matrix polymers

Experts In Rotomoulding Materials

THE AMIDE ADVANTAGE

High performance.
Greater versatility.
Created for rotomoulding.

JAKE KELLY-WALLEY
R&D COMMERCIAL MANAGER

SUPERIOR PERFORMANCE
Engineered for strength and durability

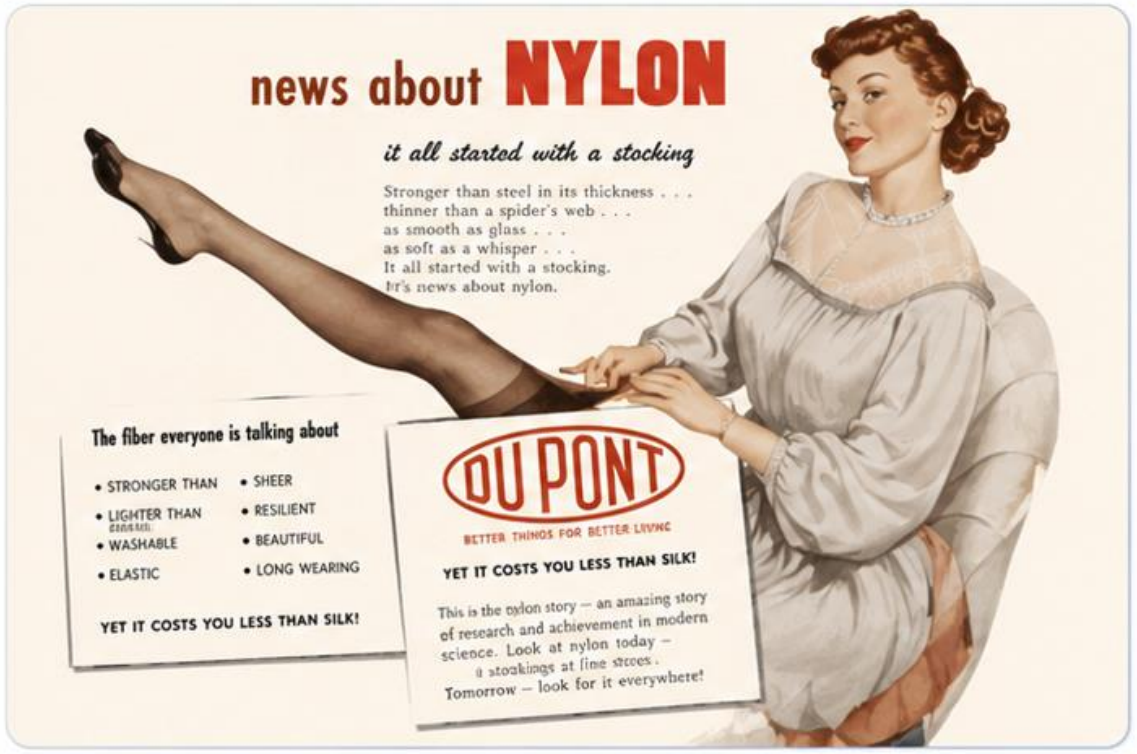
ENHANCED VERSATILITY
Wide range of applications and formulations

BUILT FOR SUSTAINABILITY
Supporting circularity and a cleaner future

matrix polymers
Experts In Rotomoulding Materials

Nylon Riots, 1939

A pivotal moment that changed the future of synthetic materials.



In 1939, the demand for nylon stockings sparked a movement. Today, innovation in materials continues to shape our world.

Nylon Riots, 1939

A pivotal moment that changed the fut
of synthetic materials.

In 1939, the demand for nylon stockings sparked a movement.
Today, innovation in materials continues to shape our world.

Nylon Roto Riots 2026?

matrix polymers

Our Global Presence

Manufacturing Facilities in UK, Poland, Australia, New Zealand, Malaysia, and Thailand

Sales & Technical Support Offices across Europe, Asia and Oceania.

KEY

- Production / Manufacturing
- Technical Services
- Warehousing
- Head Office
- APAC R&D
- European R&D

GLOBAL REACH
Strategically located to serve our customers.

LOCAL SUPPORT
Technical expertise and service where you need it.

STRONGER TOGETHER
Delivering innovative polymer solutions worldwide.

Wide Range of Polymers

Engineered solutions for every rotomoulding challenge

matrix polymers

POLYETHYLENE SOLUTIONS

CORE PORTFOLIO

- General Purpose
- Super-Linear®
- Tank Grades
- Bio-Polymers
- High Performance
- PCR Materials

APPLICATIONS

Tanks | Industrial | Agriculture | Marine

SPECIALITY TECHNOLOGIES

ADVANCED FUNCTIONAL MATERIALS

- Flame Retardant
- Conductive
- Foam
- Antibacterial
- Crosslink PE
- Mottle Effects

APPLICATIONS

Safety | Healthcare | Infrastructure

ENGINEERING POLYMERS

HIGH PERFORMANCE MATERIALS

- Polyamide (PA)
- Polypropylene (PP)
- Polycarbonate (PC)
- PVDF
- POM

APPLICATIONS

Automotive | Mobility | Technical Components

Polyamide Solutions for Every Industry

Our high-performance polyamides enable stronger, safer and more sustainable products across a wide range of applications.

TEXTILES
Fibres, yarns and technical textiles

INDUSTRIAL
Tanks, containers and equipment

MARINE & LEISURE
Fishing Tackle

ELECTRICAL & ELECTRONICS
Insulation, cables and components

AUTOMOTIVE
Lightweight parts and system solutions

36%

OF GLOBAL NYLON DEMAND COMES FROM AUTOMOTIVE APPLICATIONS

Automotive is the single largest end-use market for nylon and a key driver of future demand growth.

matrix polymers

Automotive:
The Growth Engine for Nylon

Electrification is accelerating demand for high-performance polyamide materials.

Requirements from the Automotive Market

Key drivers shaping material selection

1. LIGHTWEIGHTING

Objective
Reduce vehicle weight

Benefits

- Lower CO_2 emissions
- Improved fuel economy
- Increased EV range

MATERIAL REQUIREMENT
High strength-to-weight ratio

2. PERFORMANCE

Objective
Increase system efficiency

Benefits

- Enhanced durability
- Improved thermal performance
- Longer component life

MATERIAL REQUIREMENT
Advanced engineering polymers

3. THERMAL MANAGEMENT

Objective
Support electrification

Benefits

- Battery protection
- Heat resistance
- Electrical insulation

MATERIAL REQUIREMENT
High-temperature polyamides

Polyamide Solutions at Matrix

Proven materials. Real applications. Commercial success.

Revolve® PA 12

Low moisture absorption
Excellent impact resistance

Revolve® PA 11

Renewable-source polyamide
High flexibillity | Chemical resistance

Revolve® PA RDN

High-performance polyamide

Revolve® PA HIU

Enhanced impact performance
Harsh environment applications

matrix polymers

Example Applications

Industrial Components

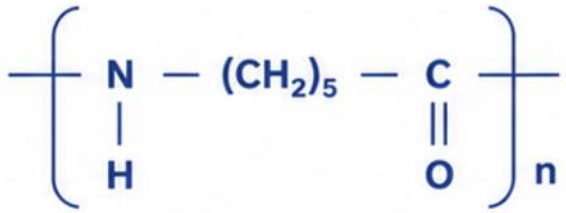
Pressure & Fluid Handling

Technical Engineering Parts

Polyamide Chemistry

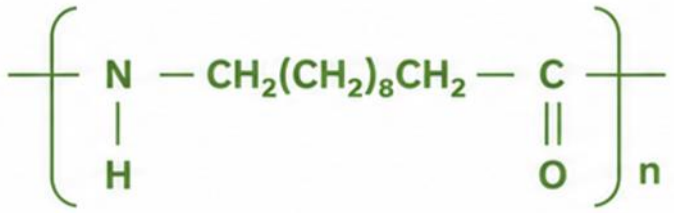
Structure Drives Performance

PA6



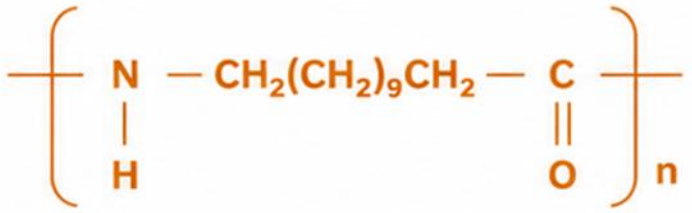
Impact strength	Moderate
Stiffness	Very High (x4-5 MDPE)
Moisture Absorption	High (>2.5wt%)

PA11



Impact strength	Excellent
Stiffness	Good (x2 MDPE)
Moisture Absorption	Low

PA12



Impact strength	Similar to PA11
Stiffness	Good (x2 MDPE)
Moisture Absorption	Low

Chemistry to the Kitchen

matrix polymers

Why molecular chain length changes performance

SHORT CHAIN POLYAMIDE

PA6

Bowl of Rice

LONG CHAIN POLYAMIDE

PA11 / PA12

Bowl of Spaghetti

Enhanced Impact Strength

matrix polymers

	Revolve PA HIU	Revolve PA RDN
Density	1.110 g/cm³	1.110 g/cm³
Melting Temperature	223°C	223°C
PIAT	240°C	240°C
Impact (Ambient)	75 J	50 J
Flexural Modulus	2200 MPa	2550 MPa
Elongation at Break	300%	300%
Tensile Strength at Yield	35 MPa	40 MPa

Revolve® Nylon 6

Designed for easier processing and superior moulding performance

matrix polymers

APPLICATION EXAMPLE
Rotomoulded Nylon 6 Component

STANDARD PROCESSING
No inert atmosphere required

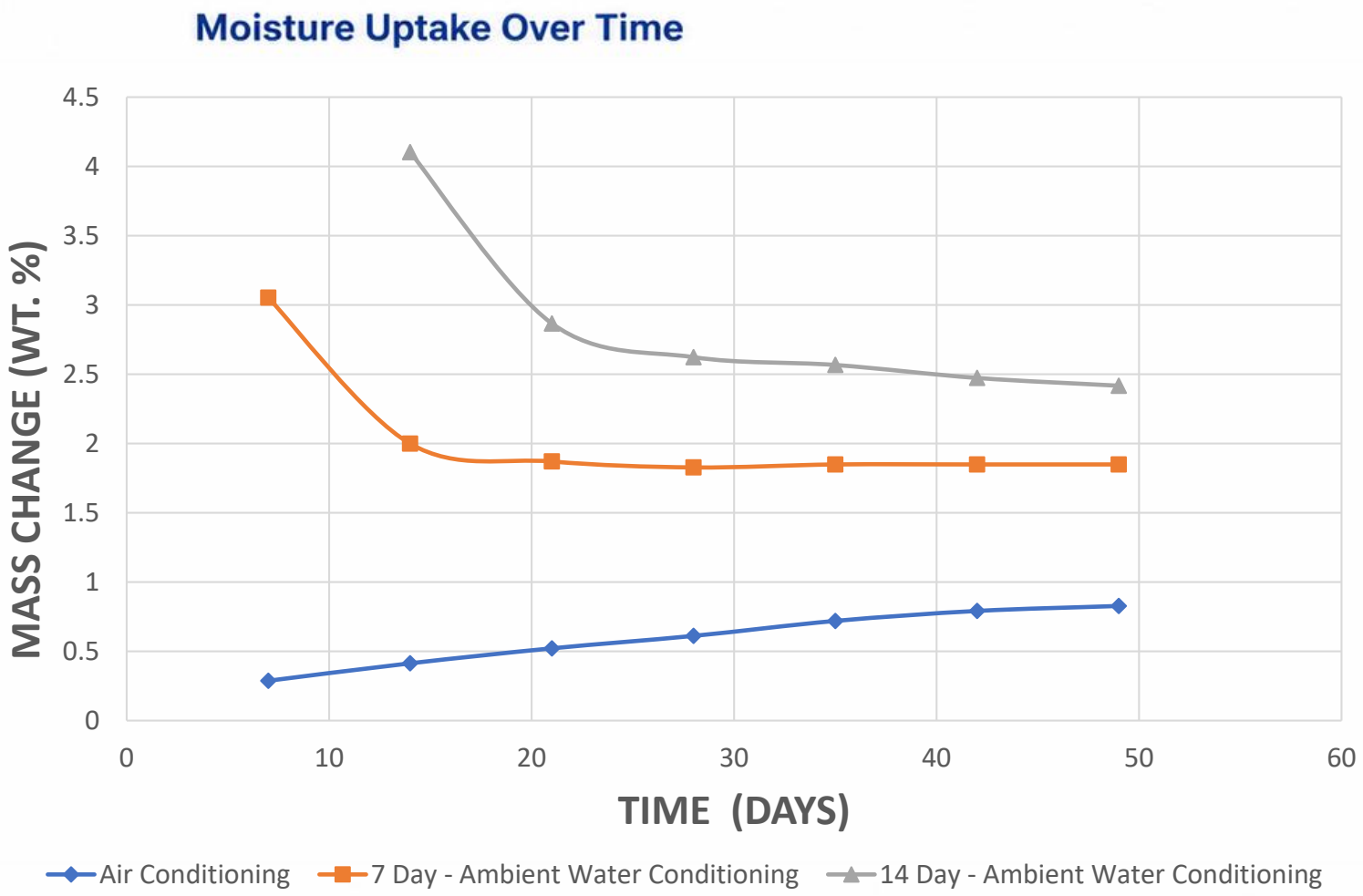
REDUCED PREPARATION
No conditioning required for HIU

NATURAL FINISH
Excellent natural appearance

POWDER FORM
Ready for rotational moulding

CONDITIONING OF PA RDN

Controlled Moisture Absorption for Improved Performance



KEY INSIGHT

Revolve® PA RDN has been engineered to control moisture absorption behaviour.

Up to 4 wt.%

moisture uptake at saturation.

Allows increased effective tank capacity compared with conventional PA6 liquid systems.

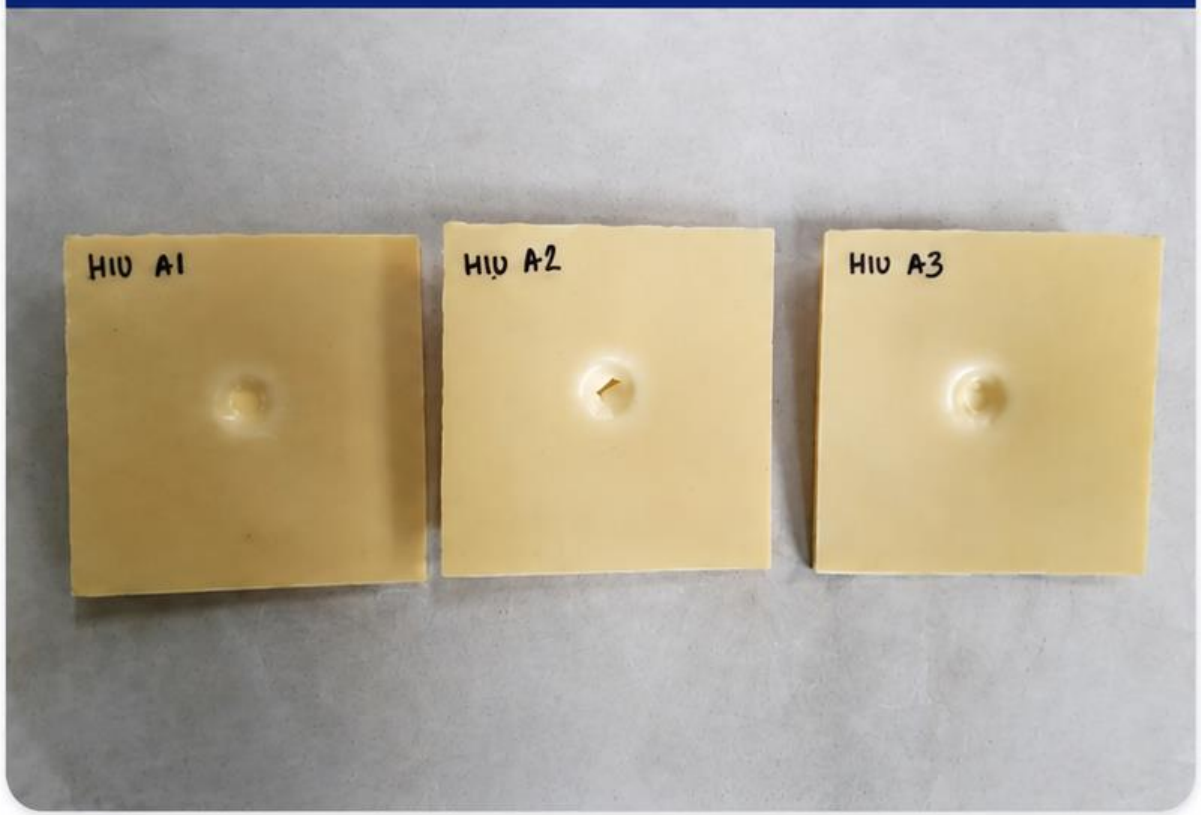
Enhanced Impact Resistance

Conditioning the PA RDN (PA6) powder would enhance the impact resistance by **20%**.

However, the **Revolve PA HIU (PA6 powder)** would not need to be conditioned because it is impact modified providing additional benefits to the moulder.

It is extremely difficult to modify the PA6 liquid to develop a resin with enhanced impact properties.

Impacted samples at room temperatures



Industrial Case Studies

Engineered polymer solutions delivering performance in demanding industrial applications.

Motorcycle Fuel Tanks

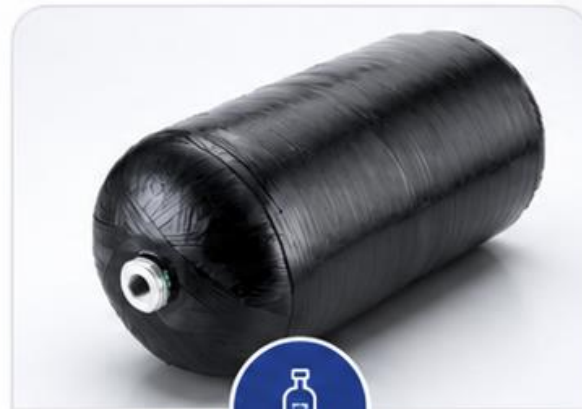
- Introduced PA12 for reduced permeation

Tractor Components

- Structural and Oil Tanks for heated oil, PA HIU
- Resistance, Temperature and Mechanical Properties Required

Car Braking System Duct

- High-temperature resistance
- Uncompromised material performance
- PA RDN



Compressed Gas Storage

- High Tolerances
- Permeation Requirements
- Tensile Properties
- PA6, PA11 and PA12

Cooling Duct for Braking System

Prestigious car manufacturer required **air duct** for cooling brake pads

High temperature resistance and **surface finish** were critical to success

Collaboration approved **Revolve® PA HIU Black (Nylon 6)** to handle extreme operating conditions

Compressed Natural Gas

Polyamide solutions enabling safer, lighter and more durable hydrogen storage.

Low Permeation

Use of polyamide in hydrogen storage applications due to low permeation relative to polyolefins

High Temperature Capability

High operating temperature range

Lightweighting

Enhanced Durability

Greater durability to pressure increases and decreases from refilling

The Future...

Summary

Polyamide will remain a material solution trusted by rotational moulders, RDN and HU technologies will play a significant role in this.

Matrix Polymers brings experience, expertise and knowledge of the rotomoulding industry. Its capillary contacts across the industry are on a global scale as is our knowledge on rotomoulding powders.

Supporting the rotomoulding industry with tailor-made technical solutions which penetrate new market segments, providing technical support and expertise.

THANK YOU!

Jake Kelly-Walley

Email
Jake.kelly-walley@matrixpolymers.com

Phone
+44 7513 721834

Website
matrixpolymers.com

Innovate. Collaborate. Deliver.
Building the future together.