

MATERIALS / PAINTS

FNHA-2-J-001.04

VOLUME SOLIDS

1. SCOPE

This method is used to determine the non-volatile content of surface coatings.

NOTE: The non-volatile content of the surface coatings 86507659 (FNHA-2-J-001.24) and gallon weight or density 86507658 (FNHA-2-J-001.23) are required.

2. REFERENCE

ASTM D2697 - Volume Non-Volatile Matter in Clear or Pigmented Coatings

3. MATERIALS & EQUIPMENT

3.1 Analytical balance accurate to 0.01 gram.

3.2 Stainless steel disk, 2 3/8" (60 mm) diameter and 22 gauge (0.65 mm) thickness with a small hole near the circumference.

3.3 A fine wire, such as Chromel A, 28 gauge, (0.32 mm) is attached through the hole and made to the appropriate length to suspend the disk in a liquid. The wire should have a small loop on the upper end so it can be hung on the balance. See Figure 1.

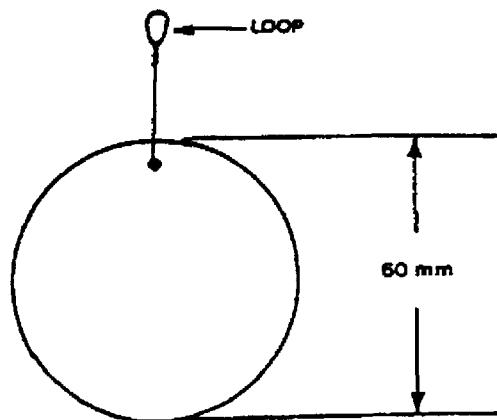


Figure 1
Wire and Disc Configuration

3.4 Recirculating oven capable of maintaining $110^{\circ} \pm 2^{\circ} \text{ C}$ ($230^{\circ} \pm 4^{\circ} \text{ F}$).

3.5 Beaker approximately 4 1/2" high (115 mm) (1 liter).

3.6 Distilled water.

3.7 Gallon weight cup to determine density of surface coating and suspending liquid if not known.

3.8 Absorbent paper, Kleenex, Kimwipes or equivalent.

4. PROCEDURE

4.1 Dry the uncoated disk in an oven at $110^{\circ} \pm 2^{\circ} \text{ C}$ for 1 minute. Cool and weigh disk and wire in air and record (W1).

					NAME	STD VOL SOLIDS		
					 NEW HOLLAND		ENGINEERING SPECIFICATION	
							FRAME 1	OF 2
							PART NUMBER	
							86507639	
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APP.	DRAWN		AP	JAN 94				
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4.2 Weigh the disk and wire in distilled water making sure disk is at least 20 mm below liquid surface. Water temperature must be between 20°-25° C. Measure and record water temperature (T) and weight of disk in water (W2).

4.3 Obtain the density of the distilled water in a chemistry and physics handbook or measure to the nearest .001 g/ml.

4.4 Calculate the volume of the disk (G) in milliliters:

$$G = (W1 - W2)/D$$

where D = density of distilled water at temperature of test.

4.5 Dip the disk and between 1/4" and 1/2" (5-15 mm) of the wire in a representative mixture of the coating. Allow the painted disk to drain and dry in air for about 10 minutes and wipe off any beads or drops on the bottom edge of the disk.

4.6 Hang the painted disk in an oven for 1 hour at 100° ± 2°C (212° ± 4°F).

4.7 Allow painted disk to cool to room temperature, weigh in air (W3) and record.

4.8 Weigh the painted disk in distilled water as in paragraph 3.2 and record weight (W4). **Note:** Where D = the density of the distilled water at temperature of test.

4.9 Calculate the volume of the coated disk, H, in milliliters:

$$H = (W3 - W4)/D$$

4.10 Calculate the volume of the dried coating, F, in milliliters:

$$F = H - G$$

4.11 Calculate the volume of the wet coating, V, in milliliters:

$$V = (W3 - W1)/(W \times P)$$

where W = non-volatile matter in 1 gm. of wet coating and P = the density of test coating

5. REPORT

5.1 Calculate the percent non-volatile volume solids to 2 decimal point accuracy (i.e. XX.XX%)

$$F/V \times 100$$

5.2 The sample shall pass if it is in the range specified in the wet paint specification.

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