

SOLPLUS™ F-SERIES AIR RELEASE AGENTS

UNIQUE AIR RELEASE/DE-AERATION AGENTS FOR THERMOSET SYSTEMS

Entrapment of air bubbles is a common challenge in manufacturing and/or applying thermoset-based systems. The highly thixotropic and pseudoplastic nature of composite formulations and high wet film thickness in applications (e.g. gelcoats) are contributing factors. If not removed, air bubbles develop into pinholes, resulting in porosity increase and defect and consequently, a significant reduction in overall performance of the final part. The use of air release agents can prevent these defects in composite materials.

Applications

- Gelcoat
- Casting
- Putties
- Lay up/Spray up
- Continuous laminating
- Transparent
- Infusion/RTM
- Lining/Flooring
- SMC/BMC
- Ambient-cure polyester
- Epoxy

Fast Removal of Air Bubbles

A range of advanced polymers, based on unique, de-aeration technology, is now available to quickly release air. Designed for thermoset resins, Solplus™ F-Series delivers outstanding performance, especially in unsaturated polyester, vinyl ester and epoxy. It removes air bubbles rapidly and efficiently, prevents pinhole and defect formation, and can improve mechanical strength and production cycle of composite parts.

Solplus F-Series technology reduces surface imperfections and provides good clarity to laminates and composite parts. Moreover, it provides effective fiber wetting, resulting in improvement of fiber interface and prevention of weakness in the composite structure.

Silicon, hazard label and VOC-free options and FDA food contact grades are available as listed in table below.

Performance Summary of Solplus™ F-Series Products

Sample	UPE Resin	Epoxy Resin	Vinyl Ester Resin	VOC	Labelling	Silicon Free	Food Contact Clearance
Solplus™ F100	•	—	•	45%	None	Yes	FDA 21CFR 175.105, 175.300
Solplus™ F110	•	—	—	0	None	Yes	None
Solplus™ F300	○	•	—	95%	H304	No	FDA 21CFR 175.105, 175.300
Solplus™ F500	•	•	•	<90ppm	None	Yes	None
Solplus™ F510	○	•	•	67%	H304	Yes	FDA 21CFR 175.105, 175.300

Features & Benefits

- Fast removal of air bubbles in thermoset resins
- Silicon, Hazard label and VOC-free options available
- Good clarity
- Effective wetting of fibers
- FDA food contact approval 21 CFR: 175.105, 175.300



Solplus™ F-Series air release agents function within the bulk of the liquid. They result in coalescing of smaller air bubbles to form larger bubbles that migrate to the surface easier and faster. This reduces the amount of air bubbles in the bulk of liquid significantly when compared to the formulation without Solplus F-Series air release agents.

Figure 1 demonstrates the performance of Solplus F-Series in pigmented, unsaturated polyester formulation. As shown in Figure 1b, the air release agent removes air bubbles effectively and fast and provides an almost defect-free part in comparison with that of a formulation not containing an air release additive (Figure 1a).

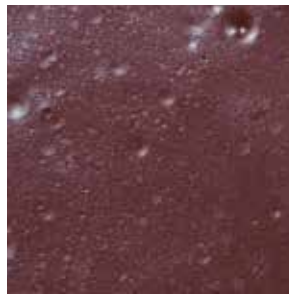


Figure 1a:
Unsaturated polyester composites
without an air release agent



Figure 1b:
Unsaturated polyester composites
with air release agent

To ensure of maximum performance, Solplus F-Series air release agents should be added to the resin at the start of mixing to avoid air entrapment and bubble formation. The other raw materials are then blended in the normal manner.

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