



PLASTICS REFERENCE HANDBOOK

REGAL PLASTIC SUPPLY COMPANY

PLASTICS REFERENCE HANDBOOK

regal

**Copyright 1999—2000
Regal Plastic Supply Company,
a division of Regal Supply Company**

Established in 1954, Regal Plastic Supply Company is considered one of the foremost pioneers in the plastic distribution industry. Throughout the years, the innovative “customer-oriented plan for success” thinking has become a credible trademark our customers rely on. Fortifying that philosophy, Regal introduced its Plastic Materials Reference Guide in 1984. As products and industries continue to evolve, so does this compilation of technical data. We view providing our customers with tools for effective planning and purchasing as important as meeting product “supply and demand”. You will find this guide an invaluable reference source for researching or finding the answer pertaining to your plastic application. The product information contained herein covers the most commonly used materials; it does not reflect our total capacity.

True customer service is a thought process not developed overnight. Our experience and stability in the industry gives Regal the opportunity to assist you in your plastics endeavors as you utilize staff who are accessible, knowledgeable and resourceful with regard to all inquiries.

We invite you to visit the Regal Plastic Supply Company location in your vicinity. All locations maintain generous inventories of plastic sheet, rod, tube, film, and numerous finished products.

Regal Plastic Supply Company thanks all of our customers for their patronage over the years. We will continue in our efforts to provide the best in JIT inventory and personal service. Plastic is in your future and Regal Plastic Supply Company is your best source.

Sincerely yours,

Regal Plastic Supply Company

National Association

Administrative Offices and Distribution Centers

CORPORATE OFFICE

N. KANSAS CITY, MO 64116

111 E. 10th Ave.

816-421-6290 800-627-2102 816-421-8206 FAX

DISTRIBUTION CENTERS

**N. KANSAS CITY,
MO 64116**

1500 Burlington
816-471-6390
800-444-6390
816-221-5822 FAX

WICHITA, KS 67214

329 North Indiana
316-263-1211
800-444-1211
316-263-4641 FAX

DES MOINES, IA 50325

8165 University Blvd.
515-223-8080
800-867-8347
515-223-8062 FAX

JOPLIN, MO 64801

601 East 9th
417-782-1420
800-444-1420
417-782-8924 FAX

OKLAHOMA CITY, OK 73127

9342 West Reno
405-495-7755
800-444-7755
405-787-3211 FAX

WATERLOO, IA 50707

117 Industrial Dr.
319-232-8757
800-373-8757
319-234-6509 FAX

SPRINGFIELD, MO 65802

1956 East Phelps
417-831-3110
800-444-3110
417-831-1386 FAX

TULSA, OK 74145

11612 E. 58th St. South
918-249-0775
800-444-2925
918-249-9708 FAX

NASHVILLE, TN 37210

1055 Elm Hill Pike
615-242-4800
888-615-6155
615-256-5600 FAX

ST. LOUIS, MO 63132

1456 Ashby Road
314-427-7722
800-666-0084
314-427-7717 FAX

OMAHA, NE 68108

2324 Vinton
402-344-4446
800-333-4446
402-344-4451 FAX

LA CROSSE, WI 54603

3160 Airport Road
608-784-2337
608-784-2336 FAX

regal
PLASTIC

Visit Regal Plastic Supply Company
on the Worldwide Web:

www.regalplastic.com

REGAL GRAPHICS - FILM DIVISION

**NORTH KANSAS CITY,
MO 64116**

111 E. 10th Avenue
816-842-1090
800-627-3425
FAX 816-421-0445

NASHVILLE, TN 37210

1055 Elm Hill Pike
615-242-8200
888-615-6155
FAX 615-256-5600

LA CROSSE, WI 54603

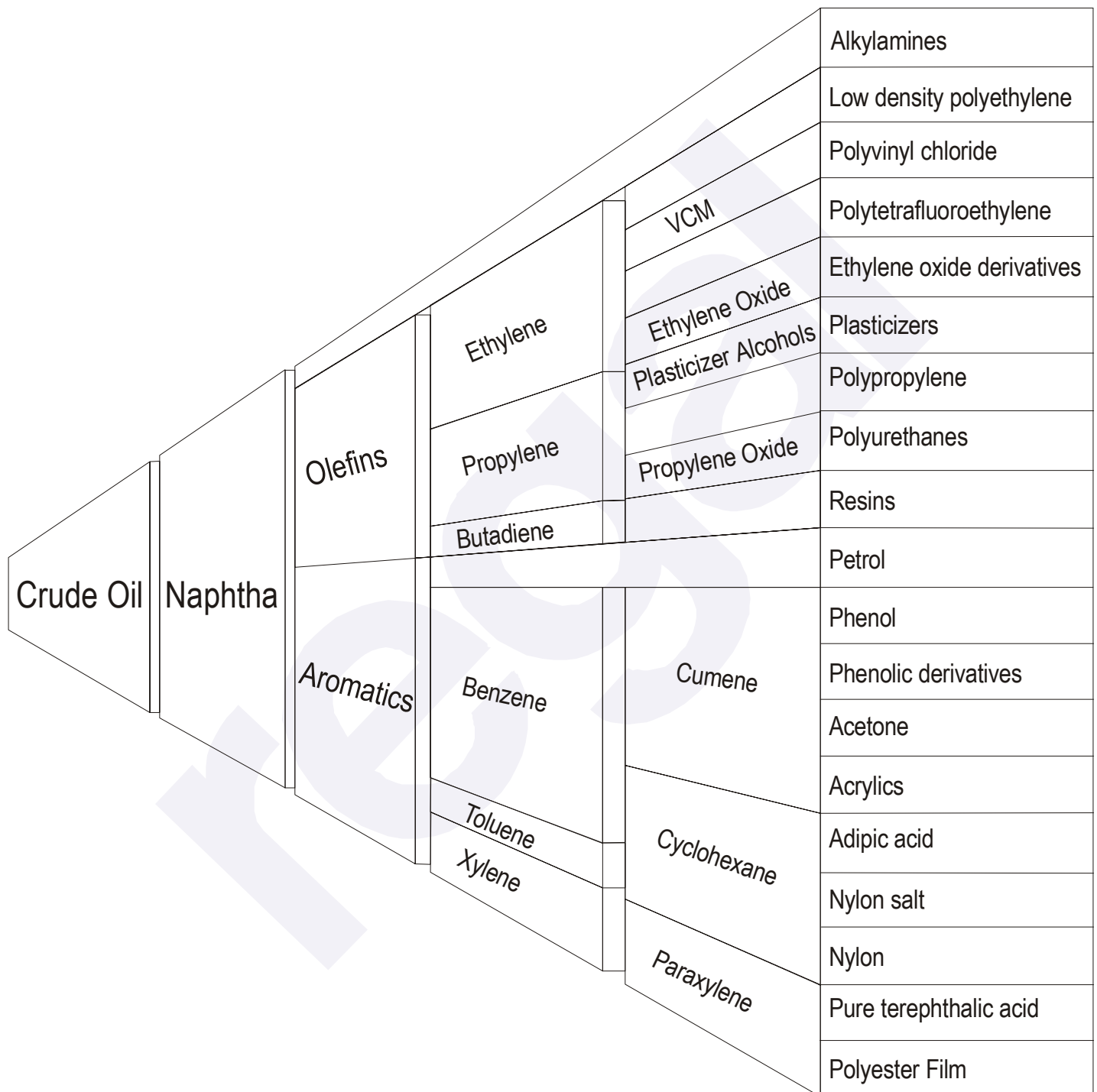
3160 Airport Road
608-784-2337
608-784-2336 FAX

SHERWOOD, OR 97140

13565 S.W.
Tualatin-Sherwood Rd.
Building 200
503-625-2262
800-627-3425
503-625-4568 FAX

INTRODUCTION

The Origins of Plastic Materials



INTRODUCTION

Preface

Introduction

PLASTIC-(per Webster)- “Any numerous organic, synthetic, or processed materials that are high molecular weight polymers.”

Polymers are a tribute to man’s creativity and inventiveness. They are truly man-made materials. Like any other material, they have their origins in nature, in such basic chemical elements as carbon, oxygen, hydrogen, nitrogen, chlorine, and sulfur. These elements in turn are extracted from the air, water, gas, oil, coal, or even plant life.

It was man’s inspiration to take these elements and combine them, via various chemical reactions, in an almost unending series of combinations, to produce the rich variety of materials we know today as plastics.

The possibilities of combining chemical elements to create plastics with different properties are almost endless. It is this diversity that has made plastics so applicable to such a broad range of end uses and products today.

In the Beginning

Given this kind of versatility and the role that plastics play in modern living, it’s surprising to realize that a little over a century ago there was no such thing as commercial plastic in the United States. During the 1850's and 60's, developmental work was going on with hard rubbers and cellulose materials, but the U.S. plastics industry officially dates its beginnings back to 1868, when a product called Celluloid was created as the first commercial plastic in the U.S. The development was in response to a competition sponsored by a manufacturer of billiard balls. It came about when a shortage developed in ivory from which the billiard balls were made, and the manufacturer sought another production method. Celluloid was one of the materials considered, and the U.S. plastics industry was born.

As has been typical of new plastic materials ever since, Celluloid quickly moved into other markets. The first photographic film used by Eastman was made of celluloid: producing the first motion picture film in 1882. The material is still in use today under its chemical name Cellulose nitrate, for making products like eyeglass frames.

Forty years were to pass before the plastics industry took its second major step forward. In 1909, Dr. Leo Hendrik Baekeland introduced Phenol formaldehyde plastics (or Phenolics as they are more popularly known), the first plastic to achieve world wide acceptance.

The third big thrust in plastics development took place in the 1920's with the introduction of Cellulose acetate, ureaformaldehyde, polyvinyl chloride, or Vinyl, and Nylon.

Evolution

In the World War II years of the 1940's, the demand for plastics accelerated, as did research into new plastics that could aid in the defense effort.

By the start of the 1950's plastics were on their way to being accepted by designers and engineers as basic materials, along with the more conventional ones.

Nylon, Teflon, Acetal, and Polycarbonate became the nucleus of a group in the plastics family known as the engineering thermoplastics. Their outstanding impact strength and thermal and dimensional stability enabled them to compete directly with metals. This group has grown since then to include a number of new plastics, as well as improved variations of older plastics that could similarly qualify for inclusion.

The Monomers & Polymers

Many plastics are derived from fractions of petroleum or gases that are recovered during the refining process. For example: ethylene monomer, one of the more important feedstocks, or starting materials for plastics, is derived in a gaseous form from petroleum refinery gas, liquefied petroleum gases, or liquid hydrocarbons. Although petroleum gas derivatives are not the only basic source used in making feedstocks for plastics, they are among the most popular and economical in use today. Coal is another excellent source in the manufacturing of feedstocks for plastics.

From these basic sources come the feedstocks we call monomers. The monomer is subjected to a chemical reaction known as polymerization; it causes the small molecules to link together into ever increasingly long molecules. Chemically, the polymerization reaction gas turns the monomer into a polymer, and thus a given type of plastic resin.

The Product as We See It

The polymer or plastic resin must next be prepared for use by the processor, who will turn it into a finished product. In some instances, it is possible to use the plastic resin as it comes out of the polymerization reaction. More often, however, it goes through other steps which turn it into a form that can be more easily handled by the processor and processing equipment. The more popular forms of resin for processing are pellet, granule, flake, and powder.

In the hands of the processor, these solids are generally subjected to heat and pressure. They are melted, forced into the desired shape (sheets, rods, and tubes) and then allowed to cure into a finished product. Resins are most readily available in their natural color, but by adding coloring agents, most any color can be achieved during the processing.

Plastics are a family of materials, not a single material. Each has its own distinct and special advantages.

Each day brings new plastic compounds, and new uses for the old compounds.

INTRODUCTION

Chronology of Plastic

DATE	MATERIAL	ORIGINAL TYPICAL USE
1868	Cellulose Nitrate	Eye Glass Frames
1909	Phenol-Formaldehyde	Telephone Handsets
1926	Alkyd	Electrical Bases
1926	Analine-Formaldehyde	Terminal Boards
1927	Cellulose Acetate	Tooth Brushes, Packaging
1927	Polyvinyl Chloride	Raincoats
1929	Urea-Formaldehyde	Lighting Fixtures
1935	Ethyl Cellulose	Flashlight Cases
1936	Acrylic	Brush Backs, Displays
1936	Polyvinyl Acetate	Flash Bulb Lining
1938	Cellulose Acetate Butyrate	Irrigation Pipe
1938	Polystyrene or Styrene	Kitchen Housewares
1938	Nylon (Polyamide)	Gears
1938	Polyvinyl Acetal	Safety Glass Interlayer
1939	Polyvinylidene Chloride	Auto Seat Covers
1939	Melamine-Formaldehyde	Tableware
1942	Polyester	Boat Hulls
1942	Polyethylene	Squeezable Bottles
1943	Fluorocarbon	Industrial Gaskets
1943	Silicone	Motor Insulation
1945	Cellulose Propionate	Automatic Pens and Pencils
1947	Epoxy	Tools and Jigs
1948	Acrylonitrile-Butadiene-Styrene	Luggage
1949	Allylic	Electrical Connectors
1954	Polyurethane or Urethane	Foam Cushions
1956	Acetal	Automotive Parts
1957	Polypropylene	Safety Helmets
1957	Polycarbonate	Appliance Parts
1959	Chlorinated Polyether	Valves and Fittings
1962	Phenoxy	Bottles
1962	Polyallomer	Typewriter Cases
1964	Ionomer	Skin Packages
1964	Polyphenylene Oxide	Battery Cases
1964	Polymide	Bearings
1964	Ethylene-Vinyl Acetate	Heavy Gauge Flexible Sheeting
1965	Parylene	Insulating Coatings
1965	Polysulfone	Electrical/Electronic Parts
1970	Thermoplastic Polyester	Electrical/Electronic Parts
1973	Polybutylene	Piping
1975	Nitrile Barrier Resins	Containers

The information contained herein provides product data, suggestions, and guidelines we believe to be reliable. They are offered in good faith but without any guarantee, as conditions, type of product, and methods of product use are beyond our control.

Regal Plastic Supply Company makes no warranties either expressed or implied and expressly disclaims any implied warranty of fitness for a particular purpose or procedure.

Sufficient verification and testing to determine the suitability for their own particular purpose of any information or products referred to herein, is strongly recommended.

FABRICS, BELTS, AND TAPES

Basic Information

W. F. Lake Corp. manufactures fabric, belting, and tapes for industrial purposes. Available are a wide variety of standard fabrics, adhesive tapes, belts, and fabricated parts, produced with chemically resistant Teflon® (PTFE) coatings to meet the varied requirements of textile / flexible composite materials.

Belting

High temperature conveyor belts produced from PTFE coated fiberglass products, are available for standard and specialized belt applications:

Application	Typical Construction
Screen Printing / Process Drying	PTFE coated fiberglass mesh. Sewn & Sealed fabric reinforced edge with metal alligator splice. Options: U. V. resistant black coating, film edge, cover flap over seam. PTFE coated Kevlar® mesh or Nomex mesh fabric.
Food Processing / Tortilla Press	High build 10 mil PTFE coated fiberglass belt. Kevlar® reinforced fabric hinge splice to accept customer supplied rod. Options: Cover flap over seam.
Band Sealing / Package Closure	PTFE coated fiberglass fabric, 3 or 5 mil, formed to make an endless belt. Usually 1 ply with overlap seam or 2 ply offset seam. Options: PTFE coated Kevlar® carcass, Butt splice.
Fusing Press / Apparel Mfg.	10 mil Anti-Static Black PTFE coated fiberglass fabric. 1" x 45° overlap seam with rounded corners to prevent lifting of seam. Options: Film over seam, film reinforced edges to prevent fraying.
Shrink Wrapping	
Teflon Mesh	PTFE coated fiberglass mesh belt with 1" fabric sewn & sealed edge reinforcement, metal alligator splice and cover flap. Options: Film edge, fabric hinge seam
Silicone / Glass	Red Silicone coated fiberglass, single ply, single side coated with metal alligator splice and cover flap. Options: 2 or 3 ply carcass, two side coated, other colors.
Hayssen Wrapper	Tear resistant, 5 or 6 mil PTFE coated fiberglass fabric, 45° overlap seam with reinforced edge and continuous silicone edge guide extrusion for tracking. Options: Heavier fabric or Kevlar®.
Other / Specialty	Consult with your nearest Regal Plastic Supply Representative for details concerning customized construction.

PTFE Coated Mesh Fiberglass Belts

Manufactured from woven fiberglass and Kevlar® substrate, these belts are designed to operate in extremes of hot temperature and chemical exposure. Exhibiting excellent abrasion resistance, low coefficient of friction, and resistance to most acids and alkalis, these belts are suitable for gas or electric fired hot air, ultra violet, radio frequency and microwave conveyerized drying operations.

NOTE: UV resistant coatings are pigmented black and should not be used with microwave or radio frequency based drying operations due to the nature of the pigment and potential reaction with microwave or RF systems, which may result in excess heat build up.

PTFE Coated Kevlar® Belting

Manufactured specifically for industrial applications requiring high tensile strengths with minimum weight, this belting combines the non-stick and chemically resistant properties of PTFE with the strength and flex fatigue resistance of Kevlar®.

PTFE Coated Two-Ply Sealing Belts

Two-ply rotary band sealing belts for continuous rotary packaging / sealing applications are available in a wide variety of standard styles and sizes. The seamless overlap belt provides uniform thickness and heat transfer, eliminating bumps and seams as well as adding strength to the overall belt by spreading seam stresses over a larger area than in a standard overlap belt.

Silicone Coated Fiberglass Belting and Fabric

Silicone coated fabrics are designed for applications requiring excellent release characteristics with high surface friction. They impact well and are highly wear and tear resistant. Operable to 450°F, this fabric works well in casting operations.

Typical uses include:

- high temperature conveyor belting
- gasketing
- heat covers release sheets
- shrink tunnel belts and heat curtains
- electrical insulation
- heat sealing
- tray liners for holding parts in high temperature processing

FABRICS, BELTS, AND TAPES

Basic Information

Fabrics

High performance PTFE coated textile / flexible composites are available in several different grades; premium, mechanical, tear-resistant, semi-conductive, translucent, and FDA approved release sheets.

Premium Grade PTFE Coated Fiberglass Fabric

Premium grade fabrics are typically used for applications requiring smooth, non-stick surfaces in a dimensionally stable form at extreme temperatures and in chemically aggressive environments. Typical uses include:

Release film for heat sealer bars and laminating / thermal transfer presses

- high temperature or chemically resistant gaskets
- diaphragms or seals
- cooking sheets
- high performance belting

Mechanical Grade PTFE Coated Fiberglass Fabric

Mechanical grade fabrics are well suited for applications where increased surface texture is required. Typical uses include:

- packaging where increased heat seal texture is needed
- lining of tables or trays not requiring premium surface coating
- high temperature mold releases where surface texture is not a problem
- mechanical slide surfaces or chute lining

Tear Resistant Grade PTFE Coated Fiberglass Fabric

Tear resistant grade fabric is specially treated to provide 5 times the tear strength of standard fabrics. Typical uses include:

- removable safety spray shields
- insulation jackets
- flange and valve covers
- retractable splash curtains for chemical process tanks
- reusable release liner sheets
- Sewn welder pockets and curtains
- Conveyor belting

Semi-Conductive Grade PTFE Coated Fiberglass Fabric

The semi-conductive grade fabrics are ideal where some degree of static dissipation is required.

Translucent Grade PTFE Coated Fiberglass Fabric

Translucent grade fabrics are produced to provide maximum visibility through the material to eliminate the problem of transfer or laminate misalignment and sticking.

Food Process Release Sheets PTFE Coated Fiberglass Fabric

Food process release sheets meet with FDA regulations for repeated food contact use. These sheets operate at extremes of temperature from cryogenic to 500°F and resists greases, oils, and fungus or mold growth.

Tapes

PTFE coated tapes are available with high temperature silicone or high tack acrylic adhesive systems designed to operate in a wide variety of extreme environments, both temperature and chemical.

PTFE Coated Fiberglass Pressure Sensitive Adhesive Tape

ACRYLIC ADHESIVE

PTFE coated fiberglass tapes with high tack acrylic adhesive are designed to operate in a wide variety of environments where higher initial tack and holding power are required.

SILICONE ADHESIVE

PTFE coated fiberglass tapes with silicone adhesive are designed to operate in a wide variety of extreme environments, both temperature and chemical.

FABRICS, BELTS, AND TAPES

Basic Information

PRODUCT AVAILABILITY

PRODUCT	COATED THICKNESS	POROSITY	WIDTH	COLOR	OPERATING TEMPERATURE	STANDARDS OR SPECIFICATIONS	INSULATION CLASS
PTFE Coated Mesh Fiberglass Belts		3/16" Mesh			550°F Max. Temperature		
PTFE Coated Kevlar® Belting	0.003" - 0.030"	3/16" Mesh			550°F Max. Temperature 450° F Continuous		
PTFE Coated 2 Ply Rotary Band Sealing Belts	0.0055", 2 ply, 3 mil 0.007", 1 ply, 3 & 5 mil 0.009", 2 ply, 5 mil 0.011", 2 ply, 6 mil 0.019", 2 ply, 10 mil				550°F Continuous Temperature		
Silicone Coated Fiberglass Belting and Fabric	0.015"—0.060"	Red Silicone Non-Porous	38" Std. Up to 50" Available	Gray, Red, White	550°F Max. Temperature -400°F to 450°F Continuous		
PTFE Coated Fiberglass Fabric Premium Grade	.003" - 0.028"		38" Std. 41", 50", 60", 72", and 82" are available		600°F Max. Temperature -400°F to 550°F Continuous		
PTFE Coated Fiberglass Fabric Mechanical Grade	.003" - .014"		38" Std. 41", 50", 60", 72", and 82" are available		600°F Max. Temperature -400°F to 550°F Continuous		
PTFE Coated Fiberglass Fabric Tear-Resistant and Semi-Conductive	.003" - 0.10"		38" Std. 41", 50", 60", 72", and 82" are available		600°F Max. Temperature -400°F to 550°F Continuous		
PTFE Coated Fiberglass Fabric Transparent	0.005" and 0.006"		38" Std. Other widths are available on request.		550°F Max. Temperature		
PTFE Coated Fiberglass Fabric Food Process Release Sheets	0.003" - 0.010" 0.005" and 0.010"		18 to 36 yard rolls slit to width, or in sheet form for pre-cut sizes.	Black	600°F Max. Temperature -400°F to 550°F Continuous	FDA Compliance 21 CFR 175.300 (xxv) (U.S. Code of Federal Regulations). Polytetrafluoroethylene is cleared for use under 177.1550, perfluorocarbon resins.	
PTFE Coated Fiberglass Tapes with Acrylic Pressure Sensitive Adhesive	0.005" - 0.013"		1/4" to 18"	Natural (Tan) Liner: Blue Poly	-40°F to +375°F Continuous	Mil-I-18746	155
PTFE Coated Fiberglass Tapes with Silicone Pressure Sensitive Adhesive	0.005" - 0.013"		1/4" to 18"	Natural (Tan) Liner: Yellow Bubble	-100°F to +550°F Continuous	Mil-I-18746	180

Trademarks

Click on trademark name to locate within document

Acetron is a registered trademarks of DSM Engineering Plastic Products.
Acrylite is a registered trademark of CYRO Industries
Alucobond is a registered trademark of Swiss Aluminum Ltd.
atoglas is a trademark of Elf Atochem, S.A.
Bienfang is a registered trademark of Hunt Corporation.
Celazole is a registered trademark of Hoechst Celanese Corporation.
Celcon is registered trademark of Celanese Corporation.
CleanStat is a registered trademark of Poly Hi Solidur, Inc.
ChampLine is a trademark of Poly Hi Solidur, Inc.
Clorox is a registered trademark of the Clorox Company.
ColorQuik is a trademark of Minnesota Mining and Manufacturing Company.
Coroplast is a registered trademark of the Coroplast Division of Great Pacific Enterprises, Inc.
Corzan is a registered trademark of The B. F. Goodrich Company
Delrin is a registered trademark of E. I. du Pont de Nemours and Company
Downy is a registered trademark of Proctor & Gamble.
Drippard is a trademark of General Electric Company.
Duratron is a registered trademark of DSM Engineering Plastic Products.
Eastar is a registered trademark of Eastman Chemical.
Ensicar is a registered trademark of Ensinger Industries, Inc.
Ensifone is a registered trademark of Ensinger Industries, Inc.
Ensikem is a registered trademark of Ensinger Industries, Inc.
Ensilon is a registered trademark of Ensinger Industries, Inc.
EnsiPro is a registered trademark of Ensinger Industries, Inc.
Ensitel is a registered trademark of Ensinger Industries, Inc.
Ensitep is a registered trademark of Ensinger Industries, Inc.
Ertalyte is a registered trademark of DSM Engineering Plastic Products.
Fantastik is a registered trademark of Dowbrands, Inc.
Floor Guard is a registered trademark of Hunt Corporation.
Floor Grip is a trademark of Hunt Corporation.
Fluorocint is a registered trademark of DSM Engineering Plastic Products.
Fome-Cor is a registered trademark of International Paper Company.
Formula 409 is a registered trademark of the Clorox Company.
Gatorblanks is a registered trademark of International Paper Company.
Gatorcel is a registered trademark of International Paper Company.
Gatorfoam is a registered trademark of International Paper Company.
Gatorplast is a registered trademark of International Paper Company.
HYLAR 5000 is a registered trademark of Ausimont USA, Inc.
Hyzod is a registered trademark of Sheffield Plastics, Inc.
Hydcor is a registered trademark of A. L. Hyde Company
Hytrel is a registered trademark of E. I. du Pont de Nemours and Company
Hydex is a registered trademark of A. L. Hyde Company
Hydel is a registered trademark of A. L. Hyde Company
Implex is a registered trademarks and is a trademark of Elf Atochem, S.A.
Jet Guard is a registered trademark of Hunt Corporation.
JetMount is a registered trademark of International Paper Company.
Joy is a registered trademark of Proctor & Gamble.
Ketron is a registered trademark of DSM Engineering Plastic Products.
Kevlar is a registered trademark of E. I. du Pont de Nemours and Company
Komacel is a registered trademark of K mmerling.
Komatex is a registered trademark of K mmerling.
Kydex is a registered trademark of the Kleerdex Company.
Kynar is a registered trademark Elf Atochem, S.A.
Kynar 500 is a registered trademark of Pennwalt Corporation.
Lexan is a registered trademark of General Electric Company.
Lexgard is a registered trademarks of General Electric Company.
Lucite is a registered trademark of Ineos Acrylics.
MC is a registered trademark of DSM Engineering Plastic Products.
Meguiar's is a registered trademark of Meguiar's, Inc.
MightyCore is a registered trademark of Hunt Corporation.
Mr. Clean is a registered trademark of Proctor & Gamble.
NORRENE is a registered trademark of Norton.
Noryl is a registered trademark of General Electric Company.
Nylatron is a registered trademark of DSM Engineering Plastic Products.
Nylawear is a registered trademark of A. L. Hyde Company
ORACAL is a registered trademark of LIG International, Inc.
OptiMount is a registered trademark of Hunt Corporation.
Palmolive Liquid is a registered trademark of Colgate Palmolive.
PEEK is a trademark of Victrex PLC.
Pillocore is a registered trademark of Hunt Corporation.
Plexiglas is a registered trademark Elf Atochem, S.A.
Polypenco is a registered trademark of DSM Engineering Plastic Products.
Print Guard is a registered trademark of Hunt Corporation.
Print Shield is a registered trademark of Hunt Corporation.
ProSeal is a trademark of Hunt Corporation.
Proteus is a registered trademark of Poly Hi Solidur, Inc.
Quick Stik is a registered trademark of Hunt Corporation.
Radel is a registered trademark of BP Amoco.
Ryton is a registered trademark of Phillips Petroleum Company.
Sanalite is a registered trademark of Poly Hi Solidur, Inc.
Scotchcal is a trademark of Minnesota Mining and Manufacturing Company.
Seal is a registered trademark of Hunt Corporation.
Semitron is a registered trademark of DSM Engineering Plastic Products.
SilGlaze is a registered trademark of General Electric Company.
SilPruf is a registered trademark of General Electric Company.
Single Step is a registered trademark of Hunt Corporation.
Sintra is a registered trademark of Alusuisse Composites, Inc.
Solvay is a registered trademark of Solvay.
Spar-Cal is a registered trademark of Spartan International, Inc.
Spectar is a trademark of Eastman Chemical.
Spray 'N Wash is a registered trademark of Proctor & Gamble.
Stoplight is a trademark of Hunt Corporation.
Techtron is a registered trademark of DSM Engineering Plastic Products.
Teflon is a registered trademark of E. I. du Pont de Nemours and Company.
Tend is a registered trademark of Regal Plastic Supply Company
Tivar is a registered trademark of Poly Hi Solidur, Inc.
ThermaShield is a trademark of Hunt Corporation.
Thermoclear is a registered trademark of General Electric Company.
3M is a registered trademark of Minnesota Mining and Manufacturing Company.
Top Job is a registered trademark of Proctor & Gamble.
Torlon is a registered trademark of BP Amoco.
Tremco is a registered trademark of Tremco, Inc.
Ultem is a registered trademark of General Electric Company.
Ultraform is a registered trademark of BASF.
UltraGlaze is a registered trademark of General Electric Company.
UltraPruf is a registered trademark of General Electric Company.
Valox is a registered trademark of General Electric Company.
Vekton is a registered trademark of Chemplast, Inc.
Vulkem is a registered trademark of MAMECO International, Inc.
Windex with Ammonia D is a registered trademark of the Drackett Products Company.
Wisk is a registered trademark of the Drackett Products Company.
Zytel is a registered trademark of E. I. du Pont de Nemours and Company.

Acknowledgements

The following companies have assisted in the development of this plastics reference guide by providing product specific and general technical information.

A. L. Hyde Company

Alusuisse Composites, Inc.

Coroplast Division, Great Pacific Enterprises

Cyberbond L.L.C.

CYRO Industries

DSM Engineering Plastic Products

Sheffield Plastics, Inc.

Elf Atochem North America, Inc., atoglas™ division

Ensinger Engineering Products

**General Electric Company
GE Structured Products
GE Silicones**

Hunt Corporation

I.A.P.D. (International Association of Plastic Distributors)

Ineos Acrylics

International Paper Company

Kleerdex Company

Kömmerling USA, Inc.

ORACAL®

Polycast High Performance Plastics, Inc.

Poly Hi Solidur, Inc.

R Tape Corporation

Seeyle, Inc.

Shin-Etsu Silicones of America, Inc.

SPAR-CAL®

Thermoplastic Processes, Inc.

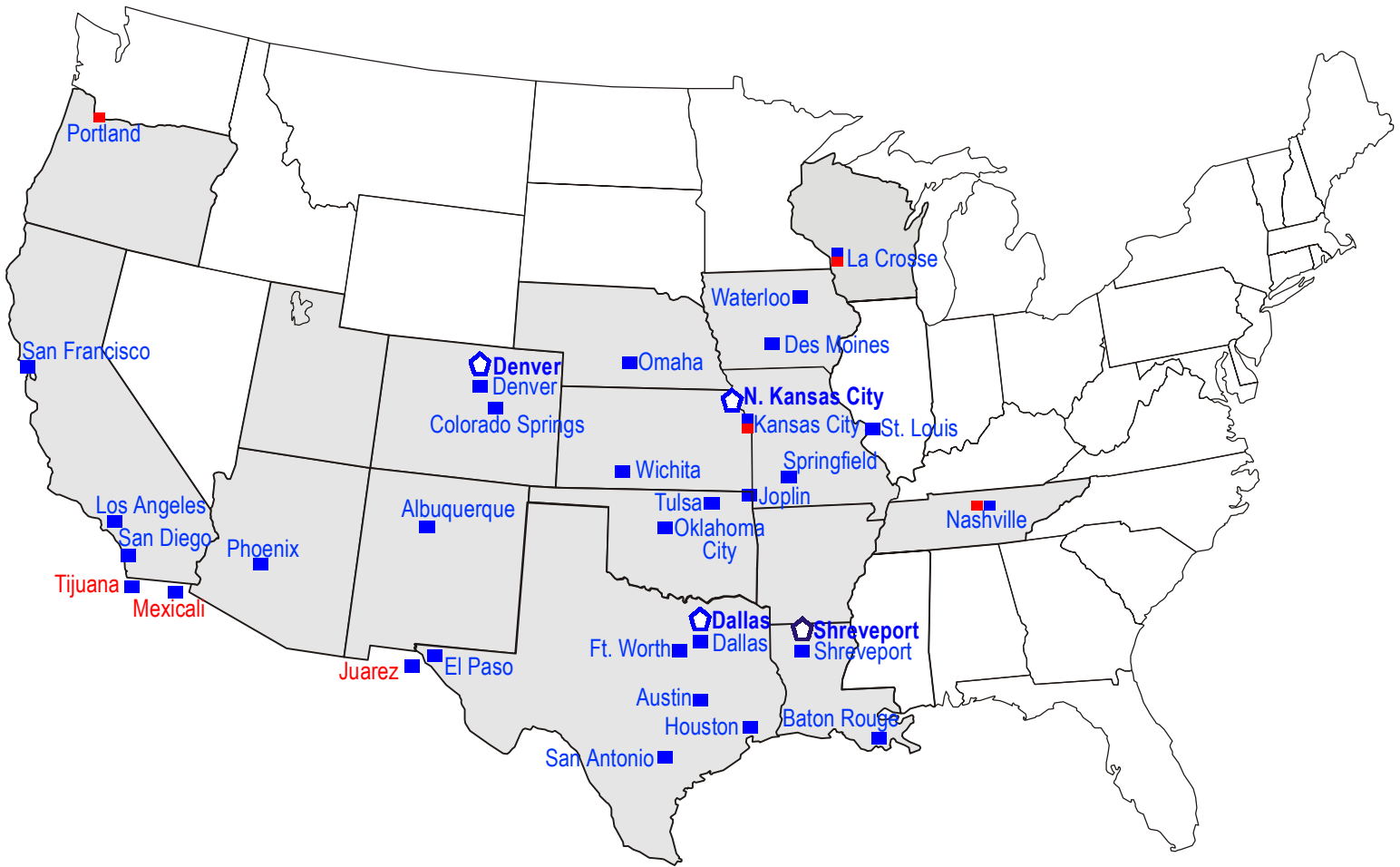
Tremco®, Inc.

W. F. Lake Corporation

Wegner North America, Inc.

Zeus Industrial Products

CUSTOMER SERVICE AND PRODUCT ALL UNDER ONE ROOF.



 Divisional Corporate Offices

 Stocking Branches

 Film Conversion Centers

