

RESISTANCE TESTING OF STRUCTURAL STEEL COATINGS TO METHYL ETHYL KETONE

1. SCOPE:

- 1.1 This method outlines the use of methyl ethyl ketone (MEK) for chemical resistance evaluations of structural steel coatings. This method follows the procedure used in ASTM D 4752-95 "Standard Test Method for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub".

2. APPARATUS AND MATERIALS:

- 2.1. Test Panels (4 " x 8 ", cold rolled steel)
- 2.2. Micrometer adjustable film applicator (6" path width)
- 2.3. Wet film thickness notch gage
- 2.5. MEK (Methyl Ethyl Ketone)
- 2.6. Cheese Cloth
- 2.7. Squeeze Bottle
- 2.8. Solvent Resistant Gloves

3. PROCEDURE:

- 3.1. Apply properly mixed coating, of an appropriate wet film thickness, to a test panel using a micrometer adjustable film applicator. (See Note 5.1)
- 3.2. Verify the wet film thickness of the applied coating.
- 3.3. Dry the specimen at $72^{\circ} \pm 5^{\circ}$ F and $50 \pm 10\%$ relative humidity for 24 hours.
- 3.4. Cure the dried specimen in an oven at $110^{\circ} \pm 5^{\circ}$ C for 24 hours.
- 3.5. Mark a section of the prepared specimen, measuring six (6) inches by one (1) inch with a solvent resistant marker.
- 3.6. Fold a twelve (12) inch square piece of cheese cloth so that the thickness is doubled and saturate until dripping wet with MEK. (See Note 5.2)

- 3.7. Don solvent resistant gloves and place an index finger in the center of the cheese cloth and gather the remaining cloth.
- 3.8. With the index finger at a 45 degree angle to the surface, rub with moderate pressure over the marked area. Complete 150 double rubs. (See Note 5.3)

4. REPORT:

- 4.1. Document the applied wet film thickness.
- 4.2. Report the performance of the coating based on the table below.

Scale for Resistance Rating

<u>Resistance Rating</u>	<u>Description</u>
5	No effect on surface; no coating on cloth after 150 double rubs
4	Burnished appearance in rubbed area; slight amount of coating on cloth after 150 double rubs.
3	Some marring and apparent depression of the film after 150 double rubs.
2	Heavy marring; obvious depression in the film after 150 double rubs.
1	Heavy depression in the film but no actual penetration to the substrate after 150 double rubs.
0	Penetration to the substrate in 150 double rubs or less.

- 4.3. Acceptable coatings will not have any heavy marring or penetration of the coating. All coatings receiving a rating of 3 or greater will be accepted for project use.

5. NOTES:

- 5.1 Consult the coating manufacturers product data sheet for proper mixing procedures and application thickness.
- 5.2 Do not allow more than ten (10) seconds to elapse between wetting the cloth and beginning to rub the coating.

- 5.3 Wet the cloth as often as needed without lifting it from the surface. One forward and backward motion constitutes one double rub.

APPROVED

DIRECTOR
DIVISION OF MATERIALS

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