

TECHNICAL STATEMENT

21st of May 2021

Technical Statement concerning the behavior of HDPE yellow Perfect Liner (s=1.65 mm)

AGRU Kunststofftechnik GmbH confirm that the HDPE yellow Perfect Liner with the wall thickness of 1.65 mm meets the following properties acc. to ASTM test standards. Further properties are stated on the standard technical datasheet → see annex on page 2.

Property	Test Method	Minimum Average Values
Density [g/cm ³]	ASTM D792 Method B	0.94
Tensile Properties (min. ave. both directions)		
Strength at Yield [N/mm]	ASTM D 6693 Type IV (2 in./min.)	25
Elongation at Break [%]	ASTM D 6693 Type IV (2 in./min.)	400



Rudolf Hummel

Technical support

AGRU Kunststofftechnik GmbH
Ing. -Pesendorfer-Str. 31
A-4540 Bad Hall

Österreich / Austria

Phone: +43 7258 / 790-3304

Fax: +43 7258 / 790-430

General manager :Mag. Alois Gruber

Registration No.: 171838 d

Commercial Court: LG Steyr

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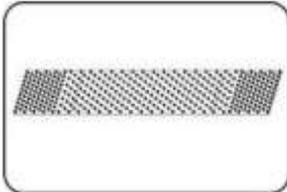
Annex – Technical Datasheet

HDPE Perfect Liner
Concrete Protective Liner

- **Perfect Liner**
 - Stud type: 7.8 mm
 - Extruded
- **Hot gas extrusion welding**
- **HDPE yellow (~RAL 1018)**
- **Type code 21.559**



The Plastics Experts.



Property	Standard	Unit	Product
Specific density at 23 °C	ISO 1183	g/cm ³	0.94 - 0.96
Melt flow rate MFR 190/5	ISO 1133	g/10min	1.6 - 2.0
Tensile stress at yield	ISO 527	MPa	≥ 12
Elongation at yield	ISO 527	%	≥ 8
Elongation at break	ISO 527	%	≥ 400
Modus of elasticity	ISO 527	MPa	≥ 620
Pull-out resistance at 23°C	In accordance to	N/Stud	≥ 500*
Tensile test 5 mm/min (short term)	DIN ISO 4624	kN/m ²	854
Anchor stud arrangement	-	Studs/m ²	~1709 central section ~2324 edge section
Backpressure resistance at 23 °C	DIBt-test methode	1,5 bar/1000h	fulfilled
Max. Working temperature	-	°C	60**
Linear coefficient of thermal expansion	DIN 53752	K ⁻¹ x 10 ⁻⁴	1.8***
Flammability	UL 94 DIN 4102 EN 13501	-	94-HB B2 Class E
UV stabilized	-	-	3 years Central Europe 15 monthSouth-western Asia
Colour	-	-	Yellow (~RAL 1018)

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*... Pull-out test were carried out with self-compacting concrete and a 1.65 mm Perfect Liner
 **... Depending on media/ consultation with AGRU
 ***... guide value

The data in this table are approximate values and based upon results of the internal inspection, data of raw material suppliers as well as tests in the course of approval procedures and external inspections. The results can differ slightly from the indicated mean values in longitudinal and transverse direction and due to different nominal thicknesses and raw materials. In any case requirements relating to a special project (tender documents) have to be agreed with AGRU. Independent of the indicated test standards, internal tests and data on test certificates are generally carried out in accordance with the appropriate test procedures according to OENORM (Austrian Standard) resp. DIN (German Standard) or EN ISO. AGRU assumes no liability in connection with the use of this data. The specifications on these sheets are subject to change without notice.



A G R U A-4540 Bad Hall Austria Tel.: ++43 7258 790-0 Firmenbuchnummer: 171838 d
 Kunststofftechnik GmbH Ing.-Pasendorfer-Str. 31 Fax: ++43 7258 3863 Firmenbuchgericht: LG Steyr

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