A screenshot of a data sheet

Description automatically generated7.1 Recall that in the previous unit exercises, a two-tailed test was undertaken whether the population mean impurity differed between the two filtration agents in Data Set G. Suppose instead a one-tailed test had been conducted to determine whether Filter Agent 1 was the more effective. What would your conclusions have been?

A screenshot of a spreadsheet

Description automatically generated

I used the data analysis tab in Excel to carry out the one tailed paired t test to determine which filter agent was more effective. The results can be seen above. The t statistic is -3.26 and the p value is 0.003773 as we are conducting a one tailed test. The p-value is much smaller than the significance level of 0.05. Therefore, we reject the null hypothesis and conclude that there is significant evidence to suggest that Filter Agent 1 is more effective than Filter Agent 2 in reducing impurities.