Vinyl Esters: Poised for Rapid Growth
Exploring New Applications, Developments & Opportunities

-Amit Parekh
Epoxy

Unsaturated Monocarboxylic Acid

• Exceptional Chemical Resistance
• Excellent Mechanical Properties
• Excellent Fracture Toughness, Impact & Elongation Properties
• Very easy to use and handle
• Suitable to any process
• Highly versatile and customisable material
MARKET TRENDS....PRESENT DAY

POLYESTERS

VINYL ESTERS

EPOXIES
The Advantage with Vinyl Esters

WIND ENERGY
The Advantage with VE

- Mechanical Properties approaching Epoxies
- Physical Properties of Polyesters
- Ambient Cure or Reduced Cure Cycles
- Environmentally Insensitive
- Savings up to 25-30% over Epoxy Blades
- Elastomer Modified VE give enhanced properties
Giving Composites That Extra Edge

AUTOMOTIVE
- Good moldability
- High Heat Resistance
- Oil & Solvent Resistance
- High Creep Resistance at High Temperature
Making Composites Competitive

CIVIL ENGINEERING & INFRASTRUCTURE
Growth Drivers:

- Corrosion of Steel
- Rising Prices of Steel
- High Fabrication, Logistics & Maintenance Costs of Steel & Other Conventional Materials

- Composite Rebars & Tendons
- Structural Beams, Columns & Plates
- Cured in Place Piping (CIPP)
- Water Supply & Drainage Lines
- Trenchless Piping
Composite Rebars & Tendons

Growth Drivers:
- Corrosion of Steel
- Rising Prices of Steel
- High Fabrication, Logistics & Maintenance Costs of Steel

Trenchless Piping

Structural Beams, Columns & Plates

Cured in Place Piping (CIPP)

Water Supply & Drainage Lines
Composite Rebars & Tendons

Opportunities

- Competitive to Epoxy Coated Steel
- Bridges, Underground Tunnels etc.
- Structures near coastal regions
- Structures within chemical plants
- Offshore Structures
Growth Drivers:
- Corrosion of Steel
- Rising Prices of Steel
- High Fabrication, Logistics & Maintenance Costs of Steel

Structural Beams, Columns & Plates
Opportunities
- Modular Housing
- Pre-engineered factory buildings
- Bridge decks
- Portable Enclosures for Electrical & Electronic Equipments

Structural Beams, Columns & Plates
Growth Drivers:
- Corrosion of Steel
- Rising Prices of Steel
- High Fabrication, Logistics & Maintenance Costs of Steel

Composite Rebars & Tendons
Trenchless Piping
Cured in Place Piping (CIPP)
Structural Beams, Columns & Plates
Water Supply & Drainage Lines
Opportunities:

- VE Lined GRP Pipes known to give 50 years life for potable water & sewer applications
Cured in Place Piping (CIPP)

Growth Drivers:
- Corrosion of Steel
- Rising Prices of Steel
- High Fabrication, Logistics & Maintenance Costs of Steel

Composite Rebars & Tendons

Trenchless Piping

Structural Beams, Columns & Plates

Water Supply & Drainage Lines
Cured in Place Piping (CIPP)

Opportunities:
- Rehabilitation of old sewers & drainages
- Probably the most safest, effective & economical process
Trenchless Piping

Growth Drivers:
- Corrosion of Steel
- Rising Prices of Steel
- High Fabrication, Logistics & Maintenance Costs of Steel

Composite Rebars & Tendons

Structural Beams, Columns & Plates

Cured in Place Piping (CIPP)

Water Supply & Drainage Lines
Trenchless Piping

Opportunities:
- Installation of municipal pipelines
- Rehabilitation of old pipelines & sewers
Riding the Rough Seas

MARINE
- Excellent Hydrolytic Stability
- Excellent Osmotic Blistering
- Very good Fatigue & Toughness Properties

Boat Building

Yachts

Putruded sections as piles/pillars at ports, wharfs, jetties etc.

Engine Covers, Oil Sumps, fairings etc. through SMC/BMC moulding
Steadfast towards the future

CARBON FIBRE-VINYLM ESTER
COMPOSITES
CORROSION RESISTANCE
Anti-corrosion applications

Chlor-alkali
Paper & Pulp
Power Plants-FGD
Chemical Processing
Metal Processing
Mineral Processing
Desalination
THANK YOU.