

# Orca Composites 1452 Resin

Orca Composites offers a unique thermosetting epoxy matrix resin system featuring a one-year shelf life without refrigeration. This resin is currently used for unitape and fabric, and is available for carbon, glass, aramid, and other fibers. Resin content, resin flow during cure, and tack levels can be tailored to suit your process requirements.

## Neat Resin Properties and Applications

Density (g/cc)	Tg (°F/°C) (from G" DMA curve)	Tensile Modulus (ksi/GPa)	Tensile Strength (ksi/MPa)	Elongation at Break (%)	Tg after 24-Hr Water-Boil (°F/°C)	Water Absorption (%)	Available Fiber Form
1.229	270 / 132	440 / 3.03	10.7 / 73.77	4.0	169 / 76*	3.9*	Unitape, Tow, Fabric

\*Data is generated from Orca Composites 1425 resin, but properties should be very similar

## Typical Use

Sporting goods, Commercial products, Pressure vessels, Rocket motor cases, skirts etc., where an extra long shelf life is desired and high-temperature capabilities are not required.

## Cure

There are three recommended cure cycles for Orca Composites 1452 resin. All three will produce similar properties.

1. < 5°F-per-minute ramp up to 310°F (154°C), hold for 1 hour, < 5°F-per-minute ramp down to at least 150°F (66°C) before removing from oven.
2. < 5°F-per-minute ramp up to 290°F (143°C), hold for 2 hours, < 5°F-per-minute ramp down to at least 150°F (66°C) before removing from oven.
3. < 5°F-per-minute ramp up to 270°F (132°C), hold for 4 hours, < 5°F-per-minute ramp down to at least 150°F (66°C) before removing from oven.

## Storage Requirements

The preimpregnated materials manufactured from this resin shall remain sealed and stored in the original package. The material is to be stored indoors, out of the weather.

The shelf life is 12 months from the date of manufacture when the maximum storage temperature shall not exceed 75°F (24°C).

The shelf life is 6 months from the date of manufacture when the maximum storage temperature shall not exceed 90°F (32°C). The shelf life is 30 months from the date of manufacture when the maximum storage temperature shall not exceed 0°F (-18°C), with an additional 6 months at <75 °F (24°C).

The values here represent expected ranges based on actual test data. Since the values are specimen-preparation- and test-method-dependent, Orca Composites cannot guarantee that these properties will be obtained in all cases. The data should be used as an indication only, since part or component properties are highly equipment- and process-dependent. It is recommended that end users determine the suitability of this material for each application through their own testing and evaluation.