Faurecia Ammonia Scrubber

Overview
Faurecia tests treated exhaust fumes from diesel engines for NOx levels. Before the fumes reach a the NOx tester, ammonia needs to be filtered out of the exhaust stream to protect the NOx converter. Faurecia is seeking improvements to their current filter methods to provide a filter with a longer lifespan and increased durability.

Objectives
The objectives for the semester were to provide Faurecia with a filter with increased durability and a longer lifespan. The objectives were met by producing a filter with increased surface area.

Approach
- Gain customer needs from sponsor
- Conduct background research on various ammonia filtration methods
- Discuss constraints with sponsor
- Research existing patents
- Generate concepts including: more folds on filter for greater surface area, larger diameter, longer length, wet scrubber
- Discuss concepts with sponsor
- Conduct concept screening matrix to determine the increased length option would be used for prototype
- Construct prototype
- Reviewed testing results from Faurecia

Outcomes
The prototype was effectively produced, but currently cannot be used in the HORIBA oven due to restrictions from the filter housing. Listed below are the main outcomes of using the larger filter.
- Increased life span of roughly 50%
- Decreased downtime for changing of filter
- Use of less filters