

FINAPLAS[®] PROPYLENE POLYMERS

THE FIRST COMMERCIALY AVAILABLE
SYNDIOTACTIC PROPYLENE POLYMER



NOT THAT
YOU WOULD DESIGN THIS...
BUT YOU COULD.



ATOFINA Petrochemicals, Inc.

ATOFINA Petrochemicals, Inc. introduces FINAPLAS® Propylene Polymers, the first commercially available syndiotactic propylene polymer. ATOFINA Petrochemicals is a world leader in volume polypropylene production, and is a leading provider of innovations and custom-tailored solutions to customer needs in packaging.

WHAT IS SYNDIOTACTIC?

Syndiotactic propylene polymer is a softer, clearer polymer with a lower melting point and narrower molecular weight distribution as compared to conventional isotactic polypropylene. It is produced by ATOFINA proprietary metallocene single-site catalyst technology.

- Used in specialty markets.
- Marketed neat and is being blended with other polymers providing a variety of unique properties.

MARKET IMPACT OF SPP:

- Will incrementally add to PP market growth both neat and as a blended component with PP.
- Will not compete directly with conventional isotactic PP because of its totally different property set and cost structure.
- Will open up new market applications for propylene polymers not possible with conventional PP.



FINAPLAS vs. clarified random co-polymer.

BENEFITS

FINAPLAS's major benefits to packaging and other markets include:

- Expands the range of film shrinkage in oriented film.
- High clarity inherent in FINAPLAS without use of clarifiers.
- Low extractables offering benefits in food and medical applications.
- Improved shrink film toughness and formability on containers.
- FINAPLAS is significantly more irradiation stable than typical isotactic PP.
- A lower melting point of 128° C is compatible with other softer polyolefins for elastomeric and plastomeric applications.
- When used in formulations of color master batches, FINAPLAS offers better dispersion of color pigments, producing brighter and more intense colors.
- Products containing FINAPLAS will allow marketers to design more uniquely shaped containers in order to increase shelf visibility and attractiveness to consumers.

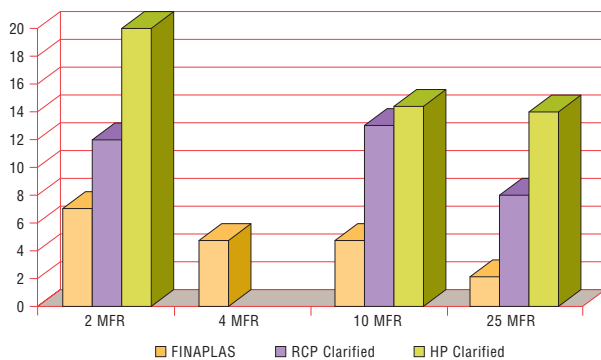
COMPARISON OF FINAPLAS TO CONVENTIONAL ISOTACTIC POLYPROPYLENE ADVANTAGES/DISADVANTAGES

PROPERTY	FINAPLAS PROPYLENE POLYMER
Clarity	Higher
Extractables	Lower
Molecular Wt. Distribution	Narrower
Gas/Vapor Transmission	Higher
Crystallization Rate	Lower
Tear Resistance	Higher
Melt Strength	Lower
UV Resistance	Higher

COMPARISON OF MAIN ATTRIBUTES OF FINAPLAS PROPYLENE POLYMERS VS. CONVENTIONAL POLYPROPYLENE

PROPERTIES	FINAPLAS	ZN HOMO-PP	ZN RANDOM COPO-PP
Melting Temperature	128° C	162° C	120-148° C
Flexural Modulus	500 Mpa	1000-2000 Mpa	600-1000 Mpa
Impact Resistance (@RT)	>150 J/m	10-20 J/m	40-100 J/m
Haze (blown film 50 μm)	1%	45%	9%
Haze (blown film 200 μm)	3%	68%	30%
Heat Seal Initiation Temperature (film)	100° C	150° C	110 to 150° C
Radiation resistance	+++	---	+ to ++
WVTR (cast film per mil)	0.8 g/100in ² /24h	0.6 g/100in ² /24h	0.8 g/100in ² /24h

PERCENT HAZE 40 MIL PLAQUES OF FINAPLAS



KEY MARKET APPLICATIONS

FILMS

- Shrink enhancement and control.
- Heat Seal enhancement.

TIE LAYERS/ADHESIVES

- Addition of reactive polar molecules (MA, Acids, Hydroxides) without loss of physical properties of FINAPLAS.
- Hot melt adhesives.

FIBERS

- Non-woven fabrics made from both spun bond and staple fibers.
- Bi-component fibers and use in fabrics.

MEDICAL

- Devices for valves and ports.
- Potential alternative in polyolefin formulations to replace plasticized PVC.
- Medical bags/pouches.

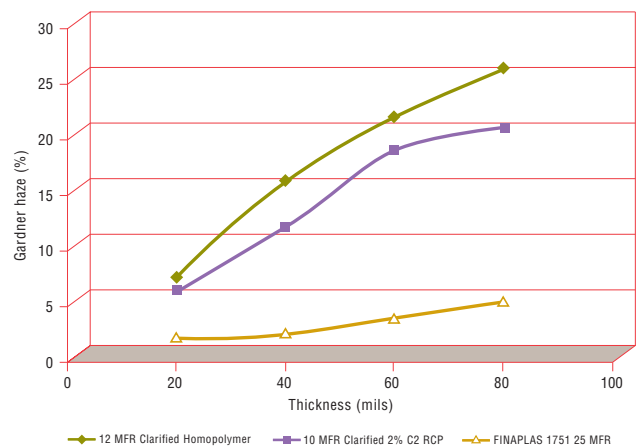
EXTRUSIONS

- Tubing.
- Acoustical foams and cushioning.
- Floor coverings.

INJECTION & INJECTION BLOW MOLDING

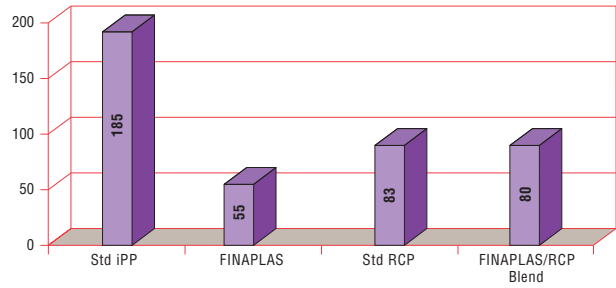
- Flexible applications needing elastomeric and plastomeric properties.
- Squeeze bottles.
- Cosmetics bottles needing high gloss.

CLARITY OF FINAPLAS VS. CONVENTIONAL POLYPROPYLENE



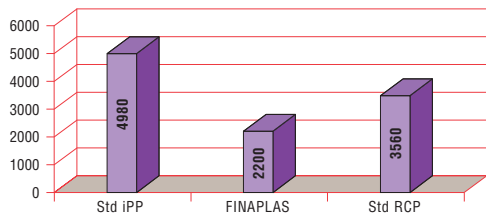


FLEXURAL MODULUS (Kpsi)

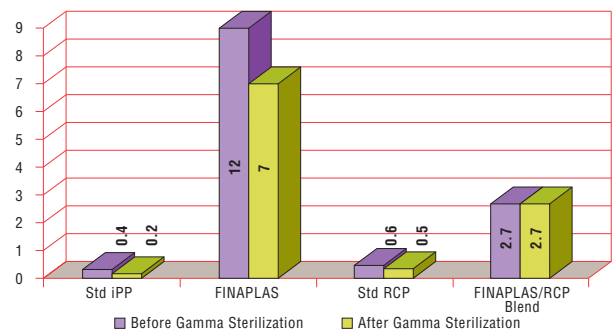


Injection molded cap made with FINAPLAS.

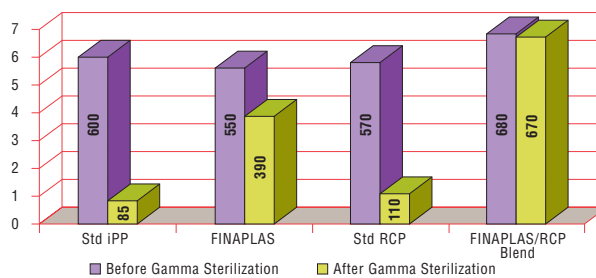
TENSILE STRENGTH (YIELD, PSI)



NOTCH IZOD IMPACT STRENGTH @ 23° C FT. LB. PER IN.



ULTIMATE ELONGATION (%)





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