



TP543C

Thermoplastic, low-smoke, halogen-free, flame retardant compound for cable insulation and sheathing

A flame-retardant low-smoke thermoplastic compound which has been specially developed to meet the requirements of limited toxic/corrosive fume emission, and having high fire retardancy as indicated by a high oxygen index.

All versions comply with the requirements of VDE Spec 0207 Part 24 for type HM2 and BS 7655 Section 6:1, type LTS1. Cables made with TP543C have complied with IEC 332 part 1 and 3 fire tests.

Test	Test method	Unit	Typical value
Physical properties and mechanical properties			
Density	BS 2782 Pt. 6 Mtd 620A-D	g/cm ³	1.57
Melt flow rate (21.6kg at 150°C)	AEI test method	g/10 min	6
Tensile strength	IEC 60811-1-1	N/mm ²	11
Elongation at break	IEC 60811-1-1	%	160
Tear Strength	BS 6469	N/mm	6
Typical ageing behaviour after 7 days at 135°C			
Tensile strength	IEC 60811-1-2	%Variation	+12
Elongation at break	IEC 60811-1-2	% Variation	-12
Thermo mechanical properties			
Hot pressure deformation at 80°C	IEC 60811-3-1	%	25
Cold bend test at -30°C	IEC 60811-1-4		pass
Elongation at break at -30°C	IEC 60811-1-4	%	50 (pass)
Fire & smoke properties			
Oxygen Index	BS ISO 4589-2	%	45
Temperature Index	BS ISO 4589-3	°C	>300
Halogen Acid Gas Evolution	IEC 60754-1	%	<0.5
Electrical Properties			
Insulation Constant Ki at 20°C	IEC 60502	MΩ.km	7.7
Insulation Constant Ki at 90°C	IEC 60502	MΩ.km	0.057

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TP543C

Recommended processing and handling conditions

Extruder temperature conditions

Extruders of L/D ratios (length/diameter) of 15-24 and extruder screws of compression ratio 1.5:1 or less recommended.

It is important that the melt temperature profile is not allowed to increase above 160°C. As a guide the following temperature profile is recommended.

As a guide the following temperature profile is recommended:

Zone 1	Zone 2	Zone 3	Zone 4	Head	Die
115°C	125°C	135°C	145°C	155°C	160°C

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

Screw water temperature Depends upon screw design, but should be 30-50°C

Recommended screen pack 50 (mesh apertures per linear inch) or 300 micron

Head and tool design

The head and tools should be so designed as to allow streamlined of material. To obtain the optimum in physical properties in the case of tubing tools, the smallest possible draw down ratio is recommended to avoid internal stress.

Masterbatches

Addition of approved colour masterbatches, including black, up to a maximum of 1%, has no detrimental effect on the properties of TP543C.

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

TP543C has an unlimited shelf life. However, the following precautions should be observed:-

- Packaging should remain sealed
- Avoid temperature above 25°C.
- Avoid storage outside and in direct sunlight.

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.

Additional grade information

TP543C is available in the following versions

TP543N (natural colour)
TP543B (coloured black)

TP543NU (with a non-staining UV stabiliser added)
TP543BU (carbon black added to give UV stability)

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