

# KIMIA 717

## Unsaturated Polyester Resin

- Orthophthalic Grade
- General Purpose (Medium Reactivity)



### PRODUCT DESCRIPTION

KIMIA 717 is a medium-reactivity, orthophthalic acid based unsaturated polyester resin dissolved in styrene monomer, designed as a general-purpose laminating resin for a wide range of Fiberglass Reinforced Plastic (FRP) applications, including hand lay-up, spray-up, and general part fabrication. This resin provides good fiber wet-out, balanced gel and cure characteristics, and reliable mechanical performance for general-purpose molding, tooling, and laminate production at a cost-effective price point.

### KEY FEATURES & BENEFITS

- **Medium Reactivity:** Balanced gel time suitable for both hand lay-up and spray-up processes.
- **General-Purpose Versatility:** Suitable for a broad range of FRP parts, tooling, and laminate structures.
- **Good Fiber Wet-Out:** Fast, uniform impregnation of glass fiber reinforcement with minimal air entrapment.
- **Balanced Mechanical Properties:** Reliable strength and rigidity for general structural and non-structural parts.
- **Cost-Effective:** Economical orthophthalic base suitable for high-volume general FRP production.

### LIQUID RESIN PROPERTIES

| PROPERTY                     | VALUE / RANGE           | UNIT              | TEST METHOD |
|------------------------------|-------------------------|-------------------|-------------|
| Appearance                   | Pale Straw Clear Liquid | –                 | Visual      |
| Viscosity                    | 300–500                 | cP                | ISO 255     |
| Acid Value                   | Max 22                  | mg KOH/g          | ISO 2114    |
| Non-Volatile Content         | 60–64                   | %                 | ISO 3251    |
| Styrene Monomer Content      | 36–42                   | %                 | Internal    |
| Density (Specific Gravity)   | 1.10–1.12               | g/cm <sup>3</sup> | ISO 2811    |
| Color (Gardner Scale)        | Max 4                   | –                 | ISO 4630    |
| Flash Point (Closed Cup)     | >32                     | °C                | ISO 3679    |
| Water Content                | Max 0.1                 | %                 | ISO 760     |
| Shelf-Life Stability at 25°C | Minimum 6               | Months            | Internal    |

### APPLICATIONS

- **Reinforcement Compatibility:** Suitable for use with chopped strand mat (CSM), woven roving, and continuous filament reinforcements.
- **Promoter/Catalyst System:** Cobalt Octoate as accelerator with MEKP as the standard room-temperature curing agent for hand lay-up/spray-up.
- **Filler Compatibility:** Can be filled with calcium carbonate or talc for cost reduction in non-critical applications.
- **Surface Preparation:** Mold surface should be clean, waxed/treated with release agent, and free of moisture prior to lamination.



## CURING CHARACTERISTICS

Test System: 100g Resin + 0.3% Cobalt Octoate (1%) + 1.5% MEKP (Methyl Ethyl Ketone Peroxide)

| PROPERTY            | UNIT    | STANDARD SPECIFICATION |
|---------------------|---------|------------------------|
| Gel Time            | Minutes | 12–20                  |
| Time to Peak        | Minutes | 20–32                  |
| Peak Exotherm (HTC) | °C      | 150–170                |
| Tack-Free Time      | Minutes | 35–50                  |
| Demold Time (25°C)  | Hr      | 2–4                    |

## CURED RESIN – MECHANICAL & PHYSICAL PROPERTIES

Values below are typical for a clear, post-cured casting (24h at 25°C + 3h at 80°C) and are provided as a general performance guide; laminate properties will vary depending on glass content, layup method, and reinforcement type.

| PROPERTY                | VALUE     | UNIT | TEST METHOD |
|-------------------------|-----------|------|-------------|
| Barcol Hardness         | 35–42     | –    | ASTM D2583  |
| Tensile Strength        | 60–70     | M Pa | ISO 527     |
| Elongation at Break     | 1.8–2.5   | %    | ISO 527     |
| Flexural Strength       | 80–100    | M Pa | ISO 178     |
| Flexural Modulus        | 3000–3400 | M Pa | ISO 178     |
| HDT (Heat Deflection)   | 55–65     | °C   | ISO 75      |
| Water Absorption (24 h) | Max 0.35  | %    | ISO 62      |
| Volumetric Shrinkage    | 7–9       | %    | Internal    |

## RECOMMENDED APPLICATIONS

- **General FRP Part Fabrication:** Enclosures, covers, panels, and custom-molded fiberglass parts.
- **Hand Lay-Up Laminates:** Boats, tanks, canopies, and other open-mold laminated structures.
- **Spray-Up Applications:** Chopped fiber/resin spray-up laminating for medium-volume production.
- **Tooling & Molds:** Production of master molds and tooling for further FRP manufacturing.
- **General Repair & Maintenance:** Fiberglass repair work across marine, automotive, and industrial sectors.

## STORAGE & HANDLING

- **Shelf Life:** 12 months from the date of manufacturing when stored in original unopened containers.
- **Storage Temperature:** Store in a cool, dry place below 25°C. Keep away from direct sunlight, heat sources, and open flames.
- **Container Handling:** Keep containers tightly closed when not in use to prevent styrene loss and premature gelation.

## HEALTH & SAFETY

Contains styrene monomer — flammable, with irritant vapors. Use only in well-ventilated areas, away from open flames and sources of ignition. Wear appropriate personal protective equipment (gloves, goggles, respiratory protection) during handling. Refer to the Safety Data Sheet (SDS) for complete handling, storage, and disposal information.