

# HAS TRADING LIMITED

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## Part # TPU-PG1

Issue date: 16th July 2018 \* Issue version: 1.1 \* Owner: Bryan Gao

Product Name: TPU Film

Uses: Typically be used as the base material of paint protection film for cars

### Regulatory

Regulatory	Value
Product Name	TPU Film
Part #	TPU-PG1
Brand	HAS-PPF
Polymer	Thermoplastic polyurethane, aliphatic polycaprolactone
Additives	None
Extrusion Method	Flat die
Surface	Smooth
UV Resistant	Permanent
Thickness	0.15 mm
Width	156 cm
Length	800 m
Product Form	Roll

### Physical Properties

Physical Properties	Standard No.	Units	Value
Granules Supplier			BASF China
Hardness	ASTM D2240	Shore A	94
Tensile Stress	ASTM D412	MPa	38
Elongation At Break	ASTM D412	%	420
UV Resistance (Yellowing)	ASTM D-4329 cycle B (QUV using UVA 340 bulb, 8 hours 70 Degree Celsius, 4 hours 50 Degree Celsius condensation)		Change in Yellowness Index ( $\Delta Y_i$ ) <0.8 at 2000 hrs
Glossiness	ASTM D1003 (B)		>90 at Angle 20 Degree

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