

HR 411

LLDPE

Date of Issue: February 2002

Print Date: July 2002

Information

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Sasol Polymers
Polythene Business

Rotational moulding/injection moulding

Melt index: 3.5 Density: 0.939

Features

High rigidity
Excellent impact strength
Excellent chemical resistance
Good ESCR
Tough and abrasion resistant
Colourable
Hexene copolymer

Additives

Antioxidant

Applications

Large mouldings
Thick walled containers
Articles for indoor use

Performance properties - HR 411

Test	Value	Unit	Test method
MFI (190°C/2.16kg)	3.5	g/10min	ASTM D1238
Nominal density	0.939	g/cm ³	ASTM D1505
Tensile strength at yield	19	MPa	ASTM D638 ¹⁾
Tensile strength at break	24	MPa	ASTM D638 ¹⁾
Elongation at break	820	%	ASTM D638 ¹⁾
Flexural modulus	846	MPa	ASTM D790
ESCR F ₅₀	>500	hr	ASTM D1693 ²⁾
Impact energy at -40°C	35	J/mm	ASTM D3029 ³⁾
Vicat softening temperature	121	°C	ASTM D1525
Shore D hardness	61	Shore D	ASTM D2240

¹⁾ Crosshead speed 50mm/min

²⁾ 100% Igepal C0630

³⁾ Tested on rotomoulded product



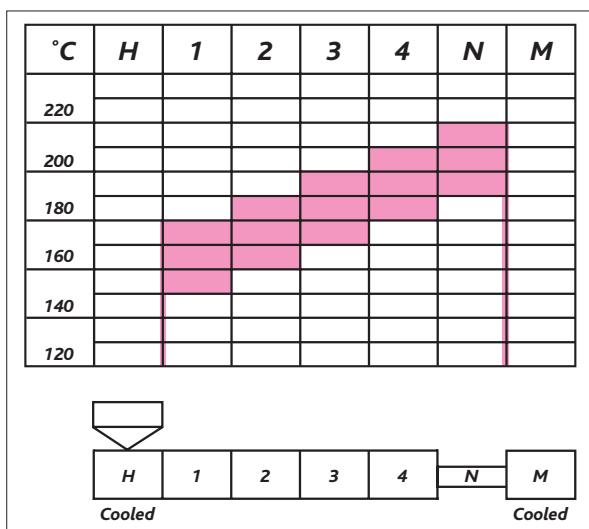
Processing (Rotomoulding)

An air temperature of 270°C to 300°C is recommended for processing of HR 411. Temperatures above 300°C should be avoided as this would narrow the processing window considerably and could result in poor physical properties.

Processing (Injection moulding)

HR 411 has a medium melt viscosity making it unsuitable for moulds with long flow paths. Typical melt temperatures would be 200°C - 280°C. Parts can be demoulded at relatively high temperatures due to the material's high melting point and rigidity.

Typical temperature profile (Injection moulding)



Presentation

Supplied in pellet form packed in 25kg bags. Grinding of pellets is required to make it suitable for rotomoulding.

Handling

Workers should be protected from the possibility of skin or eye contact with molten polymer. Safety glasses are suggested as a minimal precaution to prevent possible mechanical or thermal injury to the eyes. Fabrication areas should be ventilated to carry away fumes or vapours.

Combustibility

Polyethylene resins will burn when supplied with adequate heat and oxygen. They should be handled and stored away from contact with direct flames and/or other ignition sources. In burning, polyethylene resins contribute high heat and may generate a dense black smoke. Fires can be extinguished by conventional means, with water and water mist preferred. In enclosed areas, fire fighters should be provided with self-contained breathing apparatus.

Pigmentation (Rotomoulding)

For colouring purposes inorganic pigments should be added at the lowest possible concentration and mixed in using a high speed mixer or a tumble blender, prior to moulding. Pigment preparations should contain only minimal amounts of dispersants.

Food Packaging

This material complies with F&DA regulation 177.1520 when used unmodified and according to good manufacturing practices for food contact applications. Accordingly, this material may be used in all food contact applications (except holding food during cooking).

Conveying

Conveying equipment should be designed to prevent accumulation of fines and dust particles that are contained in all polyethylene resins. These fines and dust particles can, under certain conditions, pose an explosion hazard. We recommend the conveying system used:

1. be equipped with adequate filters;
2. is operated and maintained in such a manner to ensure no leaks develop;
3. that adequate grounding exists at all times.

We further recommend good housekeeping be practised throughout the facility.

Storage

As ultraviolet light may cause a change in the material, all resins should be protected from direct sunlight during storage.