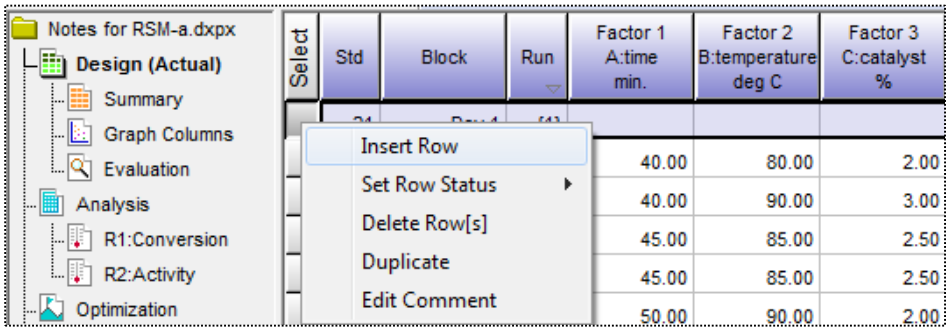
Design-Expert® Software: How to add verification runs

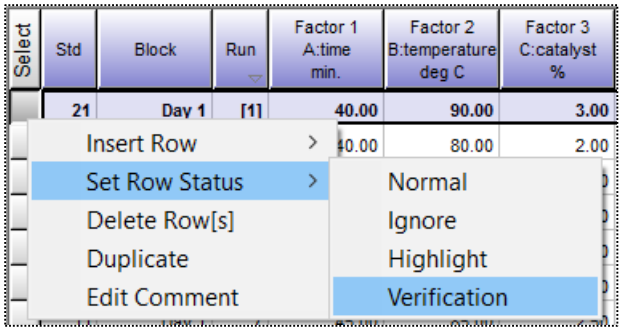
In Design-Expert, you now have the ability set the status of a run to “Verification”. A verification run is part of the original experiment but the information the run generates is not used to fit a model for the response. The run is just used to check the model predictions, either by visual inspection of the fit on the graph or by some other quantitative metric.

Method A: Manual Setup

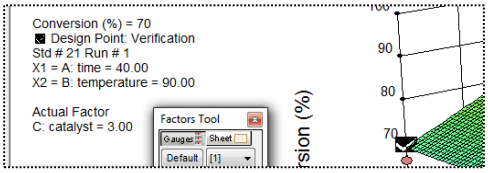
The simplest way to add verification runs is to type them in and change the row status to "Verification". This might be done to verify customer expectations or standard operating procedures. To create a blank line in the design layout, right-click the button to the left of any row and choose **Insert Row** as shown below. (To try this for yourself, open the “RSM-a.dxpx” tutorial file.)



This adds a blank row where you can enter the desired verification settings. After entering the factor levels, right-click on the row header again and **Set Row Status➔Verification** as shown below.



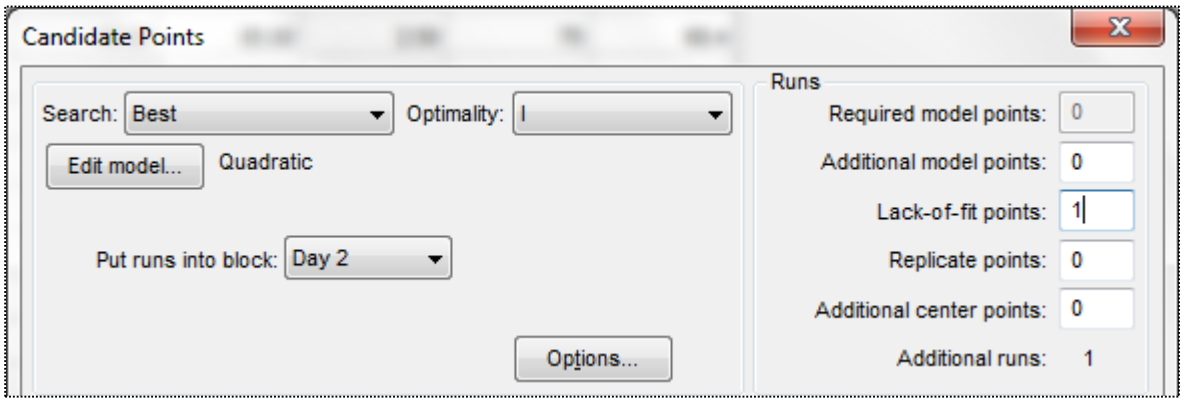
Once converted to verification status, the row font changes to **bold** and the run number goes into brackets **[]**. Design-Expert guards against mistaken entry of extreme factors settings. In any case, factor settings within the original experimental limits are advised (be careful of extrapolation!). Responses from verification runs appear as check-marked (✓) squares on the model graphs as seen to the right.



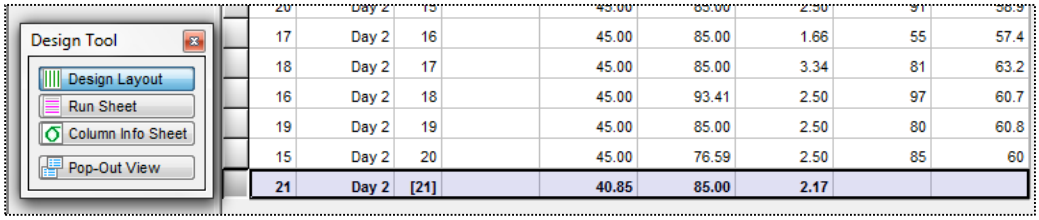
Method B: Computer-Generated to Fill Gaps

Augmenting a design with lack-of-fit points provides a more sophisticated way to add verification runs. Do so by choosing **Design Tools ➔Augment Design ➔Augment**. This will bring up the Optimal Augment window. Near the middle of this window, change the **Block** to **Day 2**. Change the number of **Lack-of-fit** points to the desired number of verification runs—in this case **1**, which when added in this

way are selected to be space filling, that is, they will fill the gaps in the design space. Hit the tab key to update your screen to match the one shown below. Then click **OK** to add the runs.



Runs added through the augment procedure will always be added to the bottom of the block. Once you have added the new runs, just right-click on the row headers for those runs and choose **Set row status➔Verification** to turn these into verification runs.



Rather than putting verification runs at the end blocks, considers randomizing them into the design. Do so via a right-click on the Run column header and selecting “Randomize”. Then you can re-randomize any or all blocks in your design.

Summary

When modeling the responses, DX10 ignores verification runs. However, so experimenters can see how well their model fits, verification runs show up on Graph Columns, Diagnostics Graphs, the Diagnostic Influence report, and the Model Graphs.