

**FINISHING PAINTS  
PRIMERS**

Page 1/9

**NO USE RESTRICTION***This is a translation, the French original shall be used in all cases of litigation**Date of translation : 25/11/2003***CONTENTS**

<b>1. OBJECT AND FIELD OF APPLICATION</b>	<b>1</b>
<b>2. EXPRESSION ON DOCUMENTS</b>	<b>1</b>
<b>3. GENERAL REQUIREMENTS</b>	<b>2</b>
<b>4. DEFINITIONS</b>	<b>2</b>
<b>4.1. PAINT COATING</b>	<b>2</b>
<b>4.2. FUNCTIONS OF THE PRIMER IN THE PAINT FILM</b>	<b>2</b>
<b>4.3. DEFINITIONS OF EXTERIOR AND INTERIOR AREAS</b>	<b>2</b>
<b>4.4. LEVELS OF REQUIREMENTS</b>	<b>2</b>
<b>5. RELATIONSHIP WITH “PAINT” STANDARDS</b>	<b>2</b>
<b>6. QUALITY CONTROL</b>	<b>3</b>
<b>6.1. PRODUCT APPROVAL</b>	<b>3</b>
<b>6.2. PRODUCTION QUALITY CONTROL</b>	<b>3</b>
<b>6.3. MEETING THE REGULATION</b>	<b>3</b>
<b>7. CHARACTERISTICS</b>	<b>3</b>
<b>7.1. CHARACTERISTICS OF LIQUID PRIMER</b>	<b>3</b>
<b>7.2. CHARACTERISTICS OF CURED PRIMER</b>	<b>4</b>
<b>8. COHESION OF THE FINISHED FILM</b>	<b>7</b>
<b>9. RECORDS AND REFERENCE DOCUMENTS</b>	<b>8</b>
<b>9.1. RECORDS</b>	<b>8</b>
<b>9.2. REFERENCE DOCUMENTS</b>	<b>8</b>
<b>9.3. EQUIVALENT TO :</b>	<b>9</b>
<b>9.4. CONFORMS TO :</b>	<b>9</b>
<b>9.5. KEY WORDS</b>	<b>9</b>

**1. OBJECT AND FIELD OF APPLICATION**

This norme defines the physio-chemical characteristics requirements of primers on motor vehicle bodies, applied during first assembly, on baked cataphoresis. These requirements are based on the durability and/or applicability of the products.

It applies to interior bodywork primers as far as this area is defined as requiring a primer, and exterior bodywork on metallic substrates in cataphoresis or plastic substrates coated with a conductive primary paint for which the compatibility with production primers has been tested.

In addition, it defines the slots into which certain physio-chemical and optical characteristics of primers must be located in order to meet the function.

**2. EXPRESSION ON DOCUMENTS**

The application of the requirements of this norme must comply with § EXPRESSION ON DOCUMENTS in norme B15 5050.

FINISHING PAINTS – PRIMERS	B15 5053	2/9
----------------------------	----------	-----

### 3. GENERAL REQUIREMENTS

This norme must include document B72 0100.

### 4. DEFINITIONS

#### 4.1. PAINT COATING

It consists of one or more paint layers. The constituent products of the various layers are from the following categories :

- primary paint (weldable or not), for example cataphoresis,
- intermediate paint (primer),
- finishing paint (base + clearcoat or colour coat with no lacquer).

#### 4.2. FUNCTIONS OF THE PRIMER IN THE PAINT FILM

The primer must meet 2 general functions defined by the **paint functional analysis**.

- PREPARE THE SUBSTRATE TO RECEIVE THE FINISHING COATS BY PROVIDING THE BEST POSSIBLE TENSION AND, FOR TINTED PRIMERS, REDUCE THE VISIBILITY OF CHIPPING IMPACTS (COSMETIC ROLE)
  - Function : APPEARANCE
- PROVIDE A GOOD MECHANICAL LINK BETWEEN THE SUBSTRATE AND THE FINISHING COATS
  - Functions :  
MECHANICAL STRENGTH  
RESISTANCE TO CHIPPING

Furthermore, the primer must show sufficient application properties for mass production.

#### 4.3. DEFINITIONS OF EXTERIOR AND INTERIOR AREAS

**Exterior areas** : areas located outside the passenger compartment which are in actual fact in contact with the surroundings. These are located on the vehicle exterior in relation to the sealing joints (for doors, tailgate, sun roof, ...) or the vehicle interior for certain access panels (examples : door interiors,...).

**Interior areas** : areas located inside the passenger compartment or boot in relation to sealing joints.

#### 4.4. LEVELS OF REQUIREMENTS

As the product is unique for all these areas, one level only of the most stringent functional performances is required corresponding to the exterior areas of the vehicle considered.

The primers selected throughout this norme must therefore enable to reach level "6" such as defined in norme B15 5050, when they are incorporated into a conventional paint scheme (cataphoresis + primer + base + clearcoat or cataphoresis + primer + lacquer) for motor vehicle bodywork first assembly.

### 5. RELATIONSHIP WITH "PAINT" STANDARDS

Approved paints, used according to the application and baking ranges selected for the plant considered, must meet the requirements defined in § 4.4.

FINISHING PAINTS – PRIMERS	B15 5053	3/9
----------------------------	----------	-----

## 6. QUALITY CONTROL

### 6.1. PRODUCT APPROVAL

The functional characteristics of new materials are validated during approval by DPTA/DMOV/MXP/PEI, on test specimens which are produced to simulate the paint scheme application of the vehicle (s) of the plant concerned.

### 6.2. PRODUCTION QUALITY CONTROL

The functional characteristics of primers are checked on components sampled from production.

The frequency, the number and the type of samples and components taken from finished vehicles for quality control are determined by the DMOV-MXP00-0013 procedure.

### 6.3. MEETING THE REGULATION

In order to meet the current regulation or the regulation in the process of being set up, the primers must meet the requirements of norme B20 0250.

## 7. CHARACTERISTICS

### 7.1. CHARACTERISTICS OF THE LIQUID PRIMER

#### 7.1.1. PHYSIO-CHEMICAL CHARACTERISTICS

The characteristics of liquid primers are checked during approval. The permissible brackets are determined after measuring the first five delivered batches considered suitable for production.

Document s	Application s	Characteristics		Expression of results	Requirements
D55 1016	(3)	Consistency	Concentrated	s	(*)
			Diluted (1)	s	(*) (6)
D55 5375		Viscosity of water based primers		mPa.s	(8)
D55 1339	(3)	Dilution rate (2)		%	(*)
D55 1017	(3)	Amount of dry extract			
Condition C	(3)	- Thinned primers			
Condition A	(3)	- Water based primers			
			Concentrated	%	(*)
			Diluted	%	(*) (7)
D55 1018	(3)	Density of the concentrate		kg/m <sup>3</sup>	(*)
D55 1344	(4)	Compatibility with plant production diluent		-	(5)
D55 5482	(3)	Resistivity of thinned primers		Ωcm	(*) (6)
	(3)	Conductivity of water based primers		S/cm	(*) (6)
D15 1666		pH measurement		Unit	(8)

#### Note :

- (1) The 2,5 cup must be used when the viscosity in cup 4 is ≤ 20 seconds.
- (2) A solvent (or mixture of solvents) may be imposed according to the installations.
- (3) Methods to be carried out systematically.
- (4) Methods to be carried out according to technical demands.
- (5) No anomaly.
- (6) A value may be imposed according to the installations.
- (7) A minimum value may be imposed for health, safety and pollution reasons (atmospheric wastes).
- (8) Method for applying characteristics valid only for water based primers without requirements at present.
- (\*) Conforms to the approved sample, the value of which must be stated on the approval report, according to the technical specifications B20 0150.

FINISHING PAINTS – PRIMERS	B15 5053	4/9
----------------------------	----------	-----

### 7.1.2. CLEANLINESS BY FILTRATION

Cleanliness of primers shall be assessed by means of test method D55 5411 and the following table :

Impurities	Acceptance limit	Demerit
Fibres (F)	$0,2 \leq F < 2 \text{ mm}$	3 points
	$2 \leq F < 8 \text{ mm}$	5 points
	$8 \text{ mm} \leq F$	15 points
	Agglomerates	15 points
Particulates (P)	$60 \leq P < 100 \text{ }\mu\text{m}$	5 points
	$100 \text{ }\mu\text{m} \leq P$	15 points

The acceptance limit is set to  $\leq 100$  points.

### 7.1.3. STABILITY IN CIRCULATING

The stability of the primer (applicability and colour if required) shall be verified after ageing corresponding to 3 days circulating without addition in an industrial system. The run limit loss measured according to test method D25 5471 shall not exceed 15% of the nominal value obtained on a new product.

### 7.1.4. APPLICABILITY

The applicability survey shall be carried out in comparison with the production primer on the target plant.

Documents	Characteristics	Expression of results	Requirements
D25 5470	Pitting limit using the bell	$\mu\text{m}$	$\geq 55$
D25 5471	Run limit using the bell	$\mu\text{m}$	$\geq 55$
D25 5474	Rinsability (*)		Conform

**Note :** (\*) For information.

## 7.2. CHARACTERISTICS OF THE CURED PRIMER

### 7.2.1. CHARACTERISTICS TESTED ON BAKED PRIMER, APPLIED TO TTS WITH NO FINISHING COATS

These characteristics are measured to the min. and max. thicknesses defined in the DMOV-MXP00-0528 procedure.

Documents	Characteristics	Expression of results	Requirements
D55 1303	Actual covering capacity	$\mu\text{m}$	$\leq 30$
D25 1298	Hardness with Persoz pendulum test	s	$\geq 180$
D25 1342	ERICHSEN cupping	mm	$\geq 5$
D25 1075	Adhesion	Grading	a or b

FINISHING PAINTS – PRIMERS	<b>B15 5053</b>	5/9
----------------------------	-----------------	-----

#### 7.2.2. CHARACTERISTICS TESTED ON BAKED PRIMER APPLIED TO CATAPHORESIS WITH NO FINISHING COATS

These characteristics are measured to the min. and max. thicknesses defined in the DMOV-MXP00-0528 procedure.

Documents	Characteristics	Expression of results	Requirements
D25 1298	Hardness with Persoz pendulum test	s	$\geq 180$
D25 1342	ERICHSEN cupping	mm	$\geq 5$
D25 1075	Adhesion	Grading	a or b

#### 7.2.3. APPEARANCE

Documents	Characteristics	Expression of results	Requirements
D25 1413	Gloss measured at 20°	unit	$60 \leq \text{gloss} \leq 75$
D15 5084	Colour variation in relation to the master sample <ul style="list-style-type: none"> <li>- White "EWU" (= RAL 9018)</li> <li>- Light grey "EZM"</li> <li>- Medium grey "EYK" (= RAL 7000)</li> <li>- Dark grey "EYM" (= RAL 7021)</li> <li>- Red "KKZ"</li> <li>- Yellow "KAB"</li> </ul>	$\Delta E$ $\Delta E$ $\Delta E$ $\Delta E$ $\Delta E$ $\Delta E$	$\leq 1$ $\leq 1$ $\leq 4$ $\leq 4$ $\leq 6$ $\leq 3$
B15 5020	Surface defects (*) <ul style="list-style-type: none"> <li>- Craters</li> <li>- Runs, pitting,</li> <li>- Rejects</li> </ul>	Number Number Number	None None None

**Note :** (\*) See the definitions defined in the quoted norme.

Colour variations acceptable for primers are defined in relation to the scheme of basic colours existing at the time of the officialisation of this norme. The mass production of new colours may lead to a modification of these tolerances if a survey reveals that it is necessary.

#### 7.2.4 CHARACTERISTICS TESTED ON A COMPLETE FILM

For all the tests on a complete film, the primer to be approved is applied to a full range of products already validated for the target plant and implemented in the conditions described in the DMOV-MXP00-0528 procedure.

These tests shall be carried out in association with one or more finishing colours specified to be combined with the primer colour being examined. The association with a base for each solid, metallic, pearlescent type minimum shall be systematically examined if it is the case on the plant; in the same way, if the primer is specified with white, currently in polyester, acrylic lacquer or a combination of both, this association shall be examined in addition.

FINISHING PAINTS – PRIMERS	B15 5053	6/9
----------------------------	----------	-----

## 7.2.4.1. Resistance to water

Documents	Characteristics	Expression of results	Requirements
D27 1327	Resistance to immersion in water	h	240
D25 1075	- Duration - Blistering / colour change - Adhesion	Grading Grading	0 a or b
D27 5438	Ageing in autoclave Thinned primers at low temperature (1) - Baking : 40 min at 145°C and 30 min at 160°C Thinned primers at high temperature (1) - Baking : 40 min at 160°C and 30 min at 185°C Water based primers (1) - Baking : 40 min at 145°C and 25 min at 160°C		
D25 1075	- Adhesion in 1 <sup>st</sup> assembly	Grading	a or b
D25 1075	- Adhesion in rework (2)	Grading	a or b

**Note :**

(1) The baking conditions of primers are defined in the DMOV-MXP00-0528 procedure. The finishes are baked in the standard conditions of the same system of references.

(2) The rework at the end of the track shall be examined (catalysed base + clearcoat PU 2K) as well as the production range recycling.

## 7.2.4.2. Resistance to chipping

Documents	Characteristics	Expression of results	Requirements
D24 1312	Resistance to chipping		
	- Normal appearance chipping	Grading	≤ 2
	- Rework appearance chipping (1)	Grading	≤ 3

**Note :**

(1) The rework at the end of the track shall be examined (catalysed base + clearcoat PU 2K) as well as the production range recycling.

## 7.2.4.3. Resistance to chemical agents

Documents	Characteristics	Expression of results	Requirements
D27 5415	Resistance to biological attacks	Grading	≤ 3

## 7.2.4.4. Mechanical characteristics

Documents	Characteristics	Expression of results	Levels of requirements (according to the clearcoat used)	
			Phase 1	Phase 2
D25 1075	Adhesion	Grading	a or b	a or b
D25 1298	Hardness using the Persoz pendulum test	s	≥ 180	≥ 180
D25 1342	ERICHSEN cupping	mm	≥ 3	≥ 5

FINISHING PAINTS – PRIMERS	B15 5053	7/9
----------------------------	----------	-----

## 7.2.4.5. Appearance of the complete film

All these characteristics shall be assessed on a sheet and glass application

Documents	Characteristics	Expression of results	Requirements
D25 5472 D25 1413 D25 5463	Appearance potential (1) Specular gloss at 20° - Orange peel = f (thickness) Horizontally Vertically - Weighted depth of image = f (thickness) Horizontally Vertically	Unit  Unit Unit  Unit Unit	85  ≥ 75 ≥ 60  ≥ 65 ≥ 60

**Note :** (1) Apply as a reference the production range of the plant, in the same test conditions

## 8. COHESION OF THE FINISHED FILM

In consistency with norme B14 1820.

Documents	Characteristics	Expression of results	Requirements
			Phases 1 and 2
D41 5464 Condition B	After 10 days at ambient temperature - Peeling test in critical conditions	Cohesive failure of the primer Adhesive failure base to primer	None None
D47 1165 D41 5464 Condition B	After ageing H7 at 60° - Peeling test in critical conditions	Cohesive failure of the primer Adhesive failure base to primer	None None

**Note :** Other finish materials (base and clearcoat or lacquer) being validated, the only acceptable failures in the test

are :

- Cohesive failure of the mastic bead
- Adhesive failure of the mastic bead < 30% of the surface without affecting the whole width of the bead.

FINISHING PAINTS – PRIMERS	B15 5053	8/9
----------------------------	----------	-----

## 9. RECORDS AND REFERENCE DOCUMENTS

### 9.1. RECORDS

#### 9.1.1. CREATION

- OR : 18/02/2002 – CREATION OF THE NORME.

#### 9.1.2. SUBJECT OF THE MODIFICATION

- 
- 

### 9.2 REFERENCE DOCUMENTS

#### 9.2.1. PSA DOCUMENTS

##### 9.2.1.1 Normes

B14 1820	BONDING FUNCTIONS AFTER FINISHING PAINT – GLAZING ELEMENTS BONDED TO BODY EXTERIOR
B15 5020	PAINT COATINGS – DEFINITION OF SPECIFIC TERMS
B15 5050	PAINT COATINGS – FINISHED VEHICLES
B20 0150	PRODUCTS SUBJECT TO A PRODUCT APPROVAL SPECIFICATION – GENERAL REQUIREMENTS
B20 0250	MATERIALS SUBJECT TO REGULATIONS – USE RESTRICTION WITHIN THE PSA PEUGEOT CITROËN GROUP
B72 0100	PAINT SUPPLIES – ALL TYPES – GENERAL REQUIREMENTS
D15 1666	AQUEOUS FLUIDS – pH MEASUREMENT
D15 5084	OPAQUE OR TRANSPARENT COLOURED PRODUCTS – CALCULATION OF COLORIMETRIC VARIATIONS (CIE LAB 1976 SYSTEMS)
D24 1312	PAINT COATINGS – RESISTANCE TO CHIPPING
D25 1075	PAINT COATINGS – CROSS HATCH TEST
D25 1298	PAINT AND VARNISH COATINGS – HARDNESS TEST (PERSOZ PENDULUM)
D25 1342	PAINT COATINGS AND SIMILAR PRODUCTS – ERICHSEN CUPPING
D25 1413	PAINT COATINGS – RUBBERS AND PLASTICS – GLOSS MEASUREMENT
D25 5463	PAINT COATINGS – ORANGE PEEL AND DEPTH OF IMAGE MEASUREMENT
D25 5470	PAINT COATINGS – PITTING LIMIT ASSESSMENT OF FINISHING PAINTS
D25 5471	PAINT COATINGS – RUN LIMIT ASSESSMENT OF PRIMER SURFACERS AND CLEARCOATS
D25 5472	PAINT COATINGS – ASSESSMENT OF A CLEARCOAT FINISH POTENTIAL
D25 5474	RETELEMENTS DE PEINTURES – EVALUATION DE L'APTITUDE DES PEINTURES AU REMOILLAGE DES BROUILLARDS
D27 1327	PAINT COATINGS – RESISTANCE TO IMMERSION IN WATER (FORD TANK)
D27 5415	PAINT COATINGS – RESISTANCE TO BIOLOGICAL ATTACKS
D27 5438	RETELEMENTS DE PEINTURES FEUIL FINI – RESISTANCE AU VIEILLISSEMENT EN AUTOCLAVE
D41 5464	MASTICS POLYURETHANNE POUR COLLAGE VITRAGE – ADHERENCE PAR PELAGE SUR FINITION PEINTURE EN CONDITIONS CRITIQUES
D47 1165	PRODUCTS APPLIED TO BODY IN WHITE OR COATED WITH PAINT, PLASTICS – ACCELERATED AGEING
D55 1016	ADHESIVES, PAINTS AND SIMILAR PREPARATIONS – CONSISTENCY (CUP METHOD)
D55 1017	LIQUID PREPARATIONS – DETERMINATION OF THE CONVENTIONAL DRY EXTRACT
D55 1018	MASTICS, ADHESIVES, PAINTS AND SIMILAR PREPARATIONS – DENSITY (PYCNOMETER METHOD)
D55 1303	PAINTS – COVERING ABILITY OF THE DRY FILM
D55 1339	PAINTS AND SIMILAR PREPARATIONS – DILUTION RATE
D55 1344	PAINTS AND SIMILAR PREPARATIONS – COMPATIBILITY WITH DILUENTS
D55 5375	PAINTS – VISCOSITY
D55 5411	PAINTS – CLEANLINESS (FILTERING)
D55 5482	PEINTURES DE FINITION – MESURE DE RESISTIVITE ET DE CONDUCTIVITE



FINISHING PAINTS – PRIMERS	<b>B15 5053</b>	9/9
----------------------------	-----------------	-----

## 9.2.1.1. Others :

DMOV-MXP00-0013

SUIVI QUALITE DU FEUIL EN USINE

DMOV-MXP00-0528

REFERENTIEL D'EPAISSEURS DE CUISSON ET D'ASPECT

## 9.2.2. EXTERNAL DOCUMENTS

## 9.3. EQUIVALENT TO :

## 9.4. CONFORMS TO :

## 9.5. KEY-WORDS