

EpoPro[®] 2651A with Hardeners 911 or 959 MULTIPURPOSE FILLED EPOXY ENCAPSULATING SYSTEM

EpoPro[®] 2651 resin is mica filled epoxy resin system that can be used with a range of our hardeners including EpoPro Hardener 911 and 959. When used with hardener 911 it has a long pot life and after heat curing the cured polymer has excellent heat and chemical resistance. When cured with the Hardener 959 it cures at room temperature with and has a good blend of mechanical and electrical properties as well as good resistance to chemical and environmental exposure. Many other hardeners can be used with the EpoPro 2651A resin to achieve a wide range of properties. This datasheet is an overview of the properties achievable with the 911 and 959 hardeners for information on the properties produced by other hardeners please contact us about those specific combinations.

Please note that EpoPro 2651A is available in other colors and that a low viscosity and highly machinable versions are also available. Please contact us to discuss your application or to receive information on other versions of this resin system. .

APPLICATIONS & BENEFITS:

- Very good adhesion to metals, glass, and many rigid plastics
- Electrical Potting & Encapsulation
- Crack and impact resistant cured polymers with excellent barrier properties
- Casting

<u>HANDLING PROPERTIES</u>	<u>VALUE</u>	<u>TEST METHOD</u>
<u>EpoPro 2651</u>		
Visual Appearance	Black thick liquid	
Density,	1.65 g/cm ³	ASTM E-201
Viscosity at 25°C	220,000 cps	ASTM D-2393
Flash point	> 100°C	
<u>EpoPro Hardener 911 or 911-1*</u>		
Visual Appearance	Dark brown semi-crystalline liquid	
Density,	1.09 g/cm ³	ASTM E-201
Viscosity at 625°C	50 cps	ASTM D-2393
Flash point	See SDSs	
<u>EpoPro Hardener 959</u>		
Visual Appearance	Light yellow liquid	
Density,	0.995 g/cm ³	ASTM E-201
Viscosity at 25°C	80 cps	ASTM D-2393
Flash point	> 185°C	

*Note the Hardener 911-1 performs identically the Hardener 911 and they can be used interchangeably, but the Hardener 911 contains an ingredient that is on the REACH SVHC list and the Hardener 911-1 does not.

Processing Properties				
	Mix ratio (by weight)	Mix ratio (by volume)	Mixed Viscosity at 25°C	Gel time (100g) at 25°C
2651A : 911 or 911-1	100 : 8.5	100 : 12.5	28000 cps	>4 hours
2651A : Hardener 959	100 : 7	100 : 11.5	35000 cps	40 minutes

Typical Properties after curing, tested at 25°C						
	Shore Hardness	24 hr. boiling H2O absorption	Glass transition Temperature	Tensile Strength	Compressive Strength	Service Temperature
2651A : 911 or 911-1	88D	0.1%	141°C	8950 psi	16200 psi	-55°C to +155°C
2651A : Hardener 959	88D	0.25%	85°C	6380 psi	17000 psi	-40°C to +130°C

Common Properties for both systems	
Thermal Conductivity	0.66 W/MK
Volume Resistivity at 25°C	>1 x 10 ¹⁵ ohm-cm
Dielectric Constant at 1MHz	3.9
Dielectric Strength	>17 KV/mm
Coefficient of Thermal Exp.	40 – 45 ppm/ °C

NOTE : Values are based on laboratory or average production results – not for specification purposes.

SUGGESTED PROCESSING GUIDELINES:

To use, weigh Part A and Part B in the recommended ratio as accurately as possible into a clean mixing container. Mixing containers should preferably be made of polypropylene, polyethylene, glass, or non-corroding metal. (Stainless steel, aluminum, etc.). Always use weighing equipment having accuracy that is ±1% or less of the smallest quantity that you will be weighing. Blend Part A & B thoroughly by using a spatula or stirring stick for at least 2-3 minutes using a kneading motion. Scrape the bottom and sides of the mixing container carefully and frequently to produce a uniform mixture. Vacuum de-gassing after mixing is desirable for the best electrical and mechanical properties as well as for the best visual appearance, however this is not required for all applications.

The mixed material may be applied using a stiff brush, by pouring, or using syringes and or other application equipment.

CURE SCHEDULES:

EpoPro 2651A with Hardener 911 or 911-1

8 – 16 hours at 80°C or
2 -4 hours at 100°C or
30 – 60 minutes at 120°C

EpoPro 2651A with Hardener 959

16 to 24 hours at 25°C or
4 to 6 hours at 45°C or
1 to 2 hours at 65°C

Please note that in general long cures and higher temperature cures will provide more chemical and heat resistance to the cured parts. For stress sensitive applications allow to gel at the lowest temperature listed for at least the minimum time mentioned (ex. 8 hours at 80C for the hardener 911 or 16 hours at 25C for the Hardener 959) before completing the cure with a higher temperature cure. This will help to reduce curing shrinkage and reduce stress on embedded components.

STORAGE GUIDELINES:

Store these materials in a clean, cool, and dry environment in its tightly closed original container. Store away from Fire, sparks, and heat. Protect the EpoPro 2651 from extended exposure to temperature below 15°C (59°F) as crystallization may occur if the epoxy is exposed to cold temperatures for extend periods. If crystallization occurs, heat the entire container for 4 hours at 50°C to re-liquefy the crystals. Cool to room temperature and stir to re-homogenize prior to use. Tightly re-seal containers after use. The Hardener 911 and 911-1 will become slushy/ semi-crystalline after several hours at room temperature and should be heated to liquefy prior to use. If the recommended storage conditions are observed these products will have a minimum shelf-life of 12 months from the date of shipment.

HANDLING PRECAUTIONS:

Mandatory and recommended industrial hygiene procedures should be followed whenever these products are being handled and processed. For additional information please consult the corresponding Safety Data Sheets.

FIRST AID

In case of contact:

Skin – Immediately wash skin thoroughly with mild soap and water. Remove contaminated clothing and wash before reuse. Destroy contaminated shoes and other articles made of leather.

Eyes – Immediately flush eyes with plenty of water for 15 minutes and get prompt medical attention.

Inhalation - Remove person to fresh air. Administer oxygen or artificial respiration if necessary. Call a physician.

Ingestion - Do not induce vomiting. Dilute with plenty of water and contact physician immediately. Never give anything by mouth to an unconscious person.

DISCLAIMER:

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