



# PRODUCT INFORMATION

**HIGH TECHNOLOGY MATERIALS**

## META-CAST 405

### LOW VISCOSITY 100% EPOXY CASTING RESIN

**META-CAST 405** is a low viscosity 100% epoxy resin which contains no reactive diluents, plasticizers, or other modifiers. Optimum amounts of fillers may be incorporated into **META-CAST 405** for control of shrinkage and other physical properties. Upon addition of a hardener, the viscosity is further reduced, so that casting, potting, encapsulation and sealing operations are easily effected. Thermal mechanical and electrical properties of the cured resin are excellent.

#### TYPICAL PROPERTIES OF LIQUID META-CAST 405

Appearance	Light, amber, mobile liquid
Viscosity @ 25°C (cps)	7200
Specific Gravity, 25°/25°C	1.18
Storage Life @ 25°C	6 months

#### CHARACTERISTICS OF LIQUID RESIN HARDENER MIXTURES

	MEREKO HARDENERS				
	<u>5</u>	<u>12</u>	<u>14</u>	<u>16</u>	<u>23</u>
Mixing Ratio (phr)	9.5	13	8	24	25
Viscosity @ 25°C (cps)	900	1000	750	500	1000
Working Life 1-lb. @ 25°C	90 min.	30 min.	140 min.	4 hrs.	24 min.
Exotherm (°C)	170	180	170	150	175
Cure Schedules	A	B	C	D	A

- A. 14 to 24 hrs. @ room temperature, or gel at R.T. plus 2 hrs. at 100°C
- B. 14 to 24 hrs. @ room temperature, or gel at R.T. plus 4 hrs. at 40°C
- C. Gel at R.T. plus 2 hrs. at 100°C, or 1 hr. at 120°C
- D. 2 hrs at 125°C or B-Stage 26 hrs. plus 1 hr at 150°C

- NOTES:**
1. **HARDENER 16** resin mixtures gel to a thermoplastic B stage at room temperature. The resin then is cured to an infusible plastic (if desired) by post curing according to listed schedule.
  2. **HARDENER 23** is a minimum irritation potential hardener and practically eliminates hazards from dermatitis.

Technical information and recommendations made by Mereco Division and Metachem Resins Corporation concerning products and uses or applications thereof, are based on reliable laboratory tests and are believed to be accurate. No warranty, however, is expressed or implied, nor is any warranty expressed or implied as to results to be obtained from use of said materials, whether used singly or in combination with other products. No statements made are to be construed as constituting a license under any existing patent.

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**TYPICAL CHARACTERISTICS OF CURED RESIN\***

	<b>MERECO HARDENERS</b>				
	<b><u>#5</u></b>	<b><u>#12</u></b>	<b><u>#14</u></b>	<b><u>#16</u></b>	<b><u>#23</u></b>
Specific Gravity 25°/25°C	1.19	1.19	1.20	1.19	1.21
Operating Range (°C)	-50 to +185	-50 to +200	-50 to +150	-50 to +220	-50 to +200
Structural Deformation Temperature (°C)	76	80	76	160	110
Tensile Strength, psi	8,000	9,000	8,000	14,000	11,000
Compressive Strength, psi	30,000	16,000	30,000	38,000	18,000
Dielectric Strength (volts/mil)	480	520	490	500	485
Power Factor @ 1000 cycles	0.01	0.01	0.0016	0.03	0.01
Dielectric Constant @ 1000 cycles	3.7	4.1	3.8	3.6	4.2
Volume Resistivity (ohm-cm)	10 <sup>14</sup>	10 <sup>16</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>15</sup>

\*All tests performed in accordance with latest ASTM procedures.

For many casting and encapsulation applications, the selection of the proper fillers increases the utility and upgrades the physical properties of the resin system.

Specific detailed physical characteristics of filled systems based on **META-CAST 405** can be supplied. The following chart should aid the user in the proper selection of filled resin systems.

<b><u>FILLER SYSTEM</u></b>	<b><u>OUTSTANDING CHARACTERISTICS OBTAINED</u></b>
META-CAST 405-VMA	Very high resistance to moisture over wide temperature range, very low moisture vapor permeability.
META-CAST 405-AP	Increased surface hardness, scratch resistance, impact strength, low water absorption
META-CAST 405ST	Lower shrinkage, reduced filler settling