

Technical Data Sheet

Versamid[®] F-11

*Versamid[®] F-11 was previously BASF Versamine[®] F-11

Product Description	Versamid[®] F-11 is a medium viscosity amine-functional epoxy curing agent designed specifically for low temperature (< 32°F), fast curing of epoxy resins.
Key Features & Benefits	<ul style="list-style-type: none"> - Excellent low temperature cure capabilities - Fast set films - Low odor - Good chemical and corrosion resistance - Eliminates drastic color changes associated with phenol catalyzed systems - Excellent resistance to film bloom and blush at high humidities - Excellent accelerator for Versamids[®] and Genamids[®]
Chemical Composition	Modified aliphatic amine curing agent

Properties

Product Specifications	Amine value	602 – 632 mg KOH/g
	Viscosity at 25°C (Thermosel)	1,500 – 4,000 cps
	Gardner color	7 max
Typical Characteristics	Amine value	610 mg KOH/g
	Amine hydrogen equivalent weight (theoretical)	91
	Viscosity at 25°C (Thermosel)	2,000 cps
	Gardner color	3
	Specific gravity	1.036 g/cm ³
	Flash point (Seta)	> 200°F
	Benzyl alcohol content	2% by wt

These typical values should not be interpreted as specifications.

Applications

Versamid[®] F-11 is a medium viscosity amine-functional epoxy curing agent that may be used as the sole curing agent and an accelerator for Versamid[®], Genamid[®] or other Versamid[®] products.

The fast-set characteristics of this product coupled with the wide temperature use range, has given it a great deal of utility in areas such as industrial, marine and maintenance coatings, civil engineering applications, and as fast-set adhesives either at lower or elevated temperatures. It is also useful for fast-set concrete bonding and patching compounds.

Versamid[®] F-11 and epoxy resin systems are recommended for applications such as:

- Industrial, marine and maintenance coatings
- Civil engineering applications
- Fast-set adhesives
- Fast-set concrete bonding and patching compounds

Processing

Mix ratio with 190 EEW liquid epoxy is 48 phr. Due to chemical reaction, Versamid® F-11 and epoxy resins should not be mixed until just prior to use.

Versamid® F-11 does not contain phenol or mercaptans as catalysts and is the fastest reacting epoxy curing agent with a gel time of 1 – 3 minutes at 77°F. Although it has short working times and films tend to be slightly brittle, these properties can be eliminated by blending Versamid® F-11 with Versamid® or Genamid® resins or using higher molecular weight epoxies.

Typical Properties of Versamid® F-11 in a Cured Coating

Gel time	3 minutes
Tack-free time	45 minutes
Through-cure time, 3 mils wet film	1 hour, 30 minutes

Cured with 190 EEW liquid epoxy resin.

Typical Properties of a Versamid® F-11 Cured Resin

Tg	85°C
Compressive strength	13,400 psi

Cured with 190 EEW liquid epoxy for 7 days at 25°C.

Typical Chemical Resistance Properties of Unfilled Castings

Chemical	Weight gain (%)
10% Acetic acid	Destroyed
10% Hydrochloric acid	6.01
10% Sulfuric acid	13.71
10% Sodium hydroxide	0.39
Methyl ethyl ketone	Destroyed
Xylene	0.20
Ethanol	7.28

Percent weight gain after a 7-day cure at 25°C followed by a 21-day immersion at 25°C.

Safety

General

The usual safety precautions when handling chemicals must be observed. These include the measures described in Federal, State, and Local health and safety regulations, thorough ventilation of the workplace, good skin care, and wearing of protective goggles.

Safety Data Sheet

All safety information is provided in the Safety Data Sheet for Versamid® F-11.

Storage

Versamid® F-11 may absorb moisture and carbon dioxide if left in open containers, which may result in an increased viscosity and some foaming when curing epoxy resins. Therefore, it should be kept in tightly closed containers when not in use and stored in a cool, dry place. Properly stored and protected from moisture, an unopened container of Versamid® F-11 should have a shelf life of two years.

Important

While the descriptions, designs, data and information contained herein are presented in good faith and believed to be accurate, they are provided for guidance only. Because many factors may affect processing or application/use, Gabriel recommends that the reader make tests to determine the suitability of a product for a particular purpose prior to use. **NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESCRIPTIONS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS.**

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