



**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](http://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**

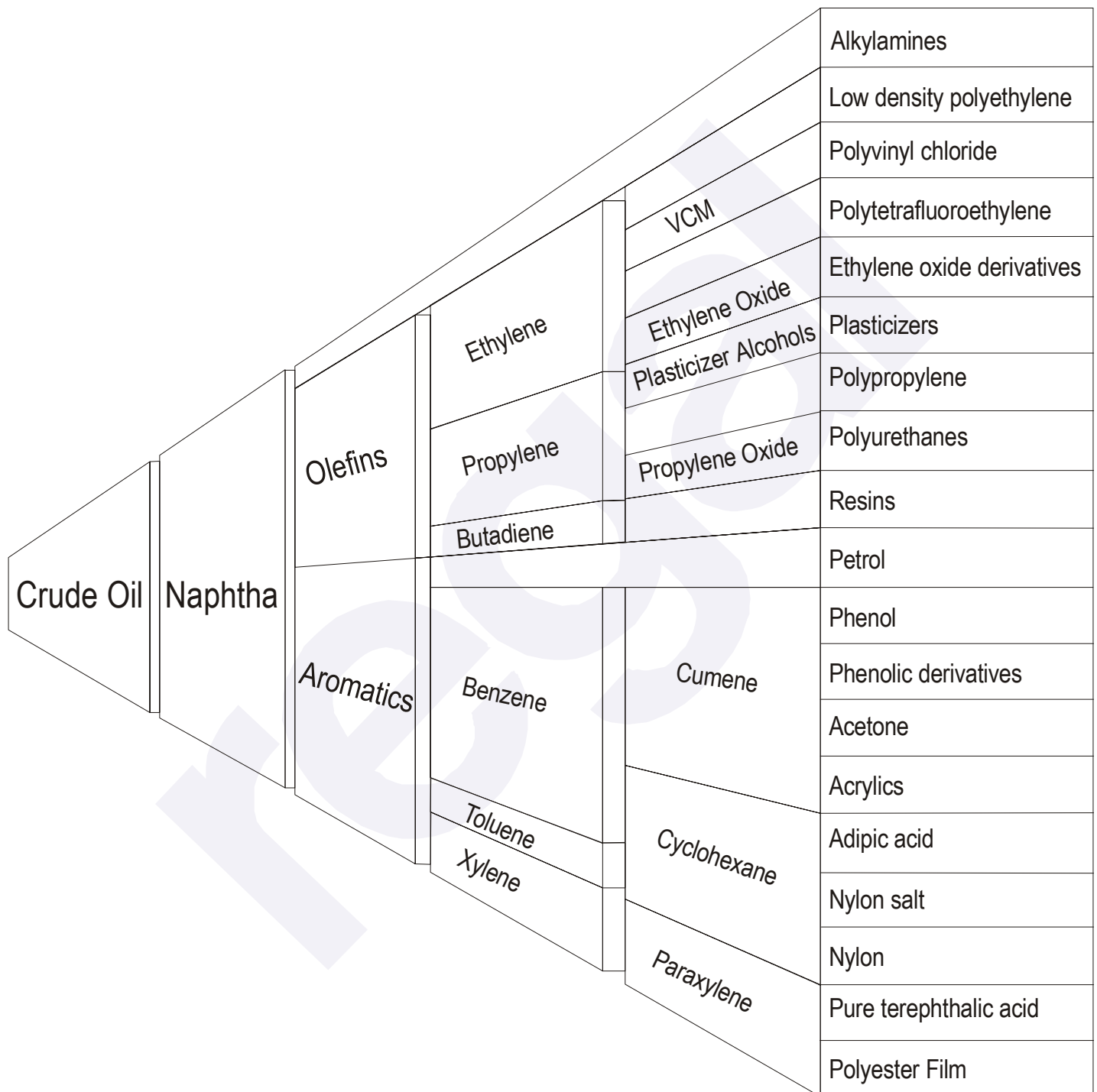
3160 Airport Road  
608-784-2337  
608-784-2336 FAX

**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.**

# MISCELLANEOUS

## Convex Mirror ■ Vinyl Strip Doors

### Convex Mirrors for Indoor and Outdoor Use

Available in acrylic or polycarbonate, these mirrors can be placed anywhere that requires maximum safety from breakage. Designed for security and safety applications, convex mirrors are used in stores to view isles from overhead, and in hospitals, schools, factories, libraries and offices at blind intersections to prevent injuries.

Indoor mirrors come with chrome plated mounting brackets and are available in 6 sizes from 12" to 48". Outdoor mirrors also come with 3 adjustable chrome plated wind brackets and are available in 5 sizes from 18" to 48".

### Hemispherical Domes and Segments

Hemispherical domes and segments are available in full, half, and quarter sizes.

The full hemisphere safety and security mirror, 360°, is designed for viewing a 200° area from any direction allowing visibility of blind spots.

The half-hemisphere, 180°, is designed for "T" intersections where a three-way view is needed.

The quarter size, 90°, is designed for "L" intersections where a two-way view is needed, such as elevators.

Smaller security mirrors are available with view fields as wide as 160°. These are designed for situations where store employees need additional vision without leaving their positions.

### See-Thru Surveillance Mirror

Lighter mirrored, but with all the qualities of the full hemispherical convex mirror, this product allows a camera to focus through the dome while reflecting images in its mirror. Fits standard suspended ceiling grids.

### Vinyl Strip Doors

Vinyl Strip Doors are constructed from a series of transparent, overlapping vinyl strips, which part to let traffic through, then close automatically, keeping heated and cooled air in and pollution out.

Easily installed and adaptable, these doors can cover any shape or size from two feet square up to 25 feet high, and any width. Designed for low maintenance, individual strips can be replaced quickly and inexpensively.

Tough enough to withstand heavy traffic and constant use, these doors are used for interior and exterior applications in industrial, commercial, and institutional structures.

These strips are UV stabilized to prevent yellowing, resistant to most inorganic acids, bases, and salts, and approved by the GSA for federal government purchase.

The strips are available in both flat and ribbed styles. The flat style has smoothly beveled, rounded edges that will not cut, snag, or scratch anything they come in contact with. The ribbed style provides maximum structural strength and energy savings. The reinforcing ribs on each side interlock for a tighter thermal seal and prolong the clarity by reducing marring and scratching on the strip surface.

### Product Advantages

- Transparent strips allow visibility of oncoming pedestrians and vehicles
- Minimizes the chances of birds, flying insects, and rodents from entering building
- Reduces compressor running times in walk-in coolers by 45%
- Dampens noise by reducing sound transmission

### STANDARD STRIP

Available in flat or ribbed, and in four thicknesses and widths, this strip is used in 9 out of 10 installations for both light and heavy applications. They have an operating temperature of -10°F to 140°F and meet CPAI-84 and California State Fire Marshall requirements for flame resistance. Meets USDA, FDA, and Agriculture Canada requirements.

## Vinyl Strip Doors

### LOW TEMPERATURE STRIP

Designed for the food processing industry, this product meets USDA, FDA, and Agriculture Canada requirements, and has been approved by the National Sanitation Foundation. Recommended for freezer use, this strip helps sustain sub-zero temperatures while remaining flexible from 50°F to 140°F.

### WELDING STRIP

Designed for welding booths as well as spraying, grinding, and sand blasting enclosures, this strip is fire retardant, transparent, noise deadening, and blocks over 99% of UV radiation. This strip, polarized, also meets CPAI-84 and California State Fire Marshall requirements for flame resistance (sparks won't burn through).

Application	Thickness	Width	Overlap
For lightweight traffic closures only, such as conveyor doors (not for exterior openings).	.060"	6"	Full (3")
For freezers, coolers, refrigerated trucks, and personnel doors.	.080"	8"	2"
For interior doors to 10' high. Not recommended for exterior opening.	.080"	8"	Full (4")
For minimum protection for interior/ exterior openings from 9' to 14' high.	.120"	12"	4"
For better protection for interior/ exterior openings from 9' to 14' high, severe temperature and windy conditions.	.120"	12"	Full (6")
For exterior doors up to 25' high with heavy vehicular traffic.	.160"	16"	4"
For exterior doors up to 25' high with constant heavy-duty equipment traffic. Best for sound control. Not recommended for frequent personnel	.160"	16"	Full (8")

### Typical Applications

- Shipping and receiving closures on loading docks
- Traffic doors
- Conveyor openings
- Craneway enclosures
- Temperature control between rooms
- Partitions between buildings
- Storage area enclosures
- Cooler or freezer secondary doors
- Inside doors on refrigerated trucks
- Spray booths
- Welding screens, partitions, and booths
- Car wash exits
- Sound barriers and noise-reducing enclosures for machinery
- Hood enclosures for fume containment

### Determine the Strip Quantity Required

6" wide strip with 2" overlap;	multiply sq. ft. of opening by 3.0
6" wide strip with full (3") overlap;	multiply sq. ft. of opening by 4.0.
8" wide strip with 2" overlap;	multiply sq. ft. of opening by 2.0.
8" wide strip with full (4") overlap;	multiply sq. ft. of opening by 3.0.
12" wide strip with a 4" overlap;	multiply sq. ft. of opening by 1.5.
12" wide strip with a full (6") overlap;	multiply sq. ft. of opening by 2.0.
16" wide strip with a 4" overlap;	multiply sq. ft. of opening by 1.0.
16" wide strip with a full 8" overlap;	multiply sq. ft. of opening by 1.5.

**NOTE:** On WALL MOUNT installations, remember to allow an extra 3" on top and 6" on each side. Wall mount installations are preferred due to less risk of tearing strips from the mount and less risk of damaging door hardware.

### SELF-STANDING

Self-standing welding screens, 76" by 78", are made of 80 gauge polarized strips with a frame constructed of heavy gauge steel on freewheeling casters. Butting together at 90° angles without gaps, a two, three, or four sided booth can be constructed. These screens block 99% of UV and near UV radiation.

# MISCELLANEOUS

## Chairmats ■ Light Diffusers

### Clearview CoPolymer Lexan® Mats

These rigid, cleated (studded) mats are designed for medium to high pile carpet. They are curl, dent and dimple resistant, and offer excellent mobility for most chair casters. These textured mats can be custom cut to fit any dimension or pattern. Not for use on very low carpets or uncarpeted surfaces.

### Rolite Vinyl UltraMat or UltraMat TBS

This mat comes in a studded version (UltraMat) or an unstudded version that is textured on both sides (UltraMatTBS). These mats are designed for padded, medium pile, or unpadded, high pile carpets.

Stocked in blanks or rolls, these mats can be cut to any pattern or dimension.

### Acrylic Mat

Chairmat cut to size and pattern out of Plexiglas®.

### UltraStat Anti-Static Mat

This is the thickest anti-static mat offered. In addition to having all of the qualities of UltraMat and UltraMat TBS, it is also chemically formulated to stop static electricity from harming sensitive electronic equipment and computers without the use of a ground cord.

## PRODUCT AVAILABILITY

Product	Thickness	Width	Length
Clearview CoPolymer Lexan®	.187"	72"	96"
Rolite Vinyl Ultramat or Ultramat TBS	1/4"	Up to 60"	Any
Acrylic	3/8"	72"	96"
Ultrastat Antistatic Mat	1/4"	Up to 60"	96"

To enhance understanding of lighting cause and effects, the following terminology definitions are offered:

**Luminaire** - A complete lighting unit (fixture, lamps, ballast, diffuser).

**Diffuser** - A device to redirect or control the light from its source.

**Lens** - A clear or translucent glass or plastic diffuser that utilizes prisms or other shapes to refract light.

**Louver** - A plastic or metal diffuser consisting of a series of flat or parabolic blades arranged in a geometric pattern, most often square or rectangular.

**Eggcrate Louver** - A louver with straight blades.

**Parabolic Louver** - A louver with parabolically shaped blades.

**Baffle** - A diffuser consisting of parallel, one-directional blades.

### Parabolic Louvers

Parabolic louvers are the most sophisticated and optically precise lighting panel available for fluorescent lighting fixtures and lighted ceilings. With their parabolically shaped blades, they redirect light downward out of the 60° to 90° visual discomfort zone, and direct it to the 0° to 45° zone, deadening the glare of fluorescent lights. These blades also affect the Visual Comfort Probability (V.C.P.). This is a rating based on the percentage of 100 people in a room who find the brightness visually pleasant and not glaring. Most parabolic louvers provide a V.C.P. index of 90%.

Parabolic louvers are available with either a specular or semi-specular surface. Each of these surfaces will render a slightly different light distribution, intensity, and source brightness. The darker the louver color, the less efficient the lighting output. Specular finishes provide the most precise lighting and brightness control. They direct all light to the 0°-45° area and usually have V.C.P. ratings of 95%+ for most room sizes. Semi-specular finishes are not as glossy, and therefore result in omni directional diffused light which gives off a warm, halo effect around the louver.

Economical as well as attractive, these are designed to retrofit existing fixtures without additional electrical work. Because of the open grid, temperatures stay lower in the luminaries, resulting in lamps and ballasts that last 50% longer.

## Light Diffusers

With many variations of parabolic louvers to choose from for different lighting needs, these lighting panels can be used in many applications including:

- Medical facilities
- Department stores
- Conference rooms
- Commercial and municipal buildings
- Entries and corridors
- Perimeter lighting
- Banks
- Office task areas
- VDT Computer rooms
- Elevators

### Eggcrate Louvers

Eggcrate louvers are louvers with straight blades that are designed for economy and ease of fit. They are open celled for improved ventilation, lamp performance, and increased ballast life. Injection molded in a single piece for added strength, they have the appearance of a typical eggcrate, and are designed to fit together to form a uniform shape.

Like parabolic louvers, they provide glare reduction, lower brightness levels, and improved visual comfort. These also have a minimum horizontal surface to collect dust while the open cell areas enable sprinklers to be concealed and operate through the louver.

### Ceiling Light Panels

These are designed for recessed ceiling fixtures or luminous ceilings. Made of polystyrene or acrylic, they are normally available in clear or translucent white in "Cracked Ice" or "Prismatic" patterns.

The "Cracked Ice" pattern, while providing a sparkling, crystal overhead effect, also provides complete lamp obscuration. The "Prismatic" pattern provides low brightness with high light output and control.

### PRODUCT AVAILABILITY

#### Parabolic Louvers

##### Standard Sizes

1' x 4', 2' x 2', 2' x 4'

Custom Sizes Available

##### Colors

Gold, Silver, White and Black

##### Grids

Circle, Square, Hexagon, Paracircle

#### Eggcrate Louvers

##### Standard Sizes

2' x 4', 2.5' x 5', 3' x 4'

##### Colors

Black and White

#### Ceiling Panels

##### Standard Sizes

1' x 4', 2' x 2', 2' x 4', 4' x 4', 4' x 8'

Additional Sizes Available

##### Colors

Clear and White

##### Patterns

Cracked Ice, Crushed Ice, Prismatic, Smooth Flat

#### DO YOU KNOW?

By using plastic in packaging, product manufacturers save enough energy each year to power a city of 1 million homes for three and a half years.

# MISCELLANEOUS

## Plastic Polishes and Cleaners

There are numerous cleaners and polishes on the market suitable for plastics maintenance and restoral.

### Meguiar's® Mirror® Glaze

For use on clear plastics, these polish, clean, and remove hairline scratches from cast acrylic, extruded acrylic, continuously processed acrylic, polystyrene and polycarbonate sheet. It is available in the following formulas:

### Clear Plastic Cleaner / Polish (M-1808)

This is a spray on cleaner and polish with an anti-static and dust repellent formula to restore optical clarity.

### Plastic Cleaner (M-1708)

This has a non-abrasive cleaning action that wipes away dirt while safely removing hairline scratches.

### Plastic Polish (M-1008)

For use after M-1708, this hand applied polish with an anti-static formula is designed for restoring and maintaining optical clarity.

### PRODUCT AVAILABILITY

M-11008, M-1708 and M-1808 are all available in 8 oz. bottles (12 per case)

### Novus® Plastic Clean and Shine #1

This product cleans and shines while protecting against future smudges and scratches. It repels dust, resists fogging, and eliminates static.

### Novus® Plastic Polish #2

This removes fine scratches, haziness, and abrasions from most plastics. With repeated use, it restores faded and discolored plastics.

### Novus® Plastic Polish #3

This removes heavy scratches and abrasions from most plastics. Requires the use of No. 2 for final finish. Not intended for use on coated plastics or polycarbonates.

### PRODUCT AVAILABILITY

#### Plastic Polish #1

2 oz. bottles (24 per case)

8 oz. bottles (12 per case)

#### Plastic Polish #2

2 oz. bottles (24 per case)

8 oz. bottles (12 per case)

#### Plastic Polish #3

8 oz. bottles (12 per case)

#### Kits

Novus 1 and 2 - 2 oz. size,  
5 cloths

### Tend® Cleaner and Reconditioner

This cleaner gently rubs out most minor surface blemishes and prepares plastic surfaces for polishing and buffing. It can be used on many materials including: ceramic, formica, wood, acrylic, ABS, butyrate, fiberglass, phenolic, polycarbonate, polystyrene, and vinyl.

### Tend® Plastic Cleaner and Polish

For normal cleaning, maintenance, and protection of ceramic and plastic tile, formica tops, plastic furniture, wood, cabinets, paneling, vinyl upholstery, plastic windows, range tops and more. It can be used on acrylics, ABS, butyrate, fiberglass, phenolic, polycarbonate, polystyrene, and vinyl.

### Tend® Anti-Static Plastic Cleaner

This cleaner is designed to combat static, repel dust, and resist fingerprints as well as clean and polish. Safe for all plastics and other hard, shiny surfaces, this cleaner is also non-toxic and non-flammable.

### PRODUCT AVAILABILITY

#### Anti-Static Plastic Cleaner

1 gal. containers (4 per case)

1 pint containers (12 per case)

#### Plastic Cleaner and Polish

8 oz. containers (12 per case)

#### Cleaner and Reconditioner

8 oz. containers (12 per case)

### Drills

Specially manufactured drill bits with modified rake angle of 0° and cutting edge clearance of 10° produce smoother, chip-free holes in acrylic. Availability runs from standard sizes of 1/16" - 1" to metric sizes of 2mm - 13mm.

### Router Bits

#### Carbide Tipped

- Flush Trim:** 3/8" - 1/2" cutting edge dia.  
1" - 1 1/2" cutting edge length
- Chamfer:** 25° - 45° Bevel  
5/8" - 3/4" cutting edge length
- Corner Rounding:** 3/16" - 3/4" radius  
7/16" - 1 1/16" cutting edge length

#### Solid Carbide

- V Bottom:** 1/4" - 1/2" cutting edge dia.  
3/4" cutting edge length
- Upcut - Double Edge:** 1/4" - 1/2" cutting edge dia.  
3/4" - 1" cutting edge length
- Double Edge Straight:** 3/16" - 1/2" cutting edge dia.  
5/8" - 1" cutting edge length
- Downcut - Double Edge:** 1/4" - 1/2" cutting edge dia.  
3/4" - 1 1/8" cutting edge length
- Three-Edge Finisher:** 1/2" cutting edge dia.  
1 1/8" - 1 5/8" cutting edge length
- Single Edge Straight:** 3/16" - 1/2" cutting edge dia.  
5/8" - 1" cutting edge length

### Saw Blades - Carbide Teeth

Diameter	Teeth	Bore
8", 10"	24	5/8"
12"	30	1"
14"	36	1"
16"	45	1"
8", 10", 12"	48	5/8", 1"
8", 10", 12", 14"	60	5/8", 1"
8", 10", 16"	72	5/8", 1"
8", 10", 12", 14", 16"	80	5/8", 1"
10", 12", 14"	90	5/8", 1"
10"	96	5/8"
12"	100	1"

### Recommended Sawing Guide

Product	Maximum Sheet Cutting Thickness	Teeth
Acrylic - Cell Cast and Continuous Cast	1/16"	72, 80
	1/8" - 1/4"	72, 80
	1/2"	60, 72, 80
	1" - 2"	60, 72
Acrylic - Extruded	1/16"	80, 90
	1/8" - 1/4"	72, 80, 90, 100
	1/2"	72, 80, 100
Polycarbonate	1/16"	72, 80, 100
	1/8" - 2"	90
Nylon / Polypropylene / Teflon	1/16" - 2"	24, 30, 36, 45
Polyethylene / PVC / ABS	1/16" - 1/8"	72, 80, 100
	1/4" - 2"	60, 72, 80
Polyurethane (durometer 85 or denser)	1/16" - 2"	24, 30
Foamboard - paper masking	1/16" - 2"	96
Foamboard - film masking	1/16" - 2"	80, 96
Phenolic	1/16" - 2"	48
UHMW	1/16" - 1/4"	72, 80, 100
	1/2" - 2"	72, 80, 90
Styrene / Rigid Vinyl	1/16" - 2"	90
Sintra	1/16" - 2"	60, 72, 80

# MISCELLANEOUS

## Welding Tools

Welders are hand tools used to fuse thermoplastics together with heat and pressure. The heat softens both the welding rod (made of the same plastic as the substrate), and the substrate, joining the two. Thermoplastics which can be welded in this manner include PVC, PP (polypropylene), PE (polyethylene), polystyrene (PS), acrylics, polycarbonates, some blends of ABS, and other thermoplastic blends. For general material welding specifics see the machining section, page .

### Wegener North America, Inc. EXTRUSION WELDERS

Extrusion welders were originally developed to replace multiple pass hand welds in thermoplastic tank construction. Their ease of adaptability has allowed their usage to branch out into many other fields.

Working on the same principle as a sheet or rod extrusion machine, they create a large bead which reduces welding time and labor while providing a stronger weld.

Typical applications include:

- HDPE and PP pipe and tank fabrication
- welding of HDPE manholes, headers, sumps and covers
- installation and repair of HDPE membranes
- UHMWPE liners
- PVC tanks and scrubbers
- concrete protective liners, etc.

There are a variety of models available. Contact your nearest Regal Plastic Supply distribution center for current availability.

### HOT AIR WELDERS

#### Weg 08

This hand welder is designed for welding any thermoplastic (PP, PE, PVC, CPVC, PVDF). It has an electronic temperature control with a working temperature range from ambient to 1200°F, an automatic shut-off in case of air loss, and a cool touch barrel.

### Autotherm Hot Air Welding Torch

This was designed for sensitive materials such as PVC, CPVC, PVDF, and fluoropolymers. Like Weg 08, this has an electronic temperature control, automatic shut-off in case of air loss, and a cool barrel touch. It also has a blinking light to signal when the desired temperature is set.

#### Weg 5 (Quick L)

With built in sensors to prevent heating element burn-outs and self-contained blower, this 1300 watt welder weighs only 3 pounds, is 12" long, and has an airflow of up to 10.6 CFM. Good for all thermoplastics, it is designed for heat seaming roofing and geomembranes, pond liners and tarpaulins, as well as field and repair work.

#### WEG 3000 Power Air

As with the Weg 5, this model has built in sensors and self-contained blower, is 4 pounds, 14" long, has a working temperature up to 1300°F. A good tool for heat seaming thermoplastic roofing and geomembranes, pond liners and tarpaulins.

### Wegener Standard Welding Tips RD and HD

RD is for freehand welding, and HD is a tack welding tip for tacking without rod. The combination RD/HD is also available as a freehand / tacking tip.

#### SSD

This is a high-speed welding tip for welding round rod at the highest speeds

#### SSD / HD

This combination is a high-speed tacking tip.

#### SSD / Profile

These are for high-speed welding of triangular rod. Available in standard sizes and custom designs.

#### SSD / Band

For use with cap strip in standard sizes 12mm, 15mm, and 18mm. Available with or without rollers.

#### SSD / WL

This is designed for use with Westlake Halar cap strip.

#### SSD / Roller

This is to be used with round welding rod where additional pressure is required.



### SSD / Oval

This tip is to be used with oval profile welding rod.

### PRODUCT AVAILABILITY

#### Round Nozzle Model RD

1/8", 5/32", and 3/16"

#### Combination Round and Tacking Tip RD / HD

1/8" and 5/32"

#### High Speed Welding Tip Model SSD and SSD/HD

1/8", 5/32", 3/16", and 1/4"

#### Triangular Speed Welding Tip Model SSD/Profile

1/8" x 1/8" x 3/16"

5/32" x 5/32" x 1/4"

3/16" x 3/16" x 5/16"

1/4" x 1/4" x 5/16"

Custom styles and sizes are available for SSD tips.

### Seelye, Inc.

#### WELDERS

#### Seelye Guardian

This welder has a 400 watt element, in-line air filter, pressure switch, indicator light, on/off switch, infinite heat control, cool-to-the-touch barrel, regulator, air pressure gauge, tacking and round tips.

#### Seelye Guardian PortaWelder

A self-contained welder, this unit has a 300 watt element with compressor, cool-to-the-touch barrel, tacking and round tips.

#### Seelye Guardian PortaWelder With Variable Heat Control

A completely portable self-contained welder with heat control, on/off switch, indicator light, cool-to-the-touch barrel, heavy-duty compressor, tacking and round tips, stainless steel clad 300 watt element.

#### Seelye Super Welder

This welder has an adjustable temperature range from 400°F to 900°F, a 575 watt element, gauge regulator and round tip.

#### Seelye Model 63 Welder

A basic welder for fast and economical plastic welds. Is equipped with a 500 watt element, gauge, heavy-duty air regulator and round tip.

#### Seelye SI-1197CH

A controlled heat welder, this unit has an 800 watt element, pressure switch, indicator light, on/off switch, pressure gauge, air regulator, air filter, infinite heat settings, a temperature range of 625°F to 1300°F, tack and #10 tips.

#### DO YOU KNOW?

Norwood, Massachusetts, 1956-59, Stanley J. Kaminsky develops high-speed tools for an electric hand-held hot-air gun that becomes the beginning of plastics welding as we know it today.

# MISCELLANEOUS

## Welding Tools ■ Rods

### HEAT GUNS

#### SI-1164, SI-1165, SI-1166

Heavy-duty industrial-quality heat guns with temperatures to 1000°F and power ratings to 1740 watts. Reliable heat sources for working with freezer coils, plastic laminates, circuit boards, PVC, fiberglass, or heat-shrinkable materials.

Model #	Approx. Temp. Nozzle	Watts
SI-1164	300°F - 500°F (149°C - 260°C)	1440
SI-1165	500°F - 750°F (260°C - 399°C)	1680
SI-1166	750°F - 1000°F (399°C - 538°C)	1740

#### SI-6005

A lightweight, economical heat gun featuring two heat settings: 500°F (260°C) and 1000°F (538°C).

#### SI-6003, SI-6004

The SI-6003 features temperature settings of 570°F and 1050°F. The SI-6004 has variable temperature control from ambient to 1050°F.

### Seeyle Standard Welding Tips

Description	Size
#30R Round Automatic Feed Tip with Roller	3/16"
#40R Round Automatic Feed Tip with Roller	1/8", 5/32"
#50RH Round Automatic Feed Tip with Roller and Handle	1/8", 5/32"
#4 Tacking Tip for Assembling Items Prior to Welding	No Rod Used
#5 Round Tip for Hand Welding	1/8", 5/32", 3/16"
#6R Strip Feeder Tip for Welding Triangular Flexible PVC Strips	
#6G Strip Feeder Tip for Welding Flat Flexible PVC Strips	
#7 Flat Tip for Welding of Flexible Strip or Ribbon Rod	
#8 "V" Tip for Corner Welding of Flexible Strip or Ribbon Rod	
#9 Round Automatic Feed Tip	1/8", 5/32"
#10 Round Automatic Feed Tip	3/16"

#11 Triangle Automatic Feed Tip	1/8", 5/32"
#12 Shrink Tubing Tip for Heat Shrinking Plastic Tubing	
#13 Round/Triangle Automatic Feed Tip	3/16"
#30RT Triangle Automatic Feed Tip with Roller	3/16"
#14 Triangle Automatic Feed Tip	1/4"
#15 Automatic Feed Tip for Strip or Ribbon Rod	
#9A Round Automatic Feed Tip "New Style"	1/8", 5/32"
#40RT Triangle Automatic Feed Tip with Roller	1/8", 5/32"
#10A Round Automatic Feed Tip "New Style"	3/16"
#17 Automatic Feed Tip for Ribbon	3/4"
#50RTH Triangle Automatic Feed Tip with Roller and Handle	1/8", 5/32"
#60RTH Triangle Automatic Feed Tip with Roller and Handle	3/16"
#60RH Round Automatic Feed Tip with Roller and Handle	3/16"

### WELDING RODS

#### PVC

Round - Clear, Gray & White - 1/8", 5/32", 3/16"  
 Triangular - Gray & White - 1/8", 5/32", 3/16"

#### Styrene - High Impact - SAN

Round - Natural - 1/8"

#### Polypropylene

Round - Natural & White - 1/8", 5/32", 3/16"  
 Round - White Coils - 1/8", 5/32"  
 Triangle - White - 1/8"  
 Triangle - Natural - 1/8", 5/32", 3/16"

#### Polycarbonate

Round - Clear & White - 1/8", 5/32", 3/16"

#### PVDF

Round - 1/8", 5/32", 3/16"

#### ABS

Round - Black, Natural & White - 1/8", 5/32", 3/16"

#### CPVC

Round - Gray - 1/8", 5/32", 3/16"

#### HDPE

Round - Black - 1/8", 5/32"  
 Round - Natural - 1/8", 5/32", 3/16"

#### LDPE

Round - Natural - 1/8", 5/32", 3/16"

#### Polyurethane

1 lb. Coil - Natural - 1/8", 5/32"

For current availabilities of Ribbon and Specialty Rods, Assortments, and Spools, consult your closest Regal Plastic Supply Distribution center.

Camie-Campbell has been manufacturing specialty chemical products for 50 years. A wide range of formulations are available. Camie-Campbell adhesive, lubricant, maintenance, screen printing, plastic molding, furniture, sewing, and upholstery products, are free of chlorofluorocarbons and ozone depleting chemicals. Camie products are designed for most plastic resins used in thermal plastic and thermal set processes. Below is a sampling of Camie-Campbell products, for a complete product listing, sizes, and availability, contact your closest Regal Plastic Supply Distribution Center.

### ADHESIVES

#### 300 General Purpose Spray Adhesive

This colorless adhesive, tacks instantly for a temporary or permanent bond, adheres to metal, plastic, wood, paper, cardboard, fabric, leather, and other substrates. It is used in the garment, furniture, and upholstery industries, and in shipping room applications for sealing and palletizing of bags. Available in aerosol (24 oz) and bulk (5 gal pail, 55 gal drum).

#### 303 Foam and Fabric Adhesive

Soft, pliable, and orange, this adhesive emits a lace spray pattern for low soak-in on polyurethane foam, and works well on urethane foam, fabric, metal, supported vinyl, wood, paper, and leather. Available in aerosol (24 oz) and bulk (1 and 5 gal pails, 55 gal drums).

#### 313 Fast Tack Upholstery Adhesive

This product is less expensive than 303 with a faster open time or set and a soft bond line without 1,1,1, trichloroethane. Available in aerosol (20 oz) and bulk (1 and 5 gal pails, 55 gal drums).

#### 393 Trim and Laminating Adhesive

A high temperature, high strength adhesive, this product was designed for harsh, demanding jobs found in the van conversion, motor home, and manufactured housing industries. Clear and non-yellowing, it is used for decorative laminate work in the furniture, cabinet, and woodworking areas. Available in aerosol (24 oz).

### CLEANERS

#### 22/80 Natural Citrus Cleaner

This product is designed to remove adhesives, grease, oil stains, road tar, rubber marks, residue from decals, heel marks, graffiti, lipstick, release agents, and soap film.

Compatible with most substrates including painted surfaces, glass, porcelain, concrete, and some plastics, it is water washable and available in aerosol (20 oz) and bulk (5 gal pail, 55 gal drum).

#### 22/90 Heavy Duty Cleaner and Degreaser

Designed for heavy duty cleaning jobs, this product can be used on machinery, floors, work areas and metal parts. It is not recommended for energized electrical components or contacts. Bulk is available.

### LUBRICANTS

#### 100 Heavy Duty Silicone Lubricant

Used primarily for general maintenance applications, this multi-purpose, 6%, high viscosity, silicone spray can prevent friction, sticking, ink or adhesive build up and the formation of rust. Available in aerosol (24 oz) **B, C**

#### 888 Silicone Release Agent and Lubricant

Odorless and nonstaining, this product is recommended for use in the upholstery, foam and furniture industry. Available in aerosol (20 oz) **A, C**

#### 999 Dry Silicone

This all purpose lubricant is used for a variety of applications, but is especially recommended for plastic and painted surfaces. Available in aerosol (20 oz) and bulk (5 gal pail, 55 gal drum) **A, D**

#### A1000 Dry Lubricant Release Agent

This product leaves a dry, slick, friction-free surface between like and unlike substrates and is useful where a wet lubricant might attract dust and dirt. Solvent resistant, it will not melt below 450°F. Available in aerosol, (20 oz) and bulk, (5 gal pail, 55 gal drum).

#### 1380 Heavy Duty Paintable Mold Release

This all purpose release agent can be used on all of the same plastic resins as 1080. FDA approved, it allows for post decoration, painting, and gluing. Available in bulk.

A—Nonflammable when dry

B—Extremely flammable during application—nonflammable when dry

C—Active ingredients comply with 21 CFR 178.3570 lubricants with incidental food contact. Allow solvent to evaporate prior to possible food contact

D—Active ingredients and solvent comply with 21 CFR 178.3570 lubricants with incidental food contact.

## 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.  
**Kevalr** 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.**

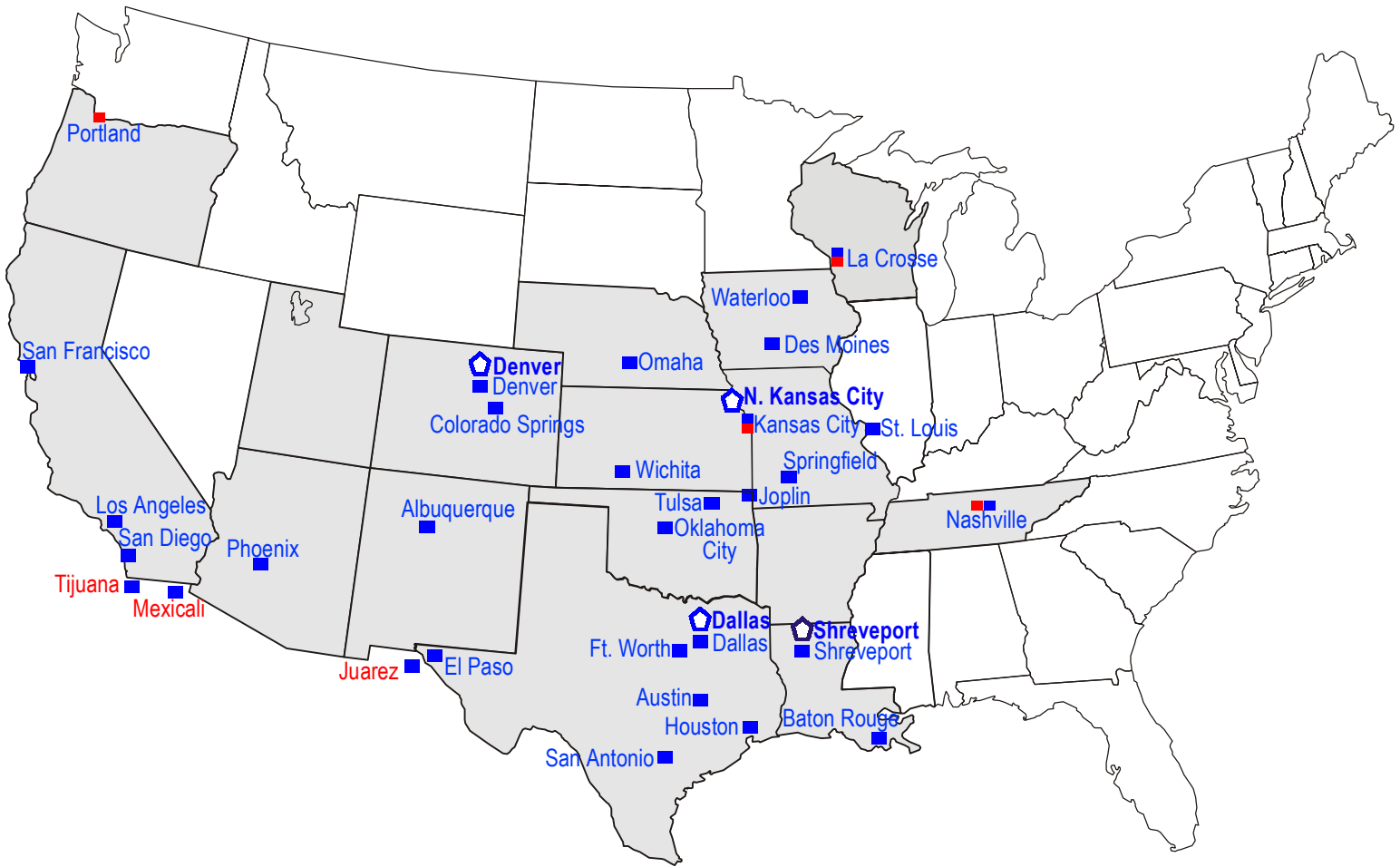
**Tremco®, Inc.**

**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

