Using JMP Regression for Heat Transfer Modeling

This assignment is based on completing the **JMP\_Solid\_Product\_Cooling.pdf** step-by-step tutorial. The tutorial uses cooling data in **consumer\_solid.jmp**.

1. **Follow the tutorial to plot Temperature [C] versus time [seconds] color-coded by the Process variable.**

* Which Process has faster cooling? Lab or Plant?
* Attach a screen picture of your graph

1. **Add calculated columns for dimensionless temperature, Theta and -ln(Theta)**
2. **Plot -ln(Theta) versus time [seconds] and fit lines for Process=”Lab” and “Plant (exclude initial points and use Group By per the tutorial)**
   * How many initial points did you exclude for times prior to steady state cooling? (OK to exercise some judgement on this)
   * Attach a screen picture of your plot including the Summary of Fit statistics (it’s ok to collapse the other sections)
   * What are the Rsquare values for the two linear fits (Lab and Plant)?
   * What are the slope values [s-1] for the two linear fits?

|  |  |  |
| --- | --- | --- |
| Process | RSquare | Slope (s-1) |
| Lab |  |  |
| Plant |  |  |

1. **Based on your linear fits, calculate and report the cooling time constants, tC in seconds, for the Lab and Plant process**

|  |  |
| --- | --- |
| Process | tc (s) |
| Lab |  |
| Plant |  |