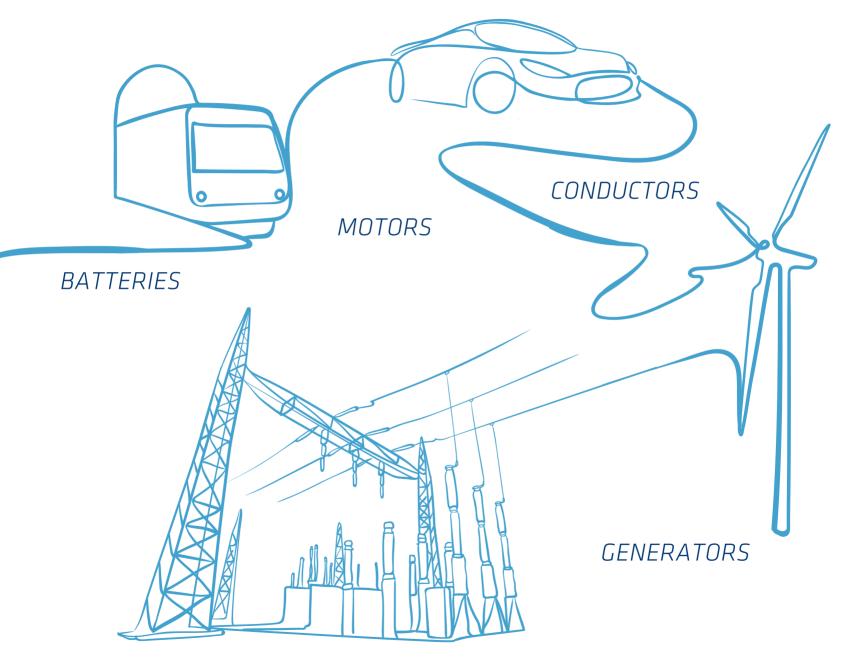




HIGH QUALITY INSULATION MATERIALS FOR:



TRANSFORMERS



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COVEME TODAY

OVER 60 YEARS OF KNOW-HOW IN ELECTRICAL INSULATION MATERIALS

PROPRIETARY MANUFACTUI

THREE R&D HUBS IN ITALY, G AND CHINA

¹³ 13 COATING, LAMINATION AN STABILIZATION LINES

30.000 TONS OF POLYESTER CONVERTED PER YEAR





IRING SITES IN	\checkmark	WORLDWIDE DISTRIBUTION AND SERVICE
GERMANY	\checkmark	QUALIFIED DUPONT [™] NOMEX [®] DISTRIBUTOR AND LAMINATOR
ND HEAT	\checkmark	AUTOMATED SLITTING DEPARTMENT FOR CUSTOMIZED CUTS
FILM		UNI EN ISO 9001, ISO 14001 AND ISO 45001 CERTIFICATIONS

Nomex® is a DuPont registered trademark

PRODUCTION & SLITTING

RESEARCH & DEVELOPMENT

Strong investments in production capacity and technology are the core of Coveme's strategy. The company has successfully developed sophisticated automated processes for polyester film conversion to meet the requirements of its fast-evolving target markets. Clients' specifications are defined individually and monitored throughout the whole production chain, including suppliers, logistics and service process.



Our laboratories have always been one of the most advanced and strong points of the company, where our technological and operative know how is at complete disposal of the clients' needs for the development of tailored products. Coveme's research in the field of electrical insulation focuses on products that guarantee our customers higher productivity, maximum reliability and the best cost efficiency.



Production plants **IN EUROPE AND ASIA** 3,3 MILLION LM/MONTH expandable in-house LAMINATION CAPACITY FULLY AUTOMATED slitting department **CUSTOMIZED** rolls, sheets and **PUNCHED** formats WIDTH RANGE 4mm - 2000mm, THICKNESS RANGE 12µm - 1400µm LAMINATION, SURFACE TREATMENT, HEAT STABILIZATION, COATING, SLITTING Strong academic and industrial **PARTNERSHIPS** 3 Proprietary **R&D LABS** in Italy , Germany and Cina Dedicated **INNOVATION TEAM STATE-OF-THE-ART** equipment **CUSTOMIZED RESEARCH PROJECTS** for clients

OUALITY

The quality of base materials and the reliability of our coated and laminated insulation products are vital for Coveme's clients who work themselves with sophisticated and demanding technologies. This is why Coveme has engaged with DuPont already back in the 1970's, and is today one of the very few companies worldwide to have both the official distribution and lamination certificate by DuPont. All our products have a proven traceability and are certified by major homologation bodies.



IATF certified for automotive industry **QUALIFIED** DuPont Nomex[®] distributor and laminator **UL** certified products and base materials **ECOVADIS** certified for the valuation of corporate sustainability performance **SEVERE QUALITY INSPECTION** and production control in each critical phase of the process

INNOVATIVE TECHNOLOGIES ensure limited pre-processing customer operations

CONSTANT INVESTMENT in new machinery - new technology - new process dedicated and highly skilled personnel



SUSTAINABILITY

Coveme is well aware of its responsibility in terms of environment and social wellbeing. This is reflected not only in what we produce but also how we produce, which means a lean and green production technology and strategic partnerships with our customers and suppliers.

SUSTAINABILITY STANDARD



ISO 14001: 2015 for environmental management

at work

SUSTAINABILITY MEASURES



Autothermal and regenerative processes in production

Recovery and reuse of packaging, encaps and core

FURTURE GOALS



Nomex[®] is a DuPont registered trademark









ISO 45001:2018 for health and safety

Compliance with Ecomate ESG rating



Compliance with Ecovadis Sustainability rating



- Packaging disposal instructions for clients
- Energy production and self-consumption through installed solar panels
- Differentiation and recycling of production and office waste





Beusable and recyclable exhibiton stands





SUSTAINABILITY REPORT

In 2023, Coveme published its first sustainability report

ELECTRICAL INSULATION DIVISION

Electrical insulation materials have been Coveme's very first commercial activity back in the 1960's when the company was founded in Italy. Then, in the early '70s Coveme became official distributor for DuPont Nomex[®] and Kapton[®].

The tight collaboration of the two companies led Coveme to invest and set up its own manufacturing site in Gorizia, Italy, producing technologically advanced laminates for the insulation of electrical machines (rotating and static) that require maximum performance in a small space and under high temperatures.

Coveme's range of products for flexible electrical insulation includes plain materials (polyester, Nomex[®], Kapton[®], Tedlar[®]), laminates (DyTerm[®] and DyFlex[®]) and pre-preg products (DyBond[®]). They are employed for the insulation in electric motors, alternators, generators, transformers (dry, cast resin or oil) and electronic circuits with final applications in wind turbines, automotive and railway, power stations, home appliances and industrial automation. Recently, Coveme has developed in collaboration with DuPont[™] an innovative range of slot liners tailored for the challenges posed by the latest generation of electric motors, such as those in 800V architecture. This new range of products responds to critical needs like the resistance to partial discharges, improved thermal conductivity, and automatic insertion processability

Today Coveme combines product development and innovation through new materials, coatings and resins with constant investments in its production lines and slitting department to meet specific customer requirements. With the opening in 2011 of a second production site in Zhangjiagang, China, today producing also for the electrical insulation market, Coveme offers maximum reliability, lean logistics and local service to the industry, appreciated by the major global players manufacturing in Europe and Asia.

DyFilm[®], DyTerm[®], DyFlex[®], DyBond[®] are Coveme registered trademarks Nomex[®] and Kapton[®] are DuPont registered trademarks

PRODUCT RANGE

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Product Range Divided by final application

APPLICATION	CATEGORY	COVEME PRODUCTS					
Motors	Automotive <800V	DyTerm® K	Nomex®	DyTerm®			
	Automotive >800V	DyBond [®] Blue	DyTerm [®] K Blue				
	Thermal Class B 130°	DyFilm®	DyFlex [®] unsaturated DM/DMD*	DyVolt®			
	Thermal Class F 155°	DyFlex® saturated DM/ DMD**	DyTerm [®] NM				
	Thermal Class H 180°	DyTerm® NMN					
	Thermal Class 200°	Nomex®	Kapton®	DyTerm® K	DyBond [®] Blue	DyTerm [®] K Blue	
Transformers	Thermal Class B 130°	DyFilm®	DyVolt®	DyFlex [®] unsaturated DM/DMD*	DyBond [®] PET/HBB/HCC		
	Thermal Class F 155°	DyFlex® saturated DM/ DMD**	DyTerm [®] NM	DyBond [®] DM/DMD*	DyBond® NM		
	Thermal Class H 180°	DyTerm [®] NMN	DyBond® NMN				
	Thermal Class 200°	DyTerm® K					
	Thermal Class 220°	Nomex®	Kapton®	DyBond® 410/356/818			
	High Frequency	DyBond® Blue	DyTerm® K Blue				
Batteries	VTM 0	DyBond® Nomex®	Nomex®				
	VTM 2	DyTerm [®] NM/NMN	DyTerm® K				
Conductors	Thermal Class B 130°	DyFilm®	DyFlex [®] unsaturated DM/DMD*	DyVolt®			
	Thermal Class F 155°	DyFlex® saturated DM/ DMD**	DyTerm [®] NM				
	Thermal Class H 180°	DyTerm [®] NMN					
	Thermal Class 200°	Nomex®	Kapton®	DyTerm® K	DyBond® Blue	DyTerm® K Blue	

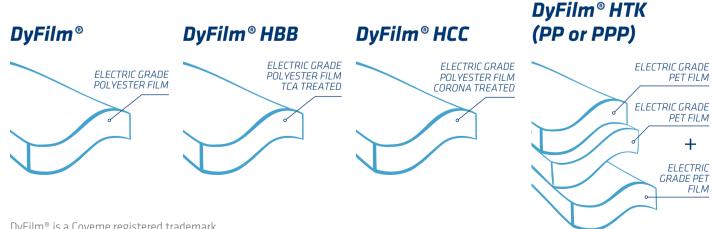
DyFilm[®] Electrical grade polyester film plain or treated on the surface

DyFilm[®] is a polyester film obtained by the condensation between ethylene-glycol and terephthalic acid (PET). Thanks to its excellent physical, chemical and dielectric properties, DyFilm[®] is particularly suitable for applications in the field of electrical insulation in machines up to class B (130°C). These films are used for in motors, transformers, capacitors and cables, and the manufacturing of tapes and laminates. It is available as hazy (medium transparency) or milky white film, featuring high slipperiness and tear strength.

DyFilm[®] HTK is a two or three layers PET-based laminate designed to achieve substantial final thicknesses, produced coupling multiple layers of high electrical grade PET films. It has been specifically engineered for the production of barrier cylinders between LV and HV windings of transformers.

DyFilm[®] HB-HBB is a polyester film of electric grade chemically treated on one side (HB) or two sides (HBB) with a special process giving the material a higher surface tension (over 58 dynes).

DyFilm[®] HCC is a polyester film of electric grade corona treated on two sides (HCC). These processes guarantee a perfect adhesion of resins and varnishes used in the industry of electric insulation.



DyFilm[®] is a Coveme registered trademark



DyVolt®

Polyester film and paper based flexible laminates

Coveme DyVolt[®] insulation products are created by coupling a polyester film with one or two layers of high quality electrical grade paper. Coveme DyVolt[®] laminates are made both with high and low density papers.

DyVolt[®] PD and PS are produced with high density paper in standard thicknesses. These laminates are particularly suitable when high mechanical performance is required. Dy-Volt[®] HD is produced with a special low thickness high density paper. DyVolt[®] PD, PD and HD laminates are optimal for electric insulation of motors, transformers, coils or other electrical equipment.

DyVolt[®] LS is produced with a low density kraft paper. It is particularly suitable for applications where a high permeability and saturability are required (as in impregnation with oils, resins and varnishes). It is optimal for wire wrapping and as interlay insulation in transformers.

DyVolt[®] is a Coveme registered trademark



UL Certified

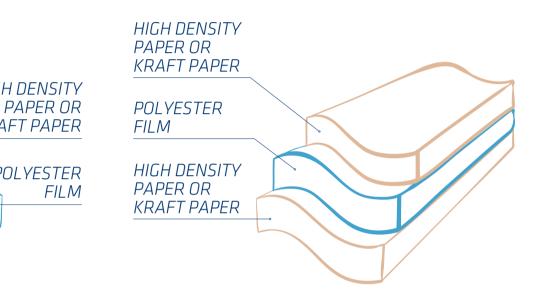
HIGH DENSITY PAPER OR KRAFT PAPER POLYESTER FILM





DyVolt® LS/PS

S/PS DyVolt® PD/HD



DyFlex[®] ISF (DM) DyFlex[®] SF (DM)

DyFlex[®]

non woven fleece and polyester *laminates (DM and DMD)*

Coveme DyFlex[®] insulation products are produced by coupling a polyester non-woven fleece with a polyester film (abbr. DM and DMD). The calendared non-woven polyester fleece employed sticks to the polyester film by appropriate adhesives.

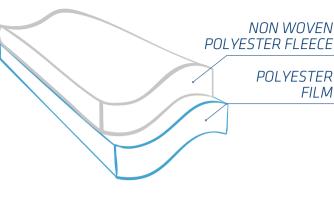
Coveme DyFlex[®] are available in unsaturated (in class B 130°C) and saturated versions (in class F 155°C). By saturating the non-woven polyester fleece (SF and SDF) the overall performances of the laminate are improved.

Coveme DyFlex[®] unsaturated laminates are available as two plies DM polyester fleece/ PET laminate (DyFlex[®] ISF) and three plies DMD version polyester fleece/PET/fleece (DvFlex[®] IDF). Saturated laminates are available as two plies DM polyester fleece/ pet laminate (DyFlex[®] SF) and three plies DMD version polyester fleece/pet/fleece (DyFlex[®] SDF).

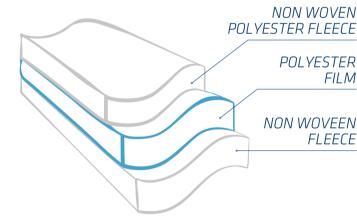
The unsaturated versions are natural white while the saturated versions are pink (other colours available upon request).

Coveme DyFlex[®] laminates DM and DMD are designed for the insulation of electric motors, transformers and electrical equipment of class B 130°C and F 155°C. In electrical motors or, in general, in rotating machines, these laminates are used in slot closure and insulation as well as to separate phases on the heads of the windings. In transformers and electrical static equipment DyFlex[®] is used as interlay insulator.

5...® UL Certified Thermal Classes B & F Widths 4-1830mm Thickness 50-900um









DyFlex[®] is a Coveme registered trademark

NON WOVEN POI YESTER FII M

SATURATED NON WOVEN POLYESTER FLEECE

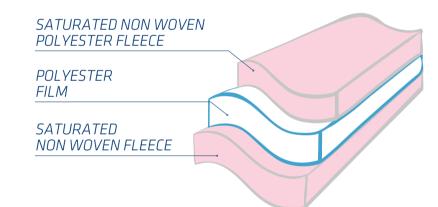
POLYESTER FILM

DyFlex® SDF (DMD)

NON WOVEN

POLYESTER FILM

NON WOVEEN FLEECE





DyTerm[®]

Nomex[®] with polyester film laminates (NM and NMN)

Coveme DyTerm[®] NM and NMN insulation products are created by coupling Nomex[®] aramid paper with polyester films as 2 or 3 plies (NM or NMN), offered in various thicknesses of Nomex[®] and polyester film.

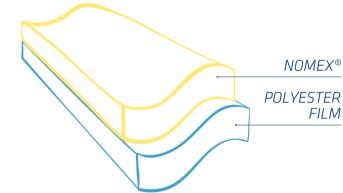
Nomex[®] layers stick firmly to the plastic films by appropriate adhesives. DyTerm[®] NM laminates (types N1S, N2S and N3S) and DyTerm[®] NMN (types N1D, N2D, N3D) are highly performing solution for the insulation of motors and other electric rotating machines, transformers and wrapped conductors with working temperatures up to class H 180°C.

The presence of films enhances the mechanical, physical and dielectric properties of the laminate. In rotating machines, DyTerm[®] NM and NMN are used as slot closure and insulation, as well as to separate phases on the heads of the windings. In transformers DyTerm[®] NM and NMN are used as interlayer insulating material.

DyTerm[®] is a Coveme registered trademark Nomex[®] is a DuPont registered trademark

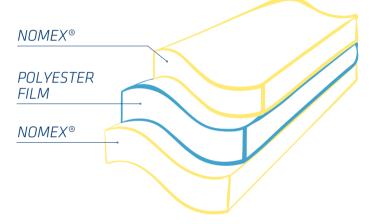
UL Certified Thermal Classes F & H Widths 4-1830mm Thickness 50-1400um

DyTerm[®] (NM) **N1S N2S N3S**





DyTerm[®] (NMN) **N1D N2D N3D**



DyTerm® K and DyTerm® K Blue

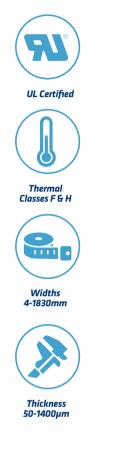
Nomex[®] (NK and NKN) and DyBond[®] Blue with Kapton[®] laminates

Coveme DyTerm[®] K insulating products are produced by the coupling of Nomex[®] aramid paper with Kapton[®] polyimide. Nomex[®] layers stick firmly to the Kapton[®] by appropriate adhesives. DyTerm[®] K laminates are a highly performing solution for the insulation of electric machines with working temperatures up to 200°C. The presence of films enhances the mechanical, physical and dielectic properties of the laminate. Coveme DyTerm[®] laminates are available as two plies Nomex[®] /Kapton[®] (NK) and three plies version Nomex[®] / Kapton[®] / Nomex[®] (NKN) laminate. For both versions different thicknesses of Nomex[®] and Kapton[®] are available.

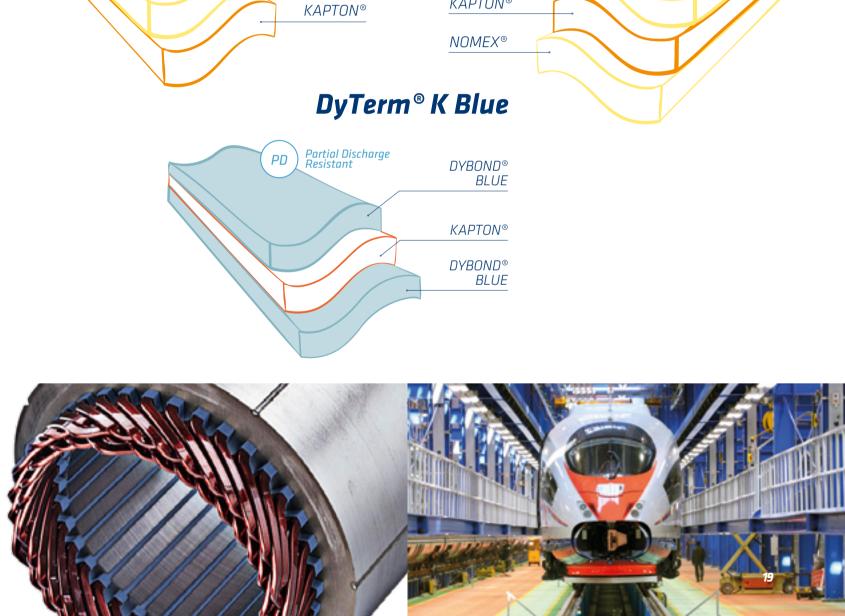
Coveme DyTerm[®] K Blue products are produced by the coupling of the innovative Dy-Bond[®] Blue with Kapton[®] polyimide, delivering Partial Discharges resistance properties to the DyTerm[®] family of products.

In rotating machines, DyTerm[®] K and DyTerm[®] K Blue are used in slot closure and insulation, as well as to separate phases on the heads of the windings. In transformers and electrical static equipments, they are used as interlayer insulating material.

DyTerm[®] is a Coverne registered trademark Nomex[®] is a DuPont registered trademark



DyTerm[®] NSK





DyBond®/ DyBond® Blue

Pre-preq laminates with B-stage/resin treated

Coveme DyBond[®] products are flexible insulating materials resin coated or treated. The final product depends on the substrate used and the resin treatment:

The final product depends on the substrate used for the resin coating:

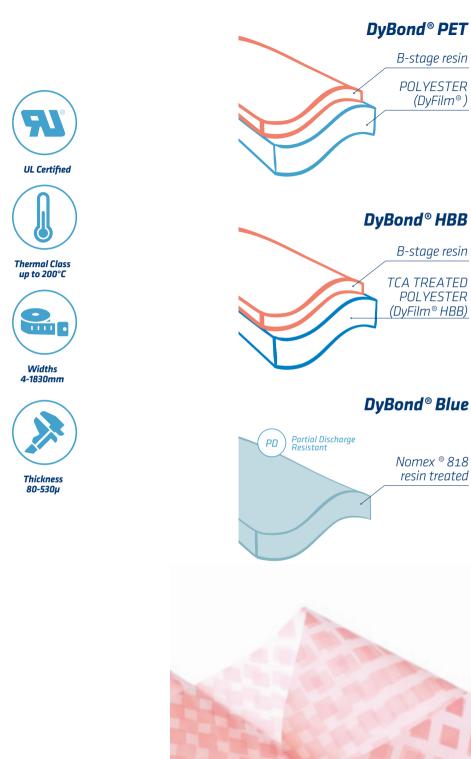
DyBond[®] PET: electric grade polyester film substrate (DyFilm[®]) with B-Stage coating DyBond[®] HBB: TCA surface treated polyester film substrate (DyFilm[®] HBB) with B-Stage coating DyBond[®] HCC: Corona treated polyester film substrate (DyFilm[®] HCC) with B-Stage coating DyBond[®] ISF/IDF: Fleece / Pet or Fleece / Pet / Fleece substrate (DyFlex[®]) with B-Stage coating DyBond® NM/NMN: Nomex® / Pet or Nomex® / Pet/ Nomex® substrate (DyTerm®) with B-Stage coating DyBond[®] 410/356/818: resin treated Nomex[®]

DvBond[®] Blue: resin treated mica-based Nomex[®]

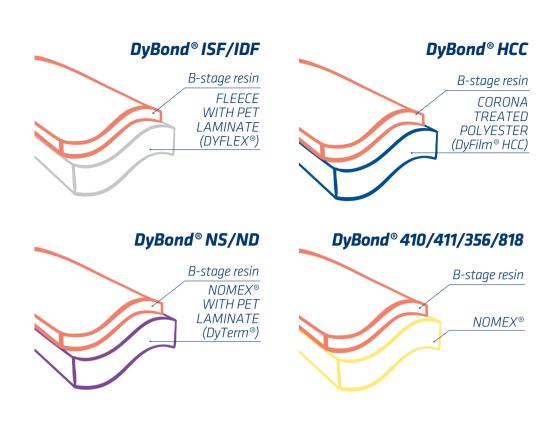
DyBond[®] B-Stage coatings are semi-polymerized resin coatings applied to the substrates, undergoing controlled heating to initiate polymerization. They come in various colors, grammages, on one or both sides, and on the full surface or with a diamond pattern. In the curing process of the equipment the resin melts filling any possible non-uniformity before fully solidifying. DyBond[®] B-Stage products are widely used as electrical insulation in transformers, generators, and motors, offering solutions for temperatures up to class H 180°C, depending on the substrate. Resin treated DyBond[®] Blue is an innovative material that improves the properties of the mica containing Nomex[®]. It can be used up to 200°C systems, delivering Partial

Discharges resistance properties. It is an ideal solution for slot insulation, slot closure and end-winding phase separator in electrical rotating machines.





(DvFilm[®])





Nomex[®] Aramid paper

Nomex[®] aramid paper is mainly employed as dielectric insulator for high temperature systems. It provides lightweight, durable, heat and flame-resistant performance for many applications and industries

Aging diagrams show that an insulation system based on Nomex[®] paper has a lifetime over 20.000 hours at 220°C. Apart from heightening the average lifetime of electrical appliances Nomex[®] reduces considerably the number and probability of damages and protects the machine in case of electrical overload and temperature peaks. Its superior mechanical toughness enables windings to withstand the most severe mechanical shocks. The resistance to cryogenic temperatures, humidity, radiation and fire and its non-toxic fumes complete the list of Nomex[®]'s unique characteristics. These improve the integrity and performance of everything from transformers and generators to wind turbine systems and hybrid electric vehicles.

Nomex[®] is classified as insulator class C 220°C by Underwriters Laboratories (file E34739) and all major certifying bodies worldwide.

Nomex[®] 410: is the original form and it is made up of a calendered paper available in different thicknesses.

Nomex[®] 411: is an uncalendered paper, so with lower electrical and machanical properties when compared to 410, but with a slight permeability to resins and varnishes.

Nomex[®] 414: is similar to 410, but is calendered under different conditions which produce a strong, more flexible and conformable sheet.

Nomex[®] 818: also called Nomex Mica is produced by adding 50% mica platelets to the floc and fibrids. 818 is a calendered product with high inherent dielectric strength and can also be impregnated with varnishes if required.

Nomex[®] 992: is a low-density pressboard produced in 2 thicknesses (1.6 and 3.2 mm).

Nomex[®] 993: is a medium-density pressboard produced in 6 thicknesses (1.0 to 4.0 mm).

Nomex[®] 994: is a high density pressboard available in 12 thicknesses (1.0 to 9.6 mm).

Nomex[®] 356: is a low-density type available in thicknesses from 0.13 to 0.51 mm. Nomex[®] is a DuPont registered trademark





Widths 6-1828mm



Thickness 50-9600um

Kapton[®] Polyimide based film

Kapton[®] polyimide film is synthesized by polymerizing an aromatic dianhydride and an aromatic diamine. This material offers outstanding longevitiv and is hightly resistant to an extremely wide temperature range (-269°C to 400°C). Together Besides these excellent physical, chemical and electrical properties Kapton[®] polyimide film provides important weight and space savings and is suitable for variety of electrical and electronic insulation applications such as formed coil insulation, motor slot liners, magnet wire insulation, transformers and capacitors.

Kapton[®] is available in different versions according to the application.

The base type is Kapton[®] HN. It is mainly used for the insulation of electrical motors in class H and super H, in the production of adhesive tapes for dielectric uses and when resistance to extreme temperatures is required .

Kapton[®] FN is the HN type coated on one or both sides with Teflon[®] FEP, that enhances chemical resistance and imparts heat sealability. It is used for the covering of copper wires and cables in high temperature applications.

Kapton[®] CRC (available also with a coating in Teflon: FCR) is a corona resistant film developed to withstand the damaging effect of corona.

Kapton[®] MT features a thermal conductivity that is 3x of Kapton HN, making it ideal for use in controlling and managing heat.

Kapton MT+ features a thermal conductivity 2x of Kapton[®] MT while also retaining superior electrical properties, making it the best in range for heat management.

Kapton[®] FPC, in its different versions, is suitable for the production of flexible circuits.



CERTIFICATIONS AND RATING

Coveme is certified ISO 9001: 2015 for quality management standards, ISO 14001: 2015 for environmental management and ISO 45001:2018 for occupational health and safety.





Coveme insulating materials are UL Underwriters Laboratories certified and recognized by all major certification bodies worldwide



Coveme is also IATF (International Automotive Task Force) certified for suppliers to the automotive industry

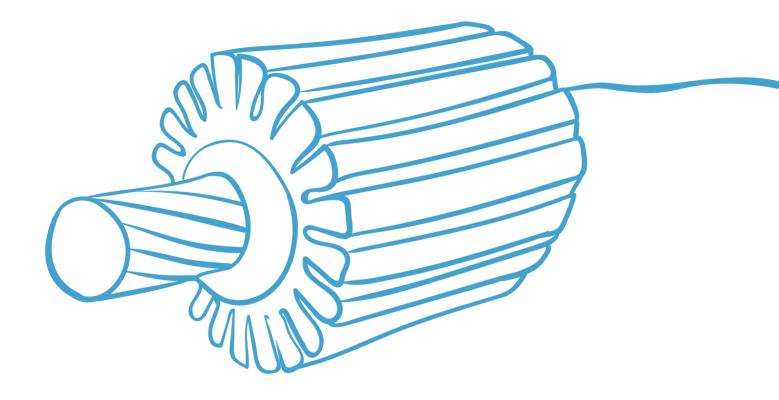


Coveme complies with the Ecovadis rating which evaluates the sustainability performance of company



Coveme complies with the Ecomate rating which evaluates the environmental, social and governance (ESG) performance of the company











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