TITAN
ADVANCED COMPOSITES

WE DO WHAT CAN'T BE DONE

Titan Corporate Overview

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Who We Are

- Titan Advanced Composites
  - Formerly ZeMC^2
- Titan Advanced Composites is a Joint Venture with Asbury Carbons

Thermoset BMC Application Focus

Wear Resistance

- Titan's W series materials are formulated to reduce both friction and mechanical "wear"

Conductive

- Titan's C series materials are formulated to be electrically and thermally conductive .
- Titan's X series materials are specially formulated to be thermally conductive and electrically insulating.

Low Density/ Lightweight

- Titans L series materials are formulated to meet the evolving needs for "light weighting" of components.

High Temperature

- Titan's T series materials are formulated to operate under very high temperatures, as high as 400°C, while maintaining material integrity

High Strength

- Titan's S series are formulated to impart high strength for applications calling for materials to maintain integrity under high stress

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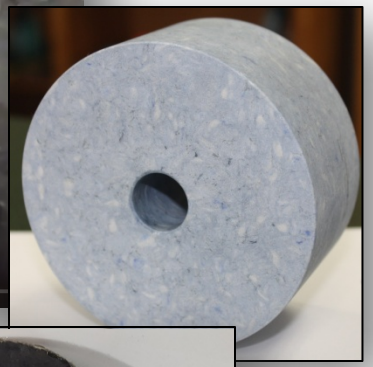
Engineered Materials

- **Thermally conductive / electrically insulating BMC**
  - TC ≈6 W/m° k
  - Tg (Post Bake) of **> 350°C**.
  - https://youtu.be/BbHbCki4RZ8
- **Recycled carbon fiber and graphite filled BMC**
  - Conductivity equivalent to solid graphite.
- **Ultra high conductivity Aluminum filled BMC**
  - TC of 22 W/m°K
  - 10.2E +10 Ω/cm
- **Ultra Light weight BMC…It Floats!**
  - **As low as .95**
- **Titan's unique proprietary resin in friction applications**
  - Increased fade resistance
  - Decreased cycle times
  - Decreased post bake times
  - Better wet out (because of BMC state) & adhesion to fillers
- **Customized for application specific demands**
  - Quick turn sample generation.
  - Dynamic and simple production methods.



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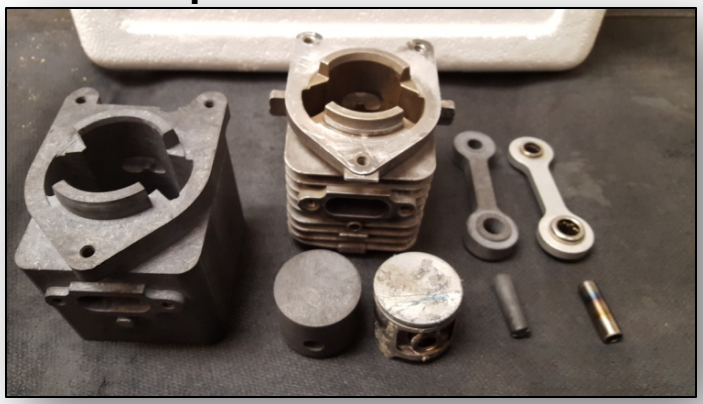
Application Demonstration

Plastic Composite 2 Stroke Engine

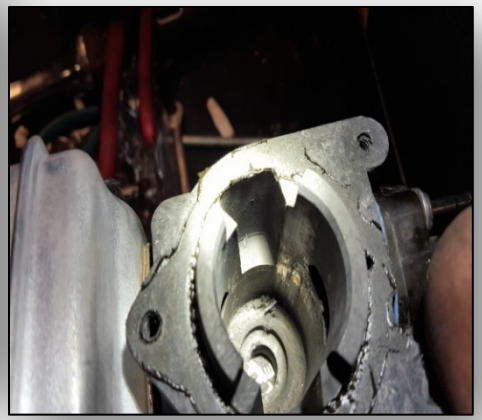
1. Exhaust temp- 454˚C (850˚F).
2. 12,000 RPM
3. Air Cooled – Heat dissipation through exhaust and engine block.
4. No Oil mixed with gas
   Self lubricating housing
5. BMC was conductive enough to ground the spark plug.
6. Stable dimensional tolerance machined to +/-.0005in

https://www.youtube.com/watch?v=ctIDdcQNm5M

Titan Composites vs. OEM Metal



Failure point- Piston Head>1000˚F



Failure point- Cylinder wall "gum"

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