KYDEX™ Composite Sheet Construction and Optimization

Overview
Sekisui would like to create a composite material using its KYDEX™ sheet. This composite would need to have a high strength to weight ratio as well as the ability to thermoform. Sekisui would also like to have a model that can give a strength to weight ratio when given sheet thickness and foam thickness.

Objectives
Our group will create a composite with a high strength to weight ratio as well as the ability to thermoform. Once data is collected we will look to create a model that can predict a strength to weight ratio of a composite given the sheet and foam thickness.

Approach
- Met and discussed the scope and need of our sponsor with them
- Selected possible materials for use
- Designed tests that would give us needed information about the mechanical properties of the composite
- Acquired our needed materials
- Created multiple composites
- 3-point bend and compression tested the composites
- Tested the ability to thermoform

Outcomes
- Created and tested fire retardant and thermoformable composites with a high strength to weight ratio.
- Created a model that produced strength values from an input of various parameters.