

PAINT COATINGS STAINING BY CHEMICAL PRODUCTS

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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 : 02/12/2003*

1.OBJECT AND FIELD OF APPLICATION

The object of this method is the description of a method of operation for determining the effect of chemical products on paint coatings.

2.PRINCIPLE

Paint coated, sheet metal or plastic test specimens, are placed in contact with chemical products. The effect on the paint film is evaluated after a determined length of time.

3.EQUIPMENT AND REAGENTS

3.1.PIPETTE OR SYRINGE

3.2.CONDITIONED ENCLOSURE

At 24 °C ± 4 °C, with no hygrometric requirements.

3.3.EXTRACTOR HOOD

3.4.CLEANING FLUID

95 % ethanol or de-mineralised water according to specific cases.

4.PREPARATION OF TEST SPECIMENS

- 4.1. Painted sheet metal or plastic test specimens are produced according to the range to be tested. The test may also be completed on specimens sampled from components.
The test specimens must be of minimum dimensions for a drop of approximately 20 mm in diameter to be placed on the specimen.
- 4.2. The test specimens must be placed in the conditioned enclosure (3.2.) for approximately 24 hours prior to testing.
- 4.3. For paints cured at temperatures below 120 °C, perform the same conditioning as in § 4.2. but for at least 7 days, unless otherwise specified in standard documents.

5. PREPARATION OF MIXTURES

The solvents used must be of analytical quality.

Example : *PROLABO "Normapur" or equivalent.*

The mixtures are to be stored away from direct light.

5.1. ISOCTANE/TOLUENE MIXTURE (50/50 VV SOLUTION)

This mixture replaces super unleaded fuels.

- The mixture is to be produced under an extractor hood operating with the appropriate safety equipment. (refer to safety data sheets).
- The volume of solution to be prepared shall vary as a function of the number of tests to be performed.
- The time for which it is stored must not exceed 2 months from the date of initial use of the mixture. The ratio is $50\% \pm 2\%$ by volume of Isooctane and $50\% \pm 2\%$ by volume of toluene. Ensure that this mixture is homogeneous each time it is used (homogenisation by stirring with a magnetic stirrer).

5.2. HEXADECANE/ALPHAMETHYLNAPHTHALENE MIXTURE (80/20 VV SOLUTION)

This mixture replaces diesel fuels.

- The mixture is to be produced under an extractor hood operating with the appropriate safety equipment. (refer to safety data sheets).
- The volume of solution to be prepared shall vary as a function of the number of tests to be performed.
- The time for which it is stored must not exceed 2 months from the date of initial use of the mixture. The ratio is $80\% \pm 2\%$ by volume of hexadecane and $20\% \pm 2\%$ by volume of alphas-methylnaphthalene. Ensure that this mixture is homogeneous each time it is used (homogenisation by stirring with a magnetic stirrer).

6. METHOD OF OPERATION

The method of operation is to be performed in the conditioned enclosure (3.2.).

- Specimens to be tested may be cleaned with de-mineralised water, then dried with compressed air. Use of a cloth is prohibited.
- Apply the liquid product under an operational extractor hood (3.3.), with the use of the pipette or syringe (3.1.) in such a way as to produce a drop of approximately 20 mm in diameter.
- Expose the plates under an operational extractor hood (3.3.), for the length of time defined in the table in Appendix.
- Clean the test specimens using ethanol, then dry using compressed air.
- Note the staining according to the grading scale (7.).

7. EXPRESSION OF RESULTS

The grading is to be made by comparing the area subjected to staining with the adjacent area, this must be with a maximum delay of one hour from the end of the exposure to the chemical product.

Note visually:

- The loss of gloss, colour change, the distempering, the swelling etc...

Distinguish:

- Staining by contact, limited to the contact area,
- Staining by migration at the edge of the contact area.

The grading of defects must be made according to the following scale:

- 0 No change in colour and no distempering.
- 1 Slight distempering.
- 2 Slight change in colour.
- 3 Change of colour or loss of gloss without distempering.
- 4 Significant change in colour with or without distempering.
- 5 More severe alteration of the film, partial dissolving, blistering, detachment etc ...

In addition to the grading, the level of staining observed must be indicated.

8. MEASUREMENT UNCERTAINTY

The evaluation of the resistance to staining is a grading method: the measurement uncertainty cannot be determined.

9. TEST REPORT

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

- The reference of this method,
- The complete identification of the test specimen, or the part tested, the name of the Supplier, support reference, surface treatment and paint range,
- The operational details not specified in this method as well as any incidents likely to affect the results.

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Appendix

LIST OF PRODUCTS

Products	Exposure under operational extractor hood In Hours	Handling under operational extractor hood
Isooctane/Toluene mixture	24	Yes
Hexadecane/Alphamethylnaphthalene mixture	24	Yes
Temporary protection products - Elox HS 1412 by HENKEL	48	Yes
Protection removal products, cold - Ravifor of SPCA	24	Yes
Glass cleaning fluid used in production at the site, or reference liquid n°1 (*)	24	Yes

Note : (*) Reference liquid n° 1, as defined in test method D47 1098, that is:

- Distilled water: 27 ml.
- Ethanol : 73 ml.
- Dodecylbenzene sodium sulphonate: 0,2 mg for 100 g of solution.

10.RECORDS AND REFERENCE DOCUMENTS

10.1. RECORDS

10.1.1. CREATION

- OR : 01/04/1995 – CREATION OF THE NORME.

10.1.2. OBJECT OF THE MODIFICATION

- C : 19/05/2003 – UPDATE OF THE TEST METHOD.
- B : 05/01/2001 – COMPLETE REWRITE OF THE TEST METHOD

10.2. REFERENCES DOCUMENTS

10.2.1.PSA DOCUMENTS

10.2.1.1. Normes

- D47 1098 VULCANISED RUBBERS AND THERMOPLASTIC SOLID OR CELLULAR RUBBERS AGEING IN FLUID AND GREASE

10.2.1.2.Others

10.2.2.EXTERNAL DOCUMENTS

10.3. EQUIVALENT TO :

10.4.CONFORMS TO:

10.5. KEY-WORDS