GS SALES

Application Report

Specific Industry Application Opportunities. These applications are listed for applications using Mechanical Plastics, High Performance Plastics, UHMW and Polyolefins.

Contact G S Sales at 317-595-6750 or email www.george@gssales.com Please also visit our website at: www.gssales.com for more information on materials & applications.

Plastics In The Food & Beverage Industry (SIC 3556 & all SIC's in the 2000 range)

A number of plastics that plastics distributors sell are used in the food and beverage market. This is a market that we expect to see continuous new growth in the coming years.

Areas to Sell:

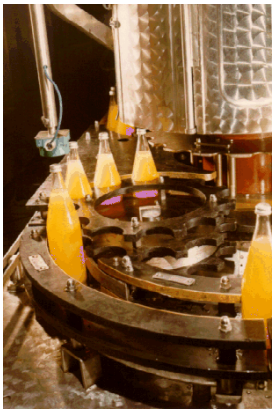
- Star Wheels
- Belt Guides
- Wearstrips
- Bottle Plates
- Guide Rails
- Timing Feed Screws
- Conveyor Wheels
- Product Protections Rails
- Chain Guides
- Glue Plate Surfaces

Materials to Sell:

- UHMW
- Acetal
- Nylon
- HDPE
- Polypropylene

Advantages to Sell:

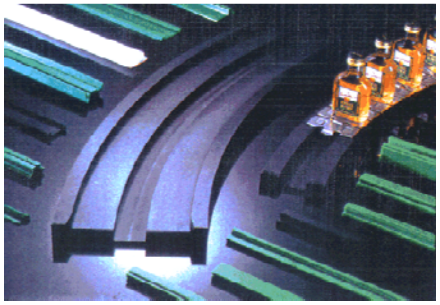
- Self Lubricating
- Soft Handling
- FDA & USDA Acceptance
- NSF Approved Products



- Low Temperature Resistance
- Noise Absorption
- Low Coefficient of Friction
- Corrosion Resistance

Where To Sell:

- Soft Drink Plants
- Food Processing Plants
- Snack Food Manufacturers
- Meat Processing Plants
- Ice Cream Making Equipment
- Ice Making Equipment
- Other Food Processing Equipment



Food Processing Equipment

Frequently Asked Questions.

When looking at materials for your equipment what is the maximum temperature the material will be exposed to?

When looking at materials for your equipment what is the lowest temperature the material will be exposed to?

Are there any regulatory requirements? (NSF, FDA, USDA, USP Class 6)

Will the product be in direct food contact?

Does your foodstuffs go through a X-ray or metal detector before or after processing?

Are metal detectable materials best for wear and bearing applications in your equipment?

Do you have sticking or hang-up in any areas that contact stainless steel or other metallic materials?

In the take off and feed systems do you have to lubricate specific areas on a regular basis?

Do you have rails on our feed and exit systems to keep the product moving in the desired direction?

Is your equipment designed to switch over on different sizes or products? What is required on these switchovers? Would different colors be an advantage to you?

What type of chain or belt pulls the product through the manufacturing process?

Do you have standard profiles you use?

Would helping to cut down power surges save you energy costs?

Are the chain or belt drives changed on a regular basis? What material are they?

Do you have any bacteria problems?

Would a product with antimicrobial be helpful to your applications?

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Plastics In The Packaging Marketplace (SIC 3565)

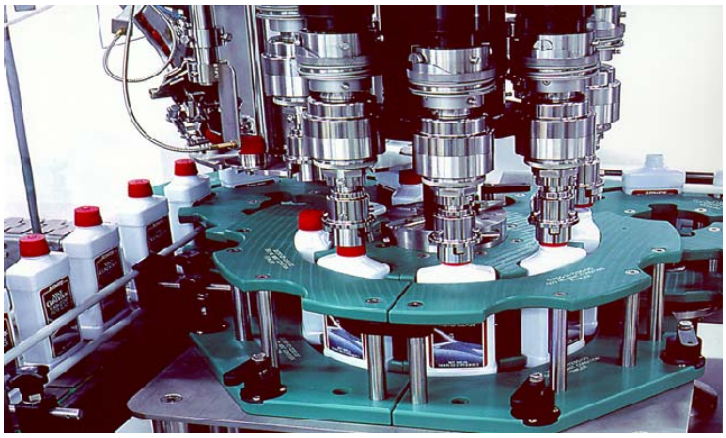
There are many opportunities in the packaging marketplace beside plastic films. I will try to outline a number of of these opportunities for you.

Areas to Sell:

- Conveyor Guide Rails
- Filler Machine Nozzles & Dispensers
- PTFE Coated Belts
- PTFE Coated Tapes-For Heat Seal Bars
- Chain Guides
- Rollers

Materials to Sell:

- UHMW
- PTFE Coated Fiberglass
- Nylon
- Acetal
- PET
- High Density

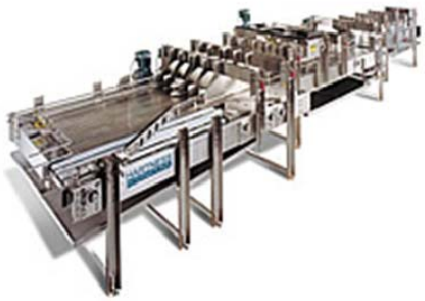


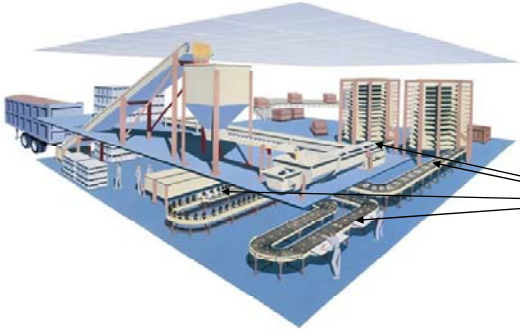
Advantages to Sell:

- Low Coefficient of Friction
- Good Anti-Stick Characteristics
- Dimensionally Stable
- Good Wear Resistance
- FDA & USDA Approved
- NSF Approved Material
- Corrosion Resistant
- Impact Resistant
- Sound Deadening

Where to Sell:

- Packaging Equipment Manufacturers
- Snack Food Manufacturers
- Food Packagers
- Toy & Game Manufacturers
- Contract Packagers
- Book & Magazine Manufactures





RÖCHLING Engineering Plastics

RÖCHLING news & knowledge

October | 2009

Polystone® M Soft - our solution for sensitive conveyed materials!

NEW

Polystone® M Soft

Röchling Engineering Plastics has developed the new surface-friendly material **Polystone® M Soft** for conveying sensitive materials.

Many industries including beverage, packaging, pharmaceutical and cosmetics utilize elaborate plastic containers and delicate glass bottles. Scratches and other types of surface damage can be a challenging problem when handling these products during the manufacturing processes. For instance, scratches on clear PET mineral water bottles can easily result from the materials they contact during the stages of filling, capping and packaging. That is precisely where **Polystone® M Soft** is put to use.

Polystone® M Soft has an optimized formulation for particularly gentle sliding properties and outstanding abrasion resistance. The friction between the product being conveyed and the material that it comes into contact with is kept to a minimum. This sophisticated engineering plastic ensures a rapid and smooth conveying process and at the same time gently handles the conveyed products.

Available as:
Rod: ½"to 8" dia
Sheet: 1/4" to 4" thick

Property	Units	Polystone® M Soft
Specific Gravity	g/cm3	.930
Hardness Shore D	-	D59

The values indicated result from numerous measurements for an approximation of the values and are to our best knowledge. They serve as information about our products and are presented as a guide to choose from a range of materials. This however does not include an assurance of specific properties or the suitability for particular application purposes that are legally binding. Since the properties also depend on the dimension of the semi-finished products and the degree of crystallization (e.g. nucleating by pigments), the actual values of the properties of a particular product may differ from indicated values.

Applications

- timing screws
- sprockets
- various change parts
- star-wheels
- rollers
- guides & profiles

Röchling Engineering Plastics offers the most comprehensive product line in the USA and Canada including:

- Polystone® M (UHMW-PE)
- Polystone® P (Polypropylene)
- Polystone® G (HDPE)
- Sustamid® Nylon
- Sustarin® Acetal
- Susta HPM's

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www.roechling-plastics.us

RÖCHLING Engineering Plastics

RÖCHLING news & knowledge

November | 2009

Polystone® M MDT - detectable UHMW-PE for food-processing & packaging machinery!

NEW

Polystone® M MDT

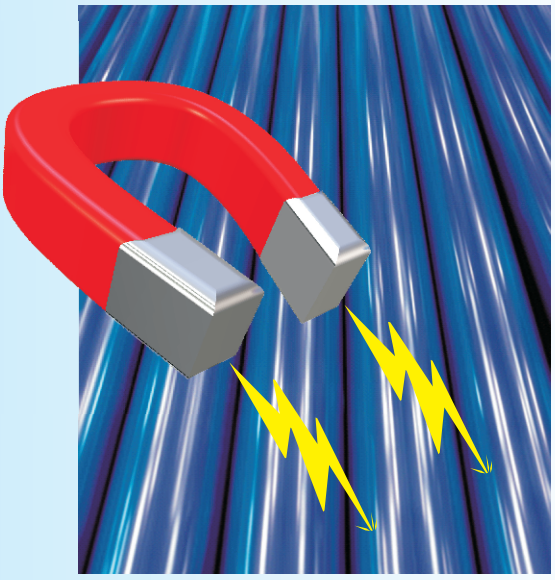
Food processors face the ever present risk of contamination finding its way into their product. The risks and potential financial losses can be significant if not detected early. Röchling Engineering Plastics now offers a ground breaking solution to this problem with the introduction of **Polystone® M MDT**.

The unique additives in this product allow it to be easily traced by standard metal detectors while continuing to provide the outstanding wear-resistance and sliding properties you would expect from Polystone® M. Designed to replace machined parts made from steel and lower performing plastics, this engineering polymer has high-impact strength, is easily machined and has little or no moisture absorption.

Polystone® M MDT complies with FDA regulations concerning direct contact with food. Every food processor that utilizes metal detectors in their processing or packaging operations can easily realize the advantages of **Polystone® M MDT**.

Available as:

Rods: 1/2" to 8" dia
Sheets: 3/8" to 4" thick
Profiles: standard or custom



Suggested use with the following food products include:

- ➲ frozen & prepared foods
- ➲ soup and chili
- ➲ snack foods
- ➲ chips and tortillas
- ➲ cereals
- ➲ cheese
- ➲ ice cream
- ➲ candies and chocolates
- ➲ pastries
- ➲ pet food

Property	Units	Polystone® M MDT
Density	g/cm3	0.949
Elongation	MPa	320
Wear by sand-slury test	Nat. UHMW = 100	88
Constant service temperature-max.	F°	180

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Applications

- ➲ wear-strips
- ➲ sprockets
- ➲ chain guides & tracks
- ➲ pillow blocks
- ➲ bushing & bearings
- ➲ gears
- ➲ guides
- ➲ scraper blades
- ➲ mixer components

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RÖCHLING Engineering Plastics

RÖCHLING news & knowledge

September | 2009

SUSTARIN® C MDT - detectable acetal for the food & packaging industries!

SUSTARIN® C MDT

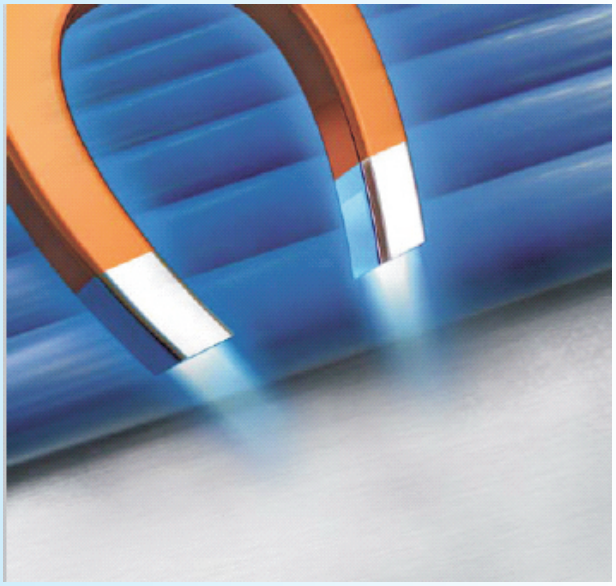
NEW

Finally, an engineering plastic is available that provides all of the physical properties of acetal, can be sensed by metal detectors and best of all it is FDA compliant.

Röchling Engineering Plastics now offers SUSTARIN® C MDT as a solution to many food processing and packaging applications. Most of the food products that we consume every day come into contact with different machines during the manufacturing and packaging processes. If just a small part or component from any one of those machines finds its way into the food there can be serious health risks.

SUSTARIN® C MDT has special additives that allow it to be traced by standard metal detectors and removed before causing further contamination. Quality assurance engineers at some of the largest food processing manufacturers in the country have already tested this product and found it to be highly effective.

The important mechanical, thermal and chemical resistance properties remain unchanged in comparison to standard acetal. This engineering plastic is easily machined and has excellent dimensional stability for close tolerance parts. SUSTARIN® C MDT complies with FDA regulations concerning direct contact with food and is offered in rods from 1/4" to 8" diameter and sheets from 3/8" to 4" thick in a brilliant blue color.



SUSTARIN® C MDT can be sensed by standard metal detectors.

Property	Units	SUSTARIN C MDT
Density	g/cm3	1.55
Service temperature - long term/max.	°F	180
Service temperature - short term/max.	°F	300
Tensile Strength at Yield	MPa	65
Tensile Modulus of Elasticity	MPa	3100

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Applications

- Scraper blades
- Mixer components
- Rollers
- Bushings
- Bearings
- Guides
- Agitators
- Pharmaceutical packaging
- Pillow blocks

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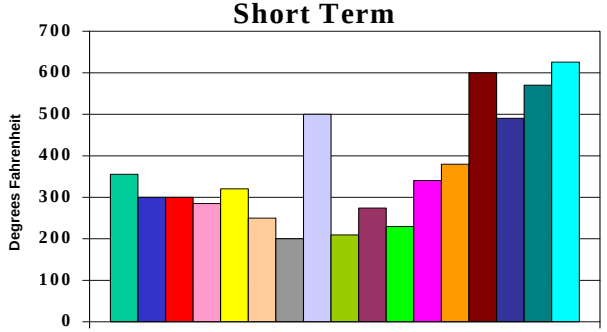
G S Sales' Plastic Materials

Operating Temperature Range Chart

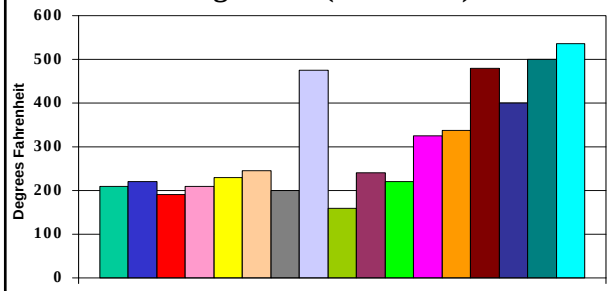
Material	Low Temperature in Degrees C	Low Temperature in Degrees F	High Temperature in Degrees C	High Temperature in Degrees F
Cast Nylon PA 6	-30°C	-22°F	90°C/105°C	194°F/221°F
Extruded Nylon 6/6	-30°C	-22°F	80°C/95°C	176°F/203°F
Acetal Copolymer	-50°C	-58°F	80°C/95°C	176°F/203°F
Acetal Homopolymer	-50°C	-58°F	90°C/105°C	194°F/221°F
HDPE	-40°C	-40°F	80°C/100°C	176°F/212°F
UHMW	-200°C	-328°F	90°C	194°F
Polypropylene	0°C	-32°F	90°C	194°F
PEEK	-60°C	-76°F	250°C	482°F
Polycarbonate	-60°C	-76°F	135°C	275°F
PEI- Ultem®	-50°C	-58°F	200°C	392°F
PAI-Torlon®	-200°C	-328°F	250°C	482°F
Acrylic	-40°C	-40°F	90°C	194°F
PPS	-20°C	-4°F	180°C	356°F
PPSU-Radel®	-50°C	-58°F	180°C	356°F
PSU Polysulfone	-50°C	-58°F	150°C	302°F
PTFE	-200°C	-328°F	260°C	500°F
PVC	?		60°/70°C	140°F/158°F
PVDF	-50°C	-58°F	150°C	302°F

G S SALES PLASTIC PROPERTY COMPARISIONS

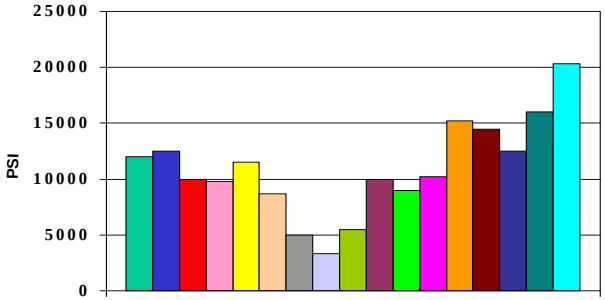
Operating Temperature
Short Term



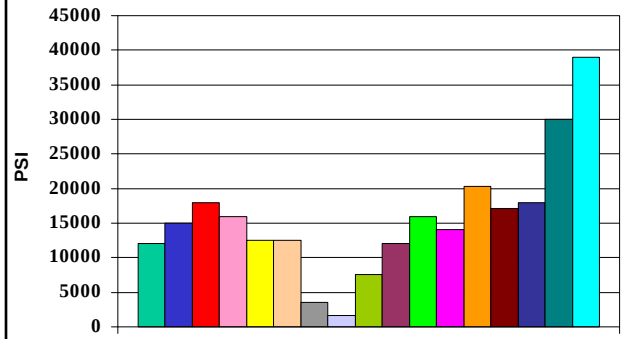
Operating Temperature
Long Term (Constant)



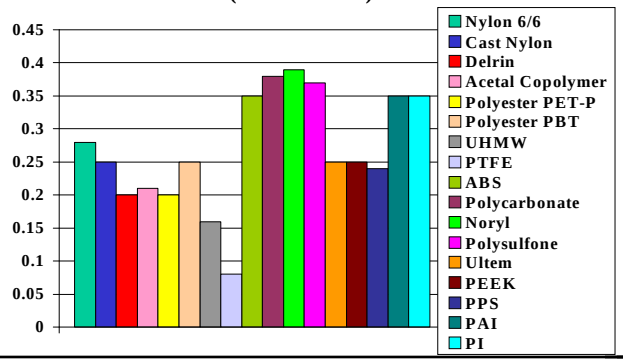
Tensile Strength



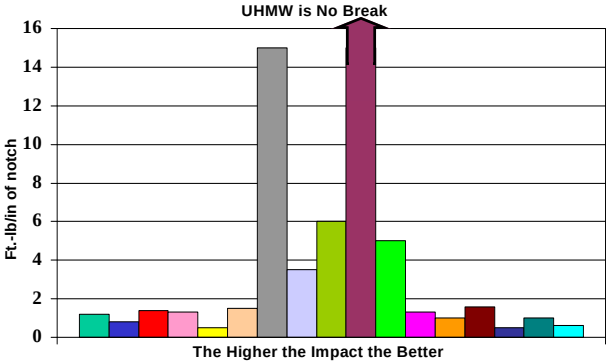
Compressive Strength



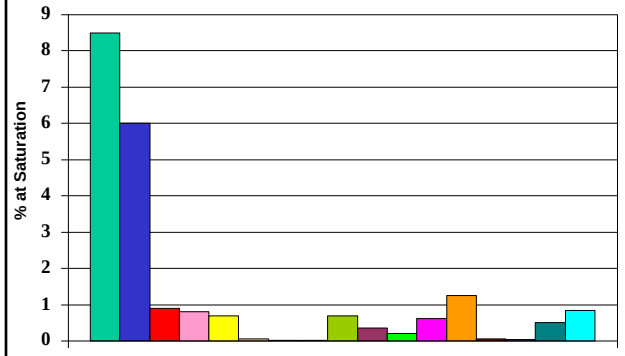
Coefficient of Friction
(*Lower is better*)



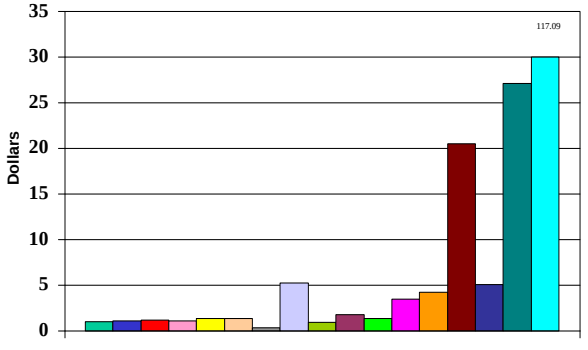
Impact Strength



Moisture Absorption



Cost Comparison
(compared to Nylon 6/6 at $1.00)



G S Sales

Growing the Plastics Market, Through Education

George Southard, CPMR Manufacturers' Representative

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Seelye, Inc.	800-258-2936
Kleerdex Company	800-325-3133
American Louver Company	800-323-4250
Green-tek Industries	800-747-6440

Website: www.gssales.com