Composite Essential Materials

PRODUCT CATALOG

EDITION 2026

Composite material solutions for marine, transportation, construction, and industrial manufacturing — cores, laminates, resins, and complete plug-to-mold tooling systems.

Composite Essential Materials
315 NW Peacock Blvd,
Port Saint Lucie, FL 34986

www.compositeessentials.com
orders@compositeessentials.com
772-344-0034

OVERVIEW

MANUFACTURING & DISTRIBUTION

Composite Essential Materials builds custom composite panels and supplies high-performance composite materials to manufacturers and fabricators across the marine, transportation, construction, and industrial markets. From lightweight structural cores to premium laminating resins and complete mold-making systems, our products are selected to deliver dependable performance, clean processing, and lasting results on the shop floor.

> **What's new in this edition.** This catalog presents our new focused line — composite cores, custom panels, and formulated resin systems — by product category.

PRODUCT CATEGORIES

1	**Core Materials**	Honeycomb · PET Foam · Coosa · Matline
2	**Fiberglass Laminates**	Gel-coat & high-gloss sheets
3	**Composite Sandwich Panels**	Fully custom core + laminate
4	**Open-Mold Resins**	___
5	**Close-Mold Resins**	___
6	**Gelcoats**	___
7	**Fiberglass Reinforcements**	GR, CSM, & WR
8	**POLYMOLD Tooling System**	Plug-to-mold
9	**POLYFOAM Expansion Foam**	2 lb & 6 lb

Honeycomb

NIDA-CORE

The Original Plastic Honeycomb -
40 years of marine-grade performance.

OVERVIEW

Plastic honeycomb is the lightweight core at the center of a composite sandwich panel. Extruded polypropylene is formed into 8 mm hexagonal cells and bonded with a non-woven polyester scrim, producing an outstanding strength-to-weight ratio. A sealed cell film keeps resin absorption under 1%, while the thermofused scrim gives an ideal bonding surface for fiberglass, carbon fiber, or thermoplastic skins. CEM supplies Nida-Core — the original PP honeycomb from Nidaplast, whose co-polymer formulation holds its mechanical properties across a wide temperature range.

KEY FEATURES

- ✓ Exceptional strength-to-weight ratio
- ✓ Zero water absorption — no rot or corrosion
- ✓ Excellent chemical & solvent resistance
- ✓ High sound & vibration dampening
- ✓ Low resin uptake (< 1% by volume)
- ✓ 100% recyclable polypropylene

APPLICATIONS

Trusted across industries wherever stiffness and weight savings matter most — boat hulls, decks, bulkheads and transoms; RV and trailer bodies; architectural panels and modular units.

Marine **Transportation** **Construction** **Modular**

AVAILABILITY 4'×7' & 4'×8' sheets · 5–100 mm thick · custom sizes for large panels

PERFORMANCE & GRADES

174 psi
Compressive strength

58 psi
Shear strength

< 1%
Resin absorption

Grades: Nidaplast 8 (standard) · 8FR (fire-retardant, UL94 V2) · 8HP (high-performance, 377 psi)

NIDA	Fraction (in)
5mm	3/16
7mm	1/4
8mm	5/16
10mm	3/8
13mm	1/2
16mm	5/8
20mm	3/4
25mm	1
30mm	1 3/16"
38mm	1 1/2"
40mm	1 9/16"
50mm	2"
76mm	3"
90mm	3 1/2"

PET Foam

RECYCLED CLOSED-CELL CORE

Eco-friendly innovation -
a sustainable core that performs.

OVERVIEW

PET foam is a high-performance, environmentally responsible core manufactured from recycled PET plastics, including post-consumer bottles and containers. Its engineered closed-cell structure delivers excellent compressive and shear strength at low weight, with strong thermal stability that lets it perform reliably through vacuum infusion, resin transfer molding, and hand lay-up. The closed-cell composition resists moisture, chemicals, and corrosion — holding structural integrity in harsh marine environments — while supporting sustainable manufacturing goals.

KEY FEATURES

- ✓ High strength-to-weight ratio
- ✓ Closed-cell — zero moisture absorption
- ✓ Strong thermal insulation
- ✓ Chemical & fatigue resistant
- ✓ Process-versatile across methods
- ✓ Recycled content, fully recyclable

APPLICATIONS

A durable, lightweight core for demanding structures that also need a sustainability story — marine hulls and decks, transportation panels, wind-energy components, and construction.

Marine · Transportation · Wind Energy · Construction

AVAILABILITY 4'x7' & 4'x8' sheets · custom sizes & thicknesses to suit your needs

PROCESS COMPATIBILITY

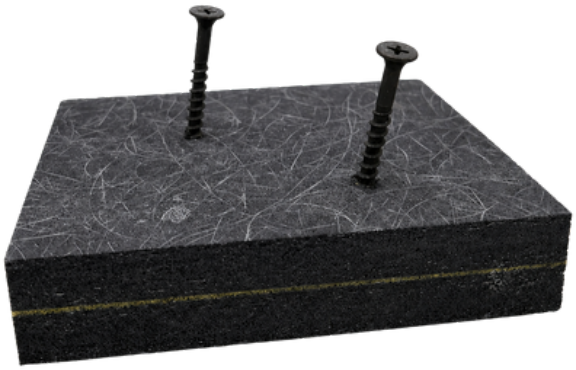
Vacuum Infusion · Resin Transfer Molding · Hand Lay-Up

Made with a high percentage of recycled content and fully recyclable at end of life.

Coosa

REINFORCED POLYURETHANE BOARD

Reliable and resilient -
the rot-proof plywood replacement.



OVERVIEW

Reinforced Polyurethane Foam (RPF), commonly called Coosa, pairs a closed-cell foam core with fiberglass reinforcement to create a board that is exceptionally lightweight yet highly durable and structurally stable. The closed-cell core means zero water absorption — completely rot-proof and resistant to moisture, mildew, and corrosion. With high compressive strength and excellent screw retention, it bonds between fiberglass skins using polyester, vinyl ester, or epoxy and machines easily with standard woodworking tools, making it a direct, longer-lasting replacement for marine plywood.

KEY FEATURES

- ✓ Rot-proof — zero water absorption
- ✓ Excellent screw retention
- ✓ High strength-to-weight ratio
- ✓ Long-lasting, dimensionally stable
- ✓ Machines with standard wood tools
- ✓ Multiple structural densities

APPLICATIONS

The go-to core where wood would eventually degrade — boat transoms, stringers and decking that support outboards and sterndrives, plus transportation, architectural, and industrial structures.

Marine | Transportation | Architectural | Industrial

AVAILABILITY 20, 24 & 26 lb densities · custom thickness & dimensions

AVAILABLE DENSITIES

20 / 24
lb — lighter builds (NAUTICAL)

24 / 26
lb — highload (BLUEWATER)

0%
Water absorption

Popular grades include Bluewater 24 and Bluewater 26 for transom construction and repair.

Matline

LAMINATE BULKER & PRINT BLOCKER

Build thickness fast -
and block print-through for a cleaner finish.

OVERVIEW

Matline is a roll material laid between laminate plies to add controlled loft. It bulks a laminate quickly — building core thickness with far less glass and resin — and blocks print-through, the telltale fiber pattern that can read through a cosmetic surface. The result is an efficient laminate schedule and a smoother, more uniform finished face, making Matline a simple, cost-effective upgrade to surface quality on visible parts.

KEY FEATURES

- ✓ Rapid laminate build & bulking
- ✓ Blocks fiber print-through
- ✓ Smoother, more uniform surfaces
- ✓ Conforms to contoured parts
- ✓ Works with polyester, VE & epoxy
- ✓ Supplied in convenient rolls

APPLICATIONS

Anywhere surface smoothness and efficient build matter — cosmetic gel-coated skins, marine and transportation parts, and general fiberglass hand lay-up.

Marine | Transportation | General Lay-Up

AVAILABILITY Supplied in rolls · widths & weights available on request

RESIN COMPATIBILITY

Polyester | Vinyl Ester | Epoxy

Detailed roll specifications and weights are available from our team on request.

02 Fiberglass Laminates

DECORATIVE & STRUCTURAL FACINGS

Customizable fiberglass sheets that serve as durable, attractive facings — used on their own or as the load-bearing skins of a sandwich panel. Resistant to UV, scratches, and weather, with color-matching available across thicknesses from 1 mm to 5 mm.

1.8 mm White Gel Coat

GEL-COATED SHEET

A thin, gel-coated white fiberglass sheet that delivers a clean, durable finished surface where a lightweight facing is needed.

2.5 mm White High Gloss

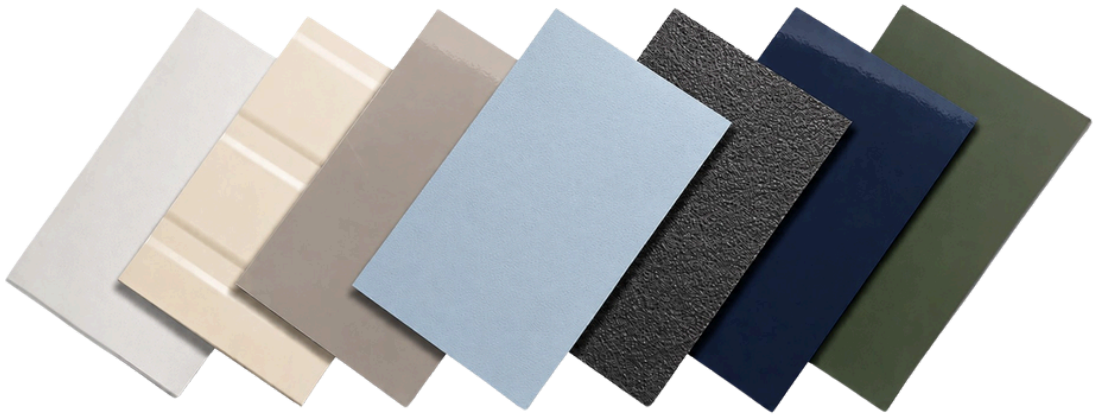
HIGH-GLOSS SHEET

A mid-weight white sheet with a high-gloss surface, balancing finish quality with added stiffness for panels and standalone applications.

4.7 mm White High Gloss

HIGH-GLOSS SHEET

A heavier high-gloss white sheet for applications demanding extra rigidity and impact resistance while keeping a premium finished face.



03 Composite Sandwich Panels

BUILT TO YOUR SPECIFICATION

Unlock endless possibilities -
any core, any laminate, your finish.

OVERVIEW

A composite sandwich panel pairs durable fiberglass laminate skins with a lightweight core to deliver an ideal balance of strength, low weight, and insulation. The skins resist tensile and compressive forces while the core maintains panel thickness and transfers shear loads — creating an exceptionally rigid yet light structure with outstanding strength-to-weight performance. CEM builds each panel to order, combining the core that fits your load and weight targets with laminate facings in your choice of material, color, and texture.

KEY FEATURES

- ✓ Exceptional strength-to-weight ratio
- ✓ High flexural rigidity at low weight
- ✓ Choice of core to match the application
- ✓ Custom laminate color, texture & finish
- ✓ Corrosion & moisture resistant
- ✓ Built to your size & thickness

APPLICATIONS

A versatile structural solution across industries — marine hulls and decks, transportation panels, architectural facades, industrial enclosures, clean rooms, and recreational vehicles.

Marine | Transportation | Construction | RV Trailers | Industrial

AVAILABILITY Fully custom — any core + laminate combination · your size, thickness & finish

PANEL CONSTRUCTION

Skins	Core	Result
Fiberglass laminate facings	Spaces and stabilizes the skins	Rigid, durable, lightweight

Core options: Nida-Core honeycomb · PET foam · Coosa — finished with custom fiberglass laminate skins.

04 Open-Mold Resins

HAND LAY-UP & SPRAY-UP

Formulated for reliable performance in traditional open-mold processing, with excellent fiber wet-out, consistent curing, and strong mechanical properties. Available in 5-gallon pails and 55-gallon drums.

GENERAL PURPOSE POLYESTER

CEM 200

PREMIUM GENERAL PURPOSE

A premium general-purpose resin with outstanding secondary bonding, fast glass wet-out, and a blue catalyst indicator for confident mixing.

CEM 250

MARINE BLEND

A marine blend offering excellent mechanical properties, superior surface cosmetics, rapid Barcol progression, and low VOC.

CEM 550

PREMIUM MARINE BLEND

A premium marine blend with enhanced mechanical properties and superior elongation for resilient parts, plus higher resistance to water osmosis and low VOC.

CEM 500

MEDIUM-GRADE CORROSION

A medium-grade corrosion resin delivering strong corrosion resistance, very good resistance to osmotic blistering, rapid Barcol progression, and superior glass wet-out.

PREMIUM VINYL ESTER

CEM 100

EPOXY VINYL ESTER

A bisphenol-A epoxy vinyl ester resin with superior corrosion resistance, outstanding resistance to osmotic blistering, high heat-deflection temperature, and excellent mechanical properties.

CEM 100 HV

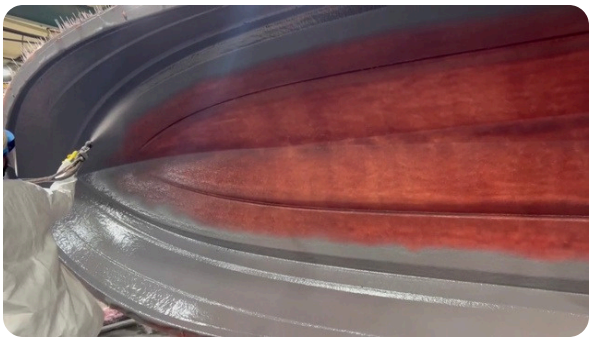
MODIFIED VINYL ESTER

A bisphenol-A epoxy vinyl ester resin that keeps the corrosion and blister resistance of vinyl ester chemistry, with adjusted viscosity for improved handling on vertical and contoured surfaces.

CORE-LITE

SPRAYABLE LIGHTWEIGHT CORE

Spray it on to build thickness and block print-through - fast.



OVERVIEW

Core-Lite is a sprayable, lightened core built on a flexibilized isophthalic resin and pre-accelerated with a color-change catalyst indicator for confident mixing. It builds part thickness quickly and blocks print-through, standing in for traditional core materials like PVC foam and balsa while maintaining an optimal weight-to-strength ratio. Controlled shrinkage and a low exothermic peak keep the master free of distortion and marking, and high thixotropy prevents sagging on vertical surfaces. Apply it by spray, pour, spatula, brush, or piping bag — then machine it easily once cured.

KEY FEATURES

- ✓ Controlled shrinkage, limited marking
- ✓ Blocks print-through, builds thickness fast
- ✓ Low exothermic peak — won't distort masters
- ✓ Low density for lightweight build
- ✓ High thixotropy — no sag on verticals
- ✓ Easy to machine; color-change cure indicator

APPLICATIONS

A versatile shop-floor core and leveling compound — filling cavities, replacing PVC foam and balsa in sandwich structures, optimizing part and mold thickness, and serving as a bubble or lamination paste.

Print-Blocking | Cavity Filling | Sandwich Core | Leveling | Lamination Aid

AVAILABILITY 15 kg cans & 130 kg drums · spray, pour, or hand-apply · MEKP-catalyzed at 0.8–2%

TECHNICAL DATA

0.65	10–15 min	194 ± 5 °F
Density (± 0.03)	Gel time	Exothermic peak

Flexibilized isophthalic, pre-accelerated, with color-change cure indicator · thixo index > 6. Store sealed at 59–77°F and use within 3 months. RoHS-compliant — halogen- and heavy-metal-free.

POLYTRANSOM

POURABLE TRANSOM COMPOUND

Pour it in place - a low shrink isophthalic compound for transom builds and repairs.

OVERVIEW

POLYTRANSOM is an isophthalic polyester compound formulated to fill cavity volumes while maintaining an optimal weight-to-mechanical-strength ratio. Designed specifically for building and repairing boat hull transoms, it can be poured or pumped to conform to complex cavities, then cures with low shrinkage and a low exothermic peak that preserves dimensions and avoids heat distortion. It bonds reliably between fiberglass skins as a structural core or surfacing layer, giving fabricators a fast, rot-free alternative to traditional wood transom cores.

KEY FEATURES

- ✓ Low shrinkage preserves dimensions
- ✓ Low exothermic peak — minimal distortion
- ✓ Pours or pumps into complex cavities
- ✓ Isophthalic polyester chemistry
- ✓ Strong weight-to-strength ratio
- ✓ Rot-free wood-core alternative

APPLICATIONS

Built for the transom and beyond — filling and rebuilding boat hull transoms, packing out cavities, and serving as a core or surfacing layer in composite sandwich panels.

Transom Builds | **Cavity Filling** | **Sandwich-Panel Core** | **Panel Surfacing**

AVAILABILITY Pour or pump in place · MEKP-catalyzed at 0.8–2% · professional use

TECHNICAL DATA

0.90	18–24 min	< 203°F
Density (± 0.05)	Gel time	Exothermic peak

Isophthalic polyester · 55–60% solids · thix index > 5. Store sealed at 59–77°F and use within 3 months of production. RoHS-compliant — halogen- and heavy-metal-free.

05 Close-Mold Resins

INFUSION - VACUUM BAG & RTM SYSTEMS

Engineered for closed-mold manufacturing such as vacuum infusion and resin transfer molding. These resins pair low viscosity for fast, complete fiber wet-out with controlled cure profiles that deliver high-quality surfaces and strong mechanical performance in demanding production parts.

INFUSION SYSTEMS

CEM I-380

GENERAL PURPOSE

A low-profile general purpose, marine-grade infusion resin with low viscosity and high reactivity for superior glass wet-out, rapid fill, and a clean low-profile finish.

CEM I-200

VINYL ESTER HYBRID

A low-profile vinyl ester hybrid infusion resin offering strong mechanical properties, low fiber print-through for superior cosmetics, and improved resistance to osmotic blistering.

CEM I-100

EPOXY VINYL ESTER

A Bisphenol-A 100% epoxy vinyl ester infusion resin — lighter color, low foaming, high HDT, and excellent osmosis-blister resistance. Lloyd's approved.

06 Gelcoats

PROMOTED SPRAY GELCOATS

Premium ISO/NPG marine gelcoats supplied promoted, thixotropic and ready for spray application. The product is resilient and has medium-reactivity, with high thixotropy, good elongation, and a UV package for superior resistance to discoloration, plus strong resistance to heat and chemicals. Used on boat and yacht hulls, tanks and pipes in contact with water, and swimming pools.

SPRAY GELCOATS

CEM GC 5001

WHITE ISO/NPG

A premium white ISO/NPG marine gelcoat, promoted and thixotropic and used mainly in spray applications. Viscosity 12,000-17,000 mPa.s, thixotropic index 6.0-7.0, and a 12-15 minute gel time at 77°F with 0.18% cobalt and 1.8% MEKP.

CEM GC 6001

NEUTRAL ISO/NPG

A neutral grey ISO/NPG gelcoat for spray application and color matching. Viscosity 16,000-21,000 mPa.s, thixotropic index 6.0-7.5, and a 13-18 minute gel time at 77°F with 0.24% of 12% cobalt and 1.8% MEKP.

CURED PROPERTIES

40-44	61 MPa	199.4°F
Barcol hardness	Tensile strength	Heat-deflection temp.

Typical values for the cured gelcoat base resin · flexural strength 124 MPa · tensile modulus 3,000 MPa · flexural modulus 3,700 MPa · elongation at break 2.4% (GC 6001) · post-cured 2 hours at 176°F, then 1 hour at 248°F · Barcol ASTM 934-1, tensile D638, flexural D790, HDT D648. Catalyze at 1.0-2.0% MEKP, 1.5% ideal; do not apply below 59°F. Shelf life 3 months, sealed and stored below 77°F.

07 Fiberglass Reinforcements

GLASS FOR HAND LAY-UP & SPRAY UP

Fiberglass reinforcements to meet different composite processing needs, from hand lay-up and spray-up to pultrusion, filament winding, and structural lamination; available in multiple weights and formats.

Gun Roving (GR)

ASSEMBLED

Assembled roving for spray-up applications. Compatible with unsaturated polyester, vinyl ester, and polyurethane resins. It offers excellent static control, choppability and dispersion.

Chopped Strand Mat (CSM)

RANDOM MAT

Non-woven, randomly oriented glass mat that wets out easily and builds laminate thickness quickly, providing uniform strength in all directions — ideal for general-purpose hand lay-up. Rolls of 225 g/m² (0,75 oz/ft²), 300 g/m² (1,0 oz/ft²); 450 g/m² (1,5 oz/ft²); 600 g/m² (2,0 oz/ft²)

Woven Roving (WR)

WOVEN FABRIC

A heavy woven glass fabric that adds high tensile and flexural strength to structural laminates, commonly alternated with mat to build robust, load-bearing parts. Rolls of 600 g/m² (18 oz/yd²); 800 g/m² (24 oz/yd²)

Other Selections

PREMIUM GLASS

- BIAXIAL 1708 (stitch-bonded fiberglass fabric) 0/90, 45+-
- COMBOMAT 2415 (stitched fiberglass fabric)
- Direct roving (filament winding, pultrusion, weaving)

08 POLYMOLD Tooling System

PLUG-TO-MOLD, END TO END

A complete, compatible system for taking a master plug all the way to a finished, production-ready mold — engineered for accurate surface reproduction, low shrinkage, and dimensional stability through repeated cycles. The POLY series covers every step, from sealing the plug to laying up the tool.

PLUG PREPARATION

POLYSEALER

FOAM SEALER RESIN

A foam-sealing resin that seals polystyrene and foam plugs, creating a protective barrier between the styrofoam and the mold material. Fast Barcol progression and excellent glass wet-out.

POLYSPRAY

SPRAYABLE CORE

A low-shrink, low-exotherm sprayable core putty that builds up easily over consecutive layers. Low density makes it fast and clean to CNC-machine to shape.

POLYCORE

EXTRUDABLE CORE

An extrudable isophthalic core paste with low shrinkage to preserve master dimensions and a low exothermic peak to prevent surface distortion. Machines cleanly with no dust or tear-out, and low VOC.

POLYPRIMER

SPRAYABLE PRIMER

A sprayable primer that delivers an excellent, easily sanded surface with good filling and no run-off. Adheres well to mold putties, wood, and tooling board.

POLYGLOSS

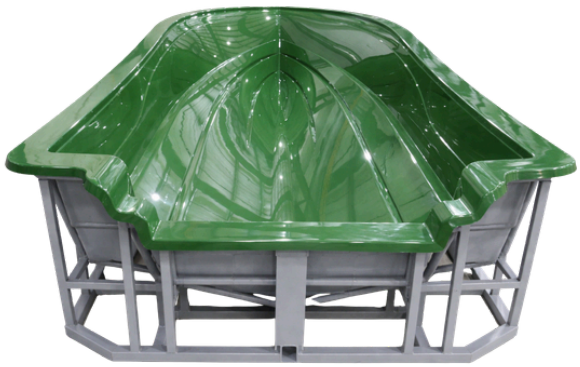
POLYESTER LACQUER

A polyester lacquer that provides a great glossy effect with a non-tacky surface for plugs.

08 POLYMOLD Tooling System

TOOLING RESINS & GELCOATS

With the plug prepared, the tooling resins and gelcoats build the mold itself — from the working surface that reproduces every detail to the backup laminate that gives the tool its strength and dimensional stability.



TOOLING RESINS & GELCOATS

POLYGEL

VE TOOLING GELCOAT

A 100% vinyl ester high HDT tooling gelcoat that forms the working surface of the mold, providing crisp surface reproduction and a durable, polishable face. Available in orange, green, and black.

POLYSKIN

VE SKIN COAT RESIN

A 100% vinyl ester skin-coat resin applied directly behind the gelcoat to minimize print-through and establish a sound first reinforced layer for the tool.

POLYMOLD ISO

ISOPHTHALIC TOOLING RESIN

A 100% isophthalic tooling resin for building the mold's backup laminate, offering dependable dimensional stability for accurate, hard-wearing molds.

POLYMOLD VE

VINYL ESTER TOOLING RESIN

A 100% vinyl ester tooling resin for premium molds, delivering superior thermal and dimensional stability and extended tool life under demanding production.

POLYFOAM

POUR-IN-PLACE FLOTATION FOAM

Pour it in and let it rise — a two-part foam that fills any void it flows into.

OVERVIEW

POLYFOAM is a two-component, pour-in-place polyurethane foam system built for void filling where the mix has to travel before it rises. Poured or pumped in place, it flows through complex cavities, expands to fill them completely, and cures to a rigid closed-cell structure with more than 90% closed cells and no measurable water uptake. Excellent resistance to mold, mildew, and solvents suits it to marine service, where it meets the Coast Guard requirements for flotation foam. Supplied in 2 lb and 6 lb densities with regular or fast cure speeds.

KEY FEATURES

- ✓ Pours and flows into complex voids
- ✓ Closed-cell content above 90%
- ✓ Zero water absorption — 0.00 lb/ft²
- ✓ Excellent mold & mildew resistance
- ✓ Strong solvent resistance
- ✓ 2 lb & 6 lb densities, regular or fast

APPLICATIONS

Buoyancy and void filling in boat hulls — under decks, in stringer bays and sealed compartments — plus insulation and packing out in transportation builds.

Flotation · Void Filling · Buoyancy · Insulation · Packing Out

AVAILABILITY 2 lb & 6 lb densities · regular or fast cure · pour or pump in place

TECHNICAL DATA

133 psi	150 sec	> 90%
Compressive strength	Gel time	Closed-cell content

Typical values for the 6 lb system at 72°F · free-rise density 6 pcf · shear 201 psi · tensile 112 psi · max service 200°F · mix 100 poly : 112 iso by weight. Meets 46 CFR 179.240 and USCG 33 CFR Part 183.

Let's build your focused supply list.

Every product in this catalog is stocked to support your manufacturing. For pricing, data sheets, container sizes, or a custom panel or tooling quote, our team is ready to help.

CALL
772-344-0034

EMAIL
orders@compositeessentials.com

ONLINE
compositeessentials.com