

# Technical Data Sheet

## SUNCURE BPAF

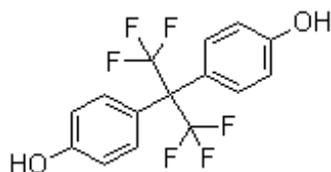
Product Name : SUNCURE BPAF

CAS No : 1478-61-1

Chemical Name : 2,2-Bis(4-Hydroxyphenyl)Hexafluoropropane

Molecular Formula :  $(CF_3)_2C(C_6H_4OH)_2$

Chemical Index :



Molecular Weight : 336.23

Technical Specification :

Appearance	White Powder
Melting range, (°C)	159-163
Purity (min. %)	99.5
Water(%)	≤0.1

### Monomer Applications

Bisphenol AF can be used as a monomer for a variety of polyimides, polyamides, polyesters, polycarbonates, and other specialty polymers. These polymers exhibit high temperature and chemical resistance. Addition of  $CF_3$ -containing units (as found in BPAF) to any polymer will result in an

improvement of chemical and thermal properties, without sacrificing mechanical properties. Some examples of individual applications involving Bisphenol AF as a monomer are:

- **Epoxy Resins:** A poly (hydroxyether) resin can be prepared from BPAF. The resulting high molecular weight resin possesses excellent thermoplastic properties. The resins show excellent adhesive and thermal properties. They are soluble in numerous water-soluble solvents and can be used in gas membrane applications, such as oxygenating membranes.

- **Polyphosphonates:** BPAF can react with a variety of phosphodichlorides in a basic environment to produce a polymerized phosphonate. These polyphosphonates can be characterized as having excellent flame-retardant characteristics while maintaining desirable mechanical properties. These polymers may be latexed in with other mixtures to improve the final article's thermal degradation properties.

- **Polycarbonates:** BPAF can be utilized as a monomer in the production of polycarbonate copolymers, resulting in a material with increased hydrolytic stability and caustic resistance. Applications such as the internal coating of dishwashers would benefit from better caustic resistance, resulting in a longer lifespan.

- **Adhesion Primer:** BPAF can be used to produce base-resistant primers, to improve the adhesion of a fluoroelastomer to metal or glass. This base-resistant primer is most suitable for adhering fluoropolymers which underwent a polyhydroxy cure, such as a BPAF cure.

### Crosslinking Agent

Bisphenol AF is the preferred curing agent or cross-linker for fluoroelastomers and heat resistant adhesives. Unlike peroxide cure systems, BPAF systems do not require additional brominated or iodinated monomers to act as cure sites. Any hydrogen-containing monomer, such as vinylidene fluoride(VDF) or 2-hydropentafluoropropylene(HPFP) can act as an independent BPAF cure site.

BPAF is currently used as a vulcanization agent for fluoroelastomers containing numerous different monomers, including VDF, hexafluoropropene(HFP), tetrafluoroethylene(TFE), and poly-alkyl fluoro ethers(PAVE). BPAF may be added to the latex mixture in amounts of 0.5-4 weight percent of water-free elastomer. Mixing can be accomplished using a standard rolling mill. BPAF may also be used as a precipitation agent to the polymer-preparation emulsion.

A vulcanization accelerator must be used in conjunction with the BPAF in amounts of 0.1-2 weight percent of water-free elastomer. The vulcanization may be any quaternary ammonium, phosphonium, or iminium salt. Typical accelerators are benzylphosphonium chloride (BTTPC) and tetrabutyl ammonium chloride. Finally, an acid-acceptor such as magnesium oxide or calcium hydroxide must be employed in amounts of 3-20 parts per 100 parts of water-free elastomer. The vulcanization agent and acid acceptor may be mixed into the latex with other stabilizing agents, such as carbon black.

The extent of initial and final cure (degree of crosslinking) can be well controlled using a BPAF cure system. Crosslinking density is determined by the amount of BPAF and acid acceptor, while cure rate is determined by the amount of vulcanization accelerator. Typically, a pre-cure is performed at 170°C for one minute to one hour, depending on the desired extent of initial cure. This product may then be molded into its final article through transfer molding, injection molding or extrusion. A final oven post-cure for 10-24 hours at about 230°C is usually required.

BPAF-cured products offer excellent handling properties, such as mold-release and hot tear strength. The final articles show excellent compression set resistance (of critical importance in gaskets and seals), high temperature resistance, high elongation, and excellent chemical resistance. BPAF-cured elastomers offer high permeability-resistance to hydrocarbons.

Packing : 20kg carton with PE inner liner.