

Advanced Materials

RenPIM[®] 5222 Isocyanate / 5222 Polyol

PARTS IN MINUTES[®]

FAST CURING, TWO COMPONENT, POLYURETHANE SYSTEM FOR RAPID PROTOTYPING AND SHORT SERIES PRODUCTION APPLICATIONS

KEY PROPERTIES

- **High Impact System**
- **Good Flexibility**
- **Black system**
- **Simulates high density polyethylene**

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 5222 Isocyanate / Polyol is a black system, which simulates high-density polyethylene. It has high impact strength, and it is suitable for production of automotive and electronic parts.

PRODUCT DATA

Property	Unit	RenPIM [®] 5222 Isocyanate	RenPIM [®] 5222 Polyol
Appearance Colour	visual	Liquid Clear Pale Yellow	Liquid Black
Viscosity at 25°C	m Pa s	1500 - 2000**	1750 - 2250**
Density	g/cm ³	ca. 1.12	ca. 1.08

***Specified data are on a regular basis analysed. Data which is described in this document as 'typical' is not analysed on a regular basis and is given for information purposes only. Data values are not guaranteed or warranted unless if specifically mentioned.*

TYPICAL SYSTEM DATA

PROCESSING

Mix ratio	Parts by weight	Parts by volume
RenPIM 5222 Isocyanate	100	100
RenPIM 5222 Polyol	70	70

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 supplier's 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.

PROPERTIES

Resin/Hardener mix:		Unit	RenPIM [®] 5222 Isocyanate / Polyol
Pot life at 25°C	100g	sec	60-80
Max. Layer thickness		mm	4
Demoulding time (dependent on layer thickness)		min	20-30

After cure: 14 hours at 80°C or 7 days at 20-25°C

Density	ISO 1183	g/cm ³	1.2
Hardness	ISO 868	Shore D	55-65
Deflection temperature	ISO 75	°C	75
Tg	(DSC)	°C	46
Impact strength (Charpy)	ISO 179	kJ/m ²	175-185
Impact strength (Izod notched)	D256	Ft.lb/in	6.5-7.0
Tensile strength	ISO 527	MPa	25-30
Elongation at break	ISO 527	%	150-165
Flexural strength	ISO 178	MPa	25-30
Flexural modulus	ISO 178	MPa	635-775
¹ Linear shrinkage		mm/m	1.27
² Linear shrinkage		mm/m	2.29
³ Linear shrinkage		mm/m	2.95

¹Test specimen 500x50x1 mm at 25 °C; ²Test specimen 500x50x3 mm at 25 °C; ³Test specimen 500x50x4 mm at 25 °C

STORAGE

Provided that RenPim[®] 5222 Isocyanate and RenPim[®] 5222 Polyol are stored in a dry place in their original, properly closed containers at the storage temperatures mentioned in the MSDS they will have the shelf lives indicated on the labels. Partly emptied containers should be closed immediately after 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 [®] 5222 Isocyanate	RenPIM [®] 5222 Polyol
Quantity and Weight	25 kg	17.5 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.

Huntsman Advanced Materials warrants only that its products meet the specifications agreed with the user. Specified data are analysed on a regular basis. Data which is described in this document as 'typical' or 'guideline' is not analysed on a regular basis and is given for information purposes only. Data values are not guaranteed or warranted unless if specifically mentioned.

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