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Demo: Creating Scatterplots and Scatterplot Matrices

In this video, we show how to create scatterplots and scatterplot matrices for the Impurity data using Graph Builder and Scatterplot Matrix from the Graph menu.

We start by creating a scatterplot using Graph Builder.

First, we select Graph Builder from the Graph menu.

We drag Impurity to the Y zone, and then drag Temp to the X zone. JMP creates a scatterplot, with a smoother drawn through the points. The smoother helps you understand the nature of the relationship between the two variables.

We can see that the relationship between Impurity and Temp is positive and linear, and that it is relatively strong.

What about the relationship between Impurity and Catalyst Conc? We can add a scatterplot for these two variables by dragging Catalyst Conc next to Temp on the X axis, or we can drop Catalyst Conc on top of Temp to replace Temp with Catalyst Conc.

The relationship between Impurity and Catalyst Conc is also positive and linear.

The upper specification for Impurity is 7.0. Let's add a shaded region to the graph to see Impurity values that are beyond this limit. To do this, we right-click on the Y axis and select Axis Settings. We click Allow Ranges, change Min Value to 7 and change Max Value to 12, which is just beyond the range of Impurity values. We change the color to a light gray, and select Add and then OK.

You can see that many of the out-of-spec batches have higher values of Catalyst Conc. In fact, the batches with the highest Impurity values generally have the highest Catalyst Conc values.

To see scatterplots for all pairs of variables at one time, we create a scatterplot matrix. Scatterplot Matrix is an option under the Graph menu.

We select Impurity through Reaction Time for Y, Columns. Under Matrix Format, the default is a lower triangle, but you can change this to an upper triangle or a square matrix. We'll use the default and click OK.

As we saw earlier, Temp and Catalyst Conc both have a positive linear relationship with Impurity. Catalyst Conc and Temp also have a positive linear relationship. There doesn't appear to be much of a relationship between Reaction Time and Impurity or the other variables.

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