

## Advanced Materials

# RenPIM<sup>®</sup> 5222 A / 5222 B

### PARTS IN MINUTES<sup>®</sup>

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 A/ 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 A            | RenPIM 5222 B |
|-------------------|-------------------|--------------------------|---------------|
| Appearance Colour | visual            | Liquid Clear Pale Yellow | Liquid Black  |
| Viscosity at 25°C | m Pa s            | ca. 1200-1500            | ca. 2500-2900 |
| Density           | g/cm <sup>3</sup> | ca. 1.12                 | ca. 1.08      |

#### PROCESSING

| Mix ratio     | Parts by weight | Parts by volume |
|---------------|-----------------|-----------------|
| RenPIM 5222 A | 100             | 100             |
| RenPIM 5222 B | 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 A/B |
|------------------------------------------------|------|------|-----------------|
| Pot life at 25°C                               | 100g | sec  | 60-80           |
| Max. Layer thickness                           |      | mm   | 4               |
| Demoulding time (dependent on layer thickness) |      | mins | 20-30           |

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

|                                |          |                   |         |
|--------------------------------|----------|-------------------|---------|
| Density                        | ISO 1183 | g/cm <sup>3</sup> | ca. 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 <sup>2</sup> | 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 |
| <sup>1</sup> Linear shrinkage  |          | mm/m              | 1.27    |
| <sup>2</sup> Linear shrinkage  |          | mm/m              | 2.29    |
| <sup>3</sup> Linear shrinkage  |          | mm/m              | 2.95    |

<sup>1</sup>Test specimen 500x50x1 mm at 25 °C; <sup>2</sup>Test specimen 500x50x3 mm at 25 °C; <sup>3</sup>Test specimen 500x50x4 mm at 25 °C

**STORAGE**

The resin and hardeners described in this instruction sheet have the shelf lives shown provided they are stored at 6 - 28°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 5222 A | RenPIM 5222 B |
|---------------------|---------------|---------------|
| Quantity and Weight | 20 kg         | 25 kg         |
| Quantity and Weight | 4x4 kg        | 4x5 kg        |

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**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.

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