COVEME ELECTRICAL INSULATION







THE VALUE OF INNOVATION

HIGH QUALITY INSULATION MATERIALS FOR:



TRANSFORMERS



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OVER 60 YEARS OF KNOW-HOW IN ELECTRICAL INSULATION MATERIALS



2 PROPRIETARY MANUFACTURING SITES in Italy and China



3,3 MILLION LM/MONTH EXPANDABLE IN-HOUSE LAMINATION CAPACITY

of which 1.8 M in Coverne Italy and 1.5 M in Coveme China



THREE R&D HUBS in Italy, Germany and China.



QUALIFIED DUPONT NOMEX® distributor and laminator



COVEME IS UNI EN ISO 9001. ISO 14001 and ISO 45001 CERTIFIED

Nomex® is a DuPont registered trademark



PRODUCTION & SLITTING

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.



Production plants IN EUROPE AND ASIA
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

RESEARCH & DEVELOPMENT

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.



Strong academic and industrial PARTNERSHIPS
Proprietary RGD LABS in Europe and Asia.
Dedicated INNOVATION TEAM
STATE-OF-THE-ART equipment
CUSTOMIZED RESEARCH PROJECTS for clients

QUALITY

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

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. The company continuously optimizes its emission treatments, waste disposal and energy resources and actively pushes forward sustainability.



ENERGY PRODUCTION FOR SELF-CONSUMPTION through installed solar panels.

TREATMENT AND CONVERTING of harmful fumes into clean emissions.

TREATMENT AND CLEANSING of water coming production processes.

POST-COMBUSTION SYSTEM as part of autothermal process for reduced gas consumption.

REGENERATIVE THERMO OXIDIZER for thermal energy recovery of gases and solvents.

of solvents to be reused in production.

DIFFERENTIATION FOR RECYCLING of production and office waste.



COLLECTION, TAKE BACK AND REUSE of packaging, pallets, cores and end caps.

STUDY OF CLOSED LOOP RECYCLING SCHEME through product design and recyling innovations.

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. A special attention is paid by the company to the renewable energy and e-mobility sector by developing high performance materials that help save energy and reduce the size of electric machines.

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

DyFilm® Polyester Film ELECTRIC GRADE POLYESTER FILM	10
DyFilm® HB HBB Treated Polyester Film ELECTRIC GRADE POLYESTER FILM TREATED ON THE SURFACE	11
DyFlex® DM and DMD FLEXIBLE INSULATION LAMINATES FLEECE WITH PET (DM AND DMD)	12
DyTerm® NM and NMN FLEXIBLE INSULATION LAMINATES NOMEX® WITH PET (NM AND NMN)	16
DyTerm® K NK and NKN FLEXIBLE INSULATION LAMINATES NOMEX® WITH KAPTON® (NK AND NKN)	16
DyBond® Pre-pregs FLEXIBLE INSULATION PRE-PREGS WITH B-STAGE RESIN	22
Nomex® Aramid paper ARAMID PAPER	26
Kapton[®] Polyimide film POLYIMIDE BASED FILM	27

DyFilm[®] Electrical grade polyester film

DyFilm[®] is a polyester film obtained by the condensation between ethylene-glycol and terephtalic acid. Thanks to its excellent physical, chemical and electrical properties, Dy-Film[®] is universally accepted and requested in all markets, industries and applications where a polyester film is required. DyFilm[®] is a film with excellent dielectric properties which make it particularly suitable for applications in the field of electrical insulation in machines up to class B (130°C). It is available as hazy (medium transparency) or milky white film, featuring high slipperiness and tear strength.

DyFilm[®] is a Coveme registered trademark





Thickness 12-350µm



DyFilm® HB - HBB Electrical grade polyster film treated on the surface

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). This guarantees a perfect adhesion of resins and varnishes used in the industry of electric insulation. These films are suitable for the insulation of electric motors, transformers, capacitors and cables, and the manufacturing of tapes and laminates.

DyFilm[®] is a Coveme registered trademark











non woven fleece and polyester laminates (DM and DMD)

Coveme DyFlex[®] insulating products derive from the coupling of a polyester non woven fleece with a polyester plastic film (DM and DMD). The non woven polyester fleece employed is made out of short fibers strongly calendered to the polyester film by appropriate adhesives.

Coveme DyFlex[®] laminates are available as two plies polyester fleece/pet DM laminate (DyFlex[®] ISF and SF) and three plies DMD version polyester fleece/pet/fleece (DyFlex[®] IDF and SDF). Further improvements in the overall performance of the laminate are achieved by saturating the non woven polyester fleece (SF and SDF).

The unsaturated versions are natural white, the saturated ones 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 or 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.







Widths 4-1830mm

DyFlex[®] is a Coveme registered trademark

DyFlex® ISF (DM)

NON WOVEN POLYESTER FLEECE

FILM

DyFlex[®] SF (DM)

SATURATED NON WOVEN POLYESTER FLEECE

POI YESTER FILM

POLYESTER

DyFlex[®] IDF (DMD)

NON WOVEN POLYESTER FLEECE POLYESTER FILM NON WOVEEN FLEECE

DyFlex® SDF (DMD)

Samples:

DyFlex[®] ISF 125

fleece/pet laminate 180 µm

DyFlex[®] IDF 125

fleece/pet/fleece laminate 230 µm

DyFlex[®] SF 125

fleece/pet laminate, saturated 180 µm

DyFlex[®] SDF 50

fleece/pet/fleece laminate, saturated 160 μm

DyFlex[®] is a Coveme registered trademark

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

Coveme DyTerm[®] insulating products are produced by the coupling of Nomex[®] aramid paper with polyester films (NM and NMN). Nomex[®] layers stick firmly to the plastic films by appropriate adhesives. DyTerm[®] laminates area highly performing solution for the insulation of electric motors, transformers and electrical machines with working temperatures up to class F 155°C (Dyterm[®] NM types N1S, N2S and N3S) and class H 180°C (DyTerm[®] NMN types N1D, N2D, N3D).

The presence of films enhances the mechanical, physical and dielectrical properties of the laminate. In rotating machines, DyTerm[®] is used in slot closure and insulation, as well as to separate phases on the heads of the windings. In transformers DyTerm[®] is used as interlayer insulating material. Coveme DyTerm[®] laminates are available as two plies Nomex[®]/pet laminate (NM) and three plies version Nomex[®]/pet/Nomex[®] laminate (NMN). For both versions different thicknesses of Nomex[®] and polyester film are available.

UL Certified

Widths 4-1830mm

Thickness 50-1400µm

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

DyTerm® (NM) N1S N2S N3S

DyTerm[®] (NMN) N1D N2D N3D

DyTerm® K Nomex® with Kapton® laminates (NK and NKN)

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

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.

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

DyTerm[®] NSK (NK)

DyTerm[®] NDK (NKN)

Samples:

DyTerm® N1S

Nomex®/pet laminate 240 µm

DyTerm® N2S

Nomex®/pet laminate 180 µm

DyTerm® N3S

Nomex®/pet laminate 280 µm

DyTerm® N1D

Nomex®/pet/ Nomex® laminate 220 µm **DyTerm® N2D** Nomex®/pet/ Nomex® laminate 150 µm

DyTerm® N3D Nomex®/pet/ Nomex® laminate 300 µ

DyTerm[®] N2D

Nomex[®]/pet/ Nomex[®] laminate 240 µm (with Nomex[®] type 864)

DyTerm® N5DK Nomex®/Kapton®/ Nomex® laminate 300 µm

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

Pre-preg laminates with B-stage resin

Coveme DyBond[®] products are flexible insulating materials with a B-Stage (semi polymerized) resin. During our coating process the resin is first applied onto the substrate then, by controlled heating, the polymerization is started bringing the resin to the so called B-Stage, where free to the touch, reasonably stable but not fully polymerized. The final product depends on the substrate used for the resin coating.

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

DyBond® PET: electric grade polyester film substrate (DyFilm®) DyBond® HBB: TCA surface treated polyester film substrate (DyFilm® HBB) DyBond® HCC: Corona treated polyester film substrate (DyFilm® HCC) DyBond® ISF/IDF: polyester fleece / Pet / polyester fleece substrate (DyFlex®) DyBond® NS/ND: Nomex® / Pet / Nomex® (DyTerm®) DyBond® 410/356/818: Nomex® substrate

The resin can be of various colours, applied in various grammages, on one or both sides, and on the full surface or with a diamond pattern.

DyBond[®] B-Stage pre-pregs can be used by the manufacturer as any conventional insulating material. After the manufacturing operations the final equipment is exposed to heat. The resin will initially melt, creating a uniform distribution and filling any possible non uniformity, before polymerizing to its final solid stage cementing the DyBond[®] products to the conductors to be insulated. DyBond[®] is used as electrical insulator in mainly in electrical transformers (dry, oil filled, or SF6 gas), generators and electrical motors. Depending on the substrate used DyBond[®] is suitable for working temperatures up to class H 180°C.

UL Certified UL Certified UL Certified Thermal Classes up to H Widths 4-1830mm

DyBond® PET

DyBond® HBB

B-stage resin

POLYESTER

B-stage resin

TCA TREATED

POLYESTER

DyBond® ISF/IDF

B-stage resin

FLEECE WITH PET LAMINATE

DyBond® NS/ND

B-stage resin

NOMEX® WITH PET LAMINATE

DyBond[®] 410/406/418

B-stage resin

NOMEX®

DyBond® HCC

B-stage resin CORONA TREATED POLYESTER

Samples:

DyBond®

(substrate: Nomex[®] aramid paper) 180 μm

DyBond®

(substrate: DyTerm[®] Nomex[®]-Pet-Nomex[®]) 140 μm

DyBond®

(substrate: DyFlex[®] Fleece-Pet-Fleece) 180 μm

DyBond®

(substrate: DyFilm[®] HBB - TCA treated Pet) 50 µm

DyBond®

(substrate: DyFilm[®] HCC - corona treated Pet) 50 μm

DyBond® is a Coveme registered trademark Nomex® is a DuPont registered trademark

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

Thermal Class C

Widths 6-1828mm

Thickness 50-9600µm

Kapton[®] Polyimide based film

Kapton[®] polyimide film is synthesized by polymerizing an aromatic dianhydride and an aromatic diamine. This material offers outstanding longevitiy 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[®] CR (available also with a coating in Teflon[®]: FCR) was developed to withstand the damaging effects of corona.

Kapton[®] MT is appropriate for all applications where an high thermal conductivity is required.

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

Kapton® is a DuPont registered trademark

CERTIFICATIONS

DyFlex[®], DyTerm[®] and DyBond[®] are UL approved (file n° E209645) Nomex[®] and Kapton[®] are UL Repackage Recognized Components (file n° E351391)

IATF certified for a utomotive industry

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 Italy Certificates

COVEME EUROPE

Italy Coveme S.p.A.

Headquarters:

Via Emilia, 288 40068 - S. Lazzaro di Savena (BO) - Italy ph. +39 051 6226111

Production Plant and Registered Offices:

Via Gregorcic, 16 34170 - Z.I. S. Andrea - Gorizia - Italy ph.+39 0481 579911

COVEME ASIA

China

Coveme Engineered Films Zhangjiagang Co. Ltd

Production Plant & Office: No. 4, Yuefeng road, Zhangjiagang, Jiangsu Province, China P.C. 215600 ph. +86 512 82559911