Enthone Inc.
350 Frontage Road, West Haven, CT 06516 USA

MacDermid Enthone
ELECTRONICS SOLUTIONS

MacDermid Enthone Electronics Solutions

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Enthone M-Series & 50-Series Epoxy Inks

This guide gives supplemental information on ink properties including test information and approximate color references to the Fed-STD-595. We stopped producing custom color matches in 2006 and none of our standard colors are color matched to the Fed-STD-595 color chips. The “Fed-STD-595 Approximate Color Reference” is a visual check of our standard colors against the Fed-STD-595 color chips and a color number selected that appeared to be the closest match. In some cases notes were made on color differences. In the Fed-STD-595 numbering system the first digit indicates the gloss level (1-Gloss, 2-Semigloss, and 3-Lusterless). For the M-Series inks the gloss is between a “1” and “2”, so the best match for the color shade was selected. For the 50-Series inks the majority of inks are “1”, but the 50-120R is a “2”, and the matte inks (50-110RX, 50-710R, and 50-770R) are “3”.

For the “Fed-STD-595 Color Reference from A-A-56032” these are the color numbers that initially came from the MIS-37271 and were referenced in this specification to the corresponding M-Series ink. The MIS-37271 was incorporated into the rev B of the A-A-56032, but the reference to the M-Series colors was removed.

M-Series Permanent Marking Inks

MacDermid Enthone M-Series Thermal Two Part Epoxy Inks - Transfer Marking Ink or Manual Application								
Product	**Color Description**	**Color Chip**	**Fed-STD-595 Approximate Color Reference**	**Fed-STD-595 Color Reference from A-A-56032**	**Mil-I-43553, A-A-56032 Status***	**RoHS Compliant**	**Pb Free Assembly Compatible**	**Low Halogen ** (representive test values listed for total halogens, not to be used for specifications)**
M-2-N	Red		11140	11140	Type I, Type II, & Type III	No	Yes	No Test Data
M-3-N	Orange		12473	x	Type I, Type II, & Type III	No	Yes	No Test Data
M-4-N	Yellow		13655	13655	Type I, Type II, & Type III	No	Yes	No Test Data
M-5-N	Green		24190	x	Type I, Type II, & Type III	No	Yes	No Test Data
M-6-N	Blue		15180	15102	Type I, Type II, & Type III	Yes	Yes	No Test Data
M-9-N	White		17925	17875	Type I, Type II, & Type III	Yes	Yes	No Test Data
M-0-N	Black		17038	17038	Type I & Type III	Yes	Yes	No Test Data
M-0-NC	Inorganic Black		17038 M-0-NC has a Blue Tint	X	Type I, Type II, & Type III	Yes	Yes	No Test Data
* Inks cured with Catalyst 20/A at room temperature will not meet Type II requirements (heat cure OK).								
For air cure Type II use Catalyst 77 or B-13/28.								
** Low Halogen ("Halogen Free") Listed by the IEC as < 900 ppm Cl-, < 900 ppm Br-, and < 1500 ppm total halogens.								

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50-Series CAT-L-INK

MacDermid Enthone 50-Series Thermal Two Part Epoxy Inks - Screen Print, Spray, or Manual Application								
Product	**Color Description**	**Color Chip**	**Fed-STD-595 Approximate Color Reference**	**Fed-STD-595 Color Reference from A-A-56032**	**Mil-I-43553, A-A-56032 Status***	**RoHS Compliant**	**Pb Free Assembly Compatible**	**Low Halogen ** (representive test values listed for total halogens, not to be used for specifications)**
50-100R	White		17925	Non-applicable (N/A)	Type I, Type II, & Type III	Yes	Yes	Yes (419 ppm)
50-110RX	White, Matte		37925	N/A	Type I, Type II, & Type III	Yes	Yes	Yes (541 ppm)
50-120R	White, High Hide		27925	N/A	Type I, Type II, & Type III	Yes	Yes	Yes - No Test Data
50-201AR	Lemon Yellow, Cd		x	N/A	Type I, Type II, & Type III	No	Yes	Yes (310 ppm)
50-202BR	Medium Yellow, Pb Chromate		13655	N/A	Type I, Type II, & Type III	No	Yes	Yes (406 ppm)
50-206R	Orange, Pb Chromate		12197	N/A	Type I, Type II, & Type III	No	Yes	Yes (403 ppm)
50-300R	Emerald Green, Pb Chromate		14193 50-300R Slightly More Yellow	N/A	Type I, Type II, & Type III	No	Yes	No - No Test Data
50-301R	Deep Green, Pb Chromate		14036	N/A	Type I, Type II, & Type III	No	Yes	No (1.64%)
50-400R	Ultramarine Blue		15056	N/A	Type I, Type II, & Type III	Yes	Yes	Yes (633 ppm)
50-403R	Light Blue		15180	N/A	Type I, Type II, & Type III	Yes	Yes	No Test Data
50-506BR	Deep Red Pb Chromate		11086 50-506BR Slightly More Violet	N/A	Type I, Type II, & Type III	No	Yes	No Test Data
50-507R	Medium Red, Cd		11105	N/A	Type I, Type II, & Type III	No	Yes	Yes (608 ppm)
50-508R	Medium Red, Pb Chromate		11105	N/A	Type I, Type II, & Type III	No	Yes	Yes (473 ppm)
50-600R	Chocolate Brown, Pb Chromate		#10049 50-600R Less Red Shade	N/A	Type I, Type II, & Type III	No	Yes	No Test Data
50-700R	Black, Carbon Pigment (low electrial resistance)		17038	N/A	Type I & Type III	Yes	Yes	Yes (534 ppm)
50-710R	Black, Matte Carbon Pigment (low electrial resistance)		37038	N/A	Type I & Type III	Yes	Yes	No Test Data
50-770R	Black, Matte (High electrial resistance)		37038	N/A	Type I, Type II, & Type III	Yes	Yes	No Test Data
50-771R	Black, Gloss (High electrial resistance)		17038	N/A	Type I, Type II, & Type III	Yes	Yes	Yes (467 ppm)
50-800R	Clear		N/A	N/A	Type I, Type II, & Type III	Yes	Yes	Yes - No Test Data
50-810R	Clear, Matte		N/A	N/A	Type I, Type II, & Type III	Yes	Yes	Yes - No Test Data

* Inks cured with Catalyst 20/A at room temperature will not meet Type II requirements (heat cure OK).
For air cure Type II use Catalyst 77 or B-13/28.

** Low Halogen ("Halogen Free") Listed by the IEC as < 900 ppm Cl-, < 900 ppm Br-, and < 1500 ppm total halogens.
Tested using the combustion method - total halogens.

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Ink Catalysts

MacDermid Enthone 50-Series & M-Series Catalysts								
Product	**Color Description**	**Color Chip**	**Fed-STD-595 Approximate Color Reference**	**Fed-STD-595 Color Reference from A-A-56032**	**Mil-I-43553, A-A-56032 Status***	**RoHS Compliant**	**Pb Free Assembly Compatible**	**Low Halogen ** (representive test values listed for total halogens, not to be used for specifications)**
Catalyst 20/A	N/A	N/A	N/A	N/A	Type I & Type III (air cure), add Type II for heat cure	Yes	Yes	No Test Data
Catalyst B-3	N/A	N/A	N/A	N/A	Type I, Type II, & Type III	Yes	Yes	No Test Data
Catalyst 5	N/A	N/A	N/A	N/A	Type I, Type II, & Type III	Yes	Yes	Yes (<50 ppm)
Catalyst 9	N/A	N/A	N/A	N/A	Type I, Type II, & Type III	Yes	Yes	Yes (<50 ppm)
Catalyst B-13/28	N/A	N/A	N/A	N/A	Type I, Type II, & Type III	Yes	Yes	Yes (<50 ppm)
Catalyst 45	N/A	N/A	N/A	N/A	Type I, Type II, & Type III	Yes	Yes	No Test Data
Catalyst 77	N/A	N/A	N/A	N/A	Type I, Type II, & Type III	Yes	Yes	Yes (235 ppm)
* Inks cured with Catalyst 20/A at room temperature will not meet Type II requirements (heat cure OK).								
For air cure Type II use Catalyst 77 or B-13/28.								
** Low Halogen ("Halogen Free") Listed by the IEC as < 900 ppm Cl-, < 900 ppm Br-, and < 1500 ppm total halogens.								