Airable
RESEARCH LAB
WHERE SUSTAINABLE SOLUTIONS START

Anhydride Curing Agents

Airable's anhydride curing agent platform offers multiple chemistries to meet targeted epoxy performance requirements. These materials provide a high-performance, sustainable alternative to conventional petrochemical anhydride curing agents.

THE TECHNOLOGY

Airable has modified soybean oil to contain anhydride functional groups to provide high-crosslink density in the final product. This approach adds bio-based content to a product while providing the benefits of typical anhydride cured resins, such as chemical resistance and a long pot life. The available technologies are listed to the right.

Anhydride	Equivalent Weight (g/eq)	Gardner Color	Viscosity (cPs, 25C)	Bio-Content (%)
AnAir 0141	158.3 (carb)	18	50,000	40
AnAir 0143	165.3 (carb)	17	22,000	72
AnAir 0144	191.4 (carb)	16	600,000	34

To evaluate performance and compatibility, the soy-based anhydrides were formulated 1:1 equivalent with bisphenol A diglycidyl ether (BADGE, ~377 EEW). Resins were cured solvent-free using 2E4MZ catalyst at 140°C for four hours. Cured resins formed clear, glassy coatings with high hardness, strong adhesion to steel, and excellent solvent resistance.

	Crosshatch Adhesion	Pencil Hardness	MEK Double Rub	Mandrel Bend (ø)	Shore D
ASTM	D3359	D3363	D5402	D522M	D2240
AnAir 0141*	5B	5H	100+	≤0.5"	55
AnAir 0143*	5B	5H	100+	≤0.3"	60
AnAir 0144*	5B	5H	100+	≤0.4"	78

**Cured 1:1 eq with BADGE (~377)*

APPLICATIONS

- Composites
- Coatings
- Electronics encapsulation

BENEFITS

- Long pot life
- High solvent resistance
- Excellent metal adhesion

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