

**PAINTS  
COVERING CAPACITY OF DRY FILM**

Page 1/8

**No use restriction***This is a translation, the French original shall be used in all cases of litigation**Date of translation : 14/08/2006***FOREWORD**

*This document, as an experimental standard, is applicable and submitted for observations for a duration of **3 months**. If no comments are received by **29/10/2006** at the address: [normesExp@mpsa.com](mailto:normesExp@mpsa.com) the content of this document shall be confirmed.*

Drafted by :		Checked by :		Approved by :	
Geneviève FLOC'H DPTA/DMOV/IMT/MXP/PEI/DIPF		Jean Pierre GHIO DPTA/DMOV/IMT/MXP/PEI/DIPF		Mohamed MOUSTAMSIK BILLAH DPTA/DMOV/IMT/MXP/PEI/DIPF	
Date	Signature	Date	Signature	Date	Signature
07/07/2006		07/07/2006		07/07/2006	

PAINTS – COVERING CAPACITY OF DRY FILM	D55 1303	2/8
--	----------	-----

## RECORDS

Suffix	Date	Type of modifications
OR	01/01/1981	CREATION OF THE PSA NORME. REPLACES THE ASSOCIATION NORME No. 1303.
A	01/09/1989	COMPLETE REWRITE.
B	01/10/1992	ADDITION OF § 3.7. AND ONE LINE AT THE END OF § 5.
C	24/03/1997	INTRODUCED INTO IDEM ( <i>French only</i> )
D	08/09/1997	MODIFICATION AND ADDITION OF ONE LINE IN § 3.2. MODIFICATION OF § 3.7 AND § 6.
E	25/07/2006	BROUGHT INTO LINE WITH THE NEW FORMATTING. CHANGE TO THE OPACITY CHART REFERENCE AND UPDATE OF THE PROCEDURE.

## PARTICIPANTS

The following persons took part in the drafting and/or checking of this norme :

DPTA/DMFV/RHN/NCF/ENV      Guy DHENIN

## CONTENTS

<u>1. OBJECT AND FIELD OF APPLICATION</u>	4
<u>2. REFERENCE DOCUMENTS</u>	4
<u>2.1. NORMES</u>	4
<u>2.2. REGULATIONS</u>	4
<u>2.3. OTHER DOCUMENTS</u>	4
<u>2.4. EXPRESSION ON DOCUMENTS</u>	4
<u>3. TERMINOLOGY AND DEFINITION</u>	4
<u>3.1. DEFINITIONS</u>	4
<u>3.2. ACRONYMS</u>	4
<u>4. PRINCIPLE OF THE TEST METHOD</u>	4
<u>5. EQUIPMENT</u>	5
<u>5.1. STEEL SHEET</u>	5
<u>5.2. OPACITY CHART</u>	5
<u>5.3. APPLICATION EQUIPMENT</u>	5
<u>5.4. VENTILATED OVEN</u>	5
<u>5.5. PERMASCOPE</u>	5
<u>5.6. ADHESIVE PAPER</u>	5
<u>5.7. INSPECTION CHAMBER WITH A LIGHT SOURCE</u>	5
<u>6. PREPARATION OF SOLUTIONS</u>	5
<u>7. REPRESENTATIVENESS OF SAMPLES</u>	5
<u>8. PREPARATION OF TEST SPECIMENS</u>	5
<u>9. PROCEDURE</u>	6
<u>10. REMARKS</u>	6
<u>11. EXPRESSION OF RESULTS AND TEST REPORT</u>	6
<u>11.1. EXPRESSION OF RESULTS</u>	6
<u>11.2. TEST REPORT</u>	6
<u>APPENDIX 1 OPACITY CHART</u>	7
<u>APPENDIX 2 TEST SPECIMEN</u>	8

## 1.OBJECT AND FIELD OF APPLICATION

The object of this method is to describe a procedure for determining the minimum thickness of the dry film providing total masking, under visual examination, of black and grey bands on an opacity chart.

## 2.REFERENCE DOCUMENTS

### 2.1.NORMES

D15 1343	COLOURED MATERIALS - VISUAL COMPARISON OF COLOURS IN A LIGHT CHAMBER
D15 5504	PAINT COATINGS – VISUAL COMPARISON OF COLOURS IN A LIGHT CHAMBER
D26 5316	ORGANIC COATINGS ON MAGNETIC OR NON-MAGNETIC METAL SUPPORT NON-DESTRUCTIVE MEASUREMENT OF THE THICKNESS
D55 1016	ADHESIVES, PAINTS AND SIMILAR PREPARATIONS CONSISTENCY (CUP METHOD)
D59 1170	PAINTS AND SIMILAR PRODUCTS –MANUAL OR AUTOMATIC GUN APPLICATION IN LABORATORY

### 2.2.REGULATIONS

Not applicable.

### 2.3.OTHER DOCUMENTS

Not applicable.

### 2.4.EXPRESSION ON DOCUMENTS

Not applicable..

## 3.TERMINOLOGY AND DEFINITION

A dictionary (glossary) of the main terms and their definitions used within the "Direction des Plates-formes, des Techniques et des Achats" can be consulted in-house via the DPTA glossary. ([Nectar](http://nectar.inetpsa.com) : <http://nectar.inetpsa.com>). This glossary is constantly up-dated with new definition.

### 3.1.DEFINITIONS

Not applicable.

### 3.2.ACRONYMS

Not applicable.

## 4.PRINCIPLE OF THE TEST METHOD

The method consists of applying varying thicknesses of paint with a defined viscosity.

## 5.EQUIPMENT

### 5.1.STEEL SHEET

of minimum dimensions 150 mm x 300mm, degreased or phosphated.

### 5.2.OPACITY CHART

Paper with black and grey contrasts – Bands arranged diagonally - Format 286 mm x 438 mm.

LENETA ; reference type «FORM 8 H (black and white, format 286x438 mm)».

This contrast paper has to be **cut into** 7 bands of 51 x 254 mm in conformity with the diagram in Appendix 1.

**Note :** *In order to get rid of any ink migration from the opacity chart to the paint, first apply on the opacity chart 30  $\mu\text{m} \pm 5 \mu\text{m}$  of production finish clear coat. Place the clear coated opacity chart in the oven in conformity with the instructions on the standard documents.*

### 5.3.APPLICATION EQUIPMENT

In conformity with the equipment described in test method D59 1170.

### 5.4.VENTILATED OVEN

Adjustable from 200 °C to 250 °C  $\pm 2$  °C.

### 5.5.PERMASCOPE

In conformity with the permascope described in test method D26 5316.

### 5.6.ADHESIVE PAPER

Less than 25 millimetres wide.

### 5.7.INSPECTION CHAMBER WITH A LIGHT SOURCE

In conformity with the chamber described in test method D15 5504\*.

*\*however, for users of the light cabin « Gamain », the test method D15 1343 remains applicable.*

## 6.PREPARATION OF SOLUTIONS

Not applicable.

## 7.REPRESENTATIVENESS OF SAMPLES

The test specimens or samples must be representative of the scale to be characterised. To provide this representativeness, it is necessary to find out the basic characteristics of the population studied. The selection criteria for the test specimens or samples must be specified in the Test Report (RE), in conformity with norme A10 0156.

## 8.PREPARATION OF TEST SPECIMENS

Fix, onto the steel sheet (5.1), using the adhesive tape (5.6), an opacity chart (5.2) as shown in the Appendix 2.

PAINTS – COVERING CAPACITY OF DRY FILM	D55 1303	6/8
--	----------	-----

## 9.PROCEDURE

- Dilute the paint to the specified viscosity with the solvent or a suitable mixture of solvents in conformity with test method D55 1016.
- Apply a single coat to the test specimen assembly defined in Appendix 2.
- Leave to dry for 2 minutes in ambient air.
- Apply a second single coat starting lower down the plate as shown in Appendix 2.
- Leave to dry for 2 minutes in ambient air.
- Continue to apply as many coats as required so that the contrasts are no longer visible in the lower quarter of the test specimen.

**Note :** *The number of coats applied in the case of a stoving paint must be a maximum of six.*

*In the case where this number of coats is insufficient, repeat the test on a new plate reducing the speed of spray in order to make each coat thicker.*

- Leave the test specimen to dry horizontally and protected from dust for 10 minutes in ambient air.
- Stove, if required, in the oven (5.4) in conformity with the instructions on the documents.
- Measure on the steel sheet, on each side of the opacity chart, the thicknesses of the dry film, using the permascope (5.5).

**Note :** *The thicknesses must increase but the amount of increase must not exceed 2 micrometres per centimetre.*

- Examine, in the inspection chamber (5.7), the test specimen according to test method D15 5504\* using the daylight source D<sub>65</sub>.

*\*however, for users of the light cabin « Gamain », the test method D15 1343 remains applicable.*

## 10.REMARKS

Not applicable.

## 11.EXPRESSION OF RESULTS AND TEST REPORT

### 11.1.EXPRESSION OF RESULTS

The covering capacity of dry film is defined by the minimum thickness of the dry film in micrometres under which the black and grey contrasts are no longer visible.

Express the result in the form of the arithmetic mean of the two thicknesses measured across the steel sheet, either side of the opacity chart under the last band of visible contrast; these must not vary by more than 2 micrometres, otherwise the test has to be repeated.

### 11.2.TEST REPORT

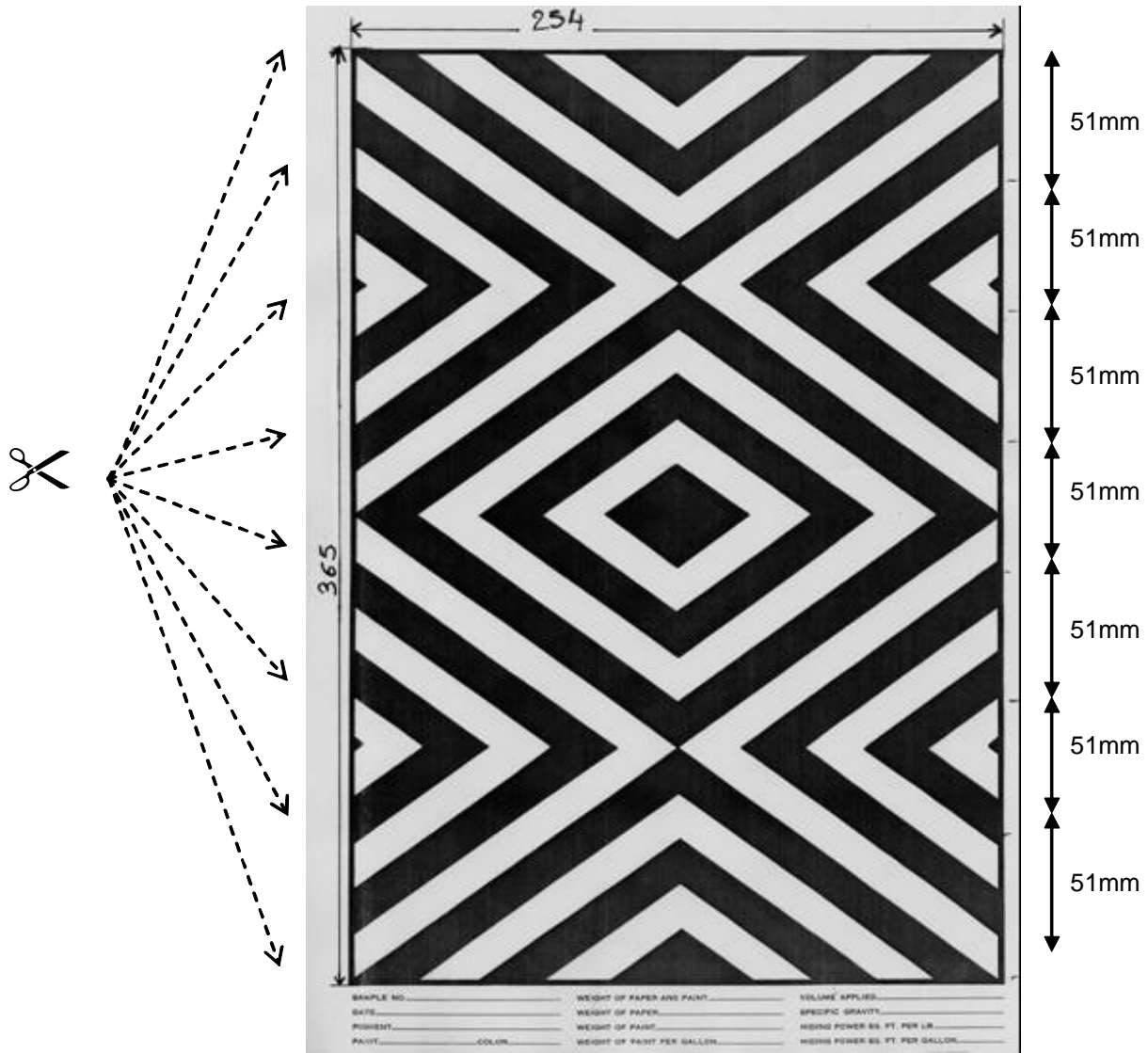
The format and minimum content of the test report are defined in norme A10 0156.

As well as the results obtained, the test report must indicate :

- the reference to this method,
- the exact reference of the paint and the name of the supplier,
- the operating details not specified in the method as well as any possible incidents likely to have affected the results.

Appendix 1  
Opacity chart

OPACITY CHART



## Appendix 2 Test specimen

