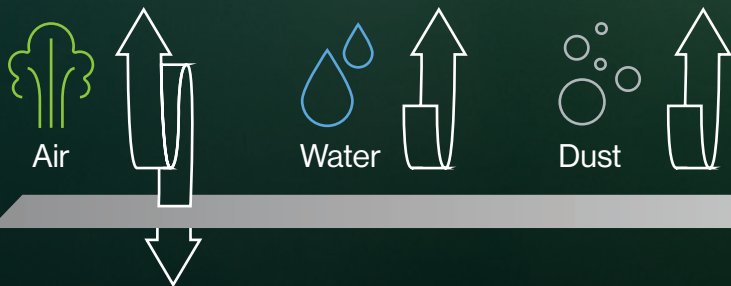




# TEKPORE® Porous sPTFE



**GUARNIFLON®**



# TEKPORE® Porous sPTFE Catalogue

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**Canada**  
Industrial Plastic Inc.

**United States of America**  
Industrial Plastic & Machine Inc.

**United Kingdom**  
Guarniflon Ltd.  
VAC Innovation Ltd.

**Germany**  
Guarniflon GmbH

**France**  
Guarniflon S.A.

**Romania**  
Maceplast Romania S.A.

**Spain**  
Guarniflon S.L.

**Italian  
Headquarter**

Mazza Holding  
Guarniflon® S.p.A  
Flontech® Division  
PATI Division  
Composites Division  
Nextflon s.r.l.  
Kit Solutions s.r.l.  
Ghirlandi Srl  
MPF Srl  
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Maplus® Division  
ASC Italia S.r.l.  
Mazza RE S.p.A.  
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**China**  
Zhejiang Green Guarniflon  
Film Technology CO.Ltd.

**India**  
Guarniflon India PVT. Ltd.

# Global Presence, Local Expertise

Founded in 1982, **Guarniflon®** began its journey in the Italian market before expanding internationally. Over the years, Guarniflon® has built a robust network comprising:

- 6 companies across Europe;
- 4 overseas operations in India, USA, Canada, and China;
- 11 companies based in Italy;
- 3 divisions operating nationally.

This strategic structure fosters synergy across borders and enables constant market monitoring. Real-time data collection supports agile decision-making in the transformation of fluoropolymers, **Guarniflon®**'s core area of expertise.

Thanks to its responsiveness and forward-thinking approach, **Guarniflon®**'s global network offers one of the most effective gateways to accessing new market segments.

In 2015, **Guarniflon®** became part of Mazza Holding S.p.A., marking a major milestone in the company's path toward consolidation and worldwide expansion.

**7000 Tons/Year**  
PTFE Materials Processed

**500**  
People Involved

**3300**  
Regular Customers

**73**  
Supplied Countries

# TEKPORE® Porous sPTFE

## Technology and Performance by Guarniflon

Guarniflon®'s porous sPTFE represents the evolution of fluoropolymer materials, specifically designed for applications requiring high chemical resistance combined with controlled permeability. Thanks to an exclusive manufacturing process, the material features a uniform and stable microstructure, ensuring consistent and reliable properties over time.

Lightweight, inert, and resistant to atmospheric agents, porous sPTFE is ideal for filter membranes, venting elements, fluid diffusion supports, and insulating components, even in demanding environments.

Guarniflon®'s experience and know-how ensure quality, customization, and technical support for every application need.

## A Unique Integrated Processing Chain

Thanks to the raw material compounding unit Flontech, Guarniflon® is able to control and internally process all kinds of raw material PTFE compounds, studied and developed with the R&D department.

### Guarniflon® R&D

Research  
→ Materials engineering

### Flontech

Fluoropolymer raw materials compounder  
→ Materials compounding

### Guarniflon®

PTFE semifinished and machined products  
→ Materials processing



## TEKPORE® Properties

TEKPORE® Porous sPTFE grades are produced from suspension PTFE powders and specifically they are a mixture of different particle size distributions and hardness degrees to achieve the desired level of porosity. Taking advantage of the up-to-date technologies and know-how used to process sintered PTFE products, Guarniflon® has developed different grades of porous sPTFE with different properties.

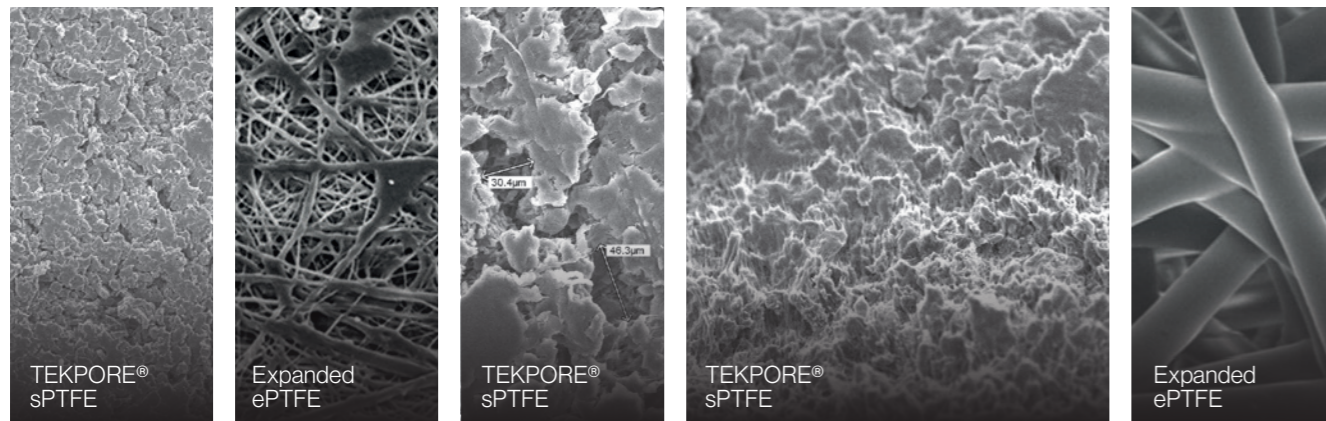
### Main Properties

- **Air flow rate** Up to 170 l/hr/cm<sup>2</sup> at 70 mBar
- **Water intrusion pressure (WIP)** Up to 30 mBar
- **Pore size diameter** Up to 50 µm
- **Density** 1.4 – 2.0 g/cm<sup>3</sup>
- **Melting point** 330 °C
- **Thermal stability range** –270 °C to +260 °C
- **Useful mechanical strength** At low and high temp.
- **Insolubility**
- **Exceptional chemical inertness**
- **Coefficient of friction** Extremely low
- **Dielectric constant / dissipation factor** 2.1
- **Hydrophobicity and oleophobicity**
- **Weatherability and UV stability** LOI > 95 %
- **Flame resistance** UL 94 V-0 classification
- **Purity, color** White – Refractive index 1.38

### Driving Forces

- Physiological safety
- FDA 21 CFR 177.1550 and EU 10/2011 compliance
- Steam and ETO sterilization compatibility
- PFOA-free composition
- Excellent machinability
- Miniaturization suitability
- Low maintenance and high reliability
- Extended service life
- IP67 protection rating
- Thermal and ultrasonic weldability

### Comparisons SEM Pictures



High Macro High Macro Low Macro TEKPORE® Section Low Macro

### sPTFE vs ePTFE

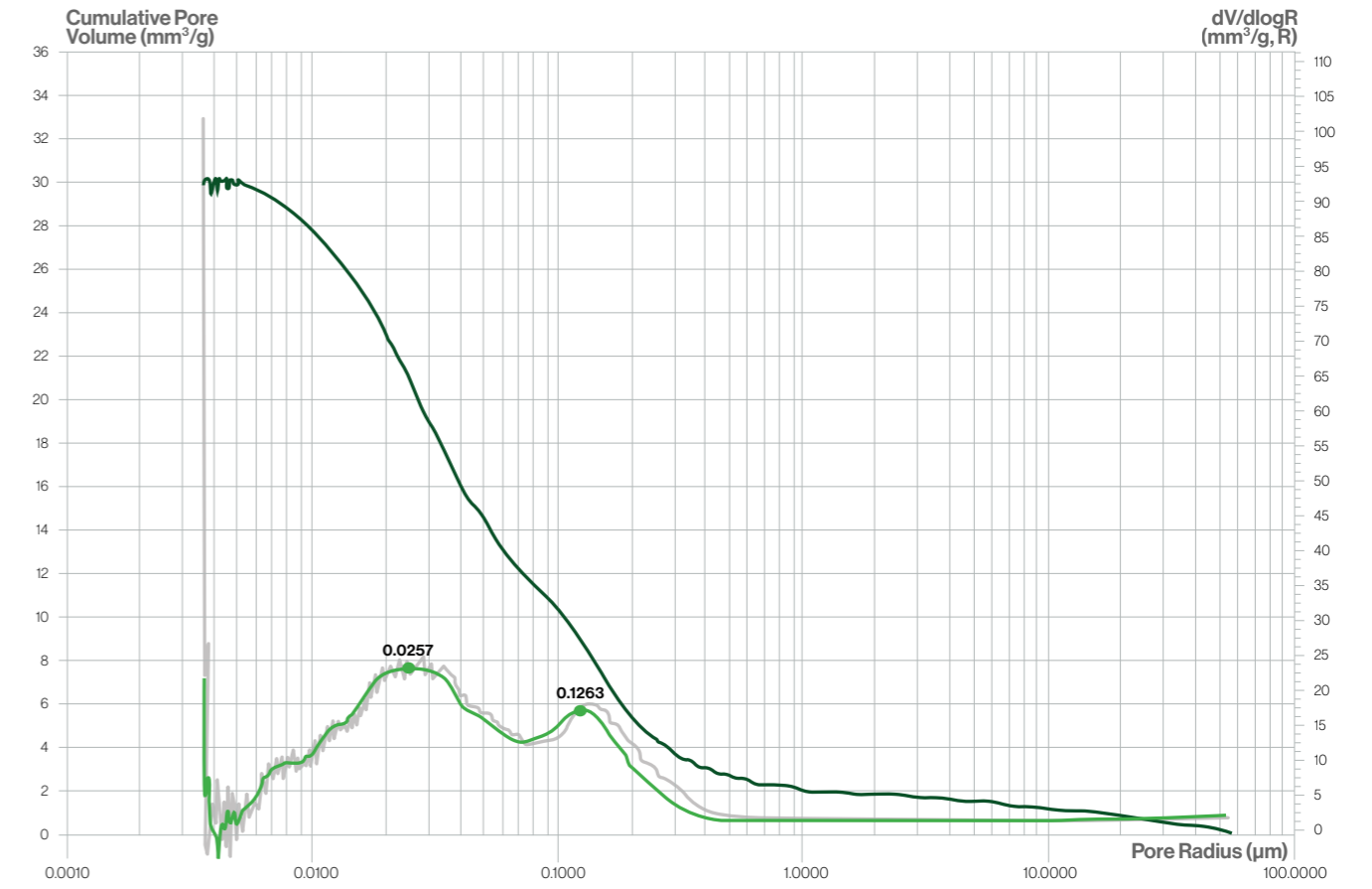
• = YES • = NO ID = Insufficient Data NA = Not Available

Features	TEKPORE® sPTFE	Expanded ePTFE	Benefits	TEKPORE® sPTFE	Expanded ePTFE
Naturally hydrophobic (IP rated)	•	•	Low flex fatigue	•	•
Sintered porous structure	•	ID	Omni-directional	•	•
High temperature (>250°C)	•	•	Heat welding	•	•
High tensile strength in all directions	•	•	Vibrational welding	•	•
Precise porosity and thickness control	•	NA	Can apply physical pressure to membrane	•	ID
High UV and outdoor weather resistance (UL746C)	•	•	Can plate metallic or other secondary layers	•	ID
Meets UL 94 flammability (VO)	•	ID	Low sound blocking	ID	•
High open area (>80%)	•	•	Mounting inside or outside of enclosure	•	•
Sec. oleophobic treatment meets AATCC grade 8	•	NA			
Water naturally runs off surface	•	ID			



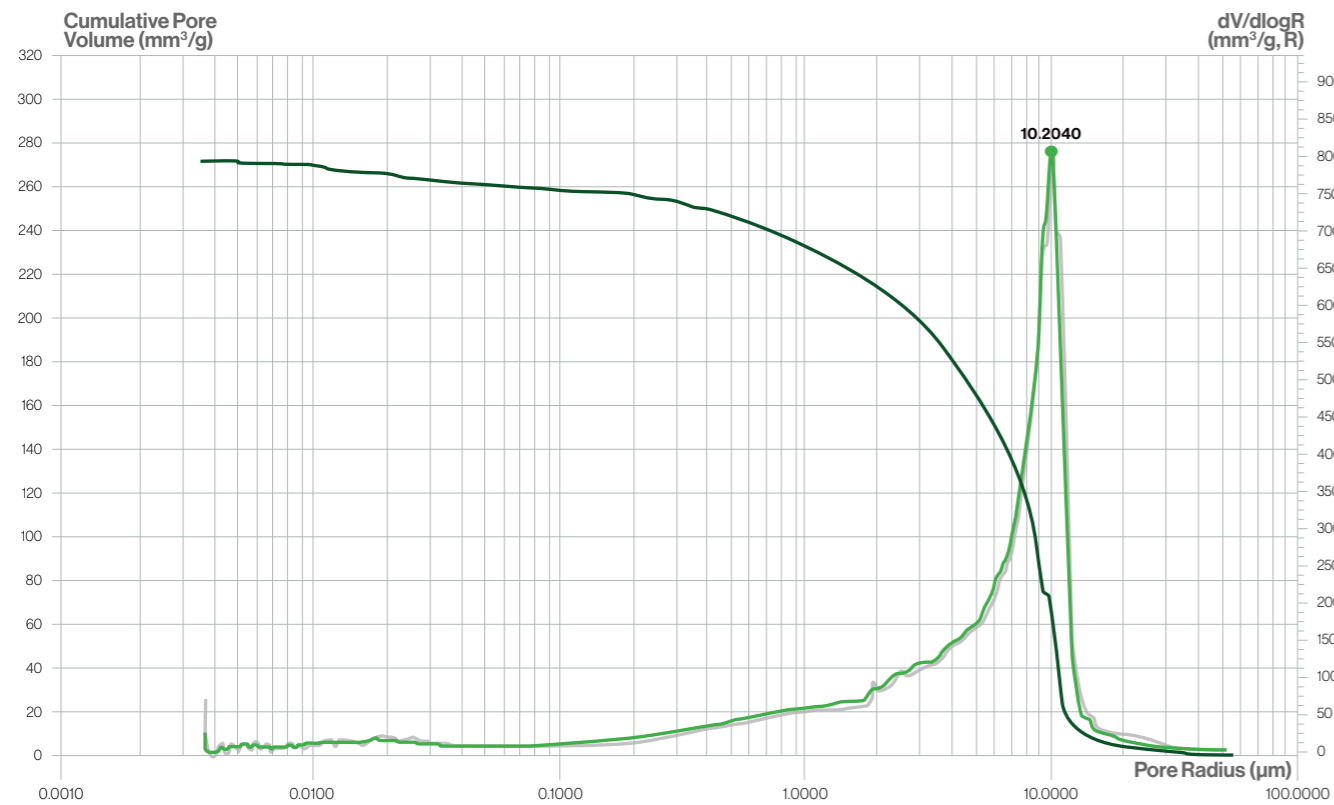
## Pore Size Distribution

$dV/d\log R$  ( $\text{mm}^3/\text{g}, R$ ) – FLON 8806



## Pore Size Distribution

$dV/d\log R$  ( $\text{mm}^3/\text{g}, R$ ) – FLON 8826



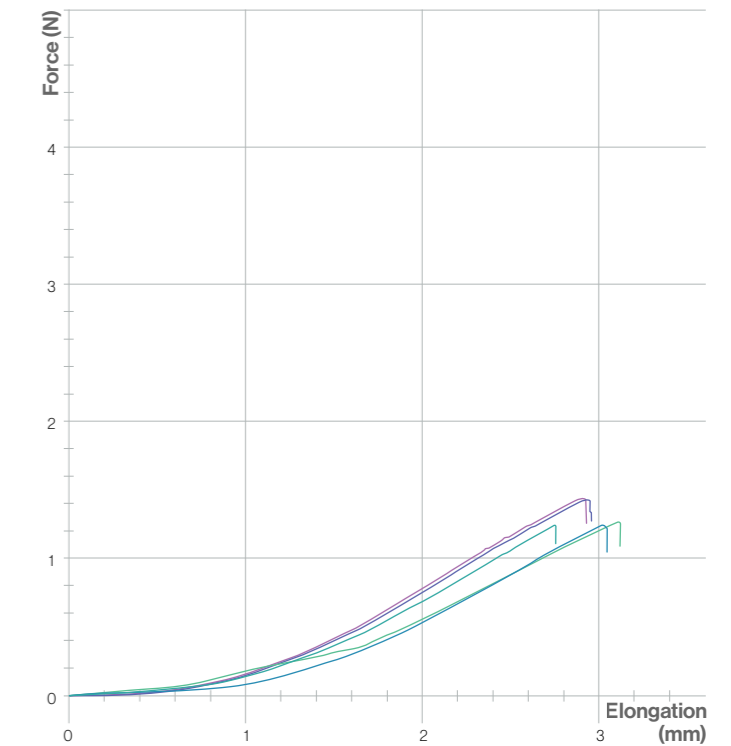
## Puncture Test\*

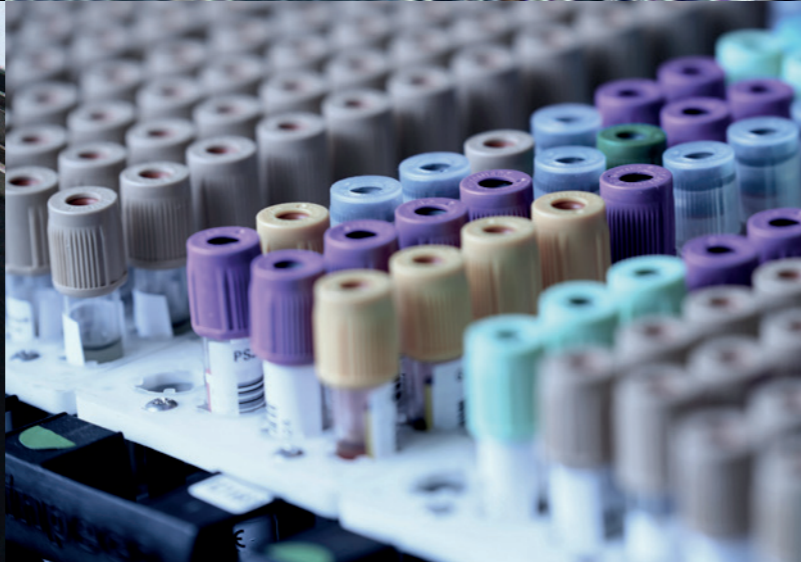
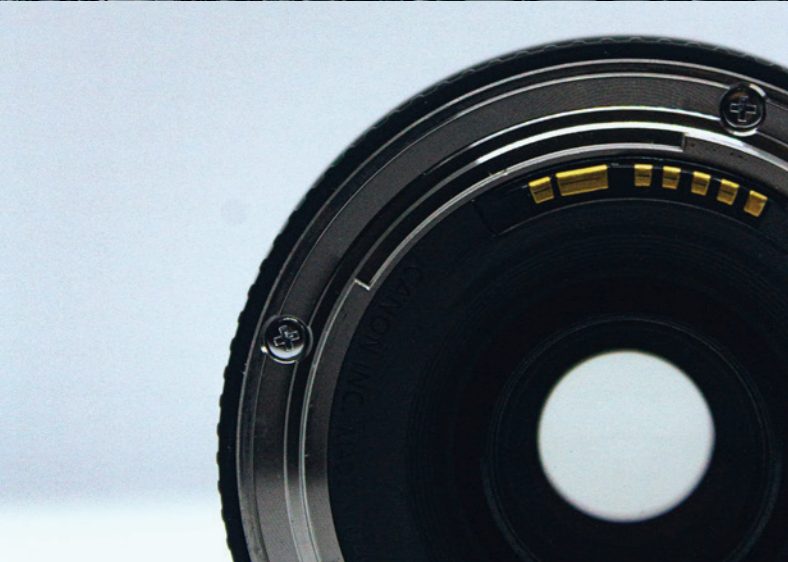
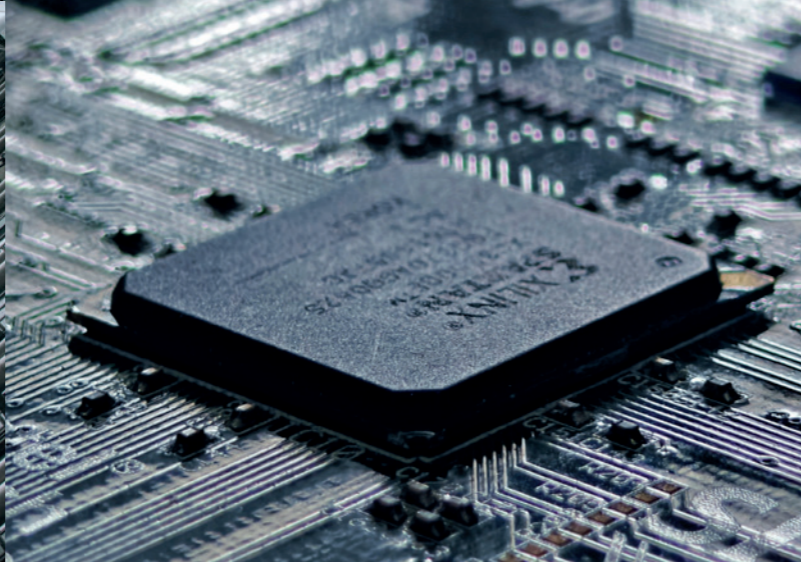
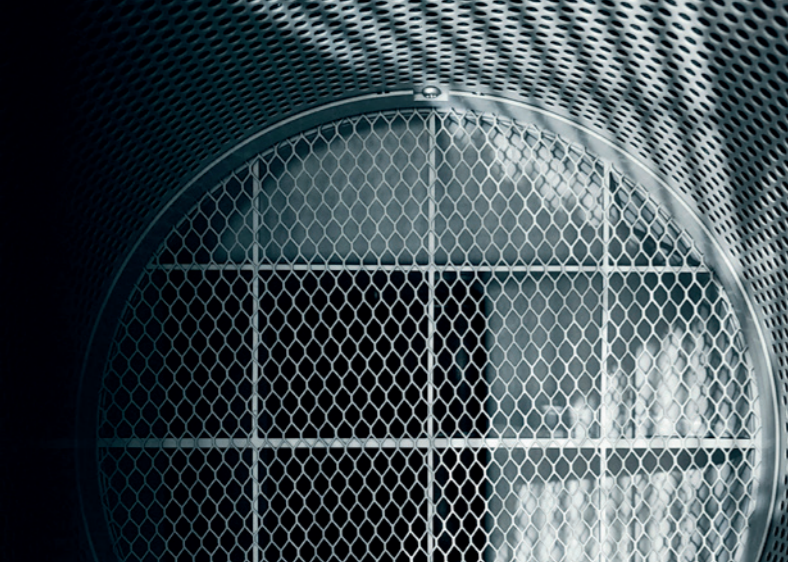
The following data describes one of the key factors to evaluate the resistance to mechanical penetration of porous sPTFE components (e.g. vents) used in electric batteries and automotive applications in general.



	Unit	TEKPORE TPF8806	TEKPORE TPF8808	TEKPORE TPF8801	TEKPORE TPF8822	TEKPORE TPF8826	Developmental grade 1	Developmental grade 2
<b>Force</b>								
Film thickness 0.10 mm	N	4.0	5.2	2.7	2.5	<0.2	1.6	1.3
Film thickness 0.25 mm	N	-	6.6	3.8	-	-	-	-
<b>Elongation at Break</b>								
Film thickness 0.10 mm	mm	2.7	3.1	2.8	3.1	<2	3.1	2.9
Film thickness 0.25 mm	mm	-	3.3	2.8	-	-	-	-

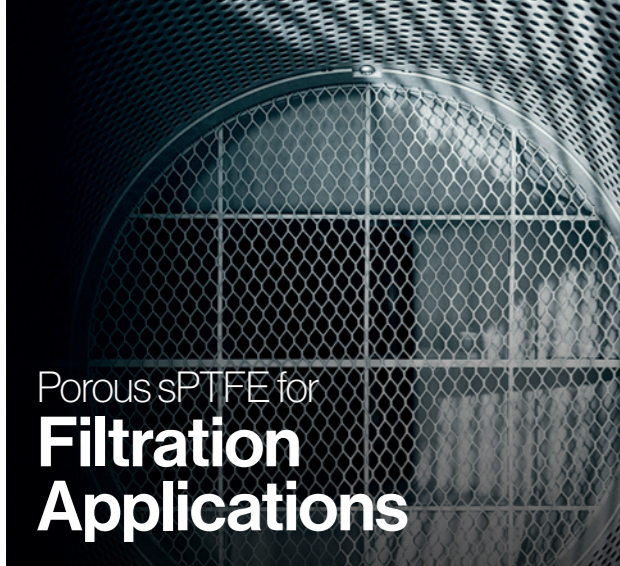
\* Standard EN 1447 describes a test method for determining the puncture resistance. The equipment records the force (in N) and elongation (in mm) required to penetrate the sample until it breaks.





# Applications

Industry / Sector	Typical Application	Main Benefits of Porous sPTFE
<b>Filtration / Safety Technologies</b>	Gas/liquid filter membranes, dust filters, silencers, protective housings for sensors, dust filters	High chemical resistance Controlled permeability up to 170 l/hr/cm <sup>2</sup> - 70 mBar Pore size diameter ~50 µm Water-resistance
<b>Automotive</b>	Vents, valves, ABS components, airbags, tire pressure systems, protection of onboard electronics, headlights, hooters, injection control, batteries	Lightweight Resistance to high and low temperatures Inertness to aggressive fluids Low friction Long-lasting & low maintenance
<b>Optics / Metrology / Chromatography</b>	Reflectors, spectrometers, photometers, integrating spheres, optical elements / diaphragms, Ulbricht spheres	Uniform microstructure for optical stability → (Lambertian emitter) Chemical resistance High-precision performance
<b>Chemical / Semiconductor / Clean Room</b>	Gas/liquid filtration in chemical processes, clean rooms, catalyst diaphragms, gas injection/distribution elements, pressure compensation devices	Aggressive chemicals resistance Thermal stability Non-contaminating nature Controllable porosity Water intrusion pressure (WIP) up to 30 mBar
<b>Electronics / Insulation</b>	Protective components for sensors, condensation protection, electrical insulation, vents for sealed parts	Excellent dielectric properties Inertness Moisture prevention Durability Structural integrity at extreme temperatures
<b>Food / Pharmaceutical</b>	Components for food processing equipment, beverage systems, applications requiring purity and non-toxicity	Non-toxicity Regulatory compliance Cleanability Sanitization resistance Non-interaction with food and pharmaceuticals
<b>Aerospace</b>	Films, tapes, release liners, masking elements, protective layers requiring low weight and thermal resistance	Excellent thermal excursions resistance Lightweight UV and chemical resistance Extreme conditions reliability



## Porous sPTFE for Filtration Applications

Filtration is a core industrial process used to separate solids from liquids or gases, ensuring purity, product safety, and process reliability. It's widely used in chemical, pharmaceutical, food, and environmental industries.

### Role of Porous sPTFE

- Membranes and filter discs for gas or liquid filtration;
- Vent filters to allow air passage while blocking liquids and solid particles;
- Protective barriers for sensitive sensors and instruments;
- Filter media supports in critical and aggressive environments.

### Key advantages

#### Complete chemical inertness

Resistant to aggressive solvents and corrosive media.

#### Controlled porosity and permeability

Predictable, stable flow rates.

#### Hydrophobic surface

Blocks water while allowing air/gas to pass.

#### Thermal and mechanical resistance

Maintains integrity under pressure and temperature variations.

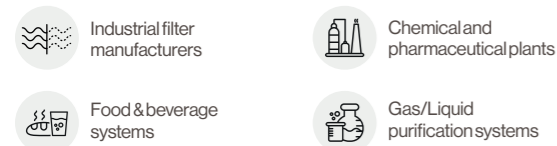
#### Non-shedding and clean

Ensures high product purity and no contamination.

### Why choose Guarniflon®

- Proprietary TEKPORE® Porous sPTFE technology;
- Tailored porosity, pore size (down to ~50 µm), and thickness;
- Certified and fully traceable production batches;
- Custom shapes and components available;
- Technical support for integration into industrial filtration systems.

### Ideal for:



## Porous sPTFE for Automotive Applications

The automotive industry demands materials that can withstand extreme temperatures, pressure variations, vibrations, and exposure to aggressive fluids, while maintaining long-term reliability and minimal maintenance.

### Role of Porous sPTFE

- Venting elements for sealed electronic housings (ECUs, sensors, batteries);
- Pressure compensation membranes for lighting systems, ABS, and airbag units;
- Fluid barriers and protective filters for onboard electronics;
- Porous spacers and seals with combined insulation and breathability functions.

### Key advantages

#### Thermal and chemical resistance

Withstands oils, fuels, solvents, and temperature extremes.

#### Controlled porosity and air permeability

Reliable pressure equalization.

#### Hydrophobic & oleophobic and weather-resistant

Prevents condensation, moisture and oils ingress.

#### Durable and low-friction

Long service life, no maintenance.

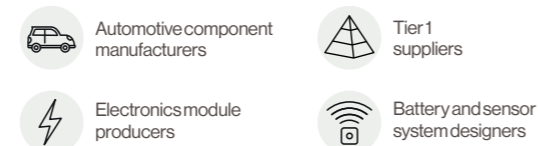
#### Lightweight and non-ageing

Improves efficiency and long-term stability.

### Why choose Guarniflon®

- Specialized TEKPORE® Porous sPTFE technology;
- Customizable shapes, thicknesses, and pore structures;
- Certified and traceable production batches;
- Solutions for critical safety systems;
- Expert technical support for design and integration in automotive components.

### Ideal for:



## Porous sPTFE for Chemical, Semiconductor & Clean Room Applications

Chemical processing, semiconductor fabrication, and clean room operations require exceptionally pure, inert, and stable materials to ensure product integrity, process safety, and contamination control.

### Role of Porous sPTFE

- Gas and liquid filtration membranes for ultra-pure processes;
- Diffusion elements and diaphragms in chemical reactors;
- Pressure-equalizing vents in clean room equipment;
- Protective barriers for sensitive sensors and measuring devices.

### Key advantages

#### Complete chemical inertness

Compatible with aggressive acids, bases, and solvents.

#### Controlled and stable porosity

Reliable flow and diffusion under precise conditions.

#### Non-contaminating, particle-free

Meets clean room and semiconductor standards.

#### High thermal and mechanical resistance

Withstands harsh processing environments.

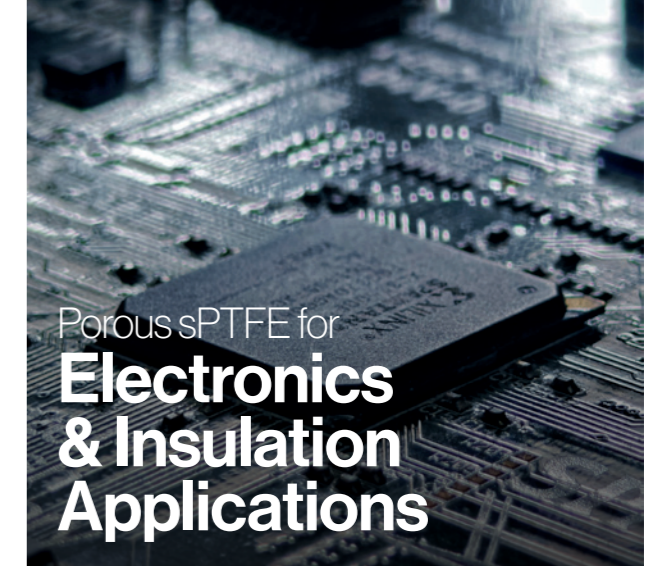
#### Hydrophobic and non-ageing

Maintains properties over long operational cycles.

### Why choose Guarniflon®

- Proprietary TEKPORE® Porous sPTFE technology;
- Production in clean environments with traceable batches;
- Precise control of pore size, thickness, and density;
- Custom components for semiconductor tools and chemical reactors;
- Expert support for clean room integration and compliance.

### Ideal for:



## Porous sPTFE for Electronics & Insulation Applications

Electronic systems require materials that offer high electrical insulation, protection from moisture and contaminants, and long-term stability, even under thermal cycling and harsh operating conditions.

### Role of Porous sPTFE

- Breathable protective membranes for sealed electronic housings and sensors;
- Moisture and condensation barriers in sensitive components;
- Dielectric insulating spacers and gaskets with controlled breathability;
- Vent elements to equalize pressure while maintaining environmental protection.

### Key advantages

#### Excellent dielectric properties

Safe insulation for sensitive circuits.

#### Hydrophobic and moisture-resistant

Prevents condensation and corrosion.

#### Chemically inert and non-ageing

Long-term stability and reliability.

#### Thermal resistance and dimensional stability

Maintains integrity in temperature cycles.

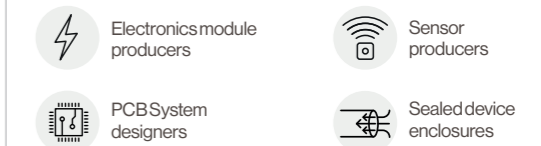
#### Lightweight and easy to process

Facilitates integration into compact devices.

### Why choose Guarniflon®

- Proprietary TEKPORE® Porous sPTFE technology;
- Custom designs for electronic housings and sensor systems;
- Precise control of thickness, pore size, and permeability;
- Certified and fully traceable production batches;
- Expert technical support for design and integration;

### Ideal for:





## Porous sPTFE for Optical Applications

Optical systems rely on the precise control, reflection, transmission and diffusion of light. Materials used in these environments must ensure high reflectance, low absorption and exceptional stability across the visible and infrared spectrum.

### Role of Porous sPTFE

- Diffusing and reflecting elements in optical instruments;
- Ref. standards for reflectance and photometric calibration;
- Internal reflectors in LED, laser, sensor assemblies;
- Light management layers in photometric and imaging devices;
- Optical isolation and insulation components for harsh environments.

### Key advantages

#### High diffuse reflectance (>95%)

Excellent light diffusion and uniform illumination.

#### Optical stability: refractive index (~1.35–1.38), low abs.

Uniform UV–NIR response, minimal color distortion.

#### Total chemical and UV resistance

No degradation or yellowing over time.

#### Thermal stability (–200 °C to +260 °C)

Reliable under extreme illumination or thermal cycling.

#### Hydrophobic and inert surface

Prevents contamination and optical scattering by moisture.

### Why choose Guarniflon®

- Proprietary production process for Porous sPTFE;
- Controlled pore size and density for predictable performance;
- Ultra-clean manufacturing to prevent particulate contamination;
- Custom geometries and finishes available for integration;
- Technical support for photometric and optical design optimization.

### Ideal for:



Optical instrument manufacturers in res. lab.



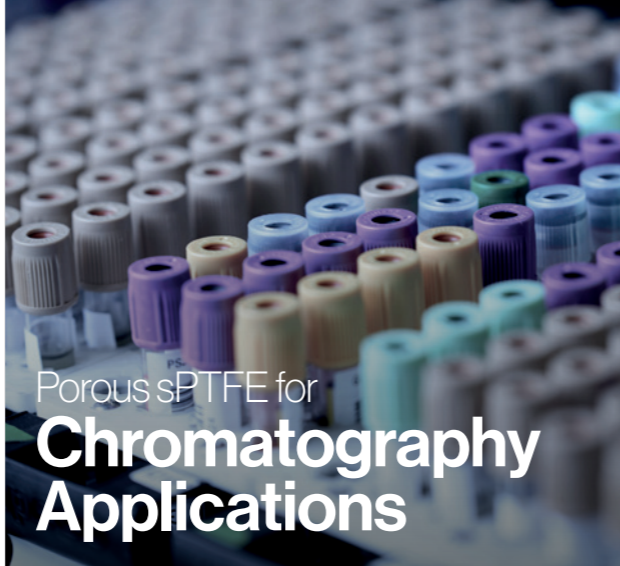
Photometric and colorimetric systems



LED and laser device producers



Calibration standard suppliers



## Porous sPTFE for Chromatography Applications

Chromatography is an analytical and preparative technique used to separate, identify, and quantify the components of a mixture. It requires a controlled environment, high precision, and zero contamination.

### Role of Porous sPTFE

- Gas/Liquid diffusing supports in chromatographic systems;
- Porous membranes and filters integrated in inlet/outlet flow paths;
- Porous discs and insulating spacers to ensure sample purity;
- Microfluidic components for accurate pressure and flow control.

### Key advantages

#### Complete chemical inertness

No interaction with solvents or samples.

#### Controlled and stable porosity

Uniform and repeatable flow.

#### No contaminants or particle shedding

Maximum analytical purity.

#### Thermal and mechanical resistance

Reliability during long or high-temperature cycles.

#### Dielectric properties

Safe in precision electronic instruments.

### Why choose Guarniflon®

- Dedicated production process for Porous sPTFE;
- Precise control of porosity, thickness, and density;
- Certified and fully traceable batches;
- Custom components available;
- Specialized technical support for integration into HPLC, GC, and LC-MS systems.

### Ideal for:



Analytical instrument manufacturers



Research laboratories



Pharmaceutical industry



Advanced chemical industry



## Porous sPTFE for Food & Pharmaceutical Applications

Food and pharmaceutical industries demand materials that are chemically inert, non-toxic, clean, and resistant to aggressive sterilization processes, while ensuring controlled air and moisture transfer.

### Role of Porous sPTFE

- Sterile venting membranes for packaging, containers, and bioreactors;
- Filtration discs and sheets for liquids, air, and gases;
- Protective barriers against contamination in clean processing environments;
- Breathable seals and gaskets for equipment exposed to sterilization cycles.

### Key advantages

#### Chemically inert and non-toxic

Compliant with FDA and food-contact regulations.

#### Biocompatible and non-shedding

Safe for pharmaceutical environments.

#### Hydrophobic and moisture resistant

Prevents contamination from humidity.

#### Resistant to sterilization (steam, ETO, chemicals)

Ensures product safety and durability.

#### High purity and clean processing

Avoids particle release or contamination.

### Why choose Guarniflon®

- TEKPORE® Porous sPTFE technology with certified quality;
- Custom formats and properties tailored to application needs;
- Controlled porosity, thickness, and air flow rates;
- Cleanroom production capabilities;
- Full traceability and regulatory compliance documentation.

### Ideal for:



Food packaging



Pharmaceutical equipment



Medical containers



Bioreactor systems and sterile filters



## Porous sPTFE for Aerospace Applications

The aerospace industry requires lightweight, durable, and reliable materials that can withstand extreme temperatures, pressure variations, vibration, and aggressive environments, ensuring long-term performance and safety.

### Role of Porous sPTFE

- Pressure-equalizing vents for avionics housings, sensors, and electronic modules;
- Lightweight thermal and acoustic insulation layers;
- Moisture and contamination barriers for critical systems;
- Breathable gaskets and seals for pressurized or temperature-cycled environments.

### Key advantages

#### Ultra-lightweight and low density

Reduces overall system weight.

#### Excellent thermal and chemical resistance

Stable in extreme operating conditions.

#### Hydrophobic and breathable

Prevents condensation and corrosion.

#### Superior dielectric properties

Protects sensitive electronics.

#### Mechanical stability and durability

Long-term reliability under stress.

### Why choose Guarniflon®

- TEKPORE® technology engineered for aerospace needs;
- Custom solutions for sensors, electronics, cabin components;
- Tight control of thickness, porosity, and air permeability;
- Qualified production processes and full traceability;
- Experienced technical support for aerospace system integration.

### Ideal for:



Avionics manufacturers



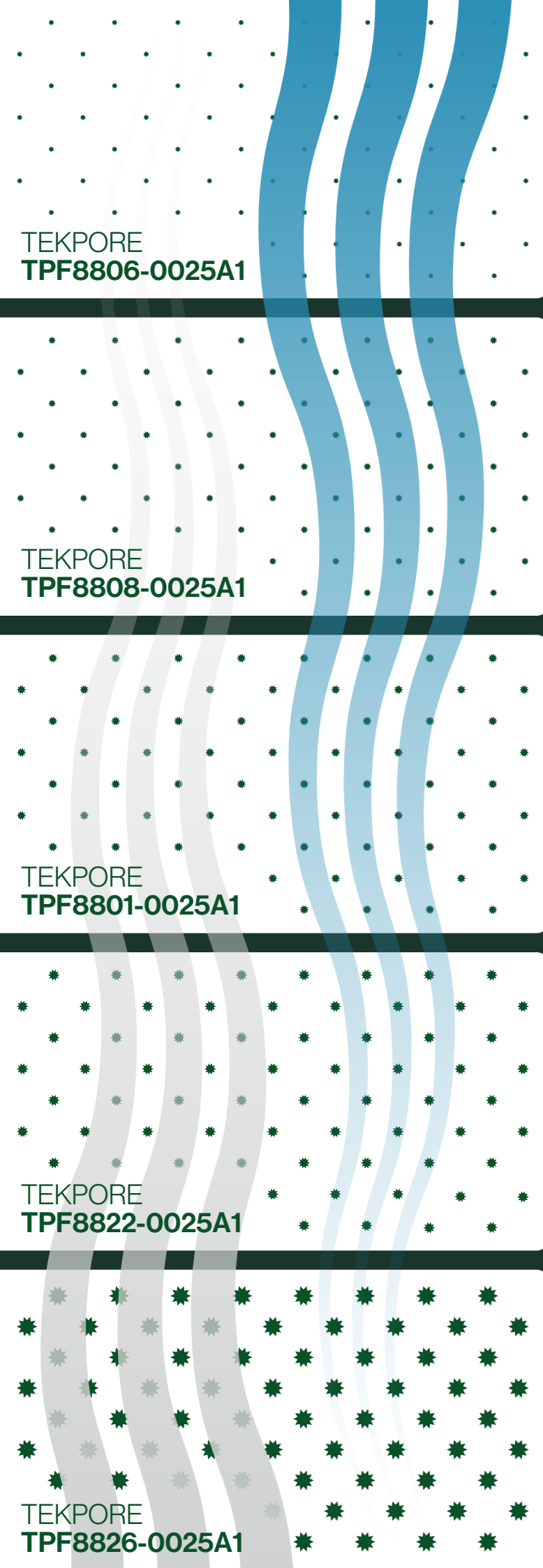
Aerospace electronics



Sensor housings



Lightweight insulation systems



- Air Flow
- Water Intrusion Pressure (WIP)

## TEKPORE® Products Availability

Can be produced as molded tubes and rods, molded and skived sheets and films, machined components.

### TEKPORE® Films & Membranes

Available from 440 mm wide and thicknesses from 0.1 to 3 mm.

### TEKPORE® Sheets

Available in 600x600, 1000x1000 and 1200x1200 mm formats and thicknesses from 3.5 up to 100 mm.

### TEKPORE® Rods

Diameter up to 360 mm. Available with max 300 mm height, over dia 360 mm. Max height is 100-150 mm.



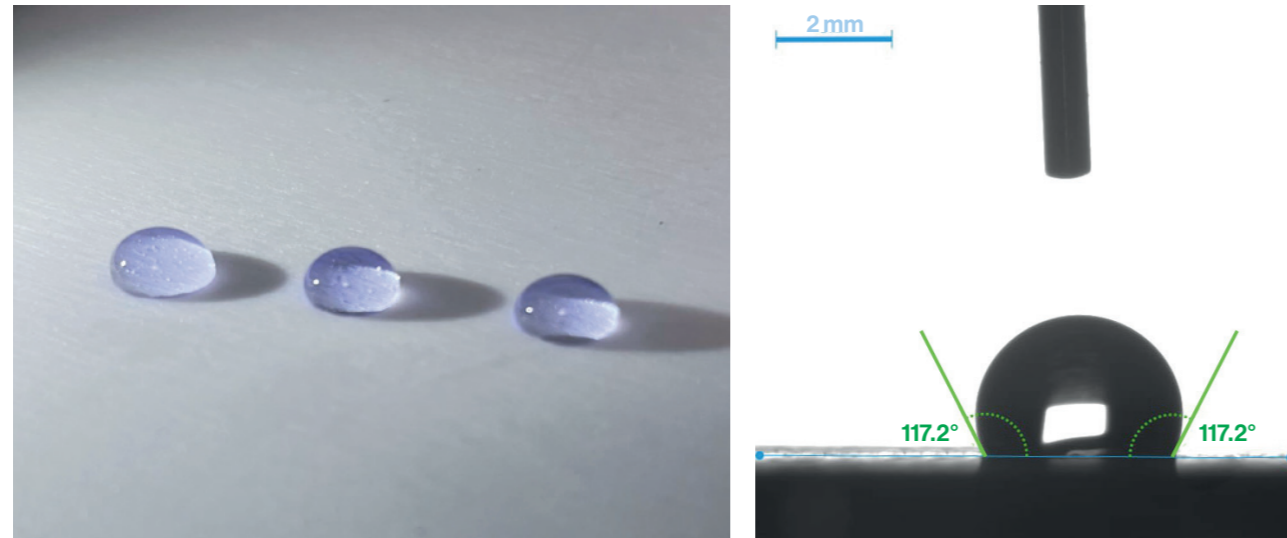
## Main Typical Properties of Guarniflon® Porous sPTFE

	Method	Unit	TEKPORE TPF8806-0025A1	TEKPORE TPF8808-0025A1	TEKPORE TPF8801-0025A1	TEKPORE TPF8822-0025A1	TEKPORE TPF8826-0025A1
<b>General</b>							
Porosity degree	-	-	Very low porosity	Low porosity	Medium porosity	High porosity	Very high porosity
<b>Physical &amp; Mechanical</b>							
Reference Thickness	Internal	mm	0.25	0.25	0.25	0.25	0.25
Colour	Internal	-	White/Natural	White/Natural	White/Natural	White/Natural	White/Natural
<b>Porosimetric</b>							
Pore size	Internal	µm	< 1	1 - 3	6 - 8	8 - 10	15 - 20
Water intrusion pressure (P <sub>H<sub>2</sub>O</sub> )	Internal Specimen area 100cm <sup>2</sup>	mBar	350	200	80	70	60
Air Flow (ΔP 10 mBar)	Internal Specimen area 20cm <sup>2</sup>	l/hr/cm <sup>2</sup>	0.04	0.7	7	15	27
Air Flow (ΔP 20 mBar)	Internal Specimen area 20cm <sup>2</sup>	l/hr/cm <sup>2</sup>	0.05	1.5	16	30	55
Air Flow (ΔP 70 mBar)	Internal Specimen area 20cm <sup>2</sup>	l/hr/cm <sup>2</sup>	0.13	5	55	110	185

The characteristics shown in the table are influenced by the sample thickness and the production process. Therefore, the data provided are indicative and refer to samples with constant thickness, manufactured using the same production process.

Note: the data listed herein fall within the normal range of product properties described, but they should not be used to establish specification limits nor used alone as the basis of design. Guarniflon® Spa assumes no obligation or liability for any advice furnished by it or for results obtained to these products.

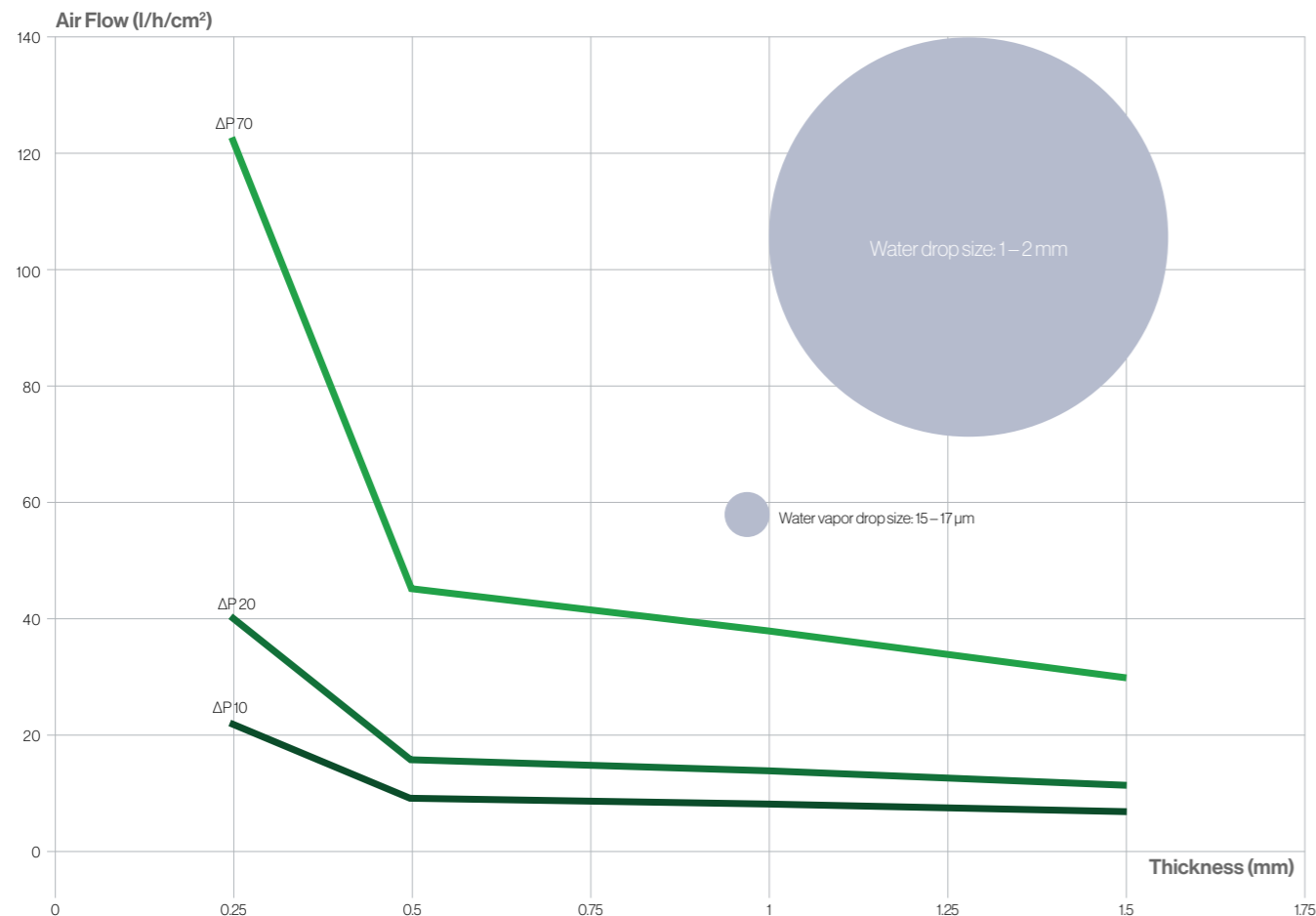
## Hydrophobicity and Oleophobicity



### TPF8826-A1 Pore size 20 µm

The air flow of venting membranes decreases with thickness.

TEKPORE® Porous sPTFE repels water, oil, dust and grime, while water vapor droplets are allowed to pass through (perspiration).



# TEKPORE TPF8806-0025A1

## Premium Quality Porous sPTFE

Guarniflon® **TEKPORE TPF8806-0025A1** is produced from PTFE powders and specifically they are a mixture of different particle size distributions and hardness degrees to achieve the desired level of porosity.

Taking advantage of the up-to-date technologies and know-how used to process sintered PTFE products, Guarniflon® S.p.A. has developed porous sPTFE.

TPF8806-0025A1  
TPF8808-0025A1  
TPF8801-0025A1  
TPF8822-0025A1  
TPF8826-0025A1

### Main Applications

#### Filter and safety technology

- Filter membranes
- Protective sheaths
- Dust filters
- Protective elements for sensors
- Silencers
- Pressure balance system

#### Automotive engineering

- Abs
- Airbag
- Asr
- Batteries
- Injection control
- Esp
- Hooters
- Headlights

#### Optical metrology - Chromatography

- Reflectors
- Spectrometers
- Ulbricht spheres
- Photometers

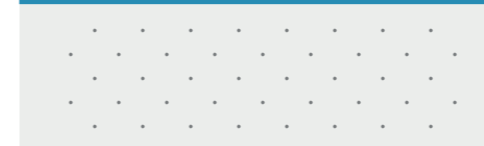
#### Chemicals, semiconductor, clean room technology

- Filters for gases and liquids
- Catalyst supports-diaphragms
- Gas injection and/or gas distribution
- Engineering materials
- Pressure compensation devices

### Driving Forces

- Chemically inert
- Thermally resistant from cryogenic up to 260°C
- Hydrophobic and oleophobic (optional)
- Steam and EtO sterilizable
- Physiologically harmless
- Excellent dielectric properties
- High degree of optical reflection (>98%)
- Low weight

#### Very Low Porosity



Water Intrusion Pressure  
**350 mBar**

Pore Size  
**<1 µm**

Typical Properties	Unit	Method	Data
Reference Thickness	mm	Internal	0.25
Colour	-	-	White / Natural
Typical Water Intrusion Pressure *	mBar	Internal	350
Typical Air flow (ΔP 10 mBar) **	l/hr/cm²	Internal	0.04
Typical Air flow (ΔP 20 mBar) **	l/hr/cm²	Internal	0.05
Typical Air flow (ΔP 70 mBar) **	l/hr/cm²	Internal	0.13
Pore size	µm	Internal	<1

Note: the data listed herein fall within the normal range of product properties described, but they should not be used to establish specification limits nor used alone as the basis of design. Guarniflon® Spa assumes no obligation or liability for any advice furnished by it or for results obtained to these products.

\* Water Intrusion Pressure values determined from a Ø11cm (100cm²) sample.

\*\* Air flow values determined from a Ø5cm (20cm²) sample.

TPF8806-0025A1  
**TPF8808-0025A1**  
 TPF8801-0025A1  
 TPF8822-0025A1  
 TPF8826-0025A1

# TEKPORE TPF8808-0025A1

## Premium Quality Porous sPTFE

Guarniflon® **TEKPORE TPF8806-0025A1** is produced from PTFE powders and specifically they are a mixture of different particle size distributions and hardness degrees to achieve the desired level of porosity.

Taking advantage of the up-to-date technologies and know-how used to process sintered PTFE products, Guarniflon® S.p.A. has developed porous sPTFE.

### Main Applications

#### Filter and safety technology

- Filter membranes
- Protective sheaths
- Dust filters
- Protective elements for sensors
- Silencers
- Pressure balance system

#### Automotive engineering

- Abs
- Airbag
- Asr
- Batteries
- Injection control
- Esp
- Hooters
- Headlights

#### Optical metrology - Chromatography

- Reflectors
- Spectrometers
- Ulbricht spheres
- Photometers

#### Chemicals, semiconductor, clean room technology

- Filters for gases and liquids
- Catalyst supports-diaphragms
- Gas injection and/or gas distribution
- Engineering materials
- Pressure compensation devices

- Chemically inert
- Thermally resistant from cryogenic up to 260°C
- Hydrophobic and oleophobic (optional)
- Steam an EtO sterilizable
- Physiologically harmless
- Excellent dielectric properties
- High degree of optical reflection (>98%)
- Low weight

### Driving Forces

#### Low Porosity



Water Intrusion Pressure  
**200 mBar** Pore Size  
**1-3 µm**

Typical Properties	Unit	Method	Data
Reference Thickness	mm	Internal	0.25
Colour	-	-	White / Natural
Typical Water Intrusion Pressure *	mBar	Internal	200
Typical Air flow (ΔP 10 mBar) **	l/hr/cm <sup>2</sup>	Internal	0.7
Typical Air flow (ΔP 20 mBar) **	l/hr/cm <sup>2</sup>	Internal	1.5
Typical Air flow (ΔP 70 mBar) **	l/hr/cm <sup>2</sup>	Internal	5
Pore size	µm	Internal	1-3

Note: the data listed herein fall within the normal range of product properties described, but they should not be used to establish specification limits nor used alone as the basis of design. Guarniflon® Spa assumes no obligation or liability for any advice furnished by it or for results obtained to these products.

\* Water Intrusion Pressure values determined from a Ø11cm (100cm<sup>2</sup>) sample.  
 \*\* Air flow values determined from a Ø5cm (20cm<sup>2</sup>) sample.

TPF8806-0025A1  
 TPF8808-0025A1  
**TPF8801-0025A1**  
 TPF8822-0025A1  
 TPF8826-0025A1

# TEKPORE TPF8801-0025A1

## Premium Quality Porous sPTFE

Guarniflon® **TEKPORE TPF8806-0025A1** is produced from PTFE powders and specifically they are a mixture of different particle size distributions and hardness degrees to achieve the desired level of porosity.

Taking advantage of the up-to-date technologies and know-how used to process sintered PTFE products, Guarniflon® S.p.A. has developed porous sPTFE.

### Main Applications

#### Filter and safety technology

- Filter membranes
- Protective sheaths
- Dust filters
- Protective elements for sensors
- Silencers
- Pressure balance system

#### Automotive engineering

- Abs
- Airbag
- Asr
- Batteries
- Injection control
- Esp
- Hooters
- Headlights

#### Optical metrology - Chromatography

- Reflectors
- Spectrometers
- Ulbricht spheres
- Photometers

#### Chemicals, semiconductor, clean room technology

- Filters for gases and liquids
- Catalyst supports-diaphragms
- Gas injection and/or gas distribution
- Engineering materials
- Pressure compensation devices

- Chemically inert
- Thermally resistant from cryogenic up to 260°C
- Hydrophobic and oleophobic (optional)
- Steam an EtO sterilizable
- Physiologically harmless
- Excellent dielectric properties
- High degree of optical reflection (>98%)
- Low weight

### Driving Forces

#### Medium Porosity



Water Intrusion Pressure  
**80 mBar** Pore Size  
**6-8 µm**

Typical Properties	Unit	Method	Data
Reference Thickness	mm	Internal	0.25
Colour	-	-	White / Natural
Typical Water Intrusion Pressure *	mBar	Internal	80
Typical Air flow (ΔP 10 mBar) **	l/hr/cm <sup>2</sup>	Internal	7
Typical Air flow (ΔP 20 mBar) **	l/hr/cm <sup>2</sup>	Internal	16
Typical Air flow (ΔP 70 mBar) **	l/hr/cm <sup>2</sup>	Internal	55
Pore size	µm	Internal	6-8

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\* Water Intrusion Pressure values determined from a Ø11cm (100cm<sup>2</sup>) sample.  
 \*\* Air flow values determined from a Ø5cm (20cm<sup>2</sup>) sample.

TPF8806-0025A1  
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 TPF8826-0025A1

# TEKPORE TPF8822-0025A1

## Premium Quality Porous sPTFE

Guarniflon® **TEKPORE TPF8806-0025A1** is produced from PTFE powders and specifically they are a mixture of different particle size distributions and hardness degrees to achieve the desired level of porosity.

Taking advantage of the up-to-date technologies and know-how used to process sintered PTFE products, Guarniflon® S.p.A. has developed porous sPTFE.

### Main Applications

#### Filter and safety technology

- Filter membranes
- Protective sheaths
- Dust filters
- Protective elements for sensors
- Silencers
- Pressure balance system

#### Automotive engineering

- Abs
- Airbag
- Asr
- Batteries
- Injection control
- Esp
- Hooters
- Headlights

#### Optical metrology - Chromatography

- Reflectors
- Spectrometers
- Ulbricht spheres
- Photometers

#### Chemicals, semiconductor, clean room technology

- Filters for gases and liquids
- Catalyst supports-diaphragms
- Gas injection and/or gas distribution
- Engineering materials
- Pressure compensation devices



Chemically inert



Thermally resistant from cryogenic up to 260°C



Hydrophobic and oleophobic (optional)



Steam an EtO sterilizable



Physiologically harmless



Excellent dielectric properties



High degree of optical reflection (>98%)



Low weight

### Driving Forces

#### High Porosity



Water Intrusion Pressure  
**70 mBar**

Pore Size  
**8-10 µm**

Typical Properties	Unit	Method	Data
Reference Thickness	mm	Internal	0.25
Colour	-	-	White / Natural
Typical Water Intrusion Pressure *	mBar	Internal	70
Typical Air flow (ΔP 10 mBar) **	l/hr/cm <sup>2</sup>	Internal	15
Typical Air flow (ΔP 20 mBar) **	l/hr/cm <sup>2</sup>	Internal	30
Typical Air flow (ΔP 70 mBar) **	l/hr/cm <sup>2</sup>	Internal	110
Pore size	µm	Internal	8 - 10

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\* Water Intrusion Pressure values determined from a Ø11cm (100cm<sup>2</sup>) sample.  
 \*\* Air flow values determined from a Ø5cm (20cm<sup>2</sup>) sample.

TPF8806-0025A1  
 TPF8808-0025A1  
 TPF8801-0025A1  
 TPF8822-0025A1  
 TPF8826-0025A1

# TEKPORE TPF8826-0025A1

## Premium Quality Porous sPTFE

Guarniflon® **TEKPORE TPF8806-0025A1** is produced from PTFE powders and specifically they are a mixture of different particle size distributions and hardness degrees to achieve the desired level of porosity.

Taking advantage of the up-to-date technologies and know-how used to process sintered PTFE products, Guarniflon® S.p.A. has developed porous sPTFE.

### Main Applications

#### Filter and safety technology

- Filter membranes
- Protective sheaths
- Dust filters
- Protective elements for sensors
- Silencers
- Pressure balance system

#### Automotive engineering

- Abs
- Airbag
- Asr
- Batteries
- Injection control
- Esp
- Hooters
- Headlights

#### Optical metrology - Chromatography

- Reflectors
- Spectrometers
- Ulbricht spheres
- Photometers

#### Chemicals, semiconductor, clean room technology

- Filters for gases and liquids
- Catalyst supports-diaphragms
- Gas injection and/or gas distribution
- Engineering materials
- Pressure compensation devices



Chemically inert



Thermally resistant from cryogenic up to 260°C



Hydrophobic and oleophobic (optional)



Steam an EtO sterilizable



Physiologically harmless



Excellent dielectric properties



High degree of optical reflection (>98%)



Low weight

### Driving Forces

#### Very High Porosity



Water Intrusion Pressure  
**60 mBar**

Pore Size  
**15-20 µm**

Typical Properties	Unit	Method	Data
Reference Thickness	mm	Internal	0.25
Colour	-	-	White / Natural
Typical Water Intrusion Pressure *	mBar	Internal	60
Typical Air flow (ΔP 10 mBar) **	l/hr/cm <sup>2</sup>	Internal	27
Typical Air flow (ΔP 20 mBar) **	l/hr/cm <sup>2</sup>	Internal	55
Typical Air flow (ΔP 70 mBar) **	l/hr/cm <sup>2</sup>	Internal	185
Pore size	µm	Internal	15 - 20

Note: the data listed herein fall within the normal range of product properties described, but they should not be used to establish specification limits nor used alone as the basis of design. Guarniflon® Spa assumes no obligation or liability for any advice furnished by it or for results obtained to these products.

\* Water Intrusion Pressure values determined from a Ø11cm (100cm<sup>2</sup>) sample.  
 \*\* Air flow values determined from a Ø5cm (20cm<sup>2</sup>) sample.

# R&D Team Quality Management

Guarniflon® have been **Quality Certified** since 1993, certificate n. 015, one of the first in its own field. Nowadays Guarniflon® is **UNI EN ISO 9001:2015** and **IATF 16949:2016** certified by the certification body Cermet.

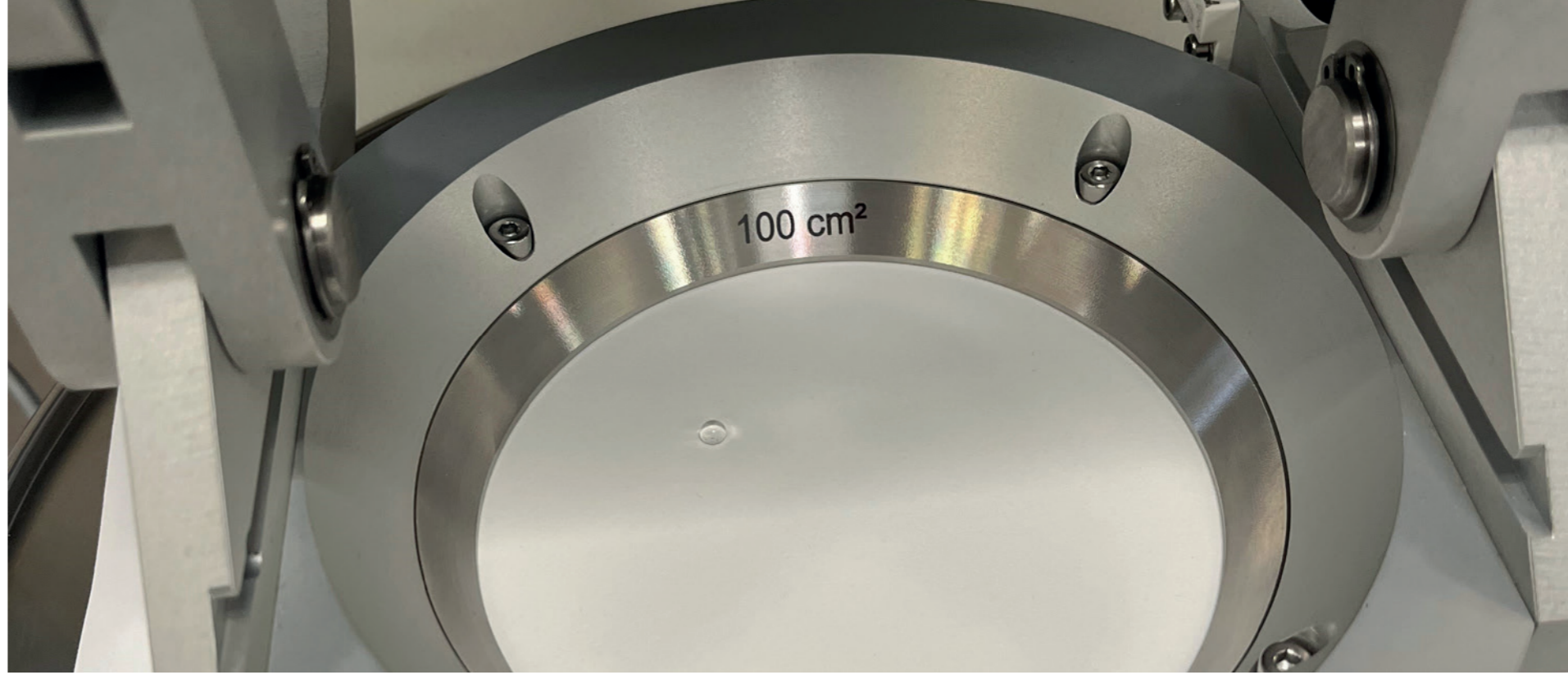
Guarniflon® policy implies a high powered and experienced R&D Team continuously improving and developing day by day new solutions for new applications.



UNI EN ISO 9001:2008



SISTEMA DI GESTIONE CERTIFICATO



## Lab Testing Equipments

### Thermal and reological analysis

- TGA – Thermogravimetry (heat stability, filler content, degradation point);
- DSC – Differential scanning calorimetry (melting-crystallization point, glass transition, polymer molecular weight);
- MFR and MVR.

### Powder properties analysis

- Bulk density;
- Tamped volume & tapped density;
- Dry and wet particle size analysis;
- Grindometer analysis (Hegman and NPIRI scale);
- Flowability;
- Specific surface area (Mercury porosimeter);
- Real density of Solids and Powders.

### Physical & mechanical analysis

- Tensile strength, elongation at break and young modulus;
- Specific gravity;
- Rockwell hardness (ball hardness);
- Shore D hardness (needle hardness);
- Deformation under load;
- WIP – Water Intrusion Pressure;
- Air Flow measurement;
- Accessible and inaccessible porosity, average pore dimension;
- Wear properties (friction coefficient, PV limit, wear factor).

### Electrical analysis

- Surface and volume resistivity (conductivity);
- Dielectric strength.

### General analysis

- Color index (CIE L\*a\*b\*);
- Moisture content;
- Hydrofluoric acid content;
- FT-IR spectroscopy;
- Gas chromatography;
- Microscopic analysis (stereomicroscopy, optical microscopy and SEM imaging);
- Contact angle measurement.

**REVISIONE 2026 - REVISION 2026**

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Via T. Tasso, 12  
24060 | Tagliuno di Castelli Calepio (BG), Italy  
Tel. +39 035 4494311  
info@guarniflon.com

[www.guarniflon.com](http://www.guarniflon.com)

**Vendite Italia**  
vendite@guarniflon.com

**International Sales**  
sales@guarniflon.com

