Why & How Polypropylene

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

PSD ROTOWORX

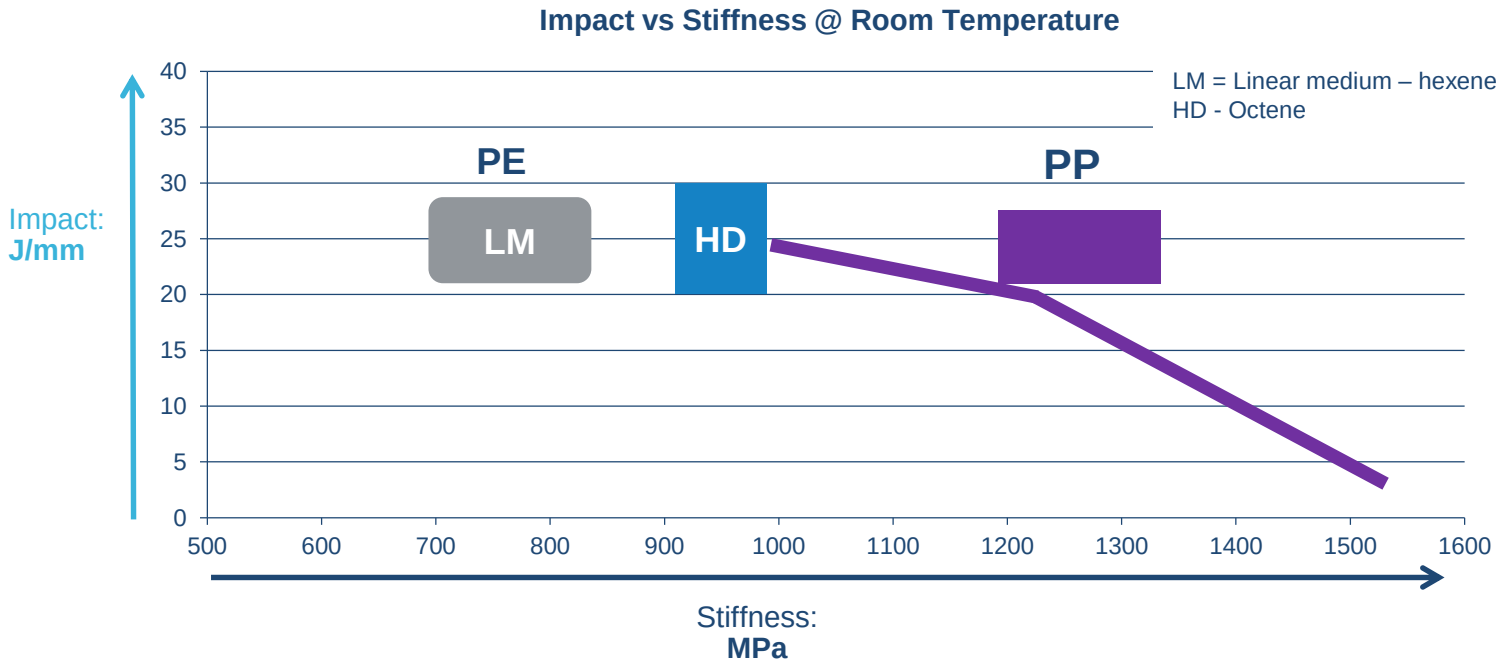
493K Taking Control of Rotational Moulding

4Roto

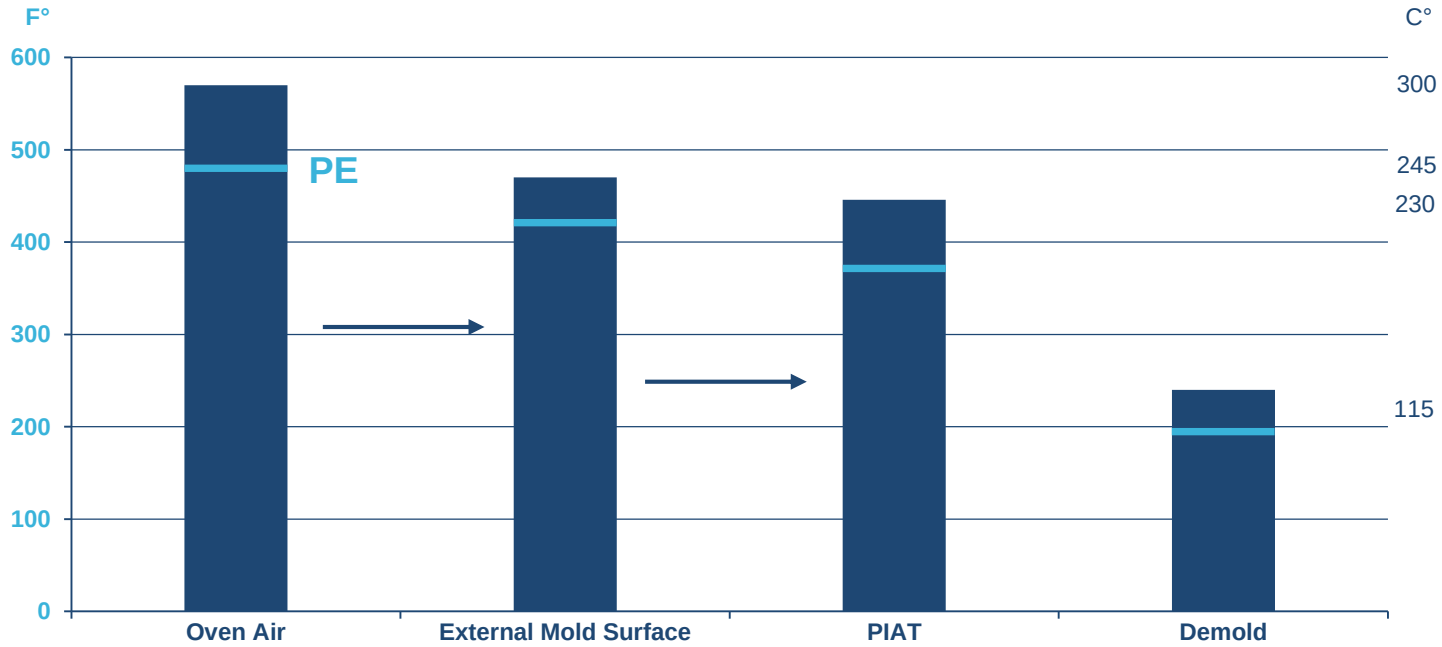
Why Consider Polypropylene?

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



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

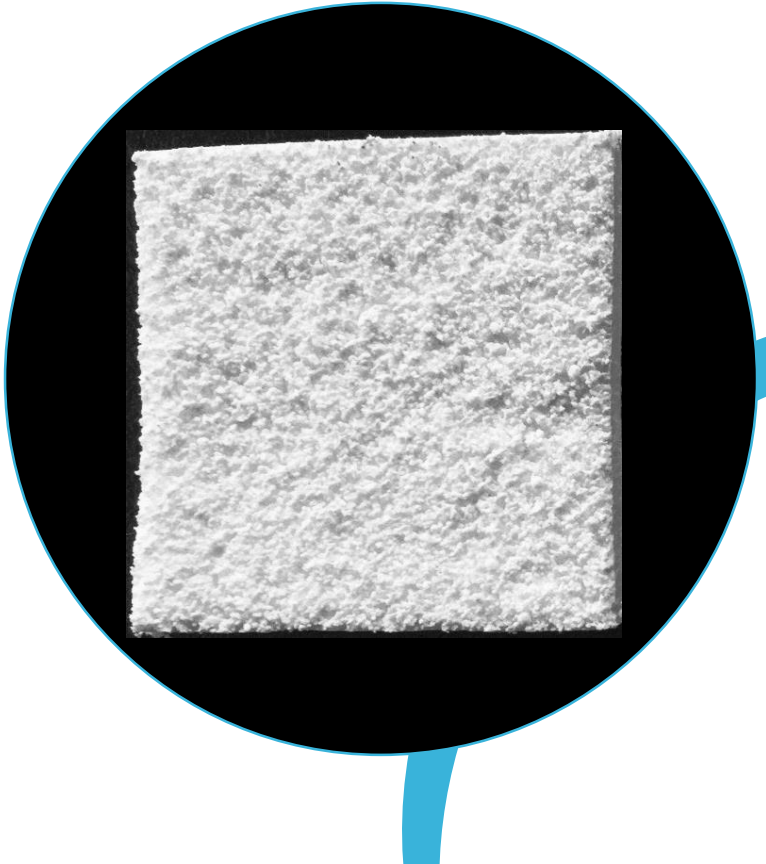
Generally no need for use of mold release

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

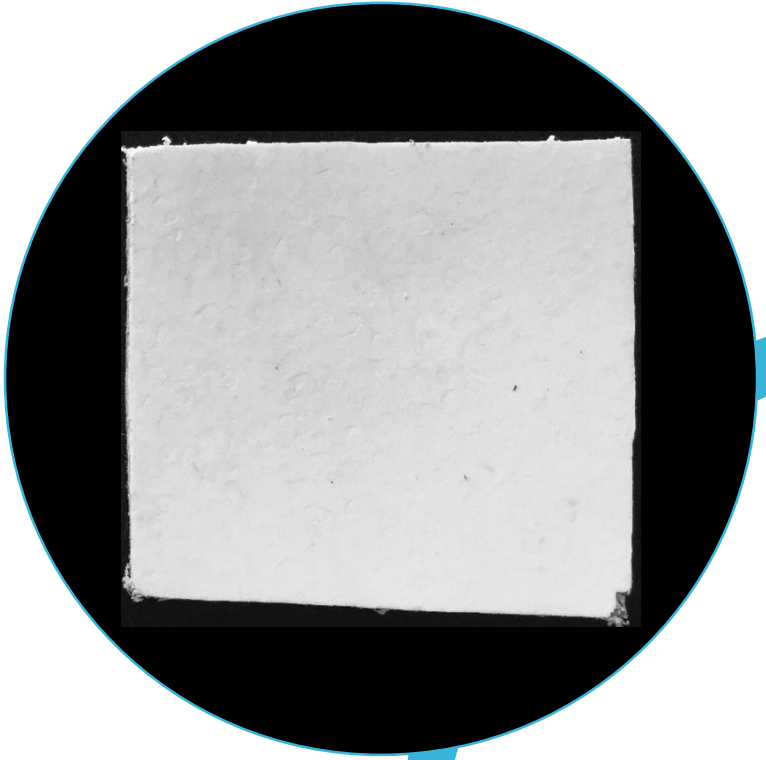


Guidelines for Processing Polypropylene

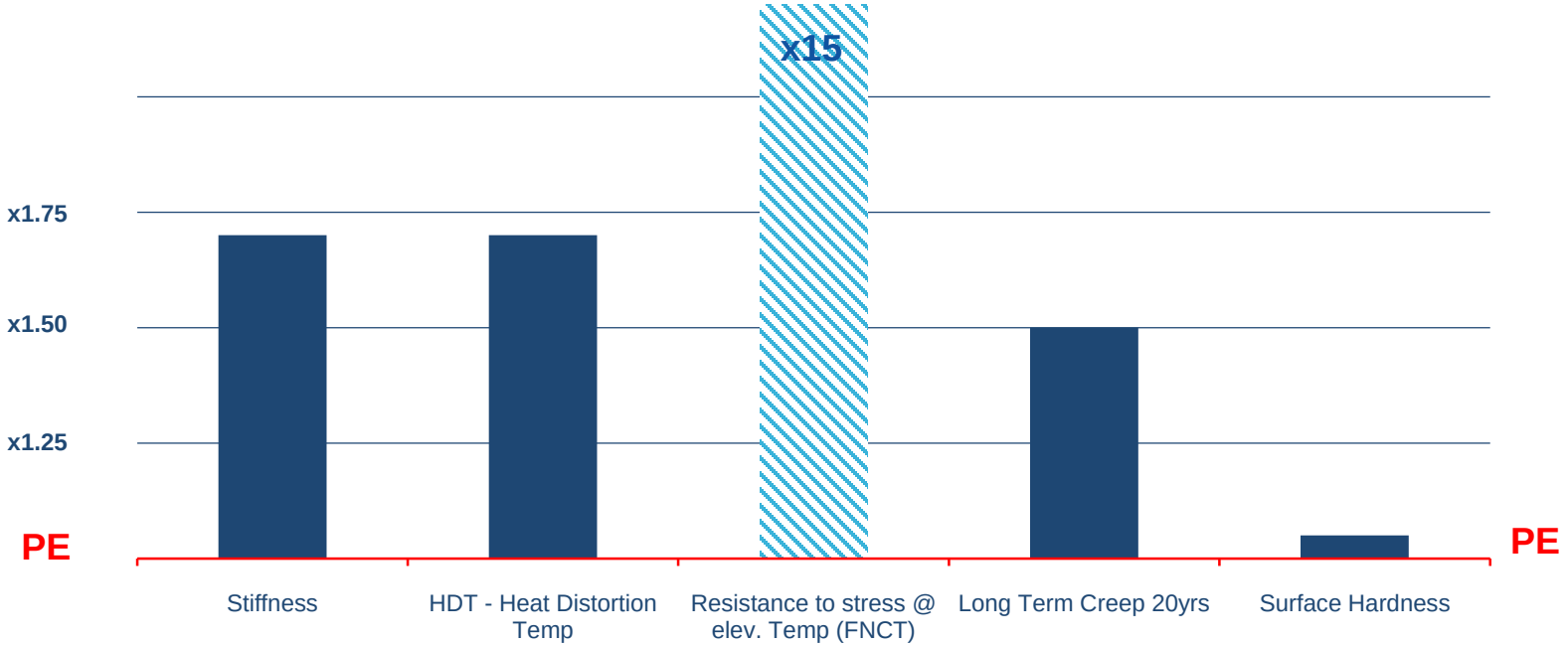
To improve inside surface finish, we need to:

Increase oven temperature to 570°F/ 300^0C to achieve required IAT

Assess if cycle time should be increased



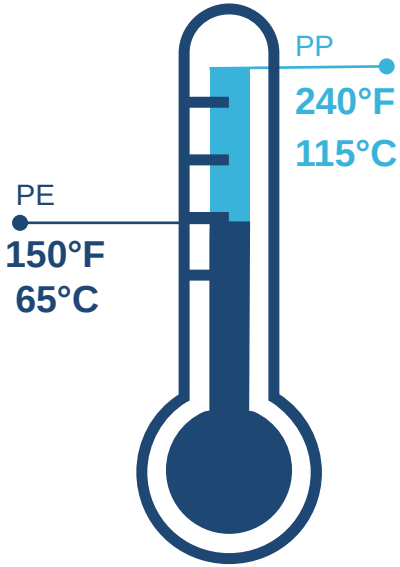
PP SUPERIOR TO PE



Key Attributes → Applications
Polypropylene

High Heat	• Under bonnet automotive • Solar hot water tanks • Food/medical autoclavable
Chemical Resistance/ESCR	• Chemical tanks
Stiffness, Creep & Impact	• Manholes – underground tanks – vacuum vessels
Low Warpage & Molding Tolerances	• Transport panels • Pipe connectors
Surface Appearance (Gloss, Hardness, Abrasion Resistance)	• Furniture • Transport panels

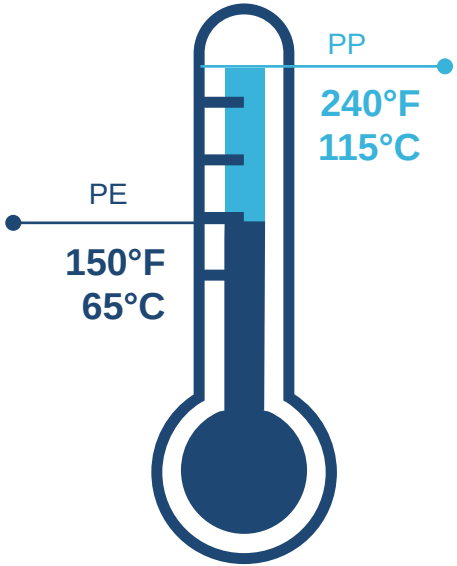
Automotive



Solar Hot Water Tanks

ARM IMPACT

MODULUS



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

RM to tight tolerances
Part shrinkage 1.5%
ID 16.77“+/- .04“
426mm +/- 1mm

MODULUS

ARM IMPACT

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

ROTOWORX

493K
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