Project Summary

For this project our team worked with Quaker Chemical in addressing the problem of simultaneous machining of cast iron and aluminum, two metals with vastly different machining properties. Because of the differences in mechanical properties, various machining operations such as reaming can result in poor surface finish on parts of the materials. The team was required to design and develop a bimetal test piece consisting of cast iron and aluminum that would withstand drilling and reaming processes using the CNC machine. A pattern of 15 holes were drilled and reamed on each test piece using 2 different coolants, data was collected for both. The 2 different coolants that were used were called Quakeral 335 and Microcut 3680. The data for each coolant was analyzed to decipher which produced the better surface finish. The team concluded that the Microcut 3680 machining coolant is better than Quakeral 335 for the bimetal machining of cast iron and aluminum.