

Preliminary Data Sheet - Starting Formulation 8035

Issued October 2017

Epoxy Resin System for Cured In-Place Pipe Rehabilitation

EPON™ Resin 9211 with EPIKURE™ Curing Agent 9251

Introduction EPON Resin 9211/EPIKURE Curing Agent 9251 is an epoxy resin system designed to provide long out life to meet demanding installation needs.

- Suggested Uses**
- CIPP
 - Pressure systems
 - Corrosion inhibitor
 - Seal pinholes and small cracks

- Features**
- Long out time at 10 °C storage conditions
 - Excellent infusion behavior
 - Excellent mechanical properties
 - Excellent cost-performance ratio

Typical Properties Table 1 / **Typical Component Properties**

	<u>Method</u>	<u>Units</u>	<u>EPON Resin 9211</u>
Epoxide Equivalent Weight	ASTM D1652	g/eq	~202
Viscosity @ 25°C (77°F)	ASTM D1545	cP or mPas	~1213
Density @ 25°C (77°F)	ASTM D1475	g/cc	~1.12
	<u>Method</u>	<u>Units</u>	<u>EPIKURE Curing Agent 9251</u>
Viscosity @ 25°C (77°F)	ASTM D1545	cP or mPas	~650
Density @ 25°C	ASTM D1475	g/cc	~1.02

Mix Ratio	Material	<u>Parts by Weight</u> ¹
	EPON Resin 9211, pbw	100
	EPIKURE Curing Agent 9251 , pbw	5
	¹ pbw = parts by weight	

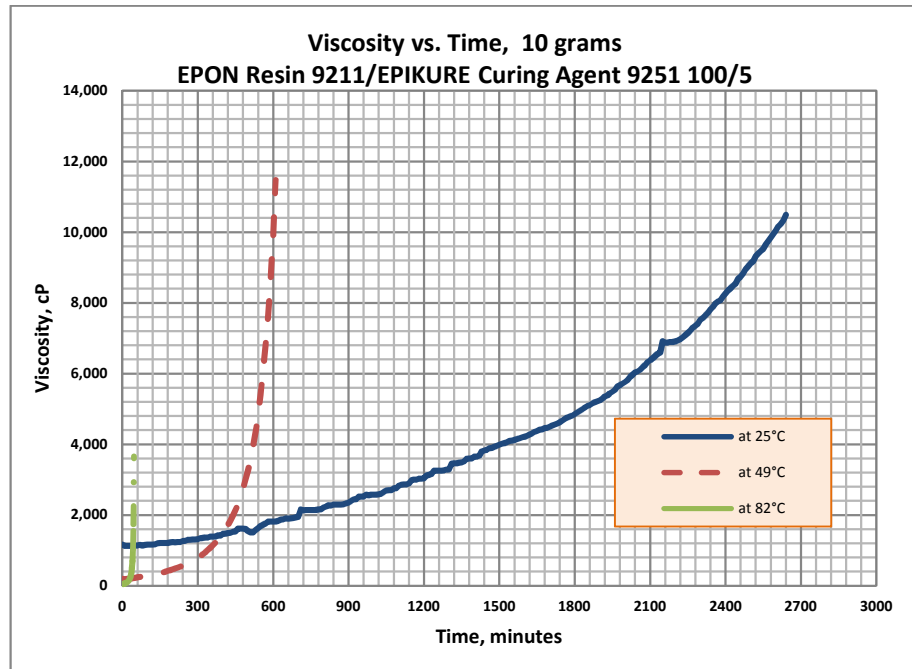
Mixing Instructions The stated mixing ratio should be followed carefully. Adding more or less hardener than desired will result in an incomplete cure with limited performance that cannot be corrected. Resin and curing agent must be mixed carefully. Mix until no clouding is visible in the mixing container. Special attention must be paid to the walls and bottom of the mixing container when mixing by hand.

Typical System Properties	Table 2 / Properties of Resin System	<u>Units</u>	<u>Value</u>
	Viscosity at 25°C (77°F)	cP or mPas	1345
	Pot Life ¹ (time to double initial viscosity @ 25°C)	minutes/hrs	940/15.7
	Working time ² at 49°C (120°F)	minutes/hrs	636/10.6
	Working time ² at 82°C (180°F)	minutes/hrs	53/0.88
	Gel time at 25°C (77°F), 100g	hrs/minutes	106/6,360
	Gel time at 49°C (120°F), 100g	hrs/minutes	14.76/885.3
	Gel time at 82°C (180°F), 100g	Hrs/minutes	1.54/92.4
	Density @ 25°C	lbs/gal	9.33
	Specific gravity @ 25°C	g/cc	1.12

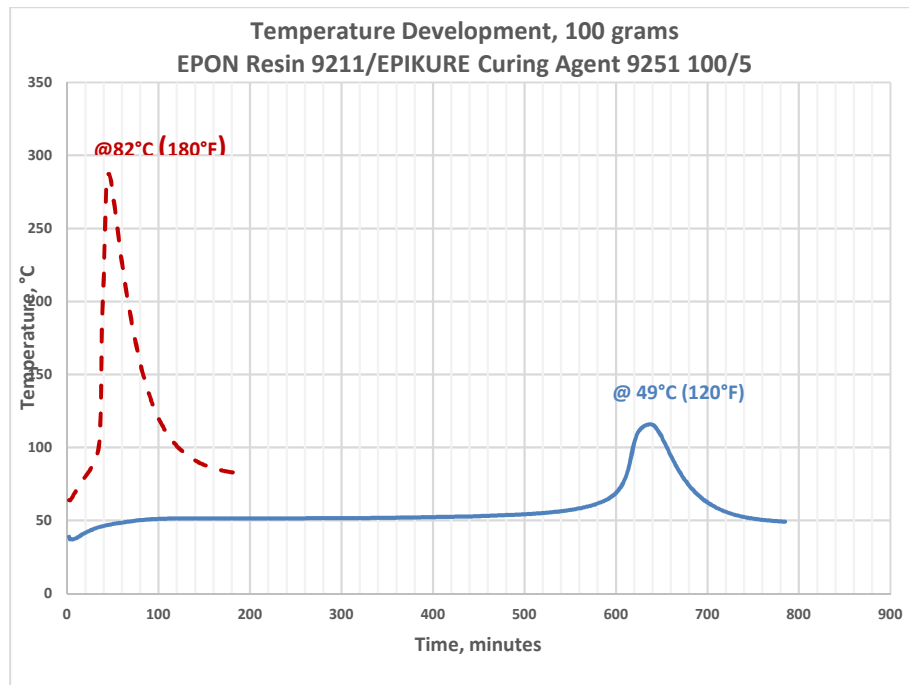
¹Parallel plate rheometer

²Time to peak temperature, based on 100g mass

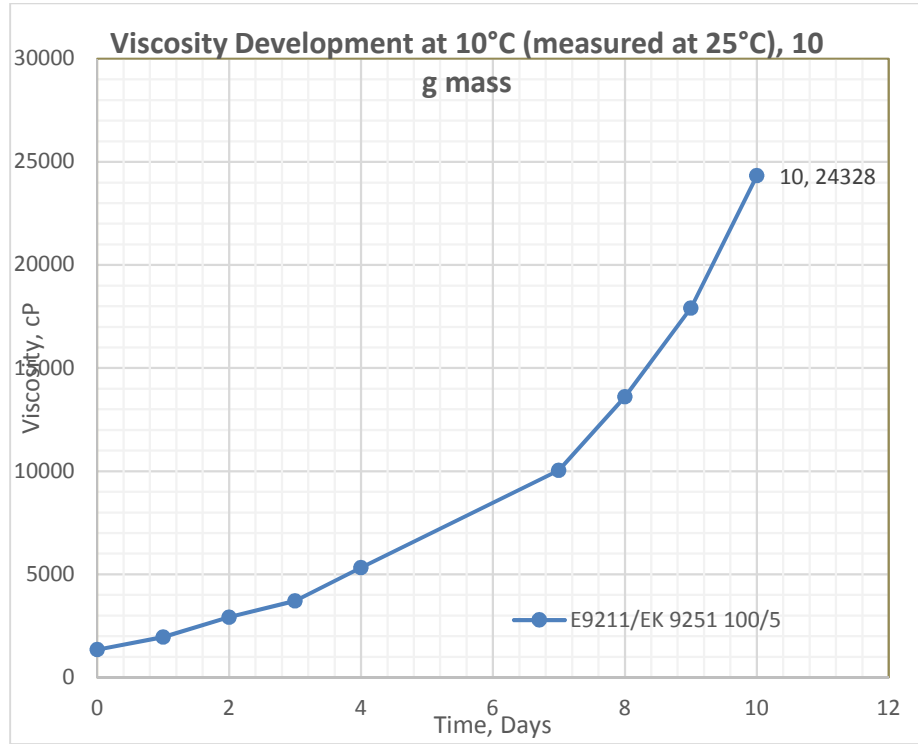
Graph 1 / Viscosity over Time



Graph 2 / Temperature Development, 100 grams



Graph 3 / Viscosity Development at 10°C, 10 grams



Typical Cured State Properties Table 3 / Typical cured neat resin system casting properties of

	<u>Method</u>	<u>Units</u>	<u>Value</u>
Cure Schedule		hrs/°C (°F)	6/82 (180)
Tg by			
DSC (20°C/min), Heat 1/Heat 2		°C (°F)	74 (165)/82 (180)
DMA - E' onset		°C (°F)	61 (142)
DMA – tan delta peak		°C (°F)	91 (196)
Tensile			
Strength at Yield	ASTM D-638	psi	9.2
Strength at Break	ASTM D-638	psi	8.8
Elongation at Yield		%	4.8
Elongation at Break		%	7.2
Modulus		ksi	376

General Information

These are starting formulations and are not proven in the user's particular application but are simply meant to demonstrate the efficacy of the products and to assist in the development of the user's own formulation. It is the user's responsibility to fully-test and qualify the formulation, along with the ingredients, methods, applications or equipment identified herein ("Information"), by the user's knowledgeable formulator or scientist, and to determine the appropriate use conditions and legal restrictions, prior to use of any Information.

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Please refer to the SDS for the most current Safety and Handling information.

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Contact Information

For product prices, availability, order placement, literature or technical assistance, visit our website at:

www.hexion.com/epoxy



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