



PRODUCT INFORMATION

HIGH TECHNOLOGY MATERIALS

METACAST 401

LOW VISCOSITY, 100% REACTIVE, ROOM TEMPERATURE CURE BASIC EPOXY CASTING RESIN

METACAST 401 is a very low viscosity, general purpose epoxy casting resin with excellent electrical and physical properties. A selection of curing agents may be used in conjunction with **METACAST 401** to provide systems offering a variety of working conditions and end results to suit the requirements of particular applications.

The low viscosity of this standardized 100% reactive epoxy resin allows incorporation of optimum amounts of fillers for the control of shrinkage, the improvement of thermal conductivity, and the reduction of thermal expansion.

The fully cured basic systems are suitable for general purpose applications such as casting, potting, laminating, encapsulating, bonding and sealing.

METACAST 401 is available in a series of standard filler systems and may be compounded with special fillers and colors, or to special viscosities as required by a particular application.

TYPICAL PROPERTIES OF LIQUID METACAST 401

Appearance	Amber, mobile liquid
Viscosity @ 25°C (cps)	700
Specific Gravity, 25°/25°C	1.13
Epoxide Value (Equiv./100g)	0.53
Storage Life @ 25°C	6 months

PROPERTIES OF UNCURED LIQUID/HARDENER MIXTURES

MERECO HARDENER NO.	CASTING RESIN SYSTEM DESIGNATION	MIXING RATIO (PHR) PARTS HARDENER PER 100 METACAST 401 (BY WEIGHT)	(BY VOLUME)	INITIAL VISCOSITY (CPS, @ 25°C)	POT LIFE MINUTES, 200 G MASS	MAXIMUM EXOTHERM (°C)
6	401/6	12	13	400	45	125
12	401/12	13.3	15.5	500	20	150
25	401/25	20	20	2000	25	200

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.

FORM 1105 REV. 0

MERECO TECHNOLOGIES GROUP * 1505 MAIN STREET * WEST WARWICK, R.I. 02893 * (401) 822-9300 * Fax (401) 822-9311

RECOMMENDED CURE SCHEDULES

Any one of the following cure schedules is recommended:

<u>MERECO HARDENER #6</u>	<u>MERECO HARDENER #12</u>	<u>MERECO HARDENER #25</u>
24 hrs. @ 25°C	24 hrs. @ 25°C	14 to 24 hrs. @ 25°C
2 hrs. @ 100°C	5 hrs. @ 40°C	2 hrs. @ 60°C
1 hr. @ 120°C	2 hrs. @ 60°C	

Post-curing is recommended for attaining maximum properties

PROPERTIES OF FULLY CURED METACAST 401 RESIN SYSTEMS*

<u>MERECO SYSTEM NO.</u>	<u>401/6</u>	<u>401/12</u>	<u>401/25</u>
Specific Gravity (25°C)	1.19	1.21	1.19
Heat Distortion Temp. (°C)	76	80	80
Tensile Strength (psi)	6000	9000	8000
Compressive Strength (psi)	16000	16000	18000
Flexural Strength (psi)	11000	12000	18000
Hardness (Shore D)	70	75	75
Shrinkage (%)	1.0	1.2	1.2
Coefficient of thermal expansion x 10 ⁵ /°C	6.0	6.1	6.6
Moisture Absorption (24 hr. immersion, %)	0.18	0.2	0.1
Dielectric Strength (V/mil)	480	430	450
Volume Resistivity (ohm-cm x10 ⁻¹⁴ @ 25°C)	2.0	4.0	0.60
Dielectric Constant (10 ³ Hz)	4.2	4.2	4.3
Dissipation Factor (10 ³ Hz)	0.010	0.011	0.012

For many applications the use of filled resin bases upgrades the physical and electrical properties, and increases the versatility and the utility of the resin-hardener systems.

The physical characteristics of the four standardized filled bases of METACAST 401 are briefly described below. Specific properties of each system are listed in the applicable technical data brochure. The highly specialized dispersion technique developed by MERECO to incorporate fillers is clearly evident in batch to batch uniformity of these filled resin bases as well as the retarded settling rate of the fillers on long term storage.

*All tests performed in accordance with accepted ASTM procedures. (Test samples post-cured 24 hrs. @ 60°C).

Either **METACAST 401** or any of the filled bases are available in standard colors of natural tan, white, red, yellow, green, blue brown and black. Where special colors, other fillers and/or viscosities are required, filled bases of **METACAST 401** can be compounded to user specifications.

<u>FILLER SYSTEM</u>	<u>CODE DESIGNATION</u>	<u>CHARACTERISTICS</u>
Silica, Standard	401-S	Reduction of shrinkage, improvement of Thermal Conductivity, lowering of Thermal Expansion.
Mica, Treated (Proprietary to MEREKO standards)	401-VMA	Same as Standard Mica, very high resistance to moisture vapor penetration.
Silica, Thixotropic (Proprietary to MEREKO standards)	401-ST	Same as Standard Silica, slightly thixotropic, non-settling with aging
Proprietary Filler (to MEREKO standards)	401-AP	Thixotropic, non-settling machine-able filler of excellent electrical properties yet scratch resistant

CLEAN-UP

METATERGE 1405 is recommended to replace hazardous solvents for general clean-up. **METATERGE 1405**, a unique water soluble resin detergent, dissolves uncured resin systems and renders them water compatible. Soiled equipment, tools or bench areas can then be simply cleaned with a wet sponge or shop rag. Refer to Data Bulletin.