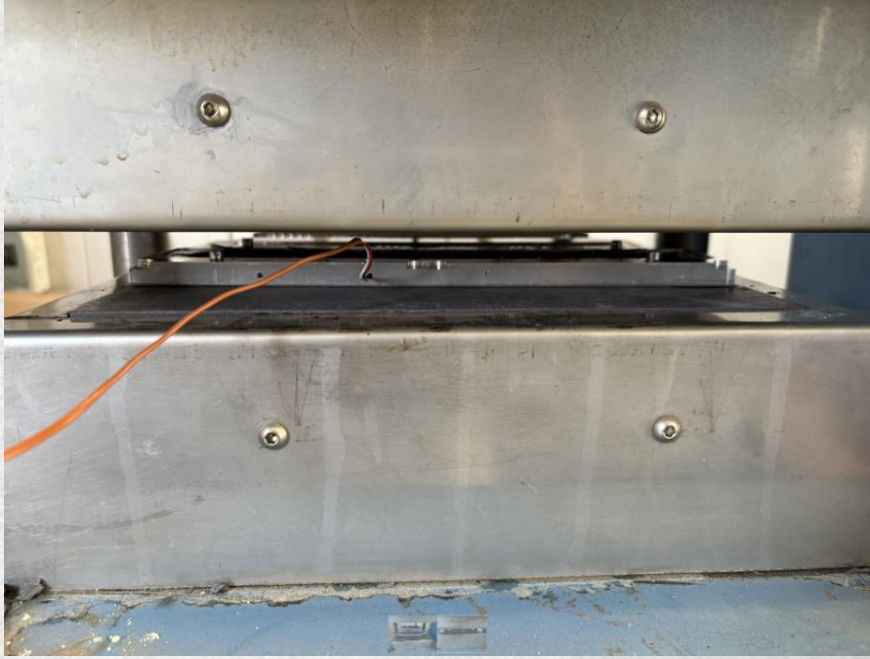

Senior Seminar February Update

February 2025

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ASE4113

Compression Molding Fabrication of C/C Composite Produced Via Highly-Processable BODA-Derived Precursor Resin

Problem Statement:

The purpose of this project is to demonstrate the high processability of (BODA Derived Resin) BDR by creating C/C test coupons via compression molding. Compression molding, being a simplified method for creating carbon/carbon composite parts, was selected as the manufacturing method. Our process was designed for fabricating coupons for tensile testing via ASTM D3039.

Compression Molding Fabrication of C/C Composite Produced Via Highly-Processable BODA-Derived Precursor Resin

Objectives:

Develop compression molding manufacturing method using BODA as a precursor carbon matrix and create test coupons.

- **Equipment – (100%)**
- **Mold – (100%)**
- **Manufacturing Method – (100%)**
- **Coupon Manufacturing – (100%)**

Characterize mechanical and material properties – (0%)

- **Scanning Electron Microscopy (SEM)**
- **Coefficient of thermal expansion**
- **Young's Modulus**
- **Shear Modulus**
- **Poisson's ratio**

Jan-February Accomplishments

- 8 coupons created
- 5 failures, 3 successes
- Final manufacturing method attained
- Failure point identified
- Mold realigned

Coupon Failure

Plan for March

- Carbonize coupons (1700C)
- Tensile Testing
- Create AIAA report due on March 3rd

Tentative:

- Porosity
- SEM

Questions?