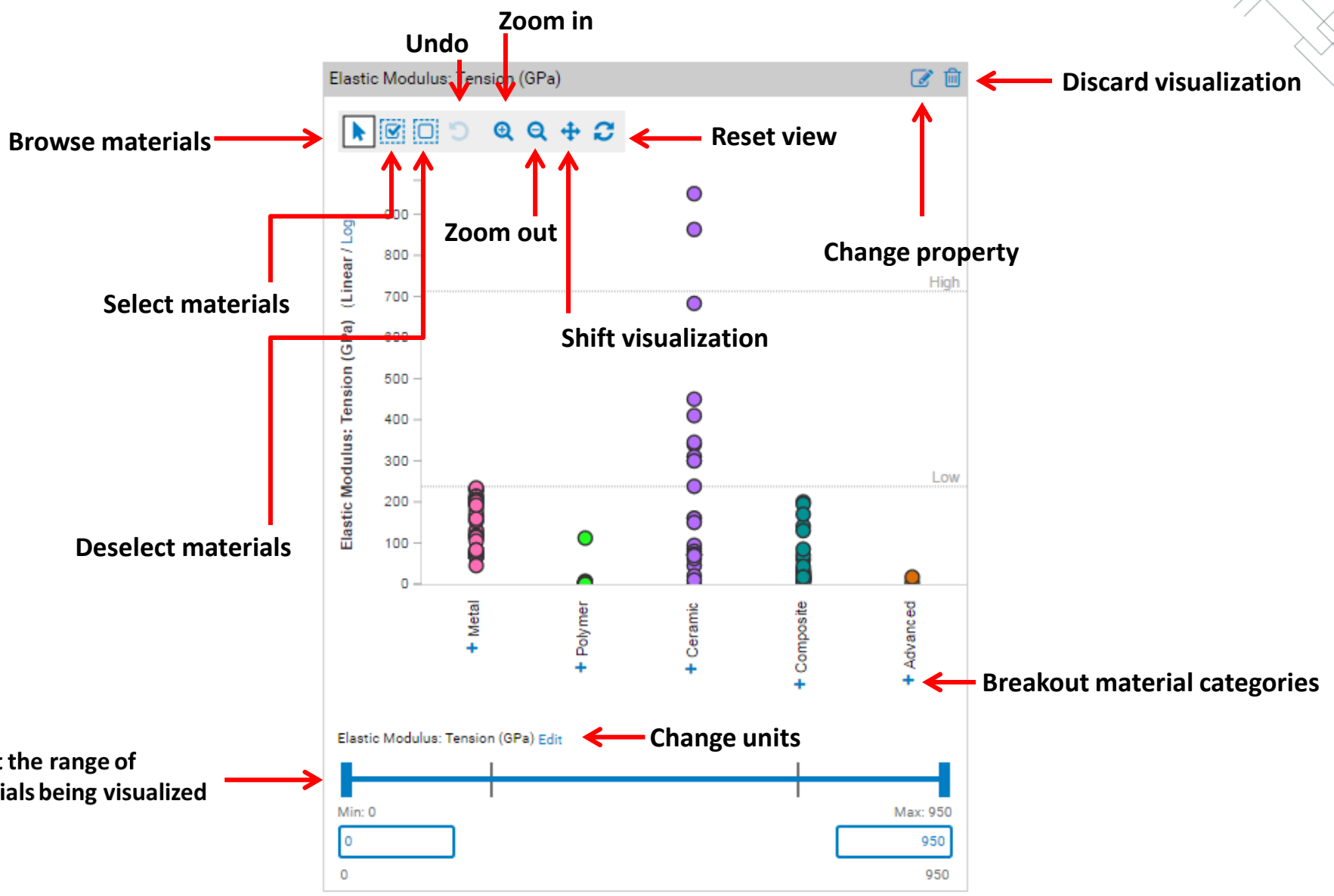
More settings

Add related content (can be non McGraw-Hill materials)



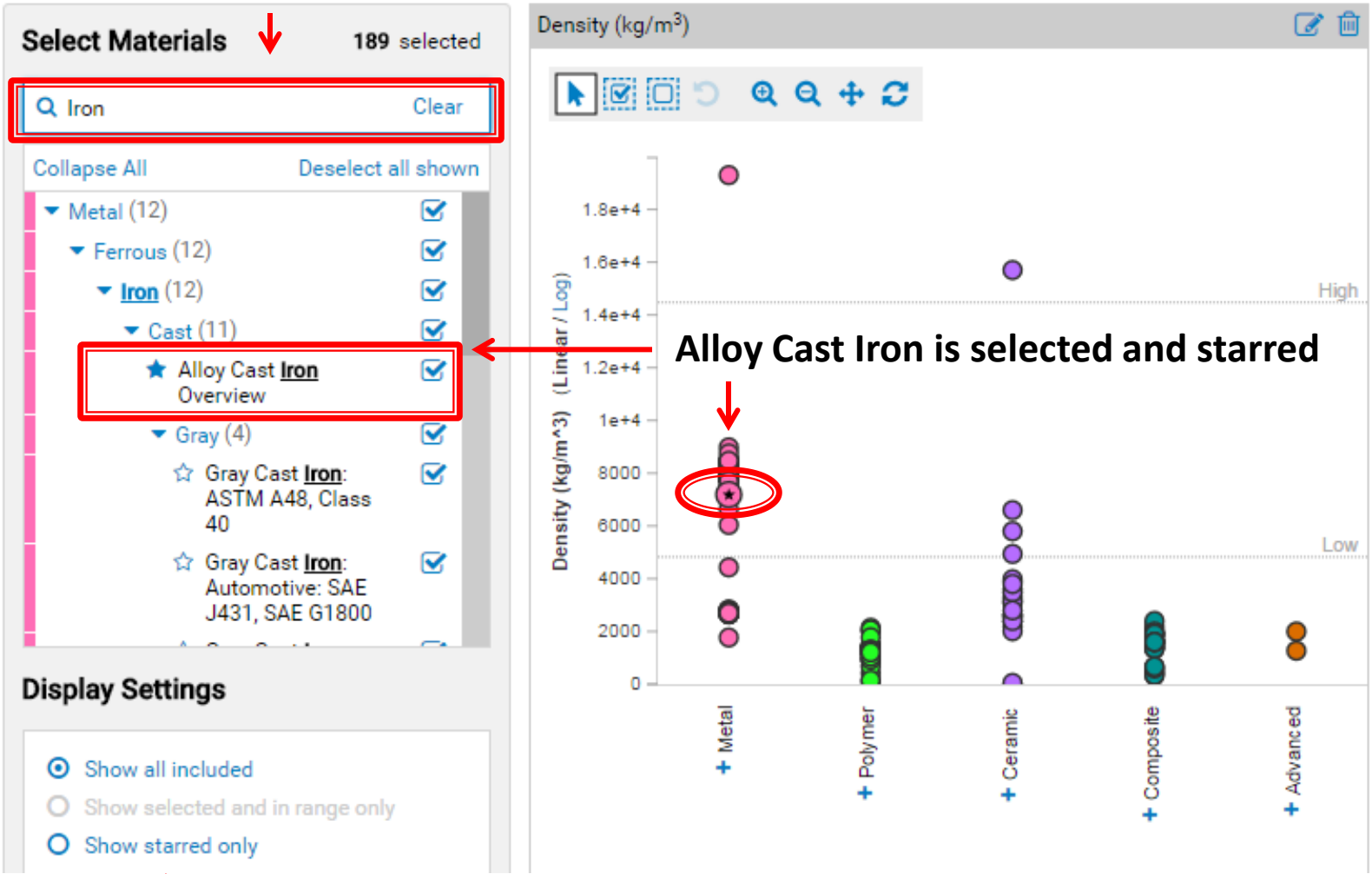

Visualization tools

# Visualization Tools



# Search for a material

**Search for Iron materials**



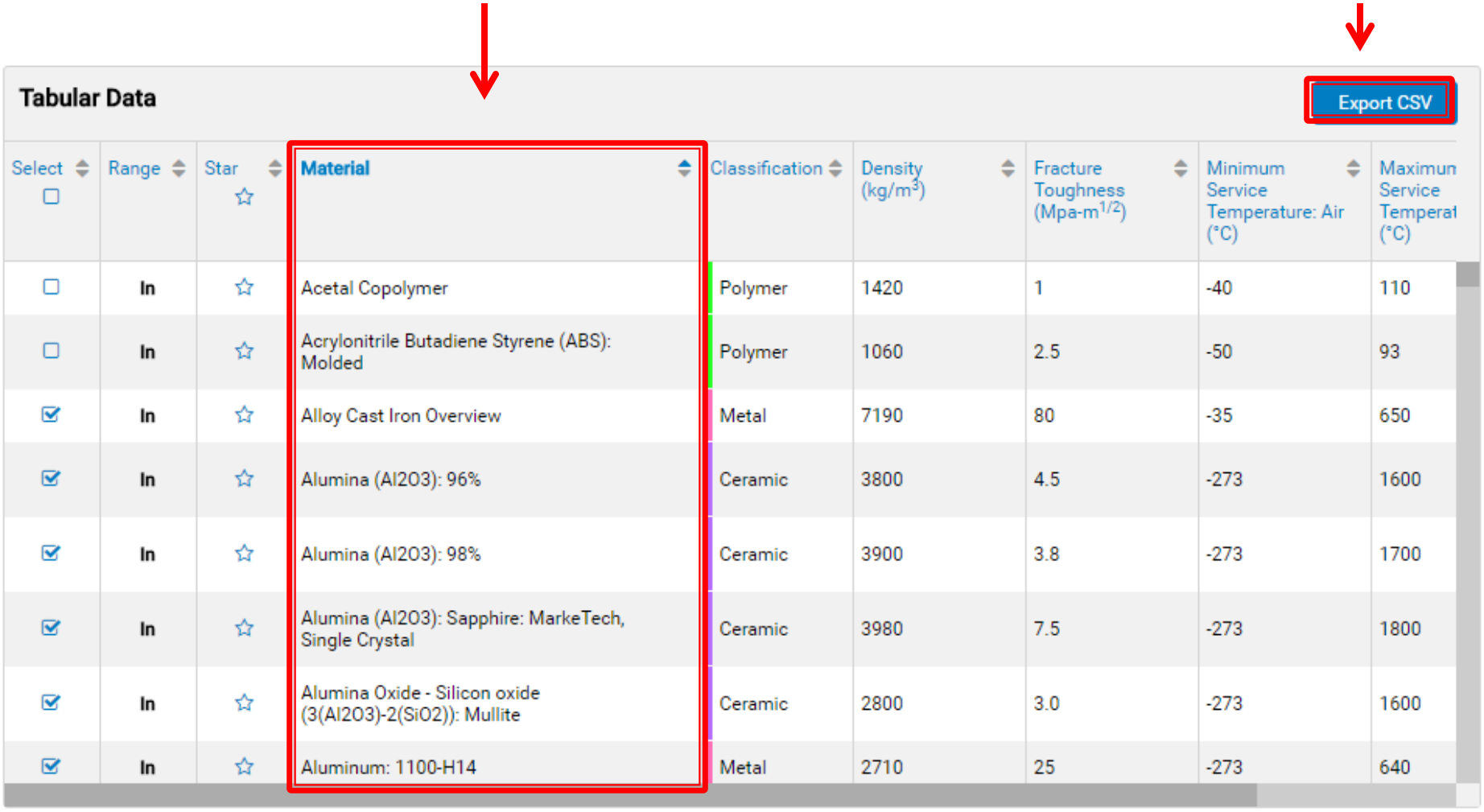

**Alloy Cast Iron is selected and starred**

**Option to display only starred materials**

# Analyze Tabular Data

**View the full list of materials being visualized**

**Export the full list to a CSV**



**Tabular Data**

Export CSV

| Select | Range | Star | Material | Classification | Density ($kg/m^3$) | Fracture Toughness ($Mpa-m^{1/2}$) | Minimum Service Temperature: Air (°C) | Maximun Service Temperat (°C) |
|---|---|---|---|---|---|---|---|---|
| ☐ | In | ☆ | Acetal Copolymer | Polymer | 1420 | 1 | -40 | 110 |
| ☐ | In | ☆ | Acrylonitrile Butadiene Styrene (ABS): Molded | Polymer | 1060 | 2.5 | -50 | 93 |
| ☑ | In | ☆ | Alloy Cast Iron Overview | Metal | 7190 | 80 | -35 | 650 |
| ☑ | In | ☆ | Alumina (Al2O3): 96% | Ceramic | 3800 | 4.5 | -273 | 1600 |
| ☑ | In | ☆ | Alumina (Al2O3): 98% | Ceramic | 3900 | 3.8 | -273 | 1700 |
| ☑ | In | ☆ | Alumina (Al2O3): Sapphire: MarkeTech, Single Crystal | Ceramic | 3980 | 7.5 | -273 | 1800 |
| ☑ | In | ☆ | Alumina Oxide - Silicon oxide (3(Al2O3)-2(SiO2)): Mullite | Ceramic | 2800 | 3.0 | -273 | 1600 |
| ☑ | In | ☆ | Aluminum: 1100-H14 | Metal | 2710 | 25 | -273 | 640 |

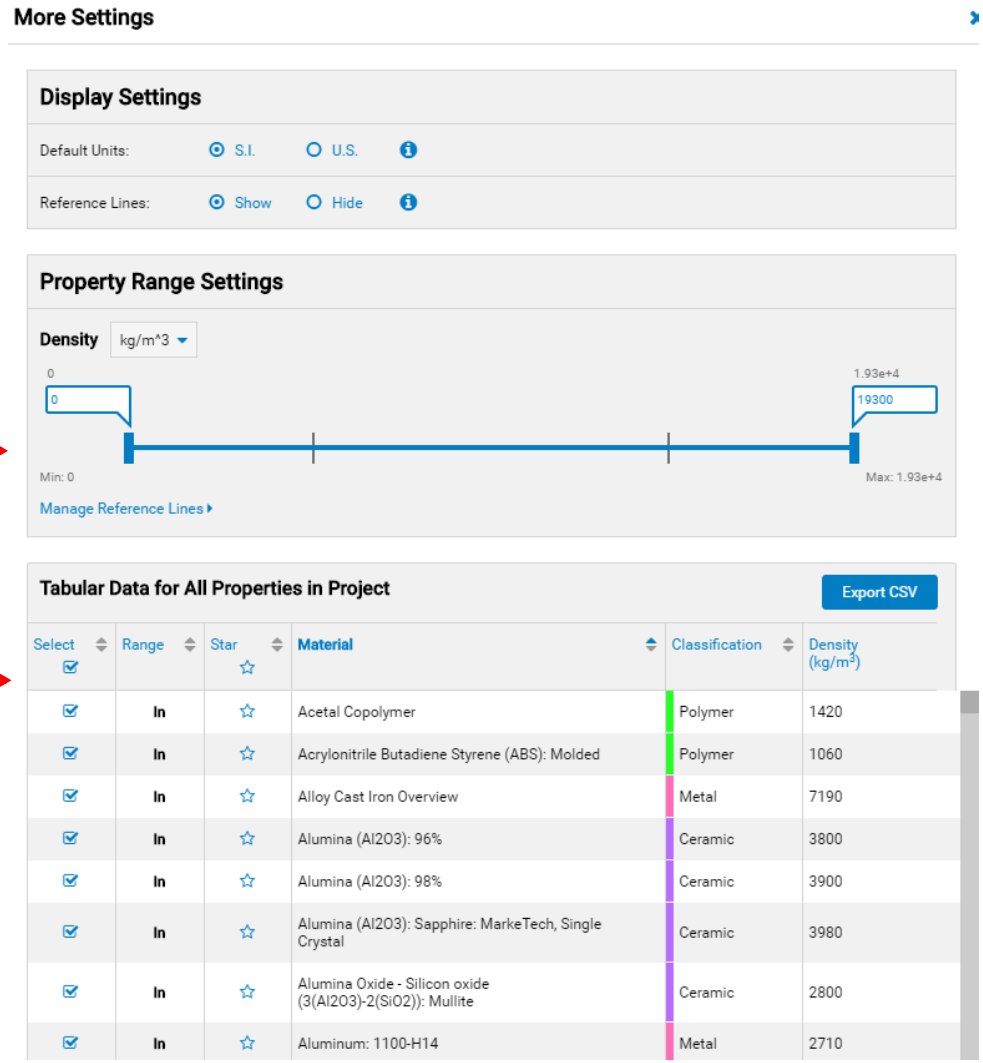
# More Settings

**Choose either Standard or U.S. format units**

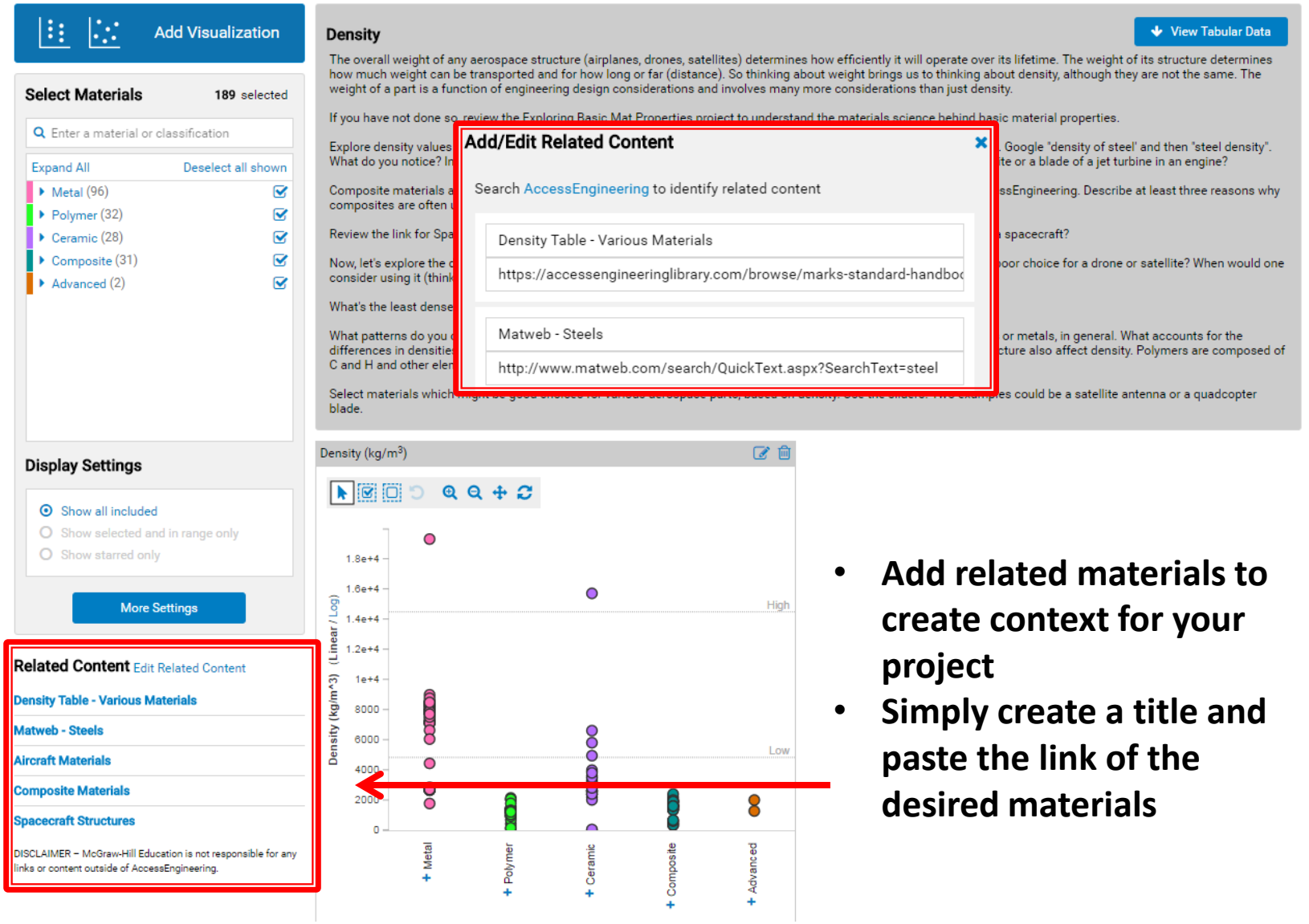
**Show or hide reference lines for visualizations**

**Adjust range settings**

**Analyze tabular data**



# Add Related Content

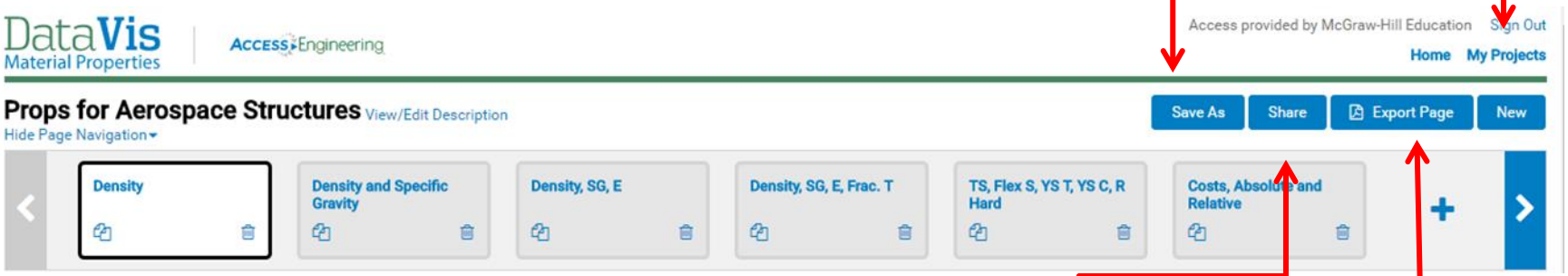



- **Add related materials to create context for your project**
- **Simply create a title and paste the link of the desired materials**

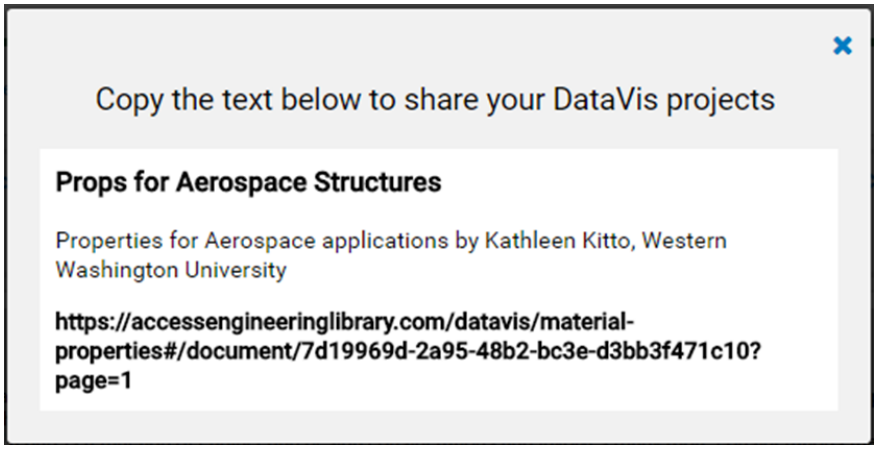
# Save & Share

**Access your projects**

**Save project**




**Export page to a PDF**




**Share your completed projects with your colleagues, simply click the share button to generate a project link**

# Find a property value for a single material

DataVis Material Properties | ACCESS Engineering

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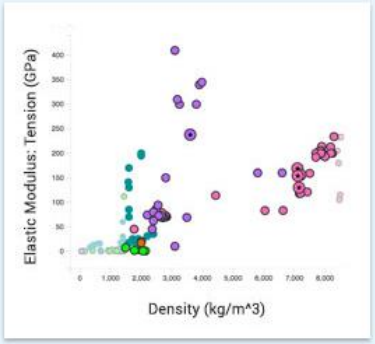


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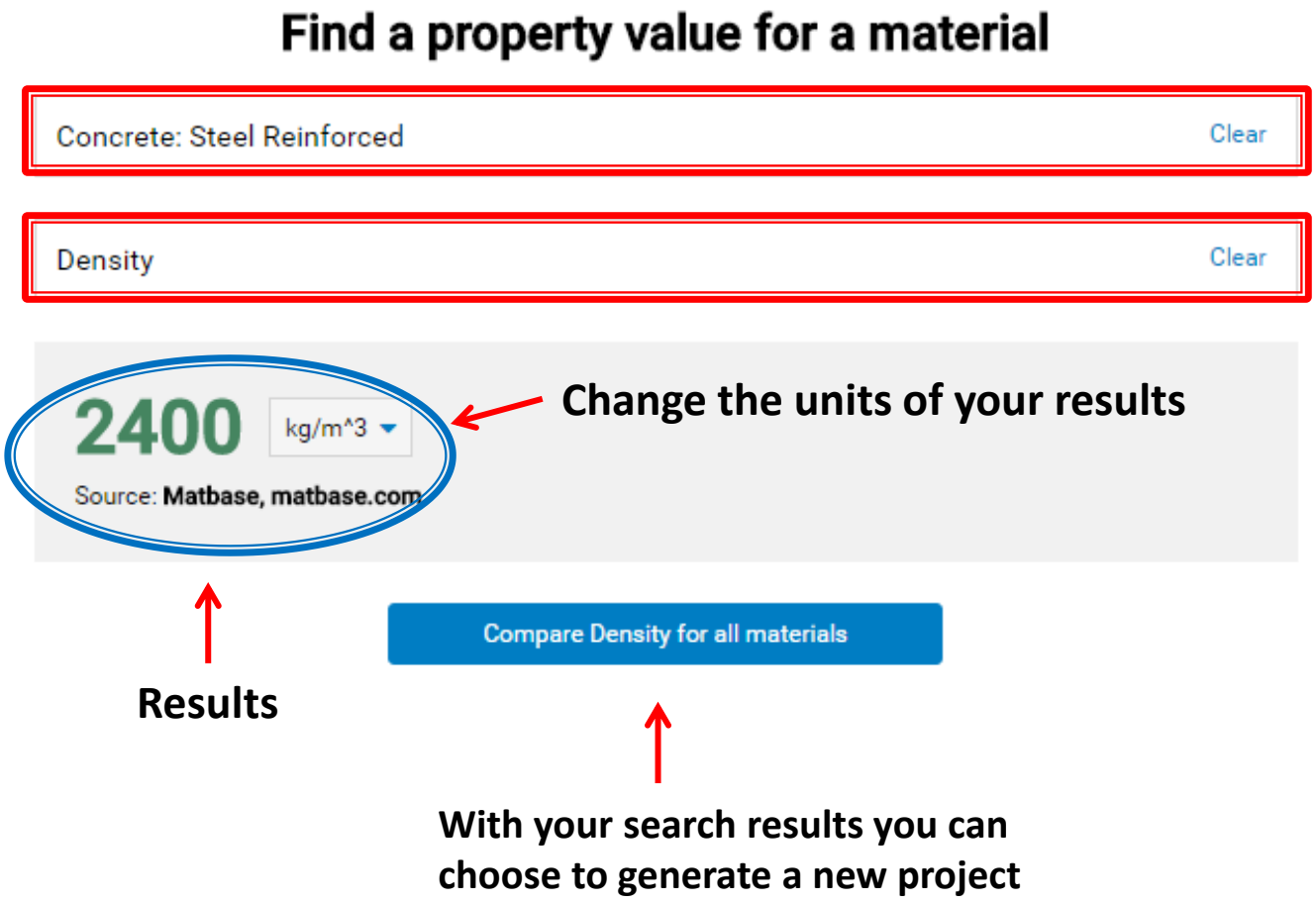
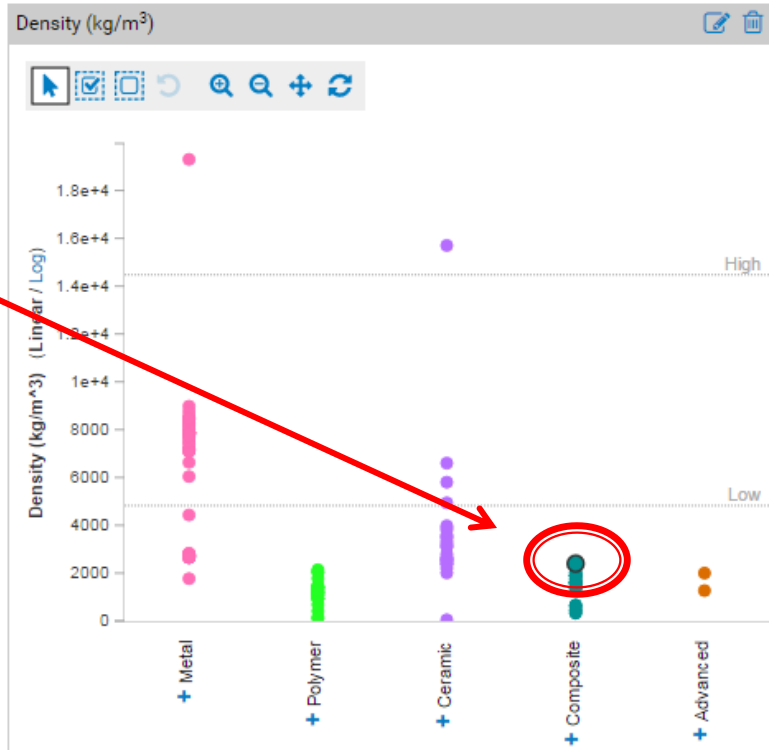

Find a property value for a material
Concrete: Steel Reinforced
Clear
Density
Clear
2400
kg/m^3
Source: Matbase, matbase.com
Change the units of your results
Results
Compare Density for all materials
With your search results you can choose to generate a new project

# Generate a new project with your search results

The search results for Concrete Steel Reinforced is now highlighted in the new visualization

Concrete Steel Reinforced is also listed at the very top of the tabular data




**Tabular Data** Export CSV

| Select | Range | Star | Materia | Classification | Density (kg/m³) |
|---|---|---|---|---|---|
| ☑ | In | ☆ | Concrete: Steel Reinforced | Composite | 2400 |
| ☐ | In | ☆ | Acetal Copolymer | Polymer | 1420 |
| ☐ | In | ☆ | Acrylonitrile Butadiene Styrene (ABS): Molded | Polymer | 1060 |
| ☐ | In | ☆ | Alloy Cast Iron Overview | Metal | 7190 |
| ☐ | In | ☆ | Alumina (Al2O3): 96% | Ceramic | 3800 |

# Sample DataVis Projects are available

DataVis Material Properties | ACCESS Engineering

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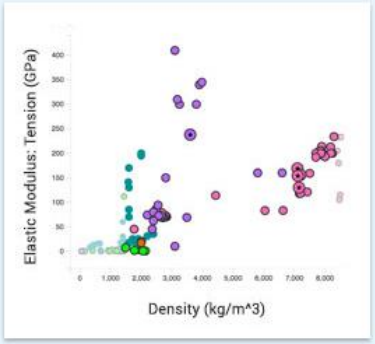
Home My Projects

**Available on the homepage**

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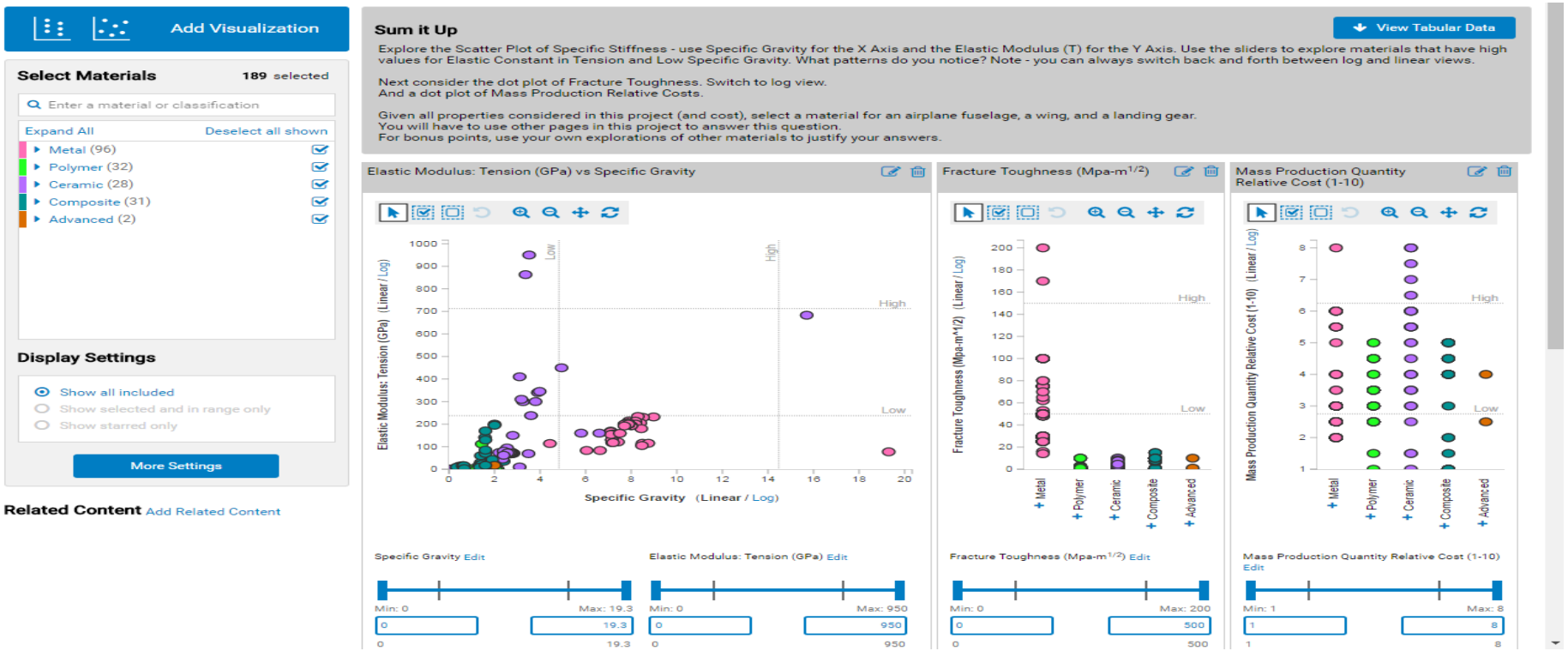
Open Project

# Access customizable Sample DataVis Projects

- **Sample DataVis projects are available for our instructor and student users**
- **Projects are assembled by leading faculty in the sciences and engineering**
- **Include these in your courses as active learning projects. You may use them "as is" or customize them to your personal needs.**



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# Questions?

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