Project Name – This is the name of your project, not your team name

Overview
The focus of this project is to develop a testing method to determine the quality of a machining coolant.

Objectives
• The experiment will have to be first designed and used to test the quality of three different coolants.
• The experiment should be able to correctly identify the good quality fluids from the poor quality fluids.
• The experiment procedures will also need to be duplicated by Quaker’s lab testing facilities.
• Due to restrictions of Quaker’s lab facility the thread cutting method used must be a vertical operation and not a horizontal turning operation traditionally used in industry to cut threads on pipe.

Approach
• A tapping procedure was selected
• Torsional force data recorded using a dynamometer
• A go/no-go gage used to verify quality
• Average torsional force at each interval would be calculated
• The data can be regressed to find a potential linear relationship
• The hope is that the linear relationship leads to rate of tool wear
• A difference of mean test will then be used to statistically determine the significance of data
• Null hypotheses states difference of mean between samples is equal to 0; (x1 – x2 = 0)

Outcomes
• The only statistically significant difference in mean is between QC 2776 (coolant 2) and QC SH-720 (coolant 3)
• The only coolant that has a significant chance of being represented by a linear relationship would be QC 750-TP (coolant 1) due to its p-value of .032, R-Sq value of 38.3%, and visual inspection

Future development of the experiment:
• Lack of tool wear is believed to have caused an overall lack of linear trends
• Finding end of life of the taps will shed more light on the trend of torsional force as the tool wears