

TABOREX TA 1133 HD

A chemically-crosslinkable HDPE compound for the production of multi-layer pipes for domestic hot and cold water and under floor heating applications. It is designed to achieve best performance in co-extrusion processes.

Description

TA 1133 HD is a crosslinkable compound made of Silane grafted ethylene polymer. This graft polymer constitutes together with a Masterbatch containing the crosslinking catalyst a "SIOPLAS-SYSTEM". Pipes produced from the SILON grade TA 1133 HD fulfil the requirements of ASTM F876-99a, ASTM F877-99a, CSA 137.5-99, DIN 16892, BS 7291 and all related standards.

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

Physical Properties:

Properties	Test method	Units	Typical Value
Density	DIN 53479/ ASTM D 1505	g/cm ³	0.952
Bulk Density	DIN 53466	g/cm ³	0.57
Melt Flow Index	CON 2.2 (190/2,16)	g/10 min	0.50
Melt Flow Index	CON 2.2 (190/5)	g/10 min	2.20
Volatile total	CON 4.3	%	< 0.1
Moisture (water)	CON 45.1	%	< 0.02
Tensile strength at break	ISO R 527	MPa	24,5
Elongation at break	ISO R 527	%	230
Gel Content	DIN 16892/ ASTM F 876-99a	%	69

Processing of TA 1133 HD:

Extruder:

TA 1133 HD can be processed on most modern 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: 3 – 2.5 : 1

Temperature Profile:

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

* The thermostatic control of the screw improves processing results.

Recommendations for optimal extrusion conditions:

- Pre-drying of Catalyst Masterbatch and Colour Masterbatch about 2 hours at 80°C - 90°C, preferably with dried air.
- 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 designated 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: 0.3g/10 min.)

Crosslinking Cure:

The following methods are recommended:

- By immersion in hot water at 80°C - 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:

TA 1133 HD has a shelf life of nine months from the production date printed on the packaging. The packages should be opened only before processing; exposure to direct sun radiation must be avoided. After opening the bags the product must be used within 3 - 4 hours.

Packaging:

Graft Polymer:

- moisture resistant multilayer bags containing 25 kg
- boxes of 500 kg containing a moisture resistant multilayer lining sealed under vacuum