

# PRODUCT DATA

## PROTOS INC. VE-400 Vinyl Ester

### Product Description

VE-400 is our top of the line flooring system, designed specifically for extreme environments where continuous exposure to heat and chemicals are encountered. VE-400's unique and wide range of properties allow it to be used in environments that would normally be very detrimental to other floor systems such as epoxy and polyesters.

Concrete must be prepared properly in order to ensure proper adhesion. Concrete first must be scabbled, then etched with muriatic acid, and washed with a high pressure washer. VE-400 will be installed over a liquid bonding coat.

VE-400 is applied 1/4 inch thick, and power troweled. The floor is then sealed and non-skid grit is applied depending on customers specifications. Aluminum oxide may be used in surface in place of silica in areas that are subjected to extreme wear,

### Advantages

- (1) Outstanding resistance to corrosion by many different chemicals- Including both acids and alkalis- at room and elevated temperatures. (Corrosion guides available)
- (2) High heat distortion.
- (3) Excellent adhesion.
- (4) Excellent physical properties.
- (5) Non-slip surface.
- (6) USDA approved for flooring.
- (7) Fast cure time.

#### Chemistry Of Vinyl Ester And Polyester Resins.

VE-400 flooring contains vinyl ester resin where as the best polyester floors contain Isophthalic polyester resin. Chemical attack on these resins occur through hydrolysis of the ester group or the splitting of unreacted carbon to carbon double bonds, through action such as oxidation and halogenation. In cured Isophthalic polyester, linkages occur throughout the molecular chain, making the chain more susceptible to attack by hydrolysis. In addition to ester linkages, carbon to carbon double bonds also occur randomly throughout the isophthalic polyester chains, and not all of those bonds react during polymerization. Those unreacted double bonds are susceptible to chemical attack, particularly through oxidation and halogenation. In vinyl ester resins, the double bonds are at the ends of molecular chain. These react completely on polymerization, giving a more chemically resistant structure. Isophthalic polyester cross linking occurs along the entire chain, thereby increasing the brittleness of the cured material, because cured vinyl ester resins contain only terminal cross-linking, the entire length of the molecular chain is available to elongate under stress and thus absorb mechanical and thermal shocks. The end result is a tough chemical resistant material.

### PHYSICAL PROPERTIES

Tensile Strength.....	11-12,000 psi
Tensile Modulus, psi x 10 <sub>5</sub> .....	4.9
Flexural Strength, psi.....	16 - 18,000
Compressive Strength.....	16,500 psi
Percent Elongation.....	5.0 - 8.0 %
Hardness.....	87
Thermal Coefficient Of Linear Expansion (25-30 C).....	0.000016 in.
Heat Deflection Temp.....	continuous 210 F
Incidental contact .....	350F
Bond Strength.....	350 psi concrete failure

USES: VE-400 can be used in area such as potato processors, chemical plants, dairies, meat packing plants, paper manufacturing plants, containment areas fruit processors, and oil refineries.

Colors: tan, buff, grey, yellow, red, blue.  
Custom colors are available upon request.

### COMPARISON OF RESIN CASTINGS

Orthophthalic Polyester.....	■
Isophthalic Polyester.....	■
Vinyl Ester.....	■

