

# Solef® PVDF

## High Performance Polyvinylidene Fluoride

Discover why Solef® PVDF is the thermoplastic of choice for demanding industrial applications like semiconductor and EV battery manufacturing.



# Versatile High Performance Thermoplastics for Demanding Applications

Solef® PVDF (Polyvinylidene Fluoride) is a high-performance thermoplastic polymer known for its exceptional chemical resistance, thermal stability, and mechanical properties. Manufactured by Syensqo (formerly Solvay) this material is engineered to meet the rigorous demands of various industrial applications, offering a superior balance of strength and durability. Solef® PVDF stands out due to its unique combination of properties, making it the material of choice for industries ranging from chemical processing to electronics.

## Applications

### Common Applications Include:

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- ▲ Semiconductor Manufacturing
  - ▲ Chemical Processing Equipment
  - ▲ Lithium-Ion Battery Components
  - ▲ Pipes and Fittings
  - ▲ Electrical Cables and Wires
  - ▲ Coatings and Linings
  - ▲ Water Filtration Systems
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# Properties

Solef® PVDF boasts a range of technical properties that contribute to its high performance in demanding applications, as well as its safety and low cost of use:



## Excellent Chemical Resistance

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Solef® PVDF is highly resistant to even the most aggressive chemical substances, including acids, bases, and a wide array of common solvents, making it ideal for use in harsh chemical environments.

## High Thermal Stability

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With a high melting point, continuous use service temperature up to 150°C/302°F, and excellent thermal stability, Solef® PVDF performs reliably across a wide range of operating temperatures.

## Excellent Mechanical Strength and Toughness

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Offers superior tensile strength and toughness, ensuring long-term durability and resistance to mechanical stress.



## Low Permeability

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Exhibits low permeability to gases and liquids, which is critical for maintaining the integrity of containment systems and preventing contamination.

## UV and Nuclear Radiation Resistance

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Excellent resistance to UV radiation and ionizing radiation, making it suitable for outdoor applications and environments with high radiation exposure.

## Ageing and Abrasion Resistance

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Solef® PVDF's properties combine to make it exceptionally durable, reliable and long-lasting.

## High Purity

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## Excellent Intrinsic Fire Resistance

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## Wide Range of Rigid and Flexible Grades Available

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These properties not only make Solef® PVDF a versatile material but also ensure that it can withstand the rigors of various industrial processes, thereby reducing maintenance costs and extending the lifespan of equipment.

# Common Applications

Solef® PVDF is formulated to provide excellent performance and durability in the most demanding industrial applications, including:

## Semiconductor Manufacturing

Solef® PVDF is an essential material in the semiconductor industry, where purity and resistance to harsh chemicals are paramount. The material's exceptional chemical resistance makes it ideal for use in wet chemical processes, such as etching and cleaning, where it prevents contamination and ensures the integrity of delicate semiconductor components.

Its low extractables and high purity levels further enhance its suitability for ultra-clean applications, making it a preferred choice for piping systems, tanks, and valves in semiconductor fabrication facilities.

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## Chemical Processing

Solef® PVDF is widely utilized in the chemical processing industry due to its outstanding resistance to corrosive chemicals and extreme temperatures. It is commonly used in the construction of pipes, fittings, and linings for equipment that handles aggressive chemicals, ensuring long-term reliability and reducing the risk of leaks or failures. The material's mechanical strength and low permeability also make it suitable for demanding applications where containment and durability are critical, such as in the production of chemicals, pharmaceuticals, and specialty materials.

# Electric Vehicle (EV) Batteries

Solef® PVDF's thermal stability and resistance to degradation under electrical stress make it an ideal material for EV batteries, which require consistent performance and reliability over extended periods. It is widely used as a binder for the cathode and anode materials, ensuring the structural integrity and chemical stability of the battery components,

It can also be used as a coating layer on the battery separator to enhance performance, processability, and safety. Its thermal stability and resistance to degradation under electrical stress make it an ideal material for EV batteries, which require consistent performance and reliability over extended periods.

## Solef® PVDF Grades

Solef® PVDF is available in several grades of both homopolymers and copolymers, providing excellent performance for a wide array of applications and operating conditions.

| GRADE               | FORM              | DESCRIPTION                                                 |
|---------------------|-------------------|-------------------------------------------------------------|
| <b>HOMOPOLYMERS</b> |                   |                                                             |
| SOLEF® 1006         | POWDER & GRANULES | VERY LOW MOLECULAR WEIGHT PVDF HOMOPOLYMER                  |
| SOLEF® 6008         | POWDER & GRANULES | LOW MOLECULAR WEIGHT PVDF HOMOPOLYMER                       |
| SOLEF® 6010         | POWDER & GRANULES | MEDIUM MOLECULAR WEIGHT PVDF HOMOPOLYMER                    |
| SOLEF® 6012         | POWDER & GRANULES | HIGH MOLECULAR WEIGHT PVDF HOMOPOLYMER                      |
| SOLEF® 1015         | POWDER            | VERY HIGH MOLECULAR WEIGHT PVDF HOMOPOLYMER                 |
| SOLEF® 6020         | POWDER            | ULTRA HIGH MOLECULAR WEIGHT PVDF HOMOPOLYMER                |
| SOLEF® 5130         | POWDER            | ULTRA HIGH MOLECULAR WEIGHT FUNCTIONALIZED PVDF HOMOPOLYMER |
| SOLEF® 9009         | POWDER & GRANULES | HIGH MOLECULAR WEIGHT PVDF HOMOPOLYMER                      |
| SOLEF® 460          | POWDER & GRANULES | BRANCHED HIGH MOLECULAR WEIGHT PVDF HOMOPOLYMER             |
| SOLEF® 9009         | POWDER & GRANULES | ENHANCED ADHESION PVDF FOR MULTILAYER STRUCTURES            |
| <b>COPOLYMERS</b>   |                   |                                                             |
| SOLEF® 11010        | POWDER & GRANULES | FLEXIBLE PVDF COPOLYMER                                     |
| SOLEF® 21510        | POWDER & GRANULES | VERY FLEXIBLE PVDF COPOLYMER                                |
| SOLEF® 31508        | POWDER & GRANULES | IMPROVED LOW-TEMPERATURE FLEXIBILITY PVDF COPOLYMER         |
| SOLEF® 60512        | GRANULES          | SPECIAL PVDF GRADE FOR HIGH-PRESSURE FLEXIBLE PIPING        |

# Contact Sales & Service Inc For More Information

Contact the experts at Sales & Service Inc for more information about Solef® PVDF, including technical specifications for specific grades, or for help selecting the right product for your application.

[Contact Us](#)

## About Sales & Service Inc

Since 1989, Sales & Service Inc has connected semiconductor manufacturers with the solutions they need to improve process efficiency, innovate and move their most important projects forward. We carry a full line card of semiconductor manufacturing equipment and materials from the world's leading providers, and our team has the industry expertise to help you find the perfect solution for your needs.

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