



RMPP141

RMPP141 is a Polypropylene (PP) specifically developed for Rotational Moulding. It is available in black, natural (UV10) and colours (by request) in powder or pellets.

RMPP141 combines unique properties of stiffness and impact which would normally be difficult to achieve in a PP rotational moulding material.

FEATURES:

High Stiffness

High Impact

Excellent Creep

Good Temperature Resistance (dry & wet)

High FNCT / ESCR

Excellent Mouldability

Properties	Conditions	Units	Nominal Values	Testing Methods
Physical				
Melt Flow Rate ¹	230 ⁰ C/2.16kgs	g/10 min	11	ISO 1133
Density ¹		g/cm ³	0.900	ISO 1133
Mechanical & Thermal				
Tensile stress	At yield (break) ²	MPa	23	ISO 527-2
Tensile strain	% At yield ²	%	4.5	ISO 527-2
Tensile Modulus ²		MPa	1300	ISO 527-2
FNCT ²	2% Ige * – 5MPa-50 ⁰ C – 6MPa-50 ⁰ C	Hours Hours	>300 170	ISO16770 – 10x10mm x 1.6mm notch
ESCR	2% Ige *	Hours	> 1000	ASTM D1693
Shore D Hardness ²			62	ASTM D2240
HDT ²	0.455MPa	Deg C	115	ISO 75-2 4mm Edgewise
ARM Impact ³	23 ⁰ C	J/mm	23	ARM Standard 6.8kg dart
ARM Impact ³	0 ⁰ C	J/mm	15	ARM Standard 4.54kg dart

Notes:

¹ Tested on base resin

² Compression moulded

³ Roto moulded

* Or equivalent

Important

The information contained in this document is of a general nature only and is intended to provide an indication of the potential properties and benefits of a particular polypropylene compound. The statistical and other information provided in this document has been determined in laboratory test conditions. Accordingly, there may be differences in performance in a production environment including having regard to the materials used. The information contained in this document should not be used as a sole basis for production or manufacturing purposes. Independent testing verification and independent professional advice should be obtained before making a decision to use any product or to apply any method or process. To the full extent permitted by law, PSD Rotoworx Pty Limited (ACN 166 016 244) ("PSD Rotoworx"), its related entities, their directors and employees: (i) give no warranty or representation that the information contained in this document is accurate and complete in every particular, and (ii) disclaim all liability for reliance on the information contained in this document.

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Rotational Moulding Processing Guide

OVEN TEMPERATURE.

Range of **280⁰ - 330⁰ C.** Depends on oven efficiency and number of moulds in the oven.

PP has a higher melting temperature than LLDPE, therefore, needs more heat to ensure proper sintering

PIAT. (Peak Internal Air Temperature) - an important tool for the moulder.

Based on the oven values, machine settings need to be adjusted accordingly when processing the PP.

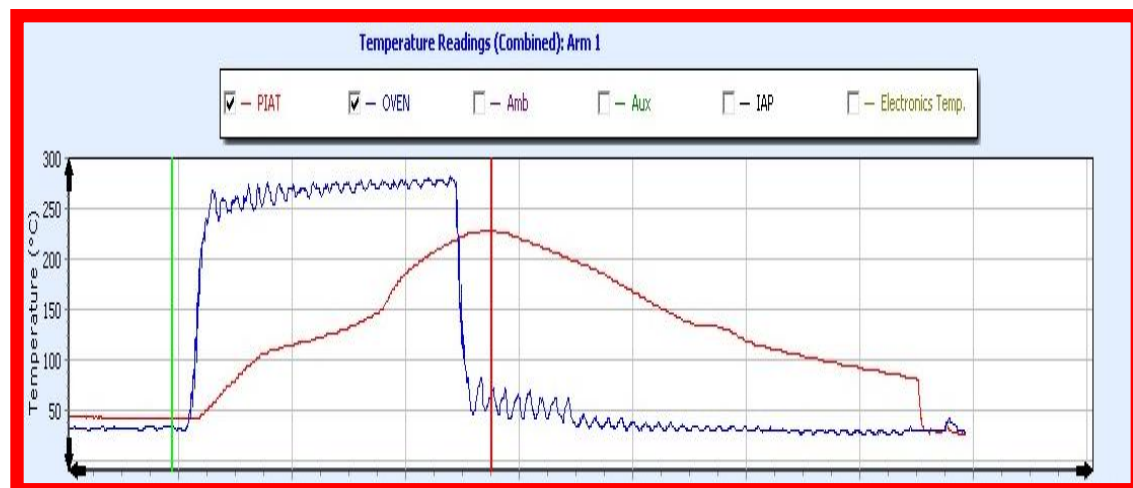
Below are the temperature curves of a typical moulding using **RMPP141.**

The figure shows the slopes of oven temperature and internal air temperature, as recorded by a temperature logging device.

Extensive tests, combined with study of maximum impact and observations of pinholes, bubbles and internal surface, indicate that optimum material performance is reached when **PIAT is around 223⁰- 227 °C.** (See curves).

If no device is available, fine tuning should be based on bubbles, pin holes, and internal surface. Optimum is a bubble free mould surface and a smooth, glossy internal surface.

When de-moulding, if the internal air has a strong smell, the material is probably “overcooked” - so reduce oven time.



CRYSTALLISATION TEMPERATURE.

Is a measure to define at which temperature the molten/sintered material will solidify in the mould when cooling.

This PP crystallizes at about **125 °C**.

Therefore the moulded product can be taken out of the mould at a higher temperature than for PE.

In general, this can occur when internal air temperature is approximately **100°C**.

OPTIMISING WEIGHT.

RMPP141 shot weight can be reduced by up to 30% vs C6 LLDPE.

This will depend on the attribute you seek to achieve when using RMPP141 instead of PE.

MOULD RELEASE.

Processing **RMPP141** does not require the same degree of attention with release agents (as PE), because risk of warpage is lower and it has lower shrinkage.

SHRINKAGE.

RMPP141 shrinkage is 2 – 2.5% whereas LLDPE is around 3 – 3.5%

Should doubts or questions come up during processing this PP, please contact info@psdrotoworx.com.

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MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION

Product Name: **RMPP141 BLACK**

Intended Use: Raw material for plastic industry.

Manufacturer: Polymerit Asia Co., Ltd.
858 Moo 2, Soi 1C/1 Bangpu Industrial Estate
Bangpumai, Muang Samutprakarn,
Samutprakarn 10280, Thailand
Ph +66 2 323 2601 to 08
Fax +66 2 323 2227 to 8
Email : rach@saleecolour.com

Supplier: PSD Rotoworx Pty Ltd
PO Box 885
Chatswood NSW 2057
Ph: +61 2 9412 3255
Email: thumphreys@psdrotoworx.com

2. HAZARDS

The product is not classified as hazardous.

Inhalation of dust may irritate the respiratory tract. Spilled pellets or powder may be a slipping hazard.

3. COMPOSITION

This product is a polypropylene, ethylene copolymer. Contains no substance classified as Hazardous. The product range includes compounds pigmented black and a non pigmented version that is UV stabilised.

4. FIRST AID MEASURES

Swallowed:
Not probable. Seek medical advice

Eye:
Flush with plenty of water for at least 15 minutes. Seek medical attention.



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Skin:

Molten plastic causes severe thermal burns. Cool rapidly with water and seek medical attention. Do not pull off the skin.

In case of contact with condensed processing fumes, immediately flush the area with plenty of water. Remove contaminated clothing before reuse. Get medical attention if irritation persists.

Inhaled:

If fumes are inhaled, remove person to fresh air. If breathing difficult get medical attention.

First Aid Facilities:

Provide eye baths and safety showers close to areas where there is significant potential for eye and skin contact.

5. FIRE FIGHTING MEASURES

Use water, foam or dry chemicals to extinguish the fire. Product will burn under fire conditions,.

Firefighters and others who may be exposed to products of combustion should wear self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

Hazardous Decomposition Products:

There are no significant decomposition products occurring in the product below about 230°C. Decomposition products at greater than about 300°C is principally carbon monoxide.

6. ACCIDENTAL RELEASE MEASURES.

No flames, No sparks. Eliminate all sources of ignition. In case of spill suck or sweep up material to prevent slipping accidents.

Heating and processing the product above 300⁰C should be avoided. Overheating the plastic may occur due to excessively-high cylinder heats, overworking of the melt by wrong screw configuration, or by long dwell time in the machine. Under such conditions the thermal emissions and heat-degradation products might, without proper ventilation, reach hazardous concentrations in the converting area (see "Hazardous Decomposition Products" section).



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7. HANDLING AND STORAGE

During processing small amounts of volatile hydrocarbons may be released. Provide adequate ventilation and avoid breathing these fumes.

The product should be stored in dry conditions at temperatures less than 50°C

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Respiratory Protection: Not ordinarily required

Protective Clothing: Not ordinarily required

Inhalable dust 10 mg/m³ max

Keep exposures as low as practicable below exposure standards.

Provide mechanical ventilation to control exposure levels below airborne exposure standards and to prevent operator discomfort. In general, ventilation should be provided at compounding and converting areas and at fabricating work stations which involve heating the plastic. Local exhaust hoods may be used over die-heads of extrusion equipment or in the vicinity of thermoforming and moulding machines, where practicable.

Respiratory Protection:

Avoid breathing dust, processing fumes and/or vapours. Use approved respiratory protection equipment when airborne exposure standards are exceeded or where operator discomfort is experienced.

Eye:

Safety glasses with side shields are recommended to avoid eye contact.

Skin Protection:

The product presents no skin concern requiring special protection except as noted under "Other precautions".

Other Precautions:

The greatest potential for injury occurs when working with the molten material such as during purging of the moulding machine, extruder and the like. During this type of operation it is essential that all workers in the immediate area wear eye and skin protection (e.g. full face shield and safety glasses, heat resistant gloves, overalls and safety boots) as protection from thermal burns.



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Fumes or vapours emitted from the hot melted plastic during converting operations may condense on cool overhead metal surfaces or exhaust ducts. That condensate, usually in the form of a soft grease like semi-solid, may contain substances which is irritating or toxic. Avoid contact of that material with the skin. Wear rubber or other impermeable protective gloves when cleaning contaminated areas.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Description/Properties	
Appearance	Pellet /Powder
Boiling Point:	Not applicable
Melting Point:	160 – 170°C
Vapour Pressure:	Not applicable
Specific Gravity:	.91
Flash Point:	>316°C
Flammability Limits:	Not applicable
Solubility in Water:	Insoluble

Other Properties	
Odour:	Odourless
Softening Point:	103 – 128°C Method: ASTM 1525
Flash Ignition Temperature:	N/A Method: ASTM-1929(B)
Auto Ignition Temperature:	N/A Method: ASTM-1929(B)
Percent Volatiles	Less than 1%

10. STABILITY AND REACTIVITY

The product is a stable thermoplastic. There is no chemical reactivity. On combustion, fumes containing oxides of carbon will be released.

11. TOXICOLOGICAL INFORMATION.

Chronic:

This product (or component) is not listed in IARC Monographs, the NTP Sixth Annual Report or the ACGIH TLVs as a carcinogen or potential carcinogen. It is not regulated by OSHA as a carcinogen.



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12. ECOLOGICAL INFORMATION

The product is not classified as being hazardous to the environment..

13. DISPOSAL

Spillages on hard surfaces present a slip hazard. Sweep or vacuum up promptly.

The pellets may cause sewer and waterway obstruction; fish may eat pellets and obstruct their digestive tracts. Prevent exit to sewer and waterways. Remove sources of ignition. Collect material into containers.

Recycle, incinerate or landfill as per local, state and federal regulations.

14. TRANSPORT

Not classified as a Dangerous Good (see "Identification" section).
Store in a cool dry area.

15. REGULATORY INFORMATION

Not applicable

16. OTHER INFORMATION

The information contained herein is based on current knowledge, documents and data available; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider this data only as a supplement to other information. Users should make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials, the safety and health of employees and customers, and the protection of the environment.