

Parts In Minutes[®]

RenPIM[®] 5220 A / 5220 B

Fast Curing, Two Component, Polyurethane System for Rapid Prototyping and Short Run Production

Key properties

- Temperature resistance to 180°C
- Black system
- For high temperature applications
- Simulates PP/ABS

Applications / Description

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

RenPIM 5220 A/B is a black system with very high temperature resistance. It is especially formulated for “under the hood” type applications within the automotive industry.

Product data

Property	Unit	RenPIM 5220 A	RenPIM 5220 B
Appearance Colour	visual	Liquid Amber	Liquid Black
Viscosity at 25°C	m Pa s	ca. 200-240	ca. 1100-1300
Density	g/cm ³	ca. 1.2	ca. 1.1

Processing

Mix ratio	Parts by weight	Parts by volume
RenPIM 5220 A	120	100
RenPIM 5220 B	100	100

Parts In Minutes polyurethanes are specifically formulated to be fast curing systems and therefore require processing via application equipment. Huntsman Advanced Materials are pleased to advise on all types of suitable dispensing and mixing 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.

Moulds

Huntsman Advanced Materials Parts In Minutes polyurethane systems are compatible with most major silicone suppliers products. Further information is available on request. Huntsman Advanced Materials can also offer alternative polyurethane and epoxy materials for the production of moulds, with appropriate release agents. Please ask your local sales representative for further information.

Combination properties

The reactivity and cured properties of most polyurethane Parts In Minutes systems can be modified by combination with the slower RenPIM 5219 B component in order to suit all your particular applications. Examples are shown in the Parts In Minutes literature folder. Please ask your local sales representative for advice or contact Huntsman Advanced Materials directly for application or technical

support.

Properties

Resin/Hardener mix:		Unit	RenPIM 5220 A/B
Gelation time at 25°C		sec	ca. 45-70
Max. Layer thickness		mm	4
Demoulding time (dependent on layer thickness)		mins	ca. 15-20

Note - Castings of less than 2mm may be slightly brittle.

After cure: 4 hours at 23°C + 4 hours at 80°C + 1 hour at 100°C + 1 hour at 120°C + 2 hours at 140°C

Density	ISO 1183	g/cm ³	ca. 1.14
Hardness	ISO 868	Shore D	ca. 70-80
Deflection temperature	ISO 75		
Cure 4 hours at 23°C + 4 hours at 80°C + 1 hour at 100°C + 1 hour at 120°C + 2 hours at 140°C	Tested at: 264 psi	°C	138
As above + 2 hours at 160°C	264 psi 75 psi	°C	153 173
As above + 2 hours at 160°C + 2 hours at 170°C	264 psi 75 psi	°C	150 184
Tg	(DSC)	°C	ca. 194
Impact strength	ISO 179	kJ/m ²	>30
Compressive strength	ISO 604	MPa	ca. 195 - 200 MPa at 23°C
Tensile strength	ISO 527	MPa	ca. 45 - 50 at 23°C
Elongation at break	ISO 527	%	ca. 5-10
Flexural strength	ISO 178	MPa	ca. 76 at 23°C
	ISO 178	MPa	ca. 14 at 150°C
Flexural modulus	ISO 178	MPa	ca. 1700-1900 at 23°C
	ISO 178	MPa	ca. 300-400 at 150°C
¹ Linear shrinkage		mm/m	10

¹Test specimen 500x50x5 mm at 25°C

Storage

The resin and hardeners described in this instruction sheet have the shelf lives shown provided they are stored at 18 - 40°C in a dry place and sealed containers, preferably those in which they are supplied.

During prolonged storage these products may crystallize, either fully or partly. If they have turned cloudy, granular or semi-solid, they should be conditioned overnight in their original containers at 50-60°C (e.g in a temperature controlled oven), stirred or dispersed fully and allowed to cool to room temperature before use.

Equipment and maintenance

Application equipment

Huntsman Advanced Materials is able to recommend equipment suppliers and provide technical help and assistance with respect to selection and operation of application equipment. A list of recommended suppliers is available on request.

Maintenance

Maintenance and cleaning of equipment is expected to be minimal but daily cleaning of mixers may be necessary, depending on the type of mixer used. Huntsman Advanced Materials responsibility for the environment means we do not recommend the use of solvents for cleaning. Static mixers can be discarded directly when the product has gelled, and dynamic mixers should be flushed through with the pure polyol component. Please also refer to the recommendations of the equipment supplier.

Packaging

System	RenPIM 5220 A	RenPIM 5220 B
Quantity and Weight	25 kg	21 kg
Quantity and Weight	4x5 kg	4x4.2 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.

Huntsman Advanced Materials (UK) Limited

All recommendations for the use of our products, whether given by us in writing, verbally, or to be implied from the results of tests carried out by us, are based on the current state of our knowledge. Notwithstanding any such recommendations the Buyer shall remain responsible for satisfying himself that the products as supplied by us are suitable for his intended process or purpose. Since we cannot control the application, use or processing of the products, we cannot accept responsibility therefore. The Buyer shall ensure that the intended use of the products will not infringe any third party's intellectual property rights. We warrant that our products are free from defects in accordance with and subject to our general conditions of supply.

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