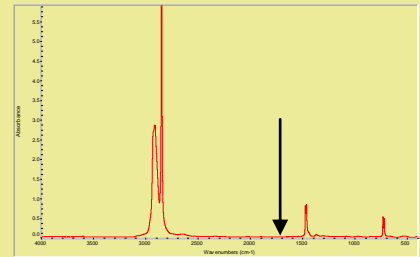


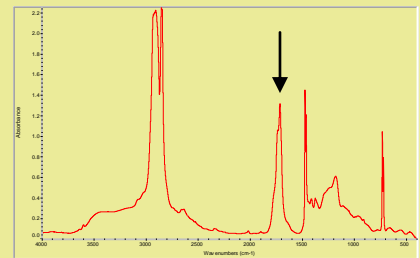
REPORT ADDENDUM

Graphs 1 and 2 are both FT-IR graphs collected by scanning plastic samples and documenting the amount of Carbon to Oxygen double bonds (C=O) that are present. The more C=O present in a plastic material, the more degradation that has occurred. Without these C=O sites, commonly found microorganisms would not be able to feed off the plastic once it's been disposed of. After microorganisms feed off of the oxidized polymer chains, all material is further reduced into non harmful CO₂, water, and biomass (humas).

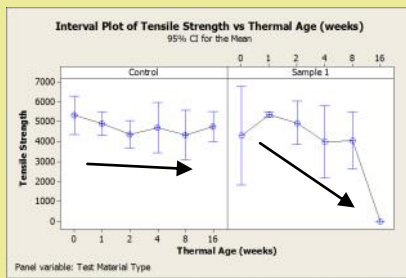
The arrows show where the C=O can be found on the graph. Notice how there is no relevant C=O peak on the Control samples even though it has been aged for 16 weeks. However, on the Samples with WRP additive, there is a very significant peak after 16 weeks of thermal aging. These same graphs are used to demonstrate how UV light affects plastic too.



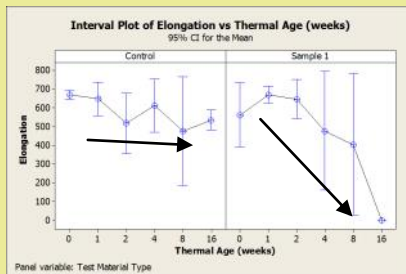
Graph 1 - Control Samples aged 16 weeks



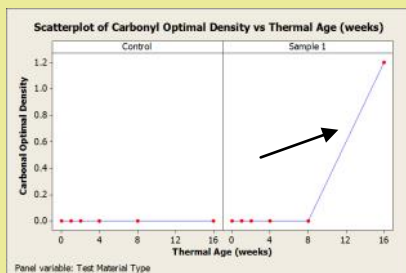
Graph 2 - Sample 1 aged 16 weeks



Graph 3 - Tensile Strength Control vs. Sample 1 aged 16 weeks



Graph 4 - Elongation Control vs. Sample 1 aged 16 weeks



Graph 5 - Carbonyl Density Control vs. Sample 1 aged 16 weeks

Three properties were evaluated in comparing the degradation performance of all sample sets. Those properties are Tensile Strength, Break Strain, and the Carbonyl Density. Tensile Strength is the total area under the tensile stress versus strain curve and is related to toughness. Break strain is the elongation percentage to the breaking point. Carbonyl density is the identified absorbance value of the carbonyl peak through FT-IR analysis after considering the material's thickness.

Notice how in each of the three graphs to the left (Graph 3, 4, and 5), the trend of the control samples are fairly consistent even after 16 weeks of accelerated thermal aging. In samples containing WRP additive, there is a definite trend of degradation. In graph 5, there is a spike in Carbonyl Density in the WRP sample, signifying a larger increase in C=O groups.

