THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

RELIABILITY AND FAILURE ANALYSIS LABORATORY

Testing and Analyzing E-glass Composite Material

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Reliability and Failure Analysis Lab

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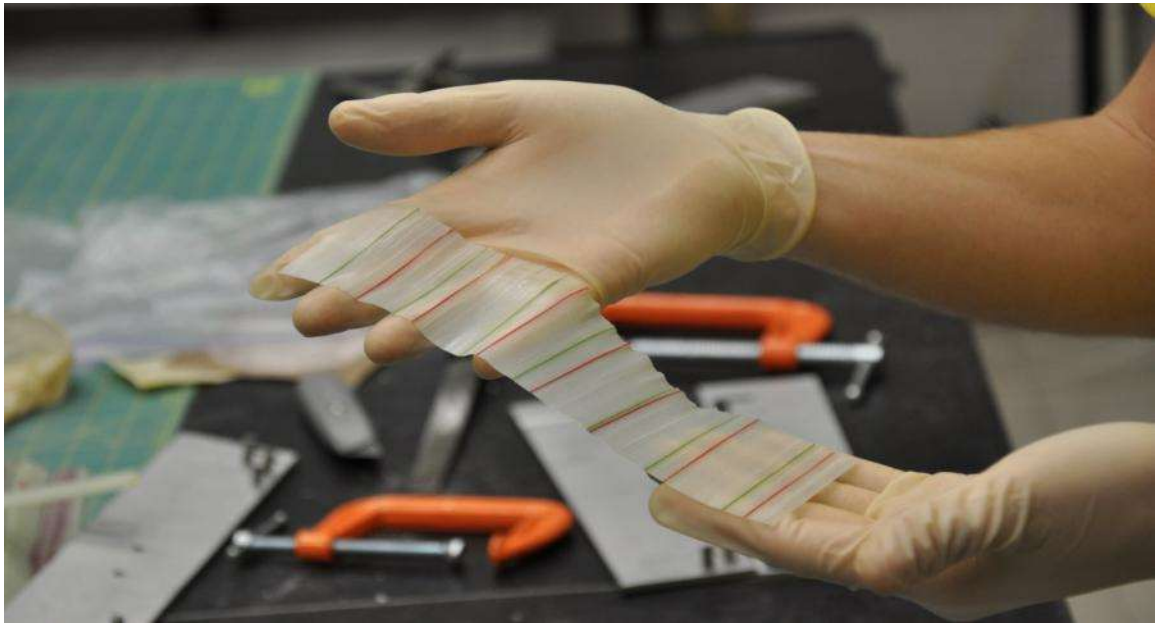
Objectives

- E-glass (electronic glass)
  - Manufacturing
  - Key Properties
- Determining Properties
  - Testing Parameters
    - The Future

E-glass (electronic glass)

- **What is E-glass?**
- **Optimal Strength**
- **Woven Materials**



Manufacturing

- **Melt-spinning**
- **Controlling Dimensions and Properties**
- **Treatments**

Key Properties

- **Advantages**
  - **Low Cost**
  - **High production rate**
  - **High strength and stiffness**
  - **Low Density**
  - **Non-flammable and resistant to heat**
  - **Insensitive to moisture**
  - **Chemical resistant**
  - **Able to maintain strength over wide range of conditions**
- **Disadvantages**
  - **Low modulus**
  - **Higher density compared to carbon composites and organic fibers**

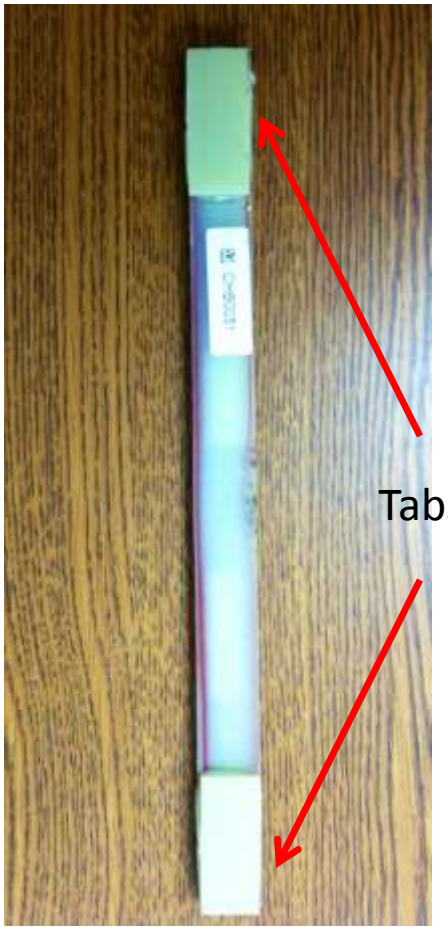
1953 Corvette body parts

Determining Properties

- **Where do we start?**
- **Standards**
- **ASTM**

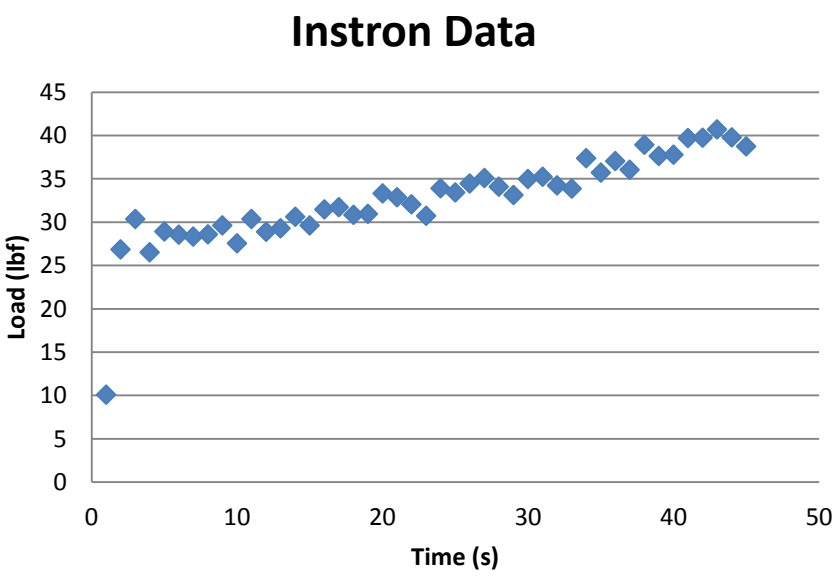
Testing Parameters

- **ASTM standard D3039**
- **Coupon**
- **Tabs**



The Instron

- **What it does**
- **How it works**
- **Application**



What the Future Holds

- **Major use**
- **Recycling**

Conclusion

- E-glass advantages
  - Easy to use
    - Testing
- What can be made
  - The near future
    - Recycling

Questions