

PROTECTIVE LINE

Norafin ®
materials for life

For your
SAFETY





Heat & Flame Protection

Norafin's nonwovens offer protective solutions for the most demanding requirements in personal protective equipment.

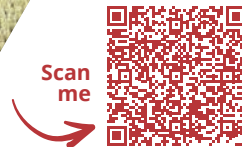
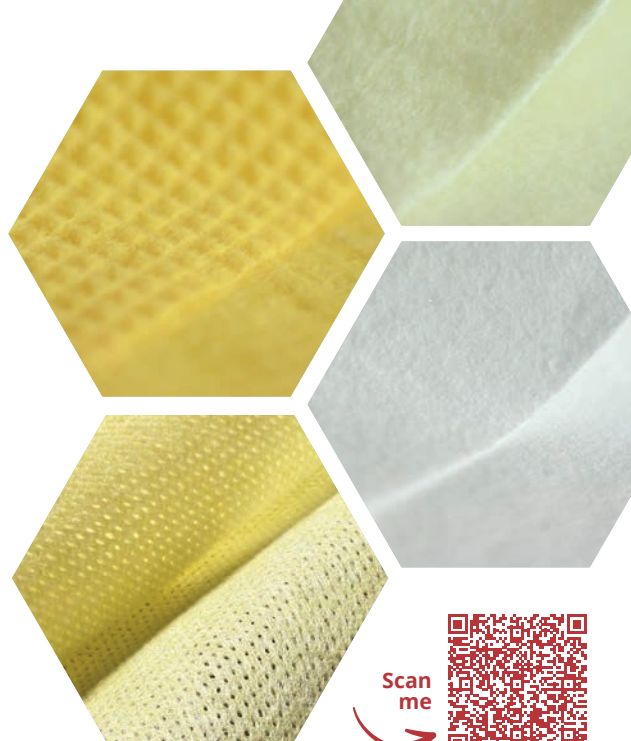
Our nonwovens are designed to be lightweight, durable, protection against heat and flame while providing improved end-user comfort.

- ✓ according to EN 469 respectively NFPA 1971
- ✓ comfort to enhance enduser performance
- ✓ inherently flame resistant
- ✓ improved thermal protective insulation against heat and flame
- ✓ durability

Enhanced safety for different fields of application!

Norafin's engineered materials offer enhanced safety to a wide range of industry professionals, help protect fire fighters and make dangerous workplaces less threatening.

PROPERTY	TEST METHOD	VALUES	UNITS
Weight	ISO9073-1	50 - 100	g/m ²
Thickness	ISO9073-2	0.7 - 1.03	mm
Tensile strength	ISO9073-3	MD 130-340 CD 80-230	N/5 cm
Shrinkage	DIN EN ISO 6330:2013	MD/CD ±5	%
	according ISO 17493 (180°C / 5 min.)	MD/CD <5	%
Flame resistance	DIN EN 15025	MD/CD <2	s
Charlength	DIN EN 15025	MD/CD <102	mm





Feel always safe and secure on your way

We are specialized in fireblockers that comply with current EU norms.

- ✓ fireblocking and flame retardant capabilities according to EN 45545-2, FAR 25-853 or Airbus ABD 0031 and more
- ✓ protection capabilities against vandalism according to NF F31 118 (anti laceration test method NF F 00 201)
- ✓ high fire resistance, low smoke toxicity and opacity
- ✓ lightweight, high durability

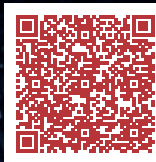
Norafin 
GUARDIAN

NEW PRODUCT

PROPERTY	TEST METHOD	S64-02712 Aramid / Preox blending	N52-01970 100% Aramid	N52-01897 100% Aramid	S63-00058 Preox / Kynol blending
Weight (g/m ²)	ISO 9073-1	140	250	150	175
Thickness (mm)	ISO 9073-2	1,65	4	2.7	1.5
Martindale (cycles)	ISO 12947-2 (12kPA)	60.000	250.000	150.000	4.000
Smoke toxicity	NF F 16101	conform/F1	F1	F1	-
Smoke density	ISO 5659-2	0,5	1,3	-	-
MAHRE ¹ (kW/m ²)	ISO 5660-1	-	19	19.4	22.2
MAHRE ² (kW/m ²)	ISO 5660-1	3,6	4,2	-	-
Airbus	AITM 2-0007 A AITM 3-0005	pass	pass	-	-

¹ tested with PU FR foam glued to FBL | ² single tested

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We provide safety and protection for your clothing

Norafin's high-performance nonwovens offer improved protection at lower basis weights enhancing the wearers comfort in protective applications.

- ✓ ballistic properties according to Standard STANAG 2920
- ✓ stab protection according to Standard HOSDB, VPAM, EN388 and more - protection against knives and spikes; cut and puncture resistance
- ✓ lightweight, durable, high performance material
- ✓ stab protection, slash-resistance
- ✓ high material strength, extreme density, and homogenous fabric surface



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PROPERTY	TEST METHOD	K50-01837 100% Dyneema® white	N50-00251 100% Dyneema® white	K50-01824 100% Dyneema® white	N51-00462 100% p-Aramid yellow	K51-01836 100% p-Aramid yellow	N51-00260 100% p-Aramid yellow
Weight (g/m ²)		100	200	200	170	170	240
Thickness (mm)	ISO 9073-2	0,75	1.65	1.02	2.1	1.3	2.6
MD Tensile strength (N/5cm)	ISO 9073-3	>530	>700	>1200	>140	>300	>210
CD Tensile strength (N/5cm)	ISO 9073-3	>750	>1850	>1400	>150	>450	>340
Cut resistance (Protection Level)	EN 388	3	4	4	3	3	min. 3
Tear resistance (Protection Level)	EN 388	4	4	4	3	4	min. 3
Puncture resistance (Protection Level)	EN 388	-	3	4	-	-	-

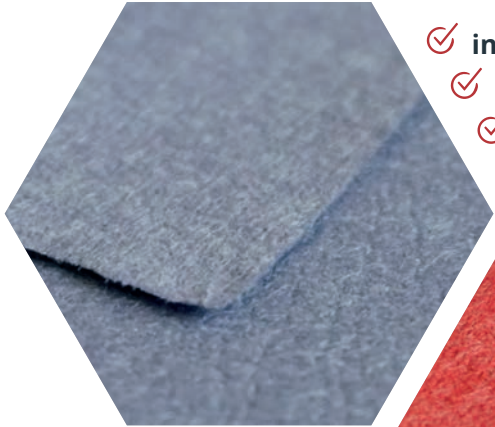


Norafin  [®]
KOMANDA

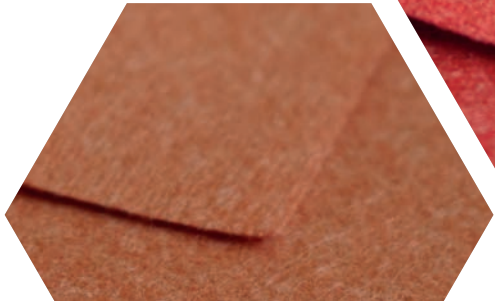
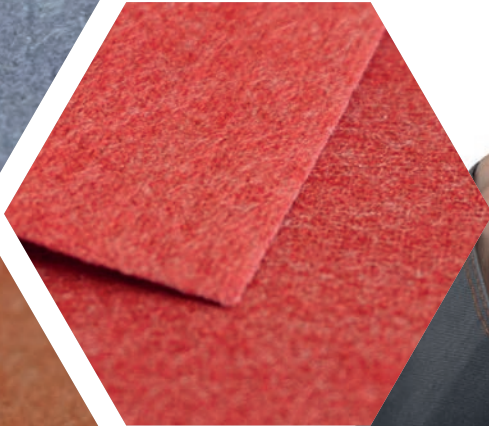
Norafin Nonwovens Optimized for Protection

Norafin KOMANDA[®] nonwovens are a range of high-performance fabrics that answer the market's needs for a lightweight, durable, and breathable material applied in thermal protective clothing and accessories.

- ✓ **Inherently flame resistant (Test to EN 11612, EN 11611, EN IEC 61482-1-2, to NFPA 2112)**
- ✓ **FR protection for multi-layer and single-layer solutions**
- ✓ **durability to repeated washing and field use**
- ✓ **lightweight and comfortable**



- ✓ industrial FR work wear
- ✓ arc flash protective clothing
- ✓ motorsports, fire departments
- ✓ industry



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Protection against the elements

Our specialty nonwovens offer reliable protection against weather conditions such as rain, splash water, or wind as well as wet working environments to industrial workers combined with a high protection against flames and arc flash.

- ✓ **windproof and water repellent, durable materials**
- ✓ **chemical resistance against acids, oils, alkalis etc.**
- ✓ **weldable**
- ✓ **high-visibility effect for excellent daytime visibility (according to EN ISO 20471 respectively ANSI/ISEA 107)**
- ✓ **flame retardant, protection against flash fire (according to EN ISO 14116 respectively ASTM F2733)**
- ✓ **protection against arc flash**
- ✓ **enhanced wearing comfort through lightweight materials**
- ✓ **good processing attributes for tailoring**

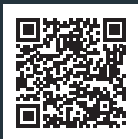
materials for life
Additional
solutions available



Your contact for protective nonwoven solutions.



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