

TABOREX TA 1154 HD

A chemically-crosslinkable HDPE compound for the production of flexible pipes with an improved surface quality for domestic hot and cold water, under floor heating and central heating application.

Description

TABOREX TA 1154 HD is a crosslinkable compound made by Silane grafted ethylene polymer. This graft polymer constitutes together with a TABOREX Masterbatch containing the crosslinking catalyst a "SIOPLAS-SYSTEM". Pipes which are produced with the SILON grade TABOREX TA 1154 HD fulfil the requirements of ASTM F876, CSA 137.5, EN ISO 15875, BS 7291 and all related standards.

This system allows the compound to be extruded as a normal thermoplastic polymer and will attain a high level of crosslinking in the processed form. The final product provides all the superior properties associated with crosslinked polyethylene.



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Properties

	Properties	Test method	Unit	Typical value
Physical	Density	ISO 1183-1	g/cm ³	0,948
	Melt Flow Index (190 °C/5 kg)	ISO 1133	g/10 min	1,8
	Bulk density	ISO 60	g/cm ³	0,52
	Gel content	ISO 10147	%	70
	Volatile level	ČSN 640311	%	< 0,25
	Moisture (water)	ISO 15512	%	< 0,02
Mechanical	Tensile Strength at Break	ISO 527	MPa	24
	Elongation at Break	ISO 527	%	490

Note: the above values are typical for this material, not standardized.



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Processing Guidelines

Extruder:

TABOREX TA 1154 HD can be processed on standard thermoplastic extruders without problems. Particularly if the available screw is designed for polyethylene excellent products can be expected.

Screw parameters:

L/D: > 25
Compression ratio: 2,5–3 : 1

Temperature profile:

Zone 1:	160–170 °C
Zone 2:	170–180 °C
Zone 3:	170–190 °C
Zone 4:	170–190 °C
Head	200–210 °C
Die	190–220 °C
Screw*	70–90 °C

*The thermostatic control of the screw improves processing results

Recommendation for optimal extrusion conditions:

- Pre-drying of foreign masterbatches e.g. colour, PPA and others. Drying has to be done preferably with dried air. Residual moisture of the added masterbatches must not exceed 0,02 %.
- Material preconditioning to ambient temperature before the package opening is necessary, to avoid moisture condensation on the pellet surface.
- Use screw suitable for PE-HD (3-zone or barrier screw).
- Head and tools should be designed allowing streamlined flow avoiding stagnation of the material.
- In case of line stop longer than 10–15 minutes: Before restarting purge with standard HDPE (MFI: 0,3 g/10 min.)



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Crosslinking Cure

The following methods are recommended:

- Autoclave using saturated steam at 100–115 °C (optimal method)
- By immersion in hot water at 80–95 °C
- Exposure to low pressure steam

The period required to obtain the final gel content depends on the wall thickness and the temperature. The exposure times are in the range of 4–8 hours.

Storage and handling

TABOREX TA 1154 HD has a shelf life of nine months from the production date printed on the packaging. The packages should be stored in dry conditions at ambient temperature below 30 °C and protected from UV light. The packages should be opened only before processing and after opening of the inliner the product must be used within 3–4 hours.

Packaging

Boxes of 600 kg containing a moisture resistant multilayer lining.



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