

## Advanced Materials

<b>Arathane® CW 5631</b>	<b>100</b>	<b>pbw</b>
<b>Arathane® HY 5611-1</b>	<b>25</b>	<b>pbw</b>

**Thermal Class F casting and impregnating system for high temperature applications  
Processing and curing at room temperature.**

### **Application**

Transformers, filters, capacitors etc.  
Electrical devices working in potentially explosive environment.

### **Processing Methods**

Casting / Impregnating.  
Manually or with automatic mixing and dosing equipment.

### **Key Properties**

High thermal endurance.  
Excellent flow properties.  
Good thermal conductivity.  
Non abrasive casting system.  
Good thermal shock resistance.  
Flammability: UL 94 V-0 (6 mm).

## Product Data (Guideline Values)

### Arathane® CW 5631

Polyol, containing mineral filler.

Viscosity at 25 °C	ISO 3219	mPa*s	3400 – 5100*
Specific Gravity at 25 °C	ISO 2811	g/cm <sup>3</sup>	1.48
Appearance	Visual		Black liquid*

### Arathane® HY 5611-1

Isocyanate.

Viscosity at 25 °C	PU / VIS-1	mPa*s	180 – 240*
Specific Gravity at 25 °C	ISO 1675	g/cm <sup>3</sup>	1.23
Appearance	Visual		Brown liquid*

\*Specified range

## Processing Data (Guideline Values)

### Mix Ratio

		Parts by weight	Parts by volume
CW 5631	Polyol	100	100
HY 5611-1	Isocyanate	25	30

### Gel Time, Viscosity and Curing

Mix Viscosity at 25 °C	CW 5631 / HY 5611-1	Rheomat	mPa*s	3700
Gel time at 25 °C	CW 5631 / HY 5611-1	Gelnorm	min	60
Pot life (Time to reach 5000 mPa*s)	CW 5631 / HY 5611-1	Rheomat	min	7
Minimum Curing Cycle	24 hours at RT or 6 hours at 80 °C			

## Processing and Storage (Guideline Values)

### Preparation

CW 5631 contains fillers, which tend to settle over time. It is therefore recommended to carefully homogenize the complete contents of the container before use.

In the storage vessels of the production equipment, the pre-filled products should be stirred up from time to time to avoid sedimentation and irregular metering.

### Mixing

The casting mix is best prepared by heating the resin up to 40 – 50 °C before stirring in the hardener.

Brief degassing of the mix under 5 – 10 mbar vacuum improves the mixture homogeneity and enhances the dielectric properties of the castings.

### Curing

To determine whether cross-linking has been carried to completion and the final properties are optimal, it is necessary to carry out relevant measurements on the actual object or to measure the glass transition temperature. Different gel and cure cycles in the customer's manufacturing process could lead to a different degree of cross-linking and thus a different glass transition temperature.

### Storage Conditions

Store the components in a dry place according to the storage conditions stated on the label in tightly sealed original containers. Under these conditions, the shelf life will correspond to the expiry date stated on the label. After this date, the product may be processed only after reanalysis. Partly emptied containers should be tightly closed immediately after use.

HY 5611-1 must be protected from moisture. Storage tanks should be blanketed with dry air or nitrogen. Storage at temperatures above 50 °C is not recommended, since this can lead to the formation of insoluble solids and also the viscosity build-up increases on extended storage. Storage at low temperature is not recommended because it may lead to some crystallisation. Crystallised material must be melted out immediately by short time heating.

For information on waste disposal and hazardous products of decomposition in the event of a fire, refer to the Material Safety Data Sheets (MSDS) for these particular products.

## Mechanical and Physical Properties (Guideline Values)

Determined on standard test specimen at 23°C. Cured for 24h/RT + 6h/80°C.

Glass transition temperature	ISO 6721	°C		47
Shear modulus	ISO 6721	MPa		1260
Max. service temperature	IEC 60085			Class F
Tensile modulus	ISO 527	MPa		2100
Tensile strength	ISO 527	MPa		30
Elongation at break	ISO 527	%		6
Flexural Modulus	ISO 178	MPa		2300
Flexural Strength	ISO 178	MPa		53
Thermal linear coefficient	ISO 11359-2			
Alpha 1		ppm/K		70
Alpha 2				135
Thermal conductivity	ISO 8894-1	W/mK		0.6
Hardness	DIN 53505	Shore D		80
Flammability	UL 94		Not certified	V-0 (6 mm)
Water absorption	ISO 62/80			
1 day at 23°C		% by wt.		0.1
10 days at 23°C				0.28
30 min at 100°C				0.3

## Electrical Properties (Guideline Values)

Determined on standard test specimen at 23°C. Cured for 24h/RT + 6h/80°C.

Dielectric strength (2 mm specimen)	IEC 60243-1	kV/mm		29
Dielectric loss factor (tan $\delta$ , 50Hz, 25°C)	IEC 60250	%		3
Dielectric constant ( $\epsilon_r$ , 50Hz, 25°C)	IEC 60250			4.5
Volume resistivity ( $\rho$ , 25°C)	IEC 60093	$\Omega$ cm		$10^{14}$
Electrolytic corrosion	IEC 60426	grade		A/1

## Legal Notice

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