



Parts In Minutes[™] - Vacuum Grade

RenPIM[™] -VG 5285

Two component, polyurethane vacuum casting system for rapid prototyping

Key properties

- Black system
- High heat resistant HDT 120°C
- High flexural strength
- Simulates PP

Applications / Description

Parts In Minutes - vacuum grade polyurethanes simulate the appearance and physical characteristics of engineering thermoplastics for rapid prototyping. They can be used to produce functional prototype parts suitable for use in all major industrial areas including automotive, aerospace, consumer goods and leisure applications.

RenPIM-VG 5285 is a black system with PP like properties and with high temperature resistant.

Product data

Property	Unit	RenPIM-VG 5285 Polyol	RenPIM-VG 5285 Isocyanate
Appearance Colour	visual	Liquid Black	Liquid Clear
Viscosity at 25°C	m Pa s	ca 1800	ca 1200
Density	g/cm ³	ca.-1.13	ca. 1.16

Processing

Mix ratio	Parts by weight	Parts by volume
RenPIM-VG 5285 Polyol	80	100
RenPIM-VG 5285 Isocyanate	100	144

Parts In Minutes - vacuum grade polyurethanes are specifically formulated for vacuum casting and therefore require processing via application equipment. Huntsman Advance Materials are pleased to recommend the use of MCP-HEK vacuum casting equipment for the processing of these materials. Hand mixing or manual processing of these materials is not recommended.

Thorough stirring to ensure uniform dispersion of materials is critical, prior to processing. After the components have been mixed, de-aeration under a vacuum for a few minutes is recommended. Materials should be cast into silicone, polyurethane or epoxy moulds which have been pre-heated to 40 - 70°C.

If a silicone mould is to be used, compatibility with RenPIM-VG 5285 should be checked. If polyurethane or epoxy moulds are to be used, a mould release agent such as QZ13 will be required. However if parts are to be painted or sprayed a non-silicone based release agent should be used.

Typical Properties

Resin/Hardener mix:		Unit	RenPIM-VG 5285
Potlife at 40°C		mins	10 max
Max. Layer thickness		mm	10
Demoulding time (mould at 40 - 70°C) (dependent on layer thickness)		mins	45

Properties after 1 hour at 70°C, 1 hr at 100°C, 2 hrs at 120°C

It is recommended that cast parts with thin wall sections or of large dimension be supported during post cure.

Density	ISO 1183	g/cm ³	ca 1.0
Hardness	ISO 868	Shore D	ca 78-82
Deflection temperature	ISO 75	°C	ca 120
Tg	DSC	°C	ca 150
Impact strength (Izod notched)		kJ/m ²	ca 8.3
Tensile strength	ISO 527	MPa	ca 40-45
Elongation at break	ISO 527	%	ca 28-32
Tensile modulus	ISO 527	MPa	ca 1200-1300
Flexural strength	ISO 178	MPa	ca 55
Flexural modulus	ISO 178	MPa	ca 1400
Linear shrinkage (4mm thick)		mm/m	0.1

Storage

The resin and hardeners described in this instruction sheet have the shelf lives shown provided they are stored at 2 - 40°C in a dry place and sealed containers, preferably those in which they are supplied.

Both components are sensitive to humidity and should be used soon after opening or resealed under nitrogen after use. If crystallization of either component occurs, condition overnight in original containers at 60°C. Stir or disperse fully and cool to room temperature before use.

Packaging

System	RenPIM-VG 5285 Polyol	RenPIM-VG 5285 Isocyanate
Quantity and Weight	6 x 0.8 kg	6 x 1 kg

Handling precautions

Caution

Our products are generally quite harmless to handle provided that certain precautions normally taken when handling chemicals are observed. The uncured materials must not, for instance, be allowed to come into contact with foodstuffs or food utensils, and measures should be taken to prevent the uncured materials from coming in contact with the skin, since people with particularly sensitive skin may be affected. The wearing of impervious rubber or plastic gloves will normally be necessary; likewise the use of eye protection. The skin should be thoroughly cleansed at the end of each working period by washing with soap and warm water. The use of solvents is to be avoided. Disposable paper - not cloth towels - should be used to dry the skin. Adequate ventilation of the working area is recommended. These precautions are described in greater detail in the Material Safety Data sheets for the individual products and should be referred to for fuller information.

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