Table 18 – Test requirements for mechanical characteristics of sheathing compounds (before and after ageing)

Designation of compound (see 4.3)	**Unit**	**ST_1**	**ST_2**	**ST_3**	**ST_7**	**ST_8**	**SE_1**
Maximum conductor temperature in normal operation (see 4.3)	°C	80	90	80	90	90	85
Without ageing (IEC 60811-501)							
Tensile strength, minimum	N/mm^2	12,5	12,5	10,0	12,5	9,0	10,0
Elongation-at-break, minimum	%	150	150	300	300	125	300
After ageing in an air oven (IEC 60811-401)							
Treatment:							
– temperature (tolerance ±2 K)	°C	100	100	100	110	100	100
– duration	h	168	168	240	240	168	168
Tensile strength:							
a) value after ageing, minimum	N/mm^2	12,5	12,5	–	–	9,0	–
b) variation [a], maximum	%	±25	±25	–	–	±40	±30
Elongation-at-break:							
a) value after ageing, minimum	%	150	150	300	300	100	250
b) variation [a], maximum	%	±25	±25	–	–	±40	±40

[a] Variation: difference between the median value obtained after treatment and the median value without treatment, expressed as a percentage of the latter.

Table 21 – Test requirements for particular characteristics of halogen free sheathing compounds

Designation of compound	Unit	ST_8
Behaviour at low temperature [a] (IEC 60811-504, −505 and −506)		
Test to be carried out without previous ageing:		
– cold bending test for diameter < 12,5 mm		
– temperature (tolerance ±2 K)	°C	−15
– requirement		no cracks
Cold elongation test on dumb-bells:		
– temperature (tolerance ±2 K)	°C	−15
– requirement	%	≥ 20
Cold impact test:		
– temperature (tolerance ±2 K)	°C	−15
– requirement		no cracks
Pressure test at high temperature (IEC 60811-508)		
– temperature (tolerance ±2 K)	°C	80
– requirement: maximum identation value	%	50
Water absorption (IEC 60811-402)		
Gravimetric method:		
Treatment:		
– temperature (tolerance ±2 K)	°C	70
– duration	h	24
Maximum increase of mass	mg/cm^2	10

[a] Due to climatic conditions, national standards may require the use of a lower temperature.

Table 20 – Test requirements for particular characteristics of thermoplastic PE sheathing compounds

Designation of compound (see 4.3)	**Unit**	**ST_3**	**ST_7**
Density [a] (IEC 60811-606)			
Carbon black content (for black oversheaths only) (IEC 60811-605)			
Nominal value	%	2,5	2,5
Tolerance	%	±0,5	±0,5
Shrinkage test (IEC 60811-503)			
Treatment:			
– temperature (tolerance ±2 K)	°C	80	80
– heating, duration	h	5	5
– heating, cycles		5	5
Maximum shrinkage	%	3	3
Pressure test at high temperature (IEC 60811-508)			
– temperature (tolerance ±2 K)	°C	–	110
– requirement: maximum identation value	%	–	50

[a] The measurement of density is only required for the purpose of other tests.

Table 19 – Test requirements for particular characteristics of PVC sheathing compounds

Designation of compound (see 4.3)	**Unit**	**ST_1**	**ST_2**
Use of the PVC compound		**Sheath**	
Loss of mass in an air oven (IEC 60811-409)			
Treatment:			
– temperature (tolerance ±2 K)	°C	–	100
– duration	h	–	168
Maximum loss of mass	mg/cm^2	–	1,5
Pressure test at high temperature (IEC 60811-508)			
– temperature (tolerance ±2 K)	°C	80	90
– requirement: maximum indentation value	%	50	50
Behaviour at low temperature [a] (IEC 60811-504, IEC 60811-505 and IEC 60811-506)			
Test to be carried out without previous ageing:			
– cold bending test for diameter < 12,5 mm			
– temperature (tolerance ±2 K)	°C	–15	–15
– requirement		no cracks	no cracks
Cold elongation test on dumb-bells:			
– temperature (tolerance ±2 K)	°C	–15	–15
– requirement	%	≥ 20	≥ 20
Cold impact test:			
– temperature (tolerance ±2 K)	°C	–15	–15
– requirement		no cracks	no cracks
Heat shock test (IEC 60811-509)			
Treatment:			
– temperature (tolerance ±3 K)	°C	150	150
– duration	h	1	1
– requirement		no cracks	no cracks

[a] Due to climatic conditions national standards may require the use of a lower temperature.