

## Electrical Insulation Materials

### Nomex® Type 414 | FI 15020

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**Structure:** Nomex® Type 414 | FI 15020 is similar to Nomex® Type 410 FI 15000 in regard to the properties but it is calendered and therefore it gets its unique properties.

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**Characteristics:** Nomex® Type 414 | FI 15020 is similar to Nomex® Type 410 FI 15000 in regard to the electrical and thermal properties. Nomex® Type 414 | FI 15020 can be used with nearly all common electrical varnishes and adhesives as well as other electrical equipment components and transformer liquids, like for example oil.

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**Application:** Nomex® Type 414 | FI 15020 is mainly used for applications which require high flexibility and conformability. Therefore Nomex® Type 414 | FI 15020 is used as slot insulation in hand-wound motors for example.

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**Standard colour:** Nomex® Type 414 | FI 15020 is delivered in white colour.

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**Delivery Forms:** Nomex® Type 414 | FI 15020 is available as die-cut or formed parts, sheets, cuts, on rolls or as reel in thicknesses of 0.09 up to 0.38 mm and densities of 0.9 up to 1.0. Further dimensions and delivery forms are available on request.

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Property	Test method	Unit	Value				
			0.09	0.18	0.25	0.30	0.38
Thickness	-	mm	0.09	0.18	0.25	0.30	0.38
Dielectric strength	ASTM D149 IEC 243-1	kV/mm	24	30	29	30	30
Shock wave	ASTM D3426	kV/mm	43	51	51	51	47
Dielectric constant at 60 Hz	ASTM D150	-	1.7	2.5	2.7	2.8	2.9
Dielectric constant at 1 kHz	ASTM D150	-	1.7	2.5	2.7	2.8	2.9
Dissipation factor at 60 Hz (x10 <sup>-3</sup> )	ASTM D150	-	5	8	8	8	9
Tensile strength MD	ASTM D646	g/m <sup>2</sup>	83	176	252	309	398
Tensile strength CD	-	g/cc	0.88	0.94	0.95	0.95	0.98
Tensile strength MD	ASTM D828	N/cm	57	172	229	291	341
Tensile strength CD	ASTM D828	N/cm	29	79	119	145	182
Elongation MD	ASTM D828	%	7.4	13.1	13	14.1	12.8
Elongation CD	ASTM D828	%	9.78	15.9	16	16.9	16.5
Initial tear strength MD	ASTM D1004	N	22	55	73	91	110
Initial tear strength CD	ASTM D1004	N	11	24	38	45	60
Flexural strength MD	ASTMD2176	-	-	8600	7700	8200	9200

**Trademark information:** Nomex® is a registered trademark of the company DuPont.

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### Information:

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