

# POLYETHYLENE HD

## SPECIFICATIONS SHEET

### DETAILS

**Chemical Name:** Polyethylene

**Common/Trade Names:** Ralloy®, Tivar®, Polystone®, Daylon®, Jaylon®, Tufclad®, Pactene®

**Abbreviation:** PE, (LDPE, HDPE, UHMWPE)

**Properties (Colour):** Varies due to branding and PE grades available

**Properties (Form):** Rod, Plate, Tube, Custom

**Machining:** Can be tricky as the swarf does not chip, so the long continuous strand of swarf needs to be extracted or it will wrap around the job or tooling.

**Types:** UHMWPE: Ultra High Molecular Weight. HMWPE: High Molecular Weight. HDPE: High Density. LDPE: Low Density PE also has re-processed grades

**Chemical Resistance:** Good chemical and acid resistance.

### KEY BENEFITS

- Does not absorb moisture
- Low coefficient of friction
- Low material cost
- Large sheets up to 6 metres long
- Can be bent, formed & welded
- Temperature resistant to both hot and cold extremes
- Good chemical and corrosion resistance
- Easy to fabricate and machine
- Excellent surface for food preparation

### MECHANICAL PROPERTIES

Density $\rho$ (g/cm <sup>3</sup> )	0.95
Tensile Strength at Yield $s$ (MPa)	24
Elongation at Break %	400-800
Modulus of Elasticity Tensile $E_t$ (Mpa)	1000
Modulus of Elasticity Bending $E_b$ (Mpa)	900
Impact Strength kJ/mm <sup>2</sup>	NO BREAK
Hardness Ball Indent	45-60
Creep 1 % after 1000hr MPa	2.8
Coefficient of friction against Steel $\mu$	0.15-0.2

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## THERMAL PROPERTIES

Melting Point °C	128-133
Glass Transition Temperature °C	-95
Thermal Conductivity W/M°C	0.43
Specific Heat J/(g.K)	1.9
Coefficient of Linear Expansion $\alpha$ 10 <sup>-6</sup> .°K	200
Safe Working Temp. Short Term °C	90
Safe Working Temp. Continuous °C	45
Minimum Working Temperature °C	-100

## ELECTRICAL PROPERTIES

Dielectric Constant $\hat{\epsilon}$ 106 Hz	2.3
Dielectric loss Factor tand 106 Hz	0.0002
Volume Resistance W.cm	>10 <sup>16</sup>
Surface Resistance W	10 <sup>14</sup>
Dielectric Strength kV/mm	50
Moisture Absorption % (at 50%RH)	>0.1

\*Whilst all care has been taken to provide accurate & up to date information, we cannot provide legal certification of properties. We recommend that this information be used as a design guide only. Actual testing should be undertaken to confirm data if certification is required.\*