



SX720:CM488

Silane crosslinkable polyethylene for high temperature pressure pipes

SX720 is a silane grafted polyethylene compound, curable by exposure to moist conditions, and possessing good extrusion properties at high output rates. The graft component SX720 is mixed with a crosslinking catalyst masterbatch CM488 generally in the ratio 95:5.

The highly crosslinked materials produced by this two-component system possess excellent impact strength, ESCR, creep and internal pressure resistance under ambient and elevated temperature conditions.

These materials have been formulated for hot and cold water pressure pipes and are easily extrudable on conventional polyethylene extrusion lines.

Test	Test method	Unit	Typical value
Physical properties and mechanical properties			
Density	BS 2782 Pt. 6 Mtd 620A-D	g/cm ³	0.952
Melt flow rate (190°C/2.16kg)	AEI Method	g/10min	1.0
Tensile strength	IEC 60811-1-1	N/mm ²	24
Elongation at break	IEC 60811-1-1	%	540
Gel content	ASTM D2765-01 (2006)	%	70
Cure assessment			
Hot elongation (40 N/cm ² at 200°C)	IEC 60811-2-1	%	60

Pressure testing

Pipe produced from SX720:CM488 has been shown to satisfy the internal pressure requirements of DIN 16892, BS 7291 Class S, NSF 14 and other international specifications.

Potable water approval

Pipe produced from SX720/CM488 has been approved as suitable for use in contact with potable water up to 85°C and have been listed by the Water Regulatory Advisory Scheme (WRAS), DVGW and NSF 61

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Recommended processing and handling conditions

Extruder Screw

The use of a high compression polyethylene type screw of 20-25 L:D ratio and compression ratio 2.5:1 to 3:1 is recommended.

Extruder temperature conditions

As a guide the following temperature profile is recommended:-

Zone 1	Zone 2	Zone 3	Zone 4	Head	Die
140°C	175°C	185°C	195°C	205°C	210°C

This profile will vary slightly depending on extruder type, head design and output.

Screw water temperature approx 60°C

Recommended screen pack 30, 50, 100 (mesh apertures per linear inch) or 600, 300, 150 micron

Draw down ratio

If extrusion conditions require extrudate draw down, this should not exceed a ratio of 2:1.

Crosslinking or cure

If properly processed the material has the capacity of crosslinking under ambient conditions.

Should accelerated cure times be required, then any of the following methods may be employed.

- Immersion in water at 80°C
- Flushing with water at 80°C
- Exposure to steam at 90°C (as in a sauna)

Catalyst and colour masterbatches

CM488 catalyst masterbatch is normally added at 5% to 95% of SX720 graft.

Addition of approved colour masterbatches, including black, up to a maximum of 1%, has no detrimental effect on the properties or crosslinking capability.

It is recommended that all masterbatches, including those containing the catalyst, should be thoroughly dried at 60°C for 8 hours or at 80°C for 4 hours.

Storage and shelf life

SX720 normally has shelf life of at least 6 months from the date of manufacture. The storage of silane crosslinkable compounds in cool dry conditions will minimise useful shelf life. Other precautions are:-

- Packaging should remain sealed.
- Avoid temperature above 25°C.
- Avoid storage outside and in direct sunlight.
- Use within 8 hours of opening packaging.

Form and packaging

Form – pellets

Packaging – The following possibilities are available:-

- Moisture resistant sacks containing 25kg.
- Boxes with a moisture resistant heat sealed liner containing approximately 125kg, 500kg or 1000kg.

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