Reinforced Plastics

US Industry Study with Forecasts for **2013 & 2018**

Study #2489 | May 2009 | $4600 | 297 pages

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Reinforced Plastics

US Industry Study with Forecasts for ***2013 & 2018***

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Advances will be fueled by advantages over other materials, such as lighter weight, shorter assembly time, fewer joint and fastener needs and lower maintenance of finished products.

US demand to reach 3.6 billion pounds in 2013

Demand for reinforced plastics is forecast to grow 2.8 percent yearly to 3.6 billion pounds in 2013, creating a market for 2.3 billion pounds of resin and 1.3 billion pounds of reinforcements. Advances will be fueled by reinforced plastics' light weight and excellent performance and design capabilities. Finished products also require less raw materials, shorter assembly time, and fewer joints and fasteners than other materials. Efforts to reduce weight and maintenance requirements will remain a priority for everything ranging from automobiles to commercial aircraft. Prices of reinforced plastics will moderate through 2013 following the price spikes between 2006 and 2008 caused by escalating raw material and energy costs.

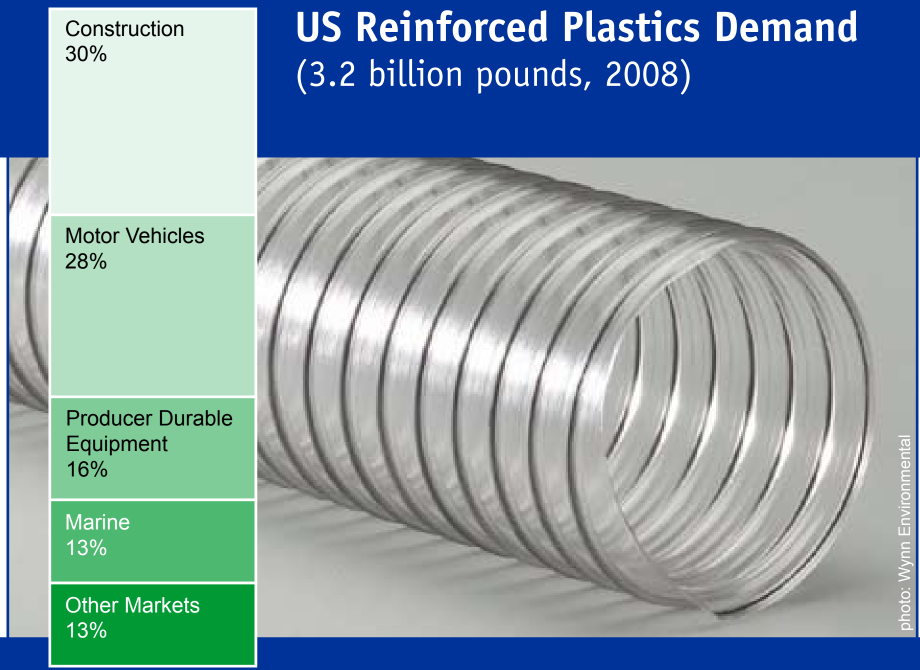
Glass fibers, due to their low cost and good performance, will remain the dominant reinforcement material through 2013. However, carbon fiber will increase at a significantly faster rate due to opportunities in high performance areas such as aircraft/aerospace. Nanomaterial reinforcements will also rise rapidly, with demand reaching almost five million pounds in 2013.

Thermosets, thermoplastics to grow at similar rates

Reinforced thermoset demand, led by thermoset (unsaturated) polyester and epoxy, is expected to increase 2.8 percent per annum to 2.1 billion pounds in 2013 as a result of their low cost and performance attributes such as strength and corrosion resistance. Unsaturated polyester demand will rise at an average pace through 2013, reflecting renewed economic growth and the introduction of improved resins and processing techniques. Epoxy demand will grow at a more rapid rate due to opportunities in electrical and electronic composites. Niche thermoset opportunities include bridge decking, poles and boat hulls. Wind turbine blades and other components are also a large potential application for thermoset polyester and epoxy. Although this market is currently dominated by offshore producers, blade manufacturers are expected to open facilities in the US Midwest in order to reduce transportation costs for the huge blades.

Demand for reinforced thermoplastics is projected to increase 2.9 percent per year to 1.5 billion pounds in 2013, fueled by their high performance, competitive cost, processing advantages over thermosets and better design capabilities. Reinforced polypropylene and nylon will exhibit above average growth. Polypropylene will remain the leading thermoplastic resin based on its low cost, stiffness and dimensional stability. Motor vehicles will remain nylon's primary market based on the resin's high strength, stiffness, and good chemical and abrasion resistance.

US Reinforced Plastics Demand
(3.2 billion pounds, 2008)



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Sample Text, Table & Chart

MARKETS

Reinforced Pipe: Demand for reinforced thermoset pipe
to increase million pounds in 2
ing use is a osets in power plan
plants, oil ormance application
ground and nicipal, chemical an
application cids, caustics and s
cooling tow t process lines; and
and discharg include process industr
oil/gas pipe. Oil and gas production uses will be fueled by co
pendence on imported oil and subsequent needs to develop a
natural gas and crude petroleum products.

SAMPLE TEXT

Reinforced thermoset pipe has the high-temperature tole
abrasion resistance necessary to withstand the caustic solutio
created during chemical and other production processes. Rei
thermoset pipe does not generally compete with PVC or HDPE pipe in process industry applications. Rather, reinforced thermoset pipe competes with lined concrete, stainless steel and ductile iron pipe, which have higher strength and better corrosion resistance.

Reinforced thermoset pipe is produced with polyester, epoxy and vinyl ester resins in combination with continuous glass filaments. These thermosetting resins undergo irreversible chemical reactions as they cure, resulting in superior temperature tolerance capabilities. Polyester accounts for most of the pipe produced in diameters exceeding 16 inches. Vinyl ester resins are used where chlorine or other bleaching compounds are encountered. Epoxy is noted for its resistance to caustics, solvents and high temperatures.

Reinforced thermoset resins produce pipe that is lighter, stronger, more corrosion resistant, more durable and more capable of withstanding higher temperatures than thermoplastics. Reinforced thermoset pipe in

134

TABLE V-2

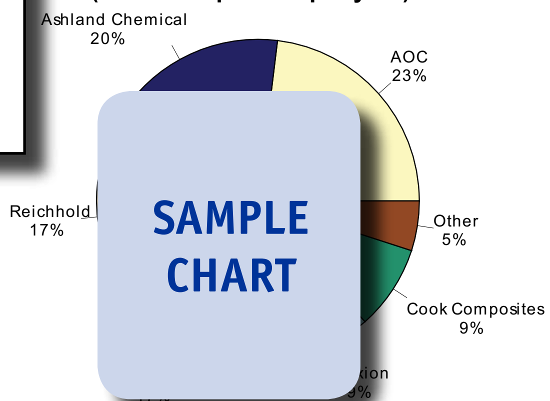
CONSTRUCTION MARKET FOR REINFORCED PLASTICS BY RESIN (million pounds)

Item	1998	2003	2008	2013	2018
Construction Expenditures (bil 2000$)	769	836	765	875	990
lbs plastics/000$ construction	1.35	1.26	1.26	1.25	1.25
Reinforced Plastics in Construction	[illegible]	[illegible]	[illegible]	[illegible]	1235
Reinforced Thermosets:					[illegible]
Polyester					[illegible]
Other Thermosets					[illegible]
Reinforced Thermoplastics:					[illegible]
Polycarbonate					[illegible]
Polyester					[illegible]
Nylon					[illegible]
Polypropylene					[illegible]
Other					[illegible]
% construction					[illegible]
Reinforced Plastics Demand	3125	3235	3165	3640	4060

SAMPLE TABLE

CHART VI-2

THERMOSET POLYESTER CAPACITY, 2008 (2.3 billion pounds per year)



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Sample Profile, Table & Forecast

TABLE IV-3

**REINFORCED THERMOSET POLYESTER
DEMAND BY MARKET
(million pounds)**

Item	1998	2003	2008	2013	2018
Gross Domestic Product (bil 2000$)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
lbs polyester/mil $ GDP	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
RF Thermoset Polyester Demand	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Construction	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Marine	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Motor Vehicles	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Producer Durables:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Electrical Equipment	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Business Equipment	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Consumer Durables:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Appliances	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Other	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Other:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Aircraft & Aerospace	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Other Transportation	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
All Other	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% thermoset polyester	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Reinforced Thermosets Demand	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

SAMPLE TABLE

COMPANY PROFILES

PolyOne Corporation
PolyOne Center
33587 Walker Road
Avon Lake, OH 44012
440-930-1000
http://ww

Sales: $
US Sales
Employ

Key Pro ... mpounds; and dis-
tribution ... d phenolic specialty
resins

SAMPLE PROFILE

PolyOne is a manufacturer of thermoplastic compounds, specialty resins and formulations, and color and additive systems; and a provider of custom compounding services and polymer distribution services. The Company operates through six segments: International Color and Engineered Materials; Specialty Engineered Materials; Specialty Color, Additives and Inks; Performance Products and Solutions; PolyOne Distribution; and Resin and Intermediates.

It competes in the US reinforced plastics industry through the Specialty Engineered Materials segment, which had sales of $252 million in 2008. Through this segment, PolyOne manufactures standard and custom formulated high-performance polymer compounds. These materials comprise thermoplastic compounds or elastomers modified with reinforcements, fillers, additives, colorants or biomaterials.

PolyOne's reinforced thermoplastic compounds include products sold under the EDGETEK, STAT-TECH, NYMAX, BERGAMID,

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"Reinforced thermoset polyester demand in motor vehicles will increase 4.0 percent annually to 185 million pounds in 2013. Advances reflect rebounding motor vehicle production levels following the significant declines experienced between 2003 and 2008. Other stimulants include needs for lighter weight and lower maintenance materials for producing exterior body panels, truck bed liners and structural components."

--Section IV, pg. 86

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Other Studies

Composite & Plastic Lumber

This study analyzes the US composite and plastic lumber industry. It presents historical demand data (1998, 2003, 2008) and forecasts for 2013 and 2018 by material (e.g., cellulosic, PVC, polyethylene, additives and modifiers), application (e.g., molding and trim, decking, fencing, windows and doors, playground equipment), and market (e.g., residential, nonresidential, nonbuilding). The study also considers market environment factors, details industry structure, evaluates company market share and profiles industry players.

#2534 .... 07/2009.................... $4800

Foamed Plastics

This study analyzes the US foamed plastics industry. It presents historical demand data for the years 1998, 2003 and 2008, and forecasts for 2013 and 2018 by product (e.g., foamed urethanes, foamed polystyrene, foamed vinyl, foamed engineered plastics, foamed HDPE and LDPE, foamed ABS) and market (e.g., construction, packaging, household products, motor vehicles). The study also considers market environment factors, details industry structure, evaluates company market share and profiles industry players.

#2532 .... 07/2009.................... $4700

Fluoropolymers

This study analyzes the US fluoropolymer industry. It presents historical demand data (1998, 2003, 2008) and forecasts for 2013 and 2018 by product (e.g., PTFE, fluoroelastomers, FEP, PVDF, PFA, ETFE), application (e.g., coatings and liners, mechanical parts and components, films), and market (e.g., electrical and electronics, industrial equipment, transportation equipment, chemicals and plastics). The study also considers market environment factors, evaluates company market share and profiles industry players.

#2496 .... 05/2009.................... $4600

Engineering Plastics

US engineering plastic demand will rise 3.1% yearly through 2012, driven by the ongoing replacement of metal parts with high-performance plastic. ABS, polycarbonate and nylon will stay the largest volume types, with polycarbonate leading gains based on opportunities in motor vehicles, medical products and construction. This study analyzes the 4.7 billion pound US engineering plastic industry, with forecasts for 2012 and 2017 by resin and market. It also evaluates company market share and profiles industry players.

#2404 .... 10/2008.................... $4600

Nanocomposites

US nanocomposites demand will grow 21% annually through 2011 as nanomaterial and composite prices decline. Higher-priced resins, such as engineering plastics used in applications where cost is not a critical factor, will lead gains. Packaging and motor vehicles will remain two key early markets. This study analyzes the $860 million US nanocomposites industry, with forecasts for 2011, 2016 and 2025 presented by product, market and nanomaterial. It also details market share and profiles major firms.

#2303 .... 02/2008.................... $4500

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