

**Product Data Sheet****IROGRAN® A 60 E 4612N**

Polyester-based Thermoplastic Polyurethane

**PRODUCT DESCRIPTION**

IROGRAN® A 60 E 4612N is a polyester-based Thermoplastic Polyurethane (TPU) for injection molding applications. Key features are phthalate-free, excellent wear performance, high elasticity and high melt stability.

**APPLICATIONS**

Thick wall technical parts and thin wall technical parts.

**TYPICAL PHYSICAL PROPERTIES**

| Properties                       | Key | NORM         | Value | Unit              |
|----------------------------------|-----|--------------|-------|-------------------|
| Hardness (after 3 sec.)          | M   | ISO 7619     | 65    | Shore A           |
| Density                          | M   | ISO 1183-1   | 1,17  | g/cm <sup>3</sup> |
| Tensile strength                 | M   | DIN 53504    | 31    | MPa               |
| Elongation @ break               | M   | DIN 53504    | 900   | %                 |
| Tensile stress @ 100% elongation | M   | DIN 53504    | 2,7   | MPa               |
| Tensile stress @ 300% elongation | M   | DIN 53504    | 5,0   | MPa               |
| Tear strength                    | M   | ISO 34-1     | 35    | N/mm              |
| Abrasion                         | M   | ISO 4649     | 55    | mm <sup>3</sup>   |
| Bayshore rebound resilience      | M   | ASTM D 2632  | 54    | %                 |
| Compression set at 70h @ 23°C    | M   | ISO 815      | 17    | %                 |
| Compression set at 24h @ 70°C    | M   | ISO 815      | 43    | %                 |
| Mold shrinkage                   | M   | ISO 294-4    | 3,0   | %                 |
| Softening range low              | E   | Huntsman TMA | 140   | °C                |
| Softening range high             | E   | Huntsman TMA | 170   | °C                |

M = Injection molded parts to meet DIN & ASTM requirements. Parts tempered for 20 hrs @ 100 °C prior to testing

E = Extruded film cut to ASTM requirements. Parts at room temperature aged prior to testing.



## HEALTH & SAFETY ADVICE

Before undertaking any trials with this product it is essential that all personnel are aware of the necessary precautions that must be taken. These are detailed in the relevant Material Safety Data Sheet (MSDS), which will be provided by Huntsman.

## SUPPLY & STORAGE

IROGRAN® A 60 E 4612N is supplied in bags, drums or octabins. Please contact your customer service to confirm this.

IROGRAN® A 60 E 4612N has a minimum expected shelf life of 12 months after shipment date. The product should be stored in a dry and cool place in the manufacturer's original packaging.

## MATERIAL PREPARATION

IROGRAN® A 60 E 4612N is supplied pre-dried, however to ensure trouble-free processing it is preferable to dry before use. The recommended drying conditions are:

- 3 hours at 80-90°C in circulating air
- 3 hours at 70-80°C in dehumidified air
- Dew point: -30°C

## PHYSICAL FORM

Type: Transparent pellets

## PROCESSING PARAMETERS

Melt Volume Rate 190°C / 10kg ISO 1133-1 = 90 cm<sup>3</sup>/10min

Processing Parameter: Injection Molding

Temperature Profile °C

Feed Zone: 25 - 40

Barrel: 165 - 180

Nozzle: 165 - 180

Mold: 20 - 50

For further information, please contact your nearest sales office: [http://www.huntsman.com/PU\\_customer\\_service](http://www.huntsman.com/PU_customer_service)

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