

Why & How Polypropylene

A practical workshop brought to you by PSD Rotoworx in conjunction with 493K Limited, educators in rotational molding



Why Consider Polypropylene?

1 A wider range of uses in demanding applications

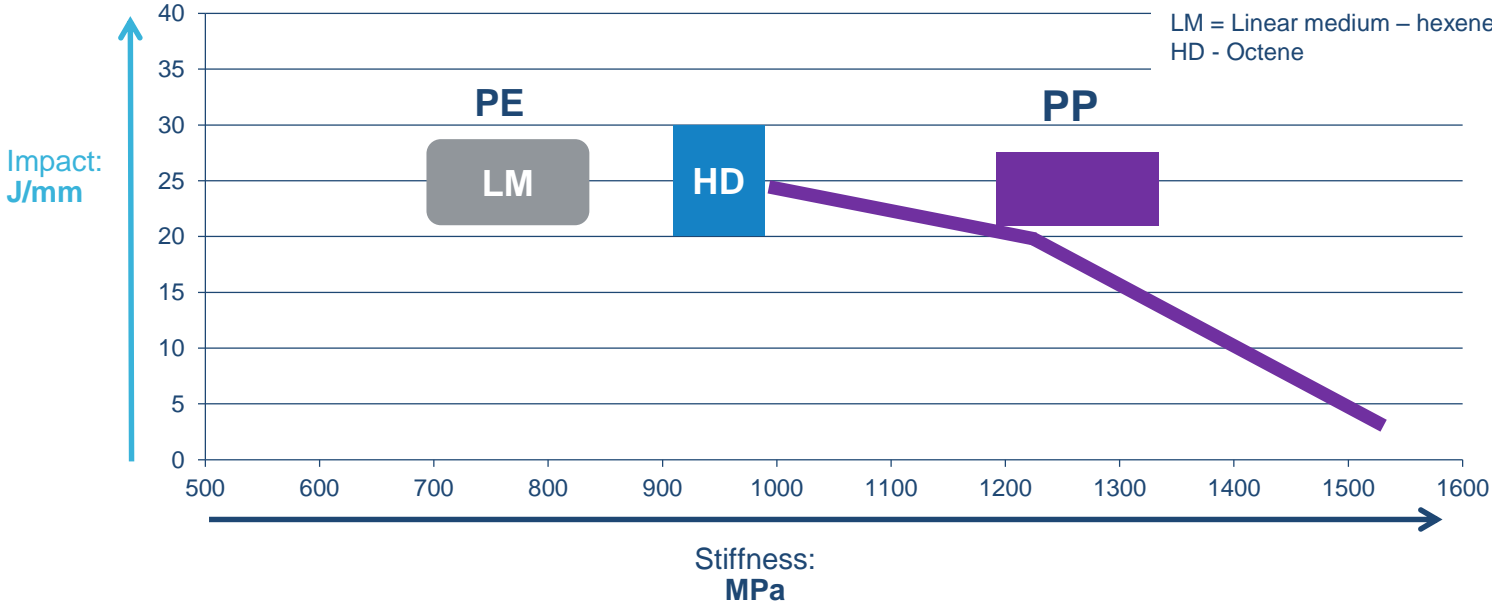
2 Open up New Markets

3 Easy to mold on existing equipment

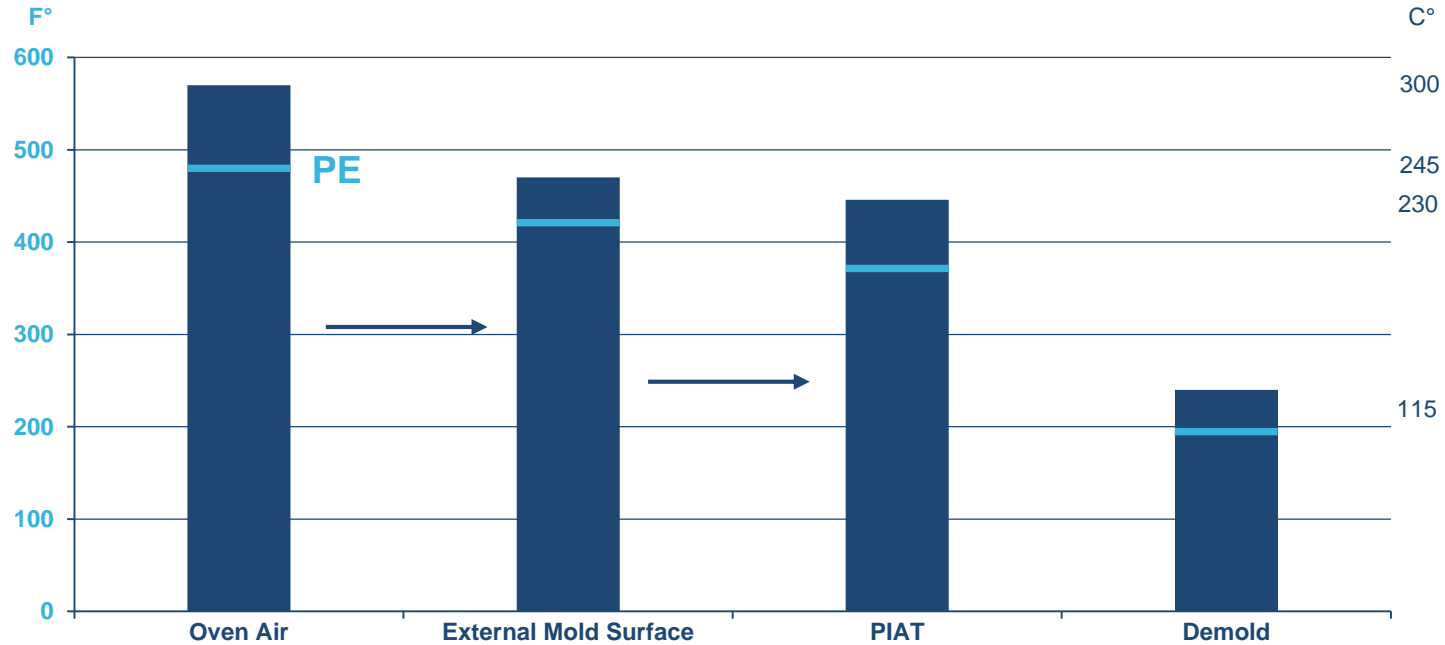
4 Can show superior part performance to PE

Roto Molding PE vs PP

Impact vs Stiffness @ Room Temperature



Processing Polypropylene - Temperature



Guidelines for Processing Polypropylene

Heat oven to required temperature quickly

Process until PIAT reaches 435° to 455°F (225-235°C). The external mold may need to be 475°C-550°F (245-260°C) to achieve this

Oven time - up to 15% more than PE.
“Rule of thumb” is 4 minutes/0.04 inch of wall thickness

Rotation - generally the same as for PE

Cooling - rotate without air - then fan cool

Review quality & use IAT as means of improving processing & quality

Can achieve less shrinkage – warpage - distortion during cooling, than PE

Generally no need for use of mold release

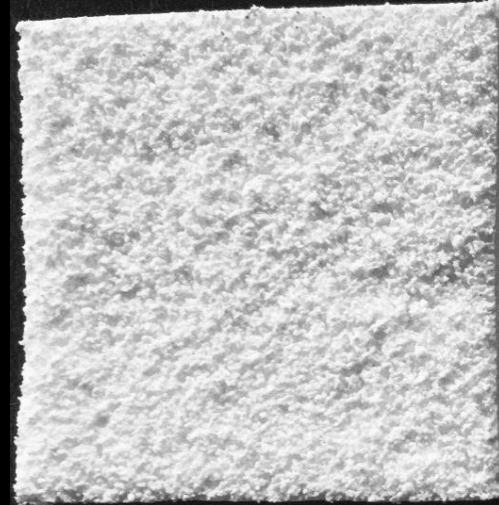
Avoid heat sinks on mold

Use of “Smart/Supa Vents” minimizes pin holes



Guidelines for Processing Polypropylene

This part was molded in an oven set up to run PE – same oven temperature and cook/cooling time



Guidelines for Processing Polypropylene

To improve inside surface finish, we need to:

Increase oven temperature to 570°F/
300°C to achieve required IAT

Assess if cycle time should be increased



Key Attributes → Applications Polypropylene

High Heat

- Under bonnet automotive
 - Solar hot water tanks
 - Food/medical autoclavable
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Chemical Resistance/ESCR

- Chemical tanks
-

Stiffness, Creep & Impact

- Manholes – underground tanks – vacuum vessels
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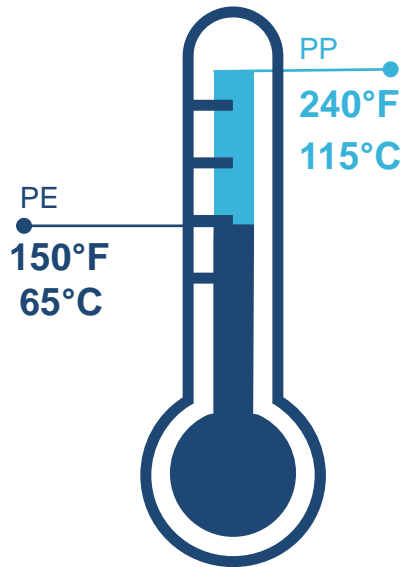
Low Warpage & Moulding Tolerances

- Transport panels
 - Pipe connectors
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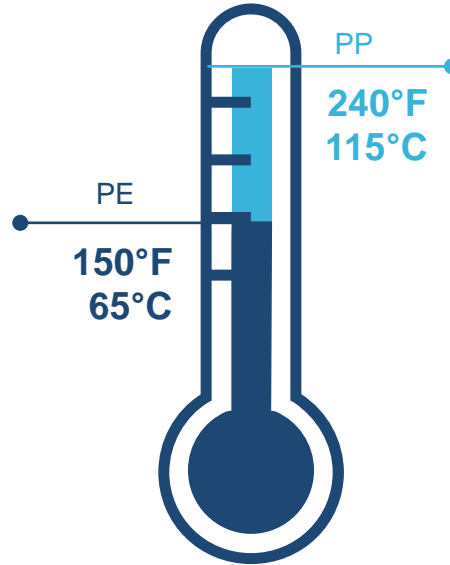
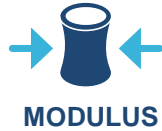
Surface Appearance
(Gloss, Hardness, Abrasion Resistance)

- Furniture
- Transport panels

Automotive



Solar Hot Water Tanks



Chemical Tanks



20,000 litre 4 x 5,000l segments
5,280gal 4 x 1,320 gal



MODULUS



ARM IMPACT

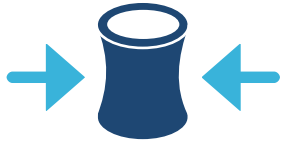


FNCT



Up to 25,000 litre
6,600 gal

Pipe Connector



MODULUS



ARM IMPACT

RM to tight tolerances

Part shrinkage 1.5%

ID 16.77" +/- .04"

426mm +/- 1mm



Uses high compression rubber ring joints requiring precise dimensions

Furniture

Superior hardness,
abrasion and scratch
resistance to PE



MODULUS



ARM IMPACT



When There is a Need For:

Strength, Stiffness,
Creep Resistance

High
Temperature

Chemical
Resistance

Stress Cracking
Resistance

Autoclaving
Applications

Harder Surface,
Abrasion Resistance

**Think
Polypropylene**

Expand your horizons in
ROTATIONAL MOLDING
by using polypropylene



493K
Taking Control of Rotational Moulding

4Roto

