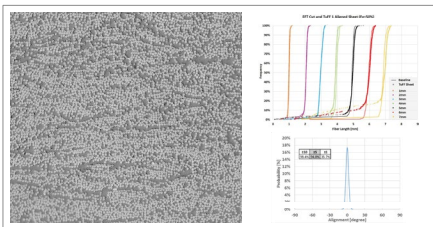


TuFF

TAILORED UNIVERSAL FEEDSTOCK FOR FORMING

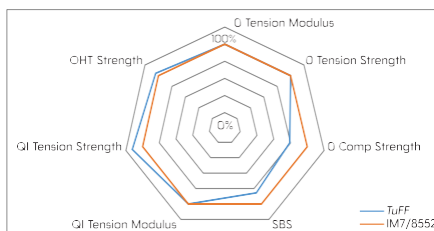
SHORT FIBER COMPOSITES WITH METAL-LIKE FORMABILITY & CONTINUOUS FIBER PERFORMANCE

Microstructure



- Alignment: **95%** of short fibers within ± 5 degrees
- Up to **63%** fiber volume fraction demonstrated
- Control of fiber length independent of fiber type

Properties



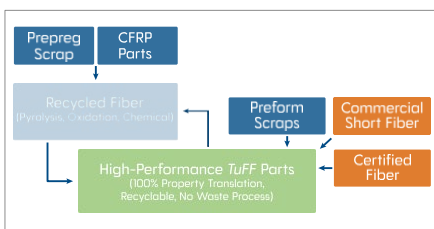
- **~100% translation** compared to continuous fiber
- **Thin-ply** formats available (30 gsm and greater)
- Fiber and polymer **agnostic**

Forming



- **40% bi-axial in-plane** stretch demonstrated
- Dry preforms and consolidated blanks
- Vacuum forming of thermoplastics
- Low pressure and fast cycle times (~1 minute)

Recycling

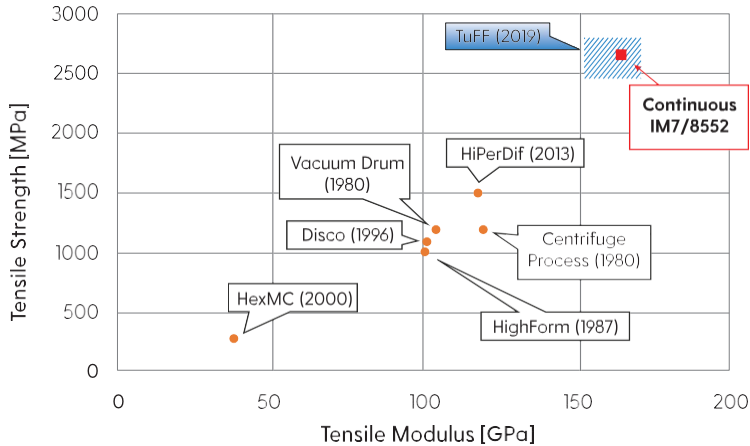


- Closed loop recycling with property retention
- **Zero waste** process possible
- Fiber agnostic (virgin, scrap, recycled fibers)
- Demonstrated **100% modulus translation** with **60% strength retention**

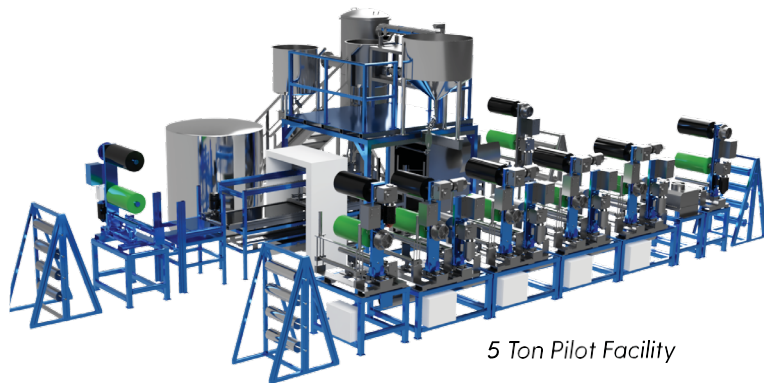




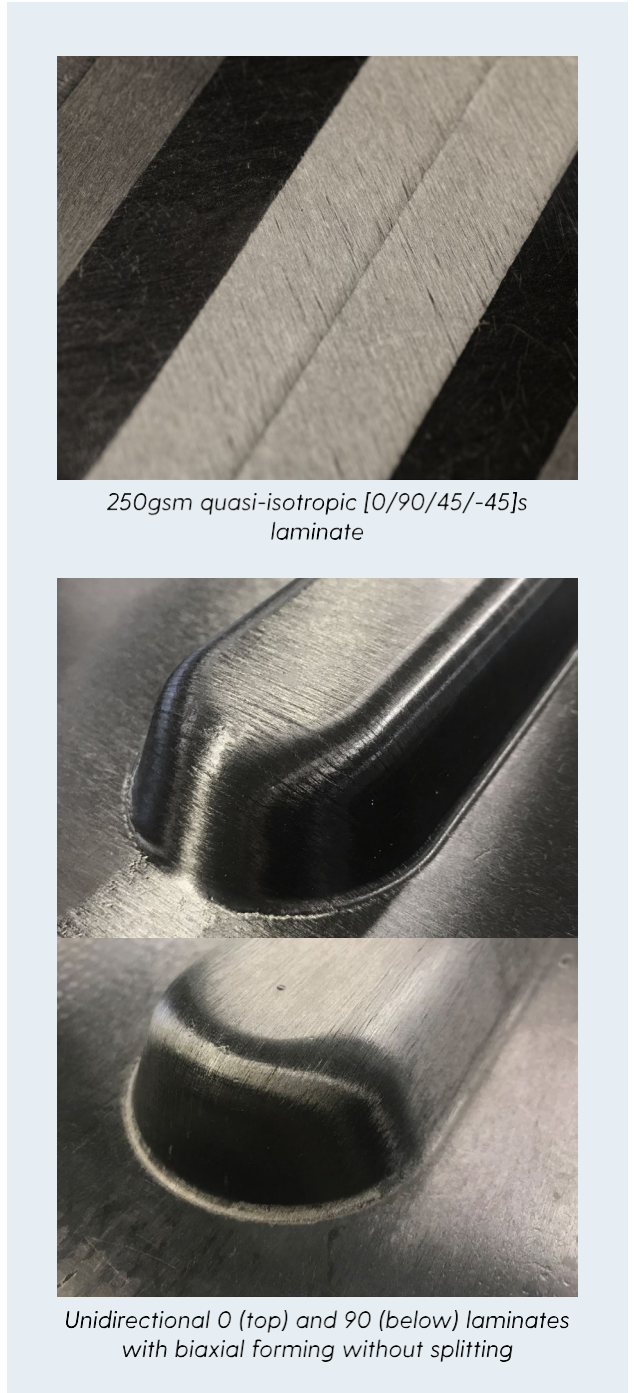
TAILORED UNIVERSAL FEEDSTOCK FOR FORMING



World-Record Short Fiber Properties for High-Performance Applications



Continuous TuFF sheet of Highly Aligned Short Fiber



This research was developed with funding from the Defense Advanced Research Projects Agency (DARPA). The views, opinions and/or findings expressed are those of the author and should not be interpreted as representing the official views or policies of the Department of Defense or the U.S. Government.
DISTRIBUTION STATEMENT A: Approved for public release.

Contact:
Dirk Heider, Ph.D.

heider@udel.edu

View TuFF Video

