



Chlorinated polyethylene 「Elaslen™」

Flame retardant compound

SHOWA DENKO K.K. (Manufacturer)

Elastmer Group

Soda & Derivatives Department

Basic Chemicals Division

23F Muza Kawasaki Central Tower 1310, Omiya-cho

Saiwai-ku, Kawasaki, Kanagawa 212-0014 Japan

TEL : +81-44-520-1347 FAX : +81-44-520-1349

1. Introduction



Elaslen™ EM series are flame retardant plastic polyolefins based on chlorinated polyethylene added antimony trioxide.

Elaslen™ EM compound can be formed by various methods including extrusion, injection molding and calendering.

Our EM compound is adopted by Japanese electrical power industries because of the high quality and technical support.



Various colors of Elaslen™

2. Comparison of other material compounds



◎ : Excellent

○ : Good

△ : Fair

× : Poor

Comparison based on result of analysis in SHOWA DENKO

Item	Elaslen TM EM series	PVC	PE	PP	Rubber
Flexibility	○	○	△	× (hard)	× (soft)
Frame retardancy	◎	○	×	×	△
Withstand voltage	◎	△	○	◎	○
Tracking resistance	◎	△	○	○	○
Bleed	○	×	○	○	○
Recycle/Reuse	○	○	○	○	×
Weather resistance	◎	×	○	○	○

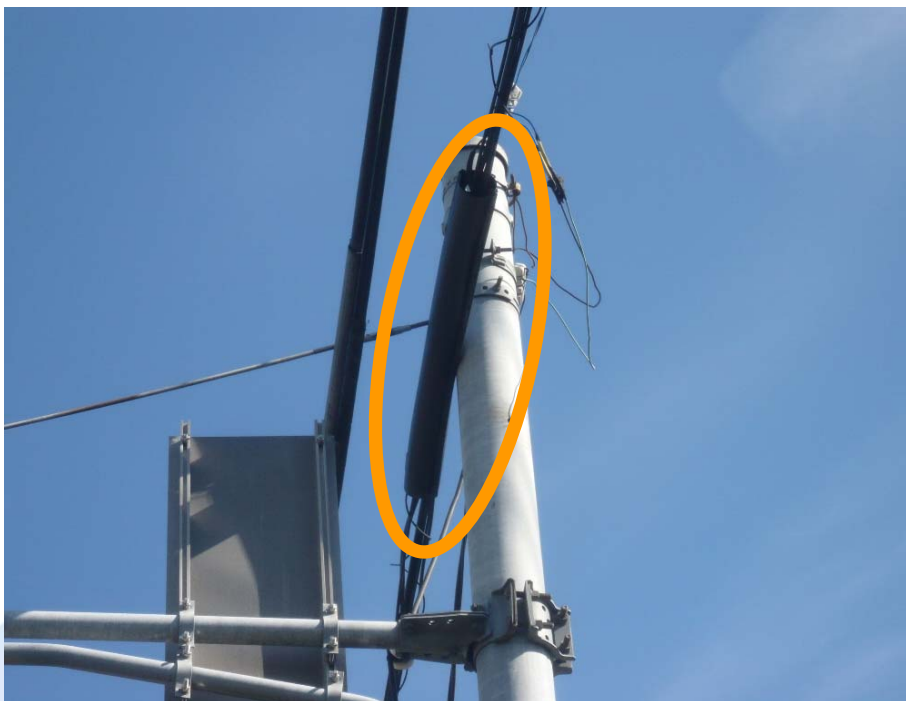
The information contained herein is believed to be reliable, but no representations, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications or the results to be obtained therefrom.

3. Application examples



1) EM100 series & EM500 series for EXTRUSION

Rigid or soft protective tube for electrical cable



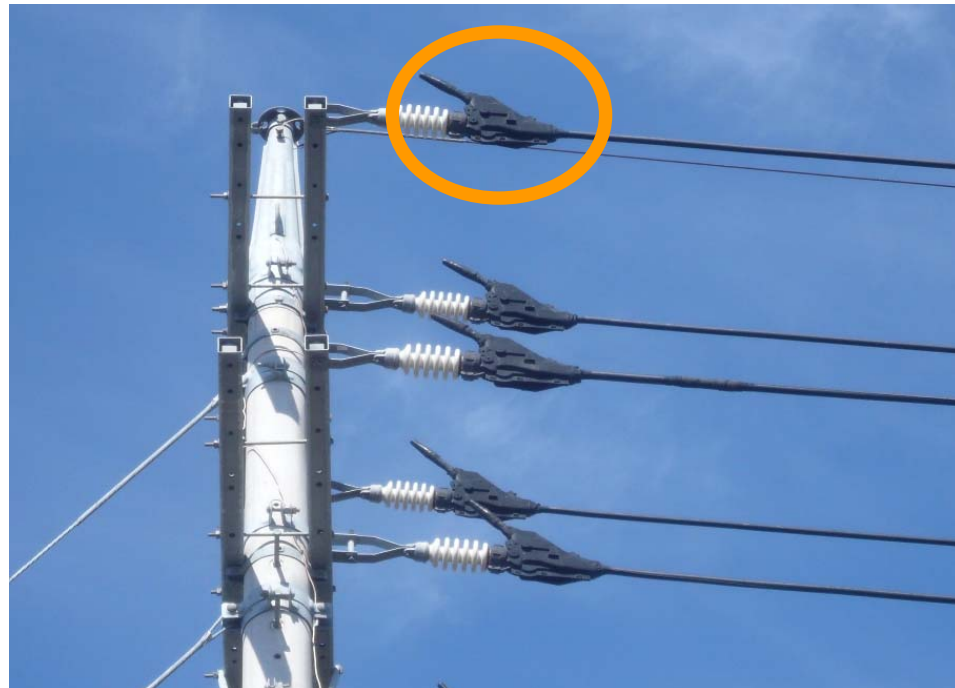
Purpose : Protect from friction with trees and telegraph pole by rigid or soft protective tube.

3. Application examples



2) EM700 series for INJECTION

Insulation protection for distribution lines (cover for insulation or clamp)



Purpose : Prevent of tracking and fire from salt damage, birds and beasts by complex shape cover.

4. Sales specification (RIGID EXTRUSION)



ELASLEN™ EM500B-9(black), EM500Y-9(yellow)

[Description]

They are designed for rigid tube for electrical cable molded by extrusion.
There are two colors, black and yellow.

[Requirements at Time of Manufacture]

<u>Property</u>	<u>Specification Limits</u>	<u>Method</u>
1. Specific gravity	1.22 - 1.30	JIS K7112 (water replacement)
2. Melt flow rate, g/10min	0.3 - 0.9	JIS K7210, 190°C 2.16kg
3. Tensile strength, MPa	Over 12.0	JIS K7113:1995, JIS K6251
4. Elongation at break, %	Over 400	As above
5. Flame retardancy	Equivalent of V-0*1	JIS K6911 B method

[Package]

Paper bags having a separate aluminum liner, containing 25kg net weight.

*1 Result of analysis in SHOWA DENKO

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4. Sales specification (SOFT EXTRUSION)



ELASLEN™ EM118B(black), EM118Y(yellow)

[Description]

They are designed for soft tube for electrical cable molded by extrusion.
There are two colors, black and yellow.

[Requirements at Time of Manufacture]

<u>Property</u>	<u>Specification Limits</u>	<u>Method</u>
1. Specific gravity	1.24 - 1.32	JIS K7112 (water replacement)
2. Melt flow rate, g/10min	0.2 - 0.9	JIS K7210, 190°C 2.16kg
3. Tensile strength, MPa	Over 10.5	JIS K7113:1995, JIS K6251
4. Elongation at break, %	Over 600	As above
5. Flame retardancy	Equivalent of V-0*1	JIS K6911 B method

[Package]

Paper bags having a separate aluminum liner, containing 25kg net weight.

*1 Result of analysis in SHOWA DENKO

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4. Sales specification (INJECTION)



ELASLEN™ EM700B-21(black), EM700Y-21(yellow)

[Description]

They are designed for rigid cover for electrical cable molded by injection.
There are two colors, black and yellow.

[Requirements at Time of Manufacture]

<u>Property</u>	<u>Specification Limits</u>	<u>Method</u>
1. Specific gravity	1.26 - 1.34	JIS K7112 (water replacement)
2. Melt flow rate, g/10min	4.0 - 8.0	JIS K7210, 190°C 2.16kg
3. Tensile strength, MPa	Over 11.0	JIS K7113:1995, JIS K6251
4. Elongation at break, %	Over 400	As above
5. Flame retardancy	Equivalent of V-0*1	JIS K6911 B method

[Package]

Paper bags having a separate aluminum liner, containing 25kg net weight.

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5. Properties of EM grades



We offer custom grades other than those listed below.

			EM700B-10	EM700B-21	EM700Y-31	EM500B-9	EM500Y-9	EM144N	EM118B	EM118Y
Color	-	-	Black	Black	Yellow	Black	Yellow	Ivory white	Black	Yellow
Specific gravity	-	-	1.27	1.30	1.29	1.26	1.26	1.29	1.28	1.28
MFR 190°C, 2.16kg	-	g/10min	4.0	6.0	3.5	0.6	0.6	0.3	0.5	0.5
Hardness	Type D	H D D	40	49	57	58	58	-	-	-
	Type A	H D A	-	-	-	-	-	80	91	91
Tensile properties	TB	MPa	12.2	12.5	12.2	16.3	16.2	14.0	14.2	14.0
	EB	%	694	660	560	800	746	550	765	755
Heat aging resistance 90°C × 96hr	TB	MPa	12.8	11.8	11.7	15.2	14.9	12.9	13.5	13.3
	TB retention	%	105	94	96	93	92	92	95	95
	EB	%	685	630	530	645	645	645	645	645
	EB retention	%	99	95	95	93	93	93	106	100
Weatherability 2000hr	TB	MPa	11.1	11.8	-	15.0	-	-	-	-
	TB retention	%	91	94	-	92	-	-	-	-
	EB	%	625	644	-	719	-	-	-	-
	EB retention	%	90	98	-	90	-	-	-	-
Flame retardancy	Sample thickness	mm	2.5	2.5	2.5	2.5	2.5	2.0	2.5	2.5
	Judgement	-	Equivalent of V-0*1	Equivalent of V-0*1	Equivalent of V-0*1	Equivalent of V-0*1	Equivalent of V-0*1	Equivalent of V-0*1	Equivalent of V-0*1	Equivalent of V-0*1
Electrical characteristics 15000V × 1min	Sample thickness	mm	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	Judgement	-	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Molding	Injection		○	○	○					
	Extrusion(rigid)					○	○			
	Extrusion(soft)							○	○	○
	Blow					○	○			
	Calendering							○		

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