Solef®

SOLVAY

asking more from chemistry®

Solef® PVDF 41308/0001

for Multilayer Applications

SPECIALTY POLYMERS

Solvay Specialty Polymers has developed a new Solef® PVDF material, designed to increase adhesion to plastic materials, allowing the construction of multilayer structures in different applications.

Main targeted uses are piping systems, films and sheets for the Chemical Processing Industry (CPI), water transportation, packaging (industrial and food), pharmaceutical and all situations where the well known and proved characteristics of PVDF – in terms of chemical resistance, barrier to permeation of different chemicals, stiffness, thermal insulation, weatherability, fire propagation resistance, smoothness, low surface tension – are required.

Solef® PVDF 41308/0001 allows the manufacturing of several different constructions, such as pipes (from very small diameter to large pipes for transportation of chemicals in CPI), thin films, sheets and all applications where multilayer solutions might be required.

This new PVDF grade can be used in coextrusion, extrusion-lamination and extrusion coating, allowing very good adhesion to selected tie layers.

Tie Layers' Selection

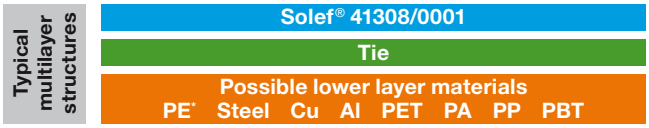
Solef® PVDF 41308/0001 has proved to give satisfactory adhesion to various tie layers available in the market; the main families are:

- Maleic anhydride grafted polyolefins
- Ethylene – Glycidyl Methacrylate copolymers
- Ethylene – Acrylic Esters – Maleic Anhydride terpolymers
- Ethylene – Acrylic Esters – Glycidyl Methacrylate terpolymers

All of the above mentioned materials showed adhesion to Solef® PVDF 41308/0001 at least an order of magnitude higher than standard Solef® homo and copolymers.

Possible Multilayer Structures

Several different constructions are possible (in coextrusion, extrusion coating or extrusion lamination) selecting the right tie layer grade, the most typical ones being listed here below (not an exhaustive list):



** any type including some PEX*

Selecting the most suitable tie layer from among the above reported list, it is possible to achieve very high interlayer adhesion and design structures with different partial thicknesses.

Typical Applications

- **Multilayer pipes:** Solef® PVDF 41308/0001 can be used as inner or outer layer in plastic multilayer pipes as an effective barrier layer against chemicals thanks to its chemical resistance.
  Main applications can be found in the Chemical Processing Industry (for both protection against chemical attack from other plastics and corrosion protection of metals), in hot and cold water transportation as well as in the Oil & Gas market to increase the thermal rating of polyolefin pipes due to PVDF's thermal insulation properties.
- **Multilayer films:** Several different applications are possible, in construction and transportation as anti-graffiti covering film (PVDF/tie layer bi-layer films hot laminable to steel), in packaging (for instance barrier layer and because of its anti-sticking properties), in photovoltaic backsheets manufacturing (PVDF/Tie/PET/Tie/PVDF or asymmetrical constructions) and many others.
- **Multilayer sheets:** in CPI to increase the service life of polyolefin based sheets used in contact with mild chemicals.
- **High purity:** where PVDF purity and process cleanliness are required for pipe, film and sheet applications.

Properties of Solef® PVDF 41308/0001

The melting temperature data refer to the second melting obtained after a first crystallization in order to erase the thermal history of the material.

Density:	1,78 g/cm^3
Melting Temperature:	167–171 °C
Melt Flow Index:	3–8 g/10min (230 °C, 2.16 kg)

Indicative values

Processing

Solef® PVDF 41308/0001 can be processed in the same conditions of standard PVDF grades.

All conventional techniques may be used for multilayer coextrusion. Fine-tuning of processing temperatures, output and equipment design might be needed to obtain the desired adhesion, thickness and layers distribution.*

** - max processing temperature: 250 °C*
- do not mix tie layers and Solef® PVDF 41308/0001 pellets in the same extruder/barrel to avoid gel and bubbles formation

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