# *Lupolen* 4552D black

**Compounded Polyolefin**

## Product Description

***Lupolen* 4552D black** is a UV and thermal stabilised high-density polyethylene with a multi-modal molecular weight distribution designed for extrusion. *Lupolen* 4552D black is produced with the advanced *Hostalen* technology which provides the material with excellent mechanical and physical properties. The excellent dispersion of the fine particle sized carbon black ensures the material has excellent weathering resistance.

*Lupolen* 4552D black fulfils the requirements of DIN 30670, NFA 49710, CAN, CSA-Z245.21-M98 and prEN 10285 when used in combination with the maleic-anhydrided grafted adhesives *Lucalen* G3710E P and a compatible fusion-bonded epoxy powder.

*Lupolen* 4552D black is recommended as the topcoat layer in 3LPE pipe coating applications and is suitable for severe laying conditions even at elevated temperatures. *Lupolen* 4552D black can be used up to 85°C service temperature of the pipeline when used in combination with the maleic-anhydride grafted adhesives *Lucalen* G3710E or *Lucalen* G3710E P and a compatible fusion-bonded epoxy powder.

This grade is available in black, in pellet form.

## Product Characteristics

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|---|---|
| **Status** | Commercial: Active |
| **Test Method used** | ISO |
| **Availability** | Europe, North America, Asia-Pacific, Australia/NZ, Africa-Middle East, Latin America |
| **Processing Methods** | Extrusion Coating |
| **Features** | Bacteria Resistant, Good Chemical Resistance, Good Creep Resistance , High Density, High ESCR (Environmental Stress Cracking Resistance), Fungus Resistant, Good Impact Resistance , Ozone Resistant, Good UV Resistance, Low to No Water Absorption , Good Weather Resistance |
| **Typical Customer Applications** | Pipe Coating |

| Typical Properties | Method | Value | Unit |
|---|---|---|---|
| **Physical** | | | |
| Density | ISO 1183 | | |
| | | ≥ 930 | g/cm³ |
| *Note*: Base polymer | | | |
| | | 0.956 | g/cm³ |
| *Note*: Compound | | | |
| Melt flow rate (MFR) | ISO 1133 | | |
| (190°C/2.16kg) | | 0.42 | g/10 min |
| (190°C/5.0kg) | | 1.7 | g/10 min |
| Bulk density (23°C) | ISO 60 | >0.5 | g/cm³ |
| **Mechanical** | | | |
| Tensile Modulus (23 °C, v = 1 mm/min) | ISO 527-1, -2 | 900 | MPa |
| Tensile Stress at Yield (23 °C, v = 50 mm/min) | ISO 527-1, -2 | 23 | MPa |
| Tensile Strain at Break | ISO 527-1, -2 | 700 | % |

| | | | |
|---|---|---|---|
| ESCR (ASTM-Fo) | 1693/IEC 538 | >2000 | h |
| **Impact** | | | |
| Notched izod impact strength (- 20 °C) | ISO 180 | ≥ 3 | kJ/m² |
| **Hardness** | | | |
| Shore hardness D | ISO 868/ASTM D 2240 | 60 | |
| **Thermal** | | | |
| Melting temperature | | 130 | °C |
| *Note*: ISO 3146 | | | |
| Brittleness Temperature | ASTM D 746 | < -70 | °C |
| Vicat softening temperature A/50 | ISO 306 | 124 | °C |
| Oxidation induction time (OIT) (200°C) | ISO 11357-6 / EN 728 | >30 | min |
| Oxidation induction time (OIT) (210°C) | ISO 11357-6 / EN 728 | ≥ 30 | min |
| Oxidation induction time (OIT) (220°C) | ISO 11357-6 / EN 728 | ≥ 20 | min |
| **Electrical** | | | |
| Specific volume resistivity | ASTM D 257/IEC 93 | 10E16 | |
| **Additional Information** | | | |
| Carbon black content | ISO 6964 | 2.2 | % |
| Moisture content | | 0.035 | % |
| *Note*: Test method: DIN EN ISO 15512 | | | |

## Additional Properties

Processing:
Recommended melt temperatures: 190-260 °C.
Unless specifically indicated, the grade mentioned is not suitable for applications in the pharmaceutical/medical sector.

## Notes

Typical properties; not to be construed as specifications.