

TEMPORARY PROTECTION FUNCTIONS AGAINST THE ELEMENTS ON FINISHING PAINT

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NO USE RESTRICTION

*This is a translation, the French original shall be used in all cases of litigation**Date of translation: 19/07/2004*

FOREWORD

As an experimental norme, this document is subject to observations for a period of [5] months. If observations are not received before [30/09/2004] at the address: normesExp@mpsa.com, the content of this document will be confirmed.

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1.OBJECT

This norme specifies the characteristics that apply to the different protective functions carried out after the finishing paint for the temporary protection of parts or assemblies subjected to the elements in external atmosphere.

Industrially, the areas to be protected on the bodywork exterior are the horizontal surfaces (bonnet, roof and boot lift), and the top of the vertical surfaces (wing upper, door upper up to the handles).

This document should be accompanied by the normes B14 0100 and B74 0100 which give the general requirements for consultation by suppliers.

2.FIELD OF APPLICATION

This norme applies to protective products for external painted surfaces on all vehicle models produced by the PSA group.

3. EXPRESSION ON DOCUMENTS

The function is specified in the document by the reference number of this norme.

For example:

TEMPORARY PROTECTION FUNCTIONS AGAINST THE ELEMENTS
ON FINISHING PAINT NORME B14 6855.

4.TERMINOLOGY

The detailed list describes the context in which certain terms used in this norme are allocated:

- **SUPPORT SURFACE: FINISING PAINT**

Lacquer and varnish.

- **PROTECTIVE PRODUCT FUNCTION**

The protective product must protect the finishing paint during storage and transport of the vehicle.

This result is obtained by spraying the protective product, if it is a liquid, or by depositing sheets, usually precut, if it is an adhesive film.

All these procedures are carried out on clean bodywork at ambient temperature.

- **EXTERIOR AREAS OF THE BODYWORK**

Areas located outside the passenger compartment and which are therefore in contact with the ambient surroundings.

These are located outside the vehicle in relation to the seals (of doors, flap, sunroof, etc.), some areas are slightly exposed to UV radiations (examples: doors "interior" etc.).

5.REQUIREMENT LEVELS

Two protection performance levels are specified and are required whatever the protective varnishes:

- **Normal protection:**

This level gives covered surfaces protection against dust, clogging and partial protection against UV ageing.

Technology used:

- Polymers in solution or emulsion sprayed to form a film after drying that can be removed using alkaline detergents.

- **Reinforced protection:**

This level protects covered surfaces against dust, clogging, friction, catenary deposits, organic deposits, aggressions by solvents and current chemical products and UV ageing.

Technology used:

- Peel-off adhesive films.

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6.QUALITY TEST

A sample submitted shall be accompanied by the Suppliers' Information Sheet specified in norme B70 0150 to enable a "Health, Safety and Environmental Protection" file to be drawn up.

The protective product will be labelled as highly corrosive.

6.1.PRODUCT APPROVAL

The functional characteristics of new protective products are validated during approval by DPTA/DMOV/MXP/PEI, using samples simulating the ranges of painting and protection implementation used on the group's industrial sites.

6.2.PRODUCTION QUALITY CONTROL

After their approval, the protective products shall be subjected to an industrial test where the conditions shall be specified with the relevant users.

7.technical features

DOCUMENTS	Physio-chemical characteristics	Expression of results	Results or Values	
			Min.	Max.
	7.1.EXTERNAL COATING VARNISH			
	7.1.1. PHYSIO-CHEMICAL CHARACTERISTICS			
D55 1018	• Density	g/ml		*
D55 1017	• Dry extract (α)	(%)		*
D55 1016	• Consistency (2.5 cup)	s		*
D15 5230	• Closed cup flash point	°C		≥ 21
NF M07-024	• Aromatics which distill at $T \leq 200$ °C	(%)		≤ 5
D55 1321	• Inter-compatibility of products	Note		Good
D10 5190	• Acid number	Number.		*
D50 5188	• Molecular mass	kg/mol		*
	7.1.2. FUNCTIONAL CHARACTERISTICS			
D25 5264	• Thickness	μM		3 ± 1
-	• Appearance of the film	Note		Transparent
D27 1571	• Blistering in humidity (96 h)	Grading		1
D27 5377	• Staining	Grading		0
D59 5218	7.1.3.APTITUDE FOR PROTECTION AND REMOVAL OF PROTECTION			
	7.1.3.1.After artificial ageing			
D27 1389	Range (2): 250H			
	• Appearance of the film	Note		(1)
	• Removal of protection (when cold)	-		Total
	• Appearance of paint film to brushes after removal of protection	Note		(2)
D24 5359	Resistance to paintwork laminate brushes after removal of protection			
D25 1413	residual gloss (at 20°)	UB		≥ 70
D25 1413	loss of gloss	UB		≤ 20
D50 5188	• Variation in molecular mass (ΔM) (3)	(%)		≤ 25
D10 5190	• Variation in the acid number (IVA) (4)	(%)		≤ 10

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DOCUMENTS	Functional Characteristics	Expression of results	Results or Values	
			Min.	Max.
	7.1.3.2.After natural ageing			
	(3 months outside in summer)			
	• Appearance of the film	Note	(1)	
D59 5218	• Removal of protection (when cold)	-	Full	
	• Appearance of paint coatings after removal of protection	Note	(2)	
D50 5188	• Variation in molecular mass (ΔM) (3)	(%)	≤ 50	
D10 5190	• Variation in the acid number (4)	(%)	≤ 25	
<p>* There is no requirement but the value should match that of the approved sample. This value may apply to an "Product Approval Specification" (see B20 0150 Specifications). (1), (2), (3) and (4) Specific conditions, see Appendix 1.</p>				
	7.2.ADHESIVE FILMS			
	7.2.1.CHARACTERISTICS IN NEW CONDITION			
	7.2.1.1.Physio-chemical characteristics			
	• Chemical type:			
	• Polymer film		(1)	
	• Adhesive mass		(1)	
	• Thickness:			
	• Polymer film	μm	(1)	
	• Adhesive mass	μm	(1)	
NF EN 14410	• Longitudinal/transversal tensile strength	N/cm	(2)	
NF EN 14410	• Elongational longitudinal/transversal break	(%)	(2)	
	• Adhesion (speed: 300 mm/min)			
	• Ton steel	N/cm	(1)	
EN 1939	• Ton paintwork (2 or 3 reference production varnishes) (3)	N/cm	≤ 5	
	• Adhesive face to back of film (4)	N/cm	(1)	
	• Adhesive face to adhesive face (4) (5)	N/cm	≤ 4	
NF EN 14410	• Resistance to tearing (speed: 300mm/min) (6) (test carried out longitudinally)	N	$\geq 0,6$	
<p>(1) : for information purposes. (2) : complies with the manufacturer's data. (3) : the support varnish or varnishes for the tests shall be selected according to the extent of the field of application specified by the supplier for this adhesive film from the following three choices: • single component phase 2 varnish, • bi-component first fitting varnish, • bi-component retouch varnish. The adhesion test shall take place 48 hours after the adhesive has been applied and a felt scraper or the roller that conforms to the norme has been used. (4) : test 10 mins after the application and use of a felt scraper or the roller that conforms to the norme. (5) : description in appendix 2. (6) : description in appendix 3.</p>				
	7.2.1.2.Functional characteristics: Aptitude for protection			
	• Chemical resistance (gradient furnace, t° max only)	Paintwork appearance	New appearance	
D24 1312	• Chipping resistance (grading after removal of protection)	Grading	1	
D47 1309 AF	• Protection against moisture and heat resistance (5 AF cycles on a partially covered plate)	Paintwork appearance	New appearance	

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Documents	Functional characteristics	Expression of results	Results or Values	
			Min.	Max.
	7.2.2.CHARACTERISTICS NATURAL AGEING			
	<i>The ageing applied is 5 months natural exposure on the Vélizy site.</i>			
	7.2.2.1.Functional characteristics: Aptitude for protection and removal of protection			
/	• Condition of the adhesive film before removal of protection		not torn	
			not unstuck	
	• Chemical resistance (gradient furnace, t° max only)	Paintwork appearance	New appearance	
/	• Removal of protection	-	Total, no adhesive transfer, no marking	
/	• Appearance of the paint film after removal of protection	-	New appearance	
D24 5359	• Resistance of paint film to brushing after removal of protection			
D25 1413	• residual gloss (at 20°)	UB	≥ 65	
D25 1413	• loss of gloss	UB	≤ 20	
NF EN 14410	• Tensile strength			
	• Longitudinal	N/cm	(1)	
	• Variation in relation to new condition	(%)	± 25	
	• Transverse	N/cm	(1)	
	• Variation in relation to new condition	(%)	± 25	
NF EN 14410	• Elongation at break			
	• Longitudinal	(%)	(1)	
	• Variation in relation to new condition	(%)	± 25	
	• Transverse	(%)	(1)	
	• Variation in relation to new condition	(%)	± 25	
EN 1939	• Variation in adhesion to paint (speed: 300mm/min) (2 or 3 reference production varnishes) (2)	(%)	± 25	
NF EN 14410	• Loss of resistance to tearing (speed : 300mm/min) (3) (test carried out longitudinally)	(%)	≤ 25	
<p>(1) : for information purposes. Depending on the feedback, this information may become a requirement.</p> <p>(2) : the support varnish or varnishes for the new tests shall be used according to the extent of the field of application specified by the supplier for this adhesive film from the following three choices:</p> <ul style="list-style-type: none"> • single component phase 2 varnish, • bi-component first fitting varnish, • bi-component retouch varnish. <p>(3) : description in appendix 3.</p>				

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8.CONDITIONS FOR IMPLEMENTATION

8.1.CONDITION OF THE RECEIVER SUPPORT

To ensure the protective function and allow for removal of protection without damaging the appearance of the finish when leaving storage, the protective product (VRE, or adhesive film) must be applied to a clean, dry vehicle, as specified in the reference material MXP_PEI02_00441. This level of quality may be attained:

- on one hand, concerning the residues of manufacturing procedures, by self testing on fitting, and cleaning pollution if necessary,
- on the other hand, concerning water, dust and atmospheric deposits:
 - by not allowing any unprotected vehicle to leave the factory for storage, however briefly. If this is impossible, the recommended procedures shall be followed to restore cleanliness.
 - By fitting a blower lock before applying the VRE, to eliminate water, typically: 6 metre atmospheric air blower lock with an air renewal rate of 5750 m³/H for an installation for 60 VHI).

DOCUMENTS	Physio-chemical characteristics	Expression of results	Requirements
	8.2.EXTERNAL COAT VARNISH		
	8.2.1.DURING MANUFACTURE		
	8.2.1.1.Receiver support		
	• TYPE	Support type	Finishing varnish
	• Condition	-	Clean and dry
	• Temperature	°C	10 to 32
	8.2.1.2.Application		
	• Method of application	Method	Automatic only , by <ul style="list-style-type: none"> • Minibol • Airless nozzle, mixed air, pneumatic • Robot airless
	• Temperature produced	°C	18 tp 32 °C
	• Complete drying time (under dry air blower at 60 °C)	Min.	1**
	8.2.2.IN THE LABORATORY		
	8.2.2.1.Receiver support		
	• TYPE	Support type	Finishing varnish
	• NWL	-	Clean and dry
	• Temperature	°C	23 ± 2
	8.2.2.2.Application		
	• Method of application	Method	Manual by pneumatic nozzle
	• Temperature	°C	23 ± 2
** The product must be dry to the touch when the vehicles leave the protective building.			

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Documents Physio-chemical characteristics	Expression of results	Requirements
8.3.ADHESIVE FILMS		
8.3.1.DURING MANUFACTURE		
8.3.1.1.Receiver support		
• TYPE	Support type	Finishing varnish
• NWL	-	Clean and dry
• Temperature	°C	10 to 32
8.3.1.2.Application		
• Method of application	Method	Manual or semi-automatic depending on the type of roller
• Product temperature	°C	10 to 32
8.3.2.IN THE LABORATORY		
8.3.2.1.Receiver support		
• TYPE	Support type	Finishing varnish
• Condition	-	Clean and dry
• Temperature	°C	23 ± 2
8.3.2.2.Application		
• Method of application	Method	Manual using a felt scraper
• Temperature	°C	23 ± 2

Appendix 1

Specific conditions for VREs

(1) No deterioration or cracking.

(2) No change in appearance.

(3) Variation in molar mass as a percentage (% ΔM).

It is determined according to the following relationship:

$$\% \Delta M = \frac{M - M'}{M} 100$$

where **% ΔM** : variation in molar mass as a percentage.

M : molar mass before ageing in kg/mol.

M' : molar mass after artificial and natural ageing in kg/mol.

Molar masses are determined according to test method D50 5188.

(4) Variation in the acid number as a percentage (IVA).

The variation in the acid number as a percentage is determined according to the following relationship:

$$IVA = \frac{IA - I' A}{IA} 100$$

where **IVA** : variation in the acid number as a percentage.

AI : acid number before ageing.

I' A : acid number after natural and artificial ageing

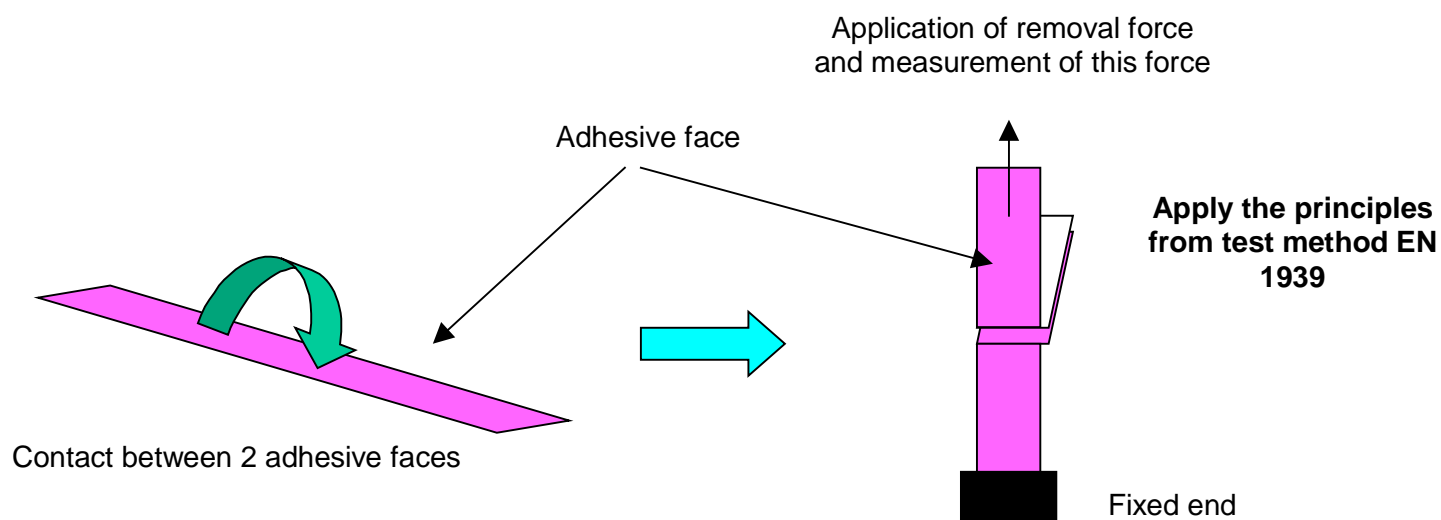
(5) Production supports.

Paint supports: use between 8 and 48 hours after paint application.

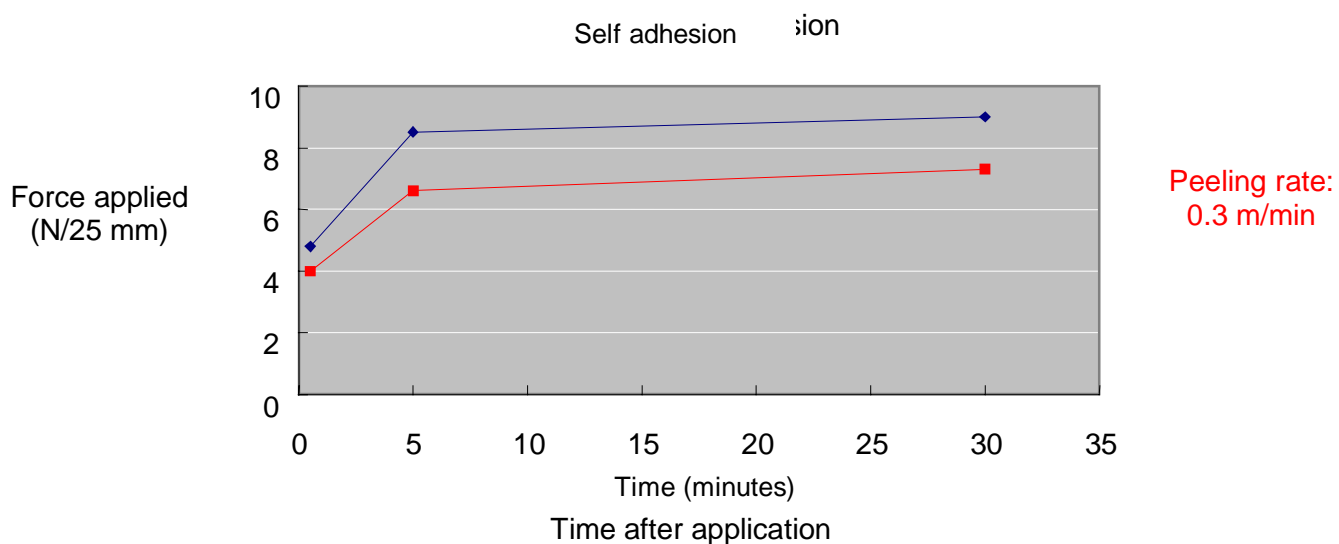
Appendix 2

Self adhesion measurement

1. Measuring principle



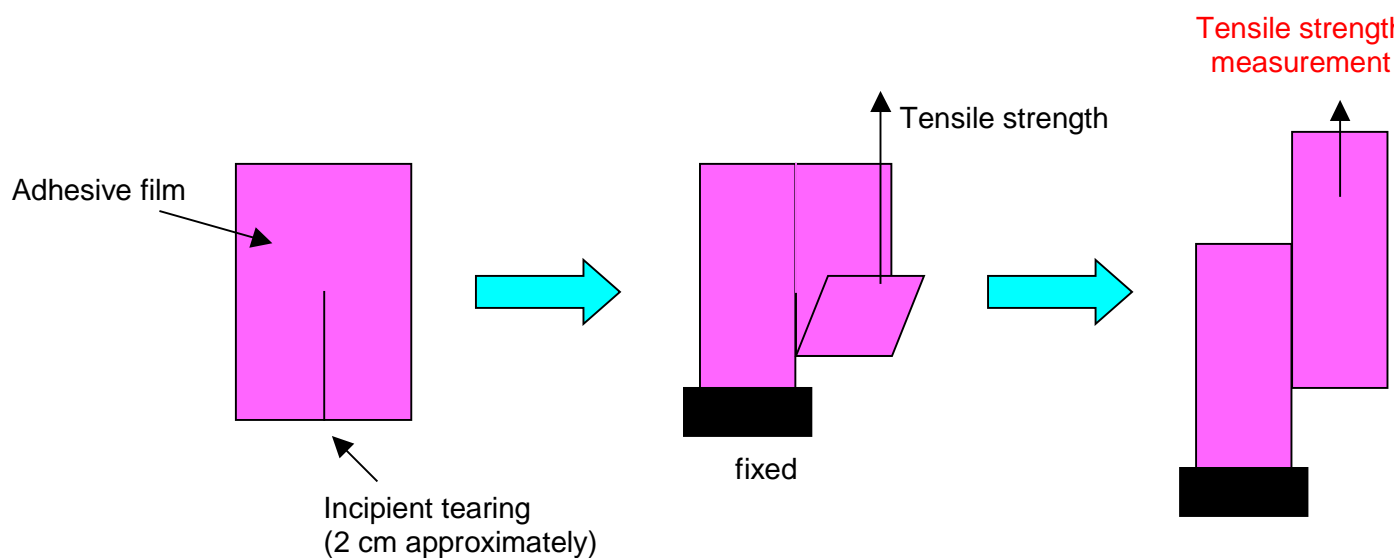
2. RESULTS



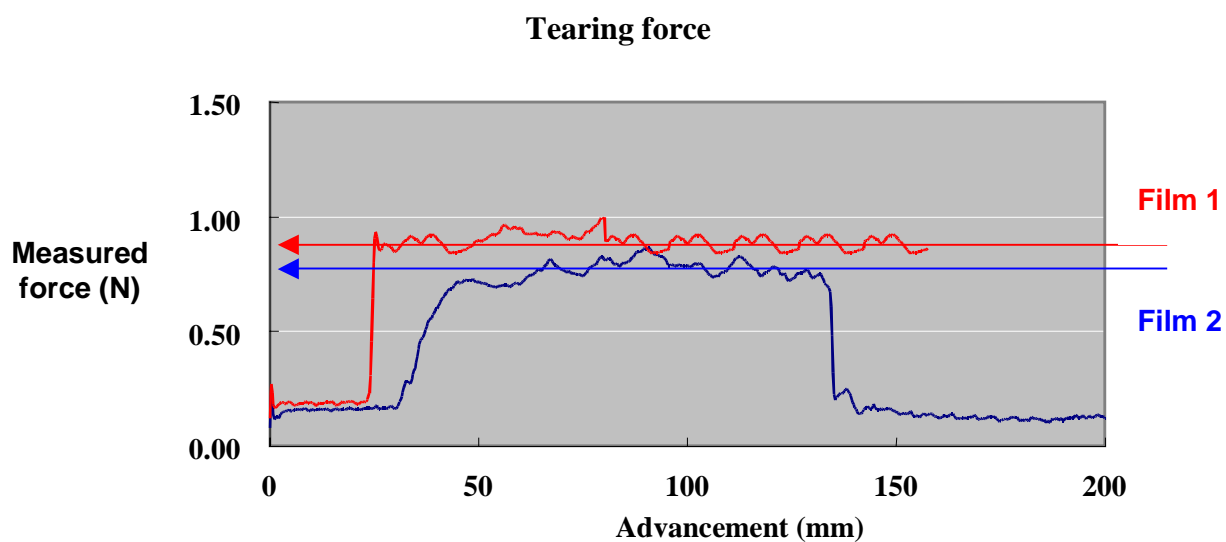
Appendix 3

Tearing strength measurement

1. Measuring principle



2. RESULTS



9.RECORDS AND REFERENCE DOCUMENTS

9.1.RECORDS

9.1.1.CREATION

- OR: 01/01/1985 – CREATION OF THE NORME

9.1.2.SUBJECT OF THE MODIFICATION

- E: 28/05/2004 – COMPLETE REWRITE OF THE NORME
- D: 26/10/1999 – MODIFICATION TO THE LONG TITLE

9.2.REFERENCE DOCUMENTS

9.2.1.PSA DOCUMENTS:

9.2.1.1.Normes:

B14 0100	BONDING, SEALING, ANTI-CHIPPING, SHOCK ABSORPTION, ANTICORROSION AND PROTECTION - GENERAL INFORMATION
B20 0150	PRODUCTS WHICH SHOULD BE THE SUBJECT OF AN APPROVED PRODUCT SPECIFICATION - GENERAL REGULATIONS
B74 0100	SUPPLY OF PRODUCTS – CONNECTION, SEALING, ANTI-CHIPPING, SHOCK ABSORPTION, ANTICORROSION AND PROTECTION – GENERAL RECOMMENDATIONS
D10 5190	ACRYLIC RESINS INSTANT APPARENT ACID NUMBER (BY POTENTIOMETRY)
D15 5230	SOLVENT PRODUCTS FLASH POINT DETERMINATION (CLOSED CUP METHOD)
D25 5264	TEMPORARY PROTECTIVE PRODUCT COATINGS THICKNESS (WEIGHT)
D27 1389	PAINT COATINGS, RUBBER AND PLASTIC ARTIFICIAL AGEING BY WEATHER-OMETER
D27 1571	PAINT COATINGS MOISTURE BLISTERING
D27 5144	PAINT COATINGS AND ASSIMILATED PRODUCTS - STAINING
D50 5188	PAINT RESINS RECOVERABLE PRIMERS DISTRIBUTION OF MOLECULAR MASSES (FROST PERMEATION CHROMATOGRAPHY)
D55 1016	ASSIMILATED SEALANTS, PAINTS AND PREPARATIONS CONSISTENCY (CUTTING METHOD)
D55 1017	LIQUID PREPARATIONS DETERMINATION OF CONVENTIONAL DRY EXTRACT
D55 1018	PASTE OR LIQUID PRODUCTS DENSITY (PYCONOMETER METHOD)
D55 1321	PAINTS COMPATIBILITY WITH LIQUID STATE
D59 5218	TEMPORARY PROTECTIVE VARNISH AND REMOVAL OF PROTECTION PRODUCTS APTITUDE FOR PROTECTION AND REMOVAL OF PROTECTION

9.2.1.2.Others:

9.2.2.EXTERNAL DOCUMENTS:

NF M07-024	DETERMINING HYDROCARBON GROUPS IN LIQUID PETROLEUM PRODUCTS – ADSORPTION METHOD IN THE PRESENCE OF FLUORESCENT INDICATORS
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9.3.EQUIVALENT TO:**9.4.CONFORMS TO:****9.5. KEY WORDS**