

Solef®



SOLVAY

asking more from chemistry®

Solef® PVDF

Solution Casting

**SPECIALTY
POLYMERS**

Solef® PVDF is a fluorinated semi-crystalline thermoplastic obtained by polymerizing vinylidene fluoride. It possesses the characteristic stability of fluoropolymers when exposed to harsh thermal, chemical and UV environments thus creating a unique combination of properties resulting in high-performance service and longer equipment life for a wide range of applications.

Solef® PVDF resins are extremely pure and, unlike many other plastics, do not require use of stabilizers, plasticizers, lubricants or flame-retardant additives. High-purity grades are based on 100 % pure polymer, are additive-free and are produced in a dedicated line to prevent any possible cross-contamination.

Solvent Casting

In addition to PVDF homopolymers, Solef® PVDF is available in a wide range of VF2-HFP copolymers and VF2-CTFE copolymers which exhibit superior cold temperature behavior. They are well suited for all solution processes as solubility at room temperature is high in the most widely used solvents (MEK, Acetone, THF, etc.). This allows the use of the different solution casting techniques, including spray, cast, dip coating, and spin coating, to obtain film on different substrates. The following table shows solubility in solvents levels for Solef® PVDF copolymers.

Solvent	Solubility at 23°C ⁽¹⁾ [g/kg solvent]
Acetone	520
Methyl ethyl ketone	430
Cyclohexanone	<10
Ethyl acetate	<10
Dimethylformamide	440
Tetrahydrofuran	500
N-methylpyrrolidone	370
Dichloromethane	-
Acetone + Tetrahydrofuran (1/1 vol)	480

(1) solubility may slightly vary between various grades of Solef® PVDF copolymers

Solution coating is suitable for several applications such as lithium batteries, photovoltaic backsheets, protective linings, anti-stick and release coatings, and substrate protection. The wide range of VF2-HFP and VF2-CTFE copolymers suit all application requirements in terms of solution viscosity hence the final characteristics of the obtained film.

Waterborne Latexes

With the increasing attention to environmental sustainability, the waterborne process is becoming one of the most successful alternatives to traditional solvent-based technology.

For this reason, a new type of product, Solef® PVDF latex, is being developed. Depending on the temperature resistance of the substrate, PVDF homopolymer latex or VDF-HFP copolymer latex can be chosen. Both types of latex have a high solid content (around 50 %), contain eco-friendly non-ionic surfactant and show excellent latex stability.

Recent studies have shown that they are very easy to formulate with commercial additives and ingredients which gives the user the flexibility to design custom formulations according to different processes and desired coating properties.

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