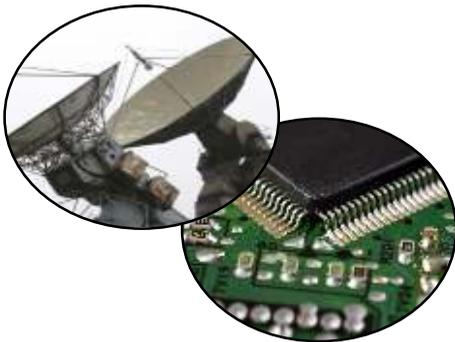


Parylene Coatings



LED Technology

Aviation & Aerospace



Military & Defense

Medical Products



Parylene Types

All Parylene coatings are created using a monomer deposition process in a vacuum chamber. The monomer condenses and polymerises on the surface forming a conformal and uniform coating which follows the surface topology.

	Parylene N	Parylene C	Parylene D	Parylene F
Density (g/cm³)	1.11	1.29	1.42	1.32
Friction Coefficient Static/ Dynamic	0.25 / 0.25	0.29 / 0.29	0.33 / 0.31	0.14 / 0.13
Absorption of Water%/day	0.01	0.06	Less than 0.1	Less than 0.009
Moisture transmission rel. to Silicone	0.25	0.06	0.04	–
Dielectric V/μm	280	230	220	212
Thermal Properties Perm. / Short Time °C	90 / 120	125 / 200	160 / 300	350/450
Hardness Rockwell	R85	R80	R80	R122
Refractive Index	1.661	1.639	1.669	1.559
Specials	--	--	--	High UV-Stability
Processing Temperature	Room temperature			

Parylene is an optically transparent polymer that is applied as a monomer in its gaseous phase in a vacuum at room temperature and is completely pore free. With this procedure tricky surfaces and structures e.g. sharp edges, undercuts and small gaps can be coated evenly.

In one process operation thicknesses from 1μm to 50μm can be applied.



Advantages

- Corrosion resistant
- Optically transparent
- Completely conformal coating process
- Excellent thermal stability up to 450 °C
- Withstands humidity and dust and protects sensitive electronics from rough environmental conditions

Parylene N

This is an outstanding coating for silicone and other elastomers. Most commonly it is used to coat printed circuit boards. This is the lowest cost coating which meets most application requirements.

This grade of Parylene has a very low dielectric strength making it suitable for electronic devices. It also has excellent penetration into small spaces and gaps.



Parylene C

Our standard and most widely used Parylene coating. This is one of the most robust variants, which is also used to coat rare earth Magnets.

It protects against moisture and gas penetration. The additional chlorine molecule on each monomer adds hydrophobic properties. It is used in many applications including Medical & Automotive.

Parylene D

A high thermal stability coating for demanding applications which is extremely hydrophobic.

Often used in PCB applications for Automotive, Electronics, Aerospace and Defence applications.



Parylene F

High thermal stability and over 2500 hours UV-Stability make this coating compulsory for sensitive electronics and any outside application such as LED Streetlights. Moreover, this coating is extremely hydrophobic.

Often used in PCB applications for Automotive, LEDs, Aerospace and Defence applications.

Applications

Medical instruments and implants benefit from a fully biocompatible coating which makes it possible to produce health enhancing products. They can be used to insulate electrical components, add lubricity and improve biocompatibility.



Typically used: Parylene N or C

- Conforms USP Class IV
- US FDA approved / biocompatible
- Resistant to strong acids and alkalis
- Greater abrasion resistance and dry lubricity than PTFE.

Aviation and Aerospace applications are extremely demanding. Heat and cold combined with low and high pressures during takeoff and landing are challenging to electronics and flight control systems. Parylene coatings serve as an enduring protection.



Typically used: Parylene F

- MIL-I-46058C and IPC-CC-830 for aerospace and military electronics applications
- Excellent dielectric and chemical barrier

LED Lighting is the future of lighting. The high expectations are often compromised due to the need to protect delicate electronics. Parylene can help extend the life of LED lights.



Typically used: Parylene F

- Excellent dielectric qualities
- High UV stability

Military hardware must not be allowed to fail at a critical moment. A Parylene coating can help to harden the military hardware against environmental effects.



Typically used: Parylene D or F

- Parylene conforms to MIL-I-46058C and IPC-CC-830 for aerospace and military electronics applications