

TECHNOLOGY SUMMARY

Akita Innovations is developing a highly durable, RF-transparent radar cover material for Navy radars. The PFAS-free dielectric materials are composed of a textile-resin composite with a water-shedding hydrophobic topcoat that is easy to clean. Materials are engineered for excellent RF transmission, environmental durability, and mechanical protection.

Final product: PFAS-free dielectrics composites for planar radomes and antenna covers.

FUNDING AND OPPORTUNITY

The technology is currently at TRL 4 with Navy funding and lab validation of key properties. Seeking radar primes and materials partners to test dielectric composites in planar radomes and antenna covers, and to define qualification paths for fielded systems.

This collaboration offers a chance to guide product development and inform future federal investment.

Company Profile



Founded 2012



Billerica, MA



9 Employees

Prototype



Manufacture



Qualify



Deploy



CAPABILITIES

- Durable in harsh naval environments
- RF-transparent 2 - 100GHz
- Hydrophobic; low water absorption
- UV resistant
- High strength-to-weight ratio
- PFAS-free formulations
- Custom pigmentation

APPLICATIONS/INDUSTRIES

- Naval radar systems
- Commercial radars and antennae
 - Automotive, air traffic control, weather
- Commercial microwave antennae
 - Satellite and other communications

Akita Innovations LLC



PHYSICAL PROPERTIES

Lightweight, tough, and RF-transparent, our PFAS-free dielectric composites are composed of high-strength fabric with an elastomeric resin coating and an easy-clean hydrophobic topcoat.

| Property | US (Metric) |
|-------------------------------------|---|
| Dielectric Constant (1 GHz): | |
| Resin | 2.8 |
| Textile | 2.3 |
| Loss Tangent (1 GHz): | |
| Resin | 0.0001 |
| Textile | 0.0002 |
| Strength Textile Fabric: | |
| Warp | 1100 lb/in (1900 N/cm) |
| Fill | 1100 lb/in (1900 N/cm) |
| Composite Thickness | 20 – 120 mils (0.5 – 3.0 mm) |
| Composite Weight | 20 – 80 oz/yd ² (680 – 2700 g/m ²) |
| Hydrophobic Contact Angle* | 106° / 5µl droplet |
| Water Sliding Angle* | 50° / 30µl droplet |
| Temperature Range | -76 – 270 °F (-60 – 130 °C) |
| Colors | White, Haze Gray and Custom |
| Adhesive Backing | Optional |

* Bare composite without topcoat application

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