

**MATERIALS AND COATINGS
SALT SPRAY TEST OF 5% NaCl
AND METHODS OF GRADING**

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The test method integrates the results of the work led at the French level within the framework of a gathering work group of the users of salt spray of various origins (CBBS), of standard NFA05-109 and NF IN ISO 9227:

- vehicle manufacturers,
- manufacturers of chambers,
- formulateurs of products of finish,
- applicators of linings of electrolytic zinc or by cold immersion,
- CETIM.

*As an experimental standard, this applicable document is presented to observations for one 5 months **duration**. Without observation received before **the 30/10/2008** with the address: normesExp@mpsa.com the contents of this document will be confirmed.*

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HISTORIQUE

Index	Date	Nature of the engineering changes
OR	01/09/1979	CREATION OF THE STANDARD.
A	01/06/1985	EDITORIAL ENGINEERING CHANGES AND OF APPENDIX 3.
B	26/09/1997	RECOVERY UNDER IDEM.
C	22/05/2008	SETTING WITH THE NEW FORMALISM OF STANDARDS PSA. MAINTAINED STANDARD WITH RESPECT TO THE MEASUREMENT OF CORROSIVITY OF THE CHAMBER. ENGINEERING CHANGE OF PARAGRAPHS 1. , 4. AND 5. CREATION OF PARAGRAPHS 6., 8., 9. AND 10. RECASTING OF THE APPENDICES. MAINTAINED ASSEMBLY REFERENCE PARTS OF EXTERNAL STANDARDS CITEES.

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1.OBJET AND SCOPE OF APPLICATION

This document describes the salt spray tests neutral which make it possible to evaluate the metallic material corrosion resistance protected or not by a permanent or temporary lining.

This test is used to control the quality of materials and linings compared to established technical freezings.

However, it does not make it possible, a priori, to establish a relation between the resistance observed during the test, and corrosion resistance in the various mediums where the materials can be used.

To in no case, this test does not constitute a means of study of behaviour to the saline spray. The behavior of various materials during the test should not either be regarded as an indication of their relative corrosion resistance in service.

This method has as an aim the description of the test corrosion Salt spray of the associated plant and the checks necessary to make sure of the conformity of the test.

This method can apply to test-tubes laboratory, to parts or taking away of vehicle parts.

2.REFERENCE DOCUMENTS

2.1.STANDARDS

A10 0156	REPORTS/RATIOS OF TEST - DRAFTING
B15 3320	LININGS CONTAINING LAMELLATE ZINC - PART OF PROCESS IN BULK OR WITH THE BRACKET
B15 4101	ELECTROLYTIC ZINC LININGS AND FINISHERS ASSOCIATED - PART OF PROCESS WITH THE CLIP
B15 4102	ELECTROLYTIC ZINC LININGS AND FINISHERS ASSOCIATE - PART OF PROCESS WITH THE ROLL (IN BULK)
B15 5050	LININGS OF PAINTINGS - FINISHED VEHICLES
B15 5220	LININGS OF PAINTING BRACKETS ON METAL MACHINE ELEMENTS
B15 5260	LININGS ON ROAD WHEELS - PROCEDURE OF VALIDATION OF THE BEHAVIOUR AND THE ASPECT
D24 1312	LININGS OF PAINTINGS - RESISTANCE TO GRITTING
D25 1075	LININGS OF PAINTINGS - CROSS-CUT TEST
D27 1571	LININGS OF PAINTINGS - BLISTERING TO MOISTURE (BLISTERING)
NF A05-109	CORROSION OF METALS AND ALLOYS - NEUTRAL SALT SPRAY TEST - LININGS OF ZINC AND ZINC COMBINE DEMOUNTINGS BY ELECTROLYTIC PIN OR NOT WITH OR WITHOUT CONVERSION
NF IN ISO 9227	CORROSION TESTS IN ARTIFICIAL ATMOSPHERES _ SALT SPRAY TESTS
NF IN 10338	COLD-REDUCED OR HOT FLAT PRODUCTS NOT COVERED OUT OF MULTIPHASE STEELS FOR COLD FORMING - TECHNICAL REQUIREMENTS OF DELAYED DELIVERY

2.2.REGULATIONS

Without object.

2.3.OTHER DOCUMENTS

Without object.

3. TERMINOLOGY AND DEFINITION

A dictionary (glossary) of the principal terms and their definitions used in the activities of Amont Technico-Industriel is consultable in-house via the glossary [Nectar](http://nectar.inetpsa.com) (<http://nectar.inetpsa.com>). This glossary is gradually enriched.

3.1. DEFINITIONS

Without object.

3.2. ACRONYMS

For the need for this standard, the following badges are detailed:

BS	:	Salt spray
CBBS	:	Salt spray Club
TOR	:	Time of Red Oxidation
NaCl	:	Sodium chloride

4. PRINCIPLE OF THE TEST METHOD

The salt spray test consists of an accelerated corrosive gate, by an artificial salt spray of defined composition, under precise conditions of temperature and pressure.

The degree of corrosion is appreciated:

- either the appearance of points of corrosion (pitting),
- or the percentage of corroded surface,
- or the loss of earth,
- or deterioration raised by micrographic inspection,
- or the let-go with the scratch
- or blistering

5. APPARATUS

The materials constituting the apparatus and which are in contact with the saline solution must be inert with respect to this one.

The apparatus of test includes/understands the following elements:

5.1. SPRAY CHAMBER

The spray chamber must have a minimum capacity of 0,4 m³.

For the rooms of great bulk, the overspray must be distributed in a uniform way, whether the chamber is empty or in oven load. The upper part of the room must be conceived so that the accumulated drops of solution, which stream on the surface, cannot run out on the parts tested. The partitions and the lid must be isolated so as to guarantee the homogeneity of the temperature and the pellet-size of the droplets of overspray in all the bulk of the chamber.

Dimensions and the shape of the spray chamber must be such as the quantity of solution collected in each collector either included/understood within the limits of 1 mL/h with 2 mL/h, for a horizontal surface of re-circulation of 80 cm² approximately (or 10 cm diameter). The collectors being used for measurement should never be installed in lower part of the parts tested.

The condensed solution is evacuated with the bottom of the room.

5.2. DEVICE OF HEATING AND TEMPERATURE CONTROL

A suitable device must make it possible to maintain the room of test and its contents at the temperature of 35 °C ± 2 °C and to avoid to the maximum the phenomena of condensation of the overspray on the partitions of the chamber.

The plug of temperature measurement must be done at a minimal distance of 100 mm of the partitions. The temperature is at least controlled each working day, a tracking uninterrupted is recommended. (Appendix 2)

5.3. SPRAY CLEANER

The compressed air must be filtered in order not to contain contamination (oil, dust), the authorized maximum is of 0,2 oil Mg per Nm³ of air and no particulate must be of pellet-size > 5 µm.

The pressure must be ranging between 0,8 bar and 1,6 bar, according to the recommendations of the manufacturer. A high pressure supports the distribution in the room of test.

The feeding attachment in saline solution is composed of a feed system in clean air, pressure and controlled moisture, a washer bottle containing the solution to be pulverized and of one or more sprayers.

The compressed air must be saturated with water to prevent at the time of spring, the rise in the volumic concentration of chloride in the pulverized solution. The air is humidified before entering the sprayer by change-over through a saturator containing of heated water to an higher temperature to that of the room (45 °C - 47 °C). The equipment must guarantee the saturation of the air. The filling and the case straps on constant level of the pitch of water post are made with demineralized water (conductivity < 20 µS/cm with 20 °C ± 2 °C). The saturator must be equipped with a thermometer to measure the temperature of water and with an evacuation allowing of the taking away of water to control conductivity of it.

The suitable temperature for the air resulting from the saturator (45 °C - 47 °C) depends on the pressure used and the air flow of the vent of spraying.

The quality of the air is controlled indirectly by the tracking of the conductivity of the water of the saturator. If the latter evolves/moves beyond the tolerance, the saturator must be drained, cleaned and the quality of the air must be improved.

Recommendation: the temperature and the conductivity of the water of the saturator can be recorded on a weekly monitoring document of the operation of the chamber.

The configuration of the sprayers is adapted to that of the chamber. The design of the unit must ensure the uniformity of the distribution of the overspray in any point of the effective volume of the room. One calls effective volume, the facility in which the quantity of solution collected and aggressiveness in conformity, i.e. are included/understood within the limits prescribed in paragraph 5.1 for the solution collected and in paragraph 8 for aggressiveness. If the chamber is well designed, the totality of the bulk is useful.

On the models of chambers equipped with an internal reserve of saline solution, the level of the solution in this reservoir (placed inside the spray chamber) must be maintained constant to ensure a regular overspray supply during all the test.

5.4.COLLECTORS OF OVERSPRAY

The collectors are used for the annual checking and weekly trackings. One at least has 2 collectors per chamber, placed at with dimensions of the pads of assembly reference parts (Appendix 1.2)

Use, as collecting devices, of the funnels 10 cm in diameter, (surface of daylight equalizes to 80 cm² approximately) placed on test tubes. The materials constitutive of the collecting unit must be out of chemically inert material.

6.PREPARATION OF THE SALINE SOLUTION

The conductivity of water must be lower or equal to 20 µS/cm to 20 °C ± 2 °C.

The sodium chloride should not contain, at the anhydrous state, more than 0,2% out of earth of impurities on the whole nor more than 0,1% out of earth of sodium iodide. It must be of copper and nickel (less than 10 mg/kg for each one of these two elements).

To dissolve in distilled or demineralized water, quantity necessary of sodium chloride to obtain a concentration of 50 g/L ± 5 g/L (solution at 5% ± 0,5%).

Once, salt dissolves and the homogenized solution, the density and the ph value must be controlled

The density of the saline solution, measured with 23 °C ± 2 °C, must be ranging between 1,025 and 1,040.

The ph value is measured with 23 °C ± 2 °C using a ph-meter equipped with an electrode with high alkalinity. It must be ranging between 6,0 and 7,5 after complete stabilization of the solution. If such is not the case, the solution cannot be used and must thus be thrown i.e. it should not be corrected.

The solution must be limpid (observation with the naked eye); if necessary to filter it before introduction into the tank of the apparatus.

The solution must be maintained under agitation to guarantee its homogeneity.

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7. REPRESENTATIVITY OF THE SAMPLES

The samples must be representative of the size to characterize. To ensure this representativeness it is necessary to know the fundamental characteristics of the studied population. The selection criteria of the samples must be specified in Rapport d' Essai (RE), whose contents are defined in the standard [A10 0156](#).

In case of doubt about trimming, to contact services PSA DTI/DPMO/CIMB/IMPM/MMAL and/or DTI/DITV/PMXP/PEI/ACF in order to know the directives to be followed.

8. METHODS OF CHECKING AND TRACKING OF THE AGGRESSIVENESS OF THE ROOM OF TEST

To control the reliability and the reproducibility of the results obtained in a chamber or to compare the results resulting from various chambers, it is necessary to carry out checks of the aggressiveness of the room of test.

Aggressiveness must be measured as indicated in Appendix 1. This one must be deferred to the report/ratio of test.

9. PREPARATION OF THE TEST-TUBES AND THE PARTS

- The number, type, the shape and dimensions of the test-tubes and the parts to be tested must be selected in accordance with technical freezings PSA of material, the lining or the product tested:
 - [B15 3320](#),
 - [B15 4101](#),
 - [B15 4102](#),
 - [B15 5050](#),
 - [B15 5220](#),
 - [B15 5260](#).

In the absence of such a technical freezing, they must be the subject of an agreement between the interested parts.

- All the parts with a coat of paint, putties or related products must be prepared as described in Appendix 3. One must take care that the test-tubes and the parts are not contaminated after cleaning by a negligent handling.
- For the parts which one seeks to determine the time of appearance of white rust and red rust the observation is daily and tracking carried out following Appendix 4.
- If the test-tubes and the parts to be tested are cut out in larger covered parts, carving must be made in order not to damage the lining in the adjacent facility with the blanking. Except contrary technical freezing, the banks of the blanking must be protected by an adapted lining, unattackable under the conditions of test, such as wax, painting or adhesive tape.

10.MODE OF OPERATION

10.1.PROVISION OF THE TEST-TUBES AND THE PARTS TO BE TESTED

- The test-tubes and the parts must be placed in the room in order not to be on the direct way of the pulverized overspray.
- The angle under which surface is exposed in the room is very important. The test-tube, or the part to be tested, must be placed in the spray chamber, vis-a-vis characterizing to the top, by forming with the vertical an angle of $20^{\circ} \pm 5^{\circ}$. In the case of the irregular pipe fittings, one must hold account, as far as possible, of this recommendation and limit quotation to correctly routed surface, or failing this be the subject of an agreement between the interested parts.
- The test-tubes and the parts to be tested must be arranged in order not to come into contact with the room and must be exposed with freedom of movement of the overspray. The parts can be placed at various levels of the spray chamber, provided that they do not stream the one on the others.
- The materials of the printed forms of the test-tubes and the parts being used to suspend them must be inert, with respect to the saline solution and of the parts to be tested.

10.2.OPERATING CONDITIONS

- The test can start only after preliminary VERIFICATION / TRACKING of the conformity of the aggressiveness of the chamber (Appendix 1).
- The temperature inside the room of test must be maintained with $35^{\circ}\text{C} \pm 2^{\circ}\text{C}$ in any point measured with more than 10 cm of the partition.
- The pressure of spraying and the orientation of (S) vent (S) must be maintained constant in the room for the duration of test in order to obtain 1 approximately mL/h with 2 mL/h for a horizontal surface of 80 cm^2 . It is advisable to use at least a collector placed halfway between the sprayer and the partition of the most distant chamber.
- The solution of test pulverized should not be re-used.

10.3.DURATION OF TEST

The duration of test must be fixed in accordance with technical freezings PSA (see paragraph 9) material or product tested. In the absence of such a technical freezing, it must be the subject of an agreement between the interested parts.

For the parts which one seeks to determine the time of appearance of white rust and red rust the observation is daily (Appendix 4). The BS should not be open to the office plurality more than 1 hour per day. Beyond of an hour, the time of protrusion must be deduced from the exposure time.

The parts are dried with the compressed air before observations.

10.4.HANDLING OF THE TEST-TUBES AND THE PARTS AFTER TEST

At the end of the test, to withdraw the test-tubes and the parts of the room, to eliminate carefully the residual matters of pulverized solution deposited on surface. One can, for this purpose, to proceed by rinse or immersion of the parts in running water, at a temperature not exceeding 37°C then with an immediate drying. One can use a source of compressed air or an inert gas (N_2 , Ar,...) or an absorbent paper.

11.REMARKS

Without object

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12.EXPRESSIONS OF RESULTS

- The expression of the results for the parts with a coat of paint, putties or related products is described in Appendix 3.
- The expression of the results for the parts which one seeks to determine the time of appearance of white rust and red rust the observation is daily and the expression of the results is described in Appendix 4.

13.TEST REPORT

The form and the minimal contents of the report/ratio of test are defined in the standard [A10 0156](#).

It must consign the information on the following points

- description of material or the parts to be tested,
- assembly reference parts of the standard (technical freezing material),
- returnability of the requirements requested from the product tested,
- many test-tubes and of parts submitted for testing,
- the note of aggressiveness of the chamber,
- the identification of the BS and the date of the last annual and/or monthly checking of this aggressiveness and date from the checking to come,
- duration of test and results of possible intermediate controls,
- anomalies and incidents which have occurred during the tests,
- the average result obtained on the whole of the parts of the crate tested,
- possibly the photography of the parts tested.
- for the losses of earth, one specifies the uncertainty of measurement of balance

the test report must mention moreover, all the details operational, optional, or not envisaged in the method, as well as the incidents likely to have acted on the results.

Appendix 1

Method of checking and tracking of aggressiveness

INTRODUCTION

This protocol aims to check the aggressiveness of the room of test of a chamber of salt spray, by evaluating the performance level of a lining containing zinc. It fixes the parameters identified as critical in the studies undertaken within the framework of the CBBS. It fixes the conditions under which the chamber or its rules is regarded as in conformity and establishes a level of aggressiveness. This one is expressed in the form of a note and is deferred on the report/ratio of test.

Two procedures are to be applied:

- The VERIFICATION OF AGRESSIVITY the purpose of which is to control the operation of the chamber on the totality of effective volume and independently of any test on part, must be realized at least once per annum and before each handing-over in exploitation (after maintenance or important repairs of the plant).
- The TRACKING OF AGRESSIVITY the purpose of which is to follow the performances of the chamber between two periods of VERIFICATION must be carried out at least once a month. (This procedure can be carried out in the course of test)

Foot-note: *The pads of assembly reference parts used in this method are not connected to international weighing.*

1 OPERATING CONDITIONS

The whole of the parameters fixed in the test method must be respected.

1.1 PLATED ASSEMBLY REFERENCE PARTS

The pads of assembly reference parts are out of standard steel cd. 04 according to standard NF INTO 10338, covered (on at least a face) with a layer of zinc obtained by hot-dip galvanizing on strand continuously.

±The thickness of zinc is of 11 µm 1 µm. The pads can be covered with an oil film, intended to ensure a better conservation.

The pads are accompanied by a compliance certificate which must comprise:

- identification of the supplier,
- identification of the product: n° reel and n° run,
- chemical and mechanical characteristics of supporting metal,
- the thickness of the zinc coat,
- assembly reference parts of the protective oil.

Possible supplier of pads: Limited-liability company STANDARD
13/17 street Beaudalet 77330 Ozoir Ferrière
Tel.: 01 64 40 06 12
E-mail: etalon2@wanadoo.fr

1.2 PREPARATION OF THE SALINE SOLUTION

The saline solution is prepared in accordance with the test method of § 6.

1.3 PREPARATION OF PLATED ASSEMBLY REFERENCE PARTS

The pads of assembly reference parts degreased in the following way:

- Pre-lubrication with acetone using a soft rag.
- Lubrication under ultrasounds in a detergent according to the following composition:

Sodium Hydrogencarbonate (NaHCO_3)	15 g/L \pm 2 g/L
Sodium carbonate (Na_2CO_3)	10 g/L \pm 2 g/L
Sodic tri phosphate (Na_3PO_4)	20 g/L \pm 2 g/L
Di-sodium decahydrated tetraborate ($\text{Na}_2\text{B}_4\text{O}_7$, 10:2 O)	10 g/L \pm 2 g/L
Demineralized water quantity for	1 liter

Conditions of use under ultrasounds:

- Temperature 45 °C (\pm 2 °C)
- Times 7 min. (\pm 1min).

The lifespan of this solution of lubrication is 36 months in opaque packing and under conditions of stocking of 0 °C with 40 °C. The degreasing bath made up must be stocked in packing closed apart from the periods of use. One liter of this solution makes it possible to treat with more the 5 pads

- After ultrasounds to leave the pad and to rinse it with the water of city then to ethanol and to let it dry with the air. The degreased pads are handled with gloves.

1.4 EPARGNE

The edges of the pads as well as the back are protected with an adhesive tape, type: Havana 100 mm X 38 mm, according to drawing appearing in Appendix 1.1.

1.5 POSITION OF PLATED ASSEMBLY REFERENCE PARTS AND COLLECTORS

The bracket must be carried out out of chemically inert material. It makes it possible to position the pads according to a checked angle of 20° (\pm 5°) compared to the vertical. The center of the pad is located at the pitch of the sprayer. The number and the position of the pads vary according to the test and the design of the chamber (Appendix 1.2)

- at least 3 at the time of ANNUAL CHECKING. They are positioned with a quarter, a half and three quarter of the distance between the sprayer and the partition of the chamber most moved away, side to be corroded vis-a-vis the spray nozzle,
- at least 1 at the time of the Monthly follow-up the pad is positioned halfway between the sprayer and the partition of the most distant chamber.

The collectors are positioned near the pads of assembly reference parts.

1.6 FILLING OF THE CHAMBER

At the time of ANNUAL CHECKING, the chamber must contain only the pads of assembly reference parts.

At the time of the Monthly follow-up, the test is carried out under the conditions of filling required by the exploitation in progress. The other exposed parts will not have to make screen with the pad of assembly reference parts.

1.7 MEASURE SURFACE CORRODEE

To copy on a lid the reference model of measurement given in Appendix 1.1. To pose the reference model on the pad of assembly reference parts. To regard a patch as oxidized as soon as it presents red oxidizing agent (flow included/understood).

Control is carried out visually every 24 hours on not rinsed pad, still wet.

Control is carried out as from 72 hours.

In the case of the annual checking, to observe one opening time of 30 min/day as from 72 hours.

In the case of the monthly follow-up, each toe-out should not exceed 60 min. opening time is not deducted.

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1.8. EXPRESSION OF THE RESULTS

One indicates by TOR (Time of Red oxidation) the time passed before the first observation of a level of oxidizing agent higher than 5% (are 6 patches at least presenting of the red oxidation).

The degree of aggressiveness of the chamber is evaluated by a note active of has to D.

TOR (hours)	Note	Conformity
≤ 72	With	Off specification
from 73 to 96 from 97 to 120	B C	Conform
> 121	D	Off specification

A chamber is known as in conformity if Note = B or C.

2. STATEMENT OF CHECKING

The standard statement given in Appendix 1.3 must be indicated entirely.

Appendix 1.1

Drawing of Epargne: mask of control of the pads of assembly reference parts

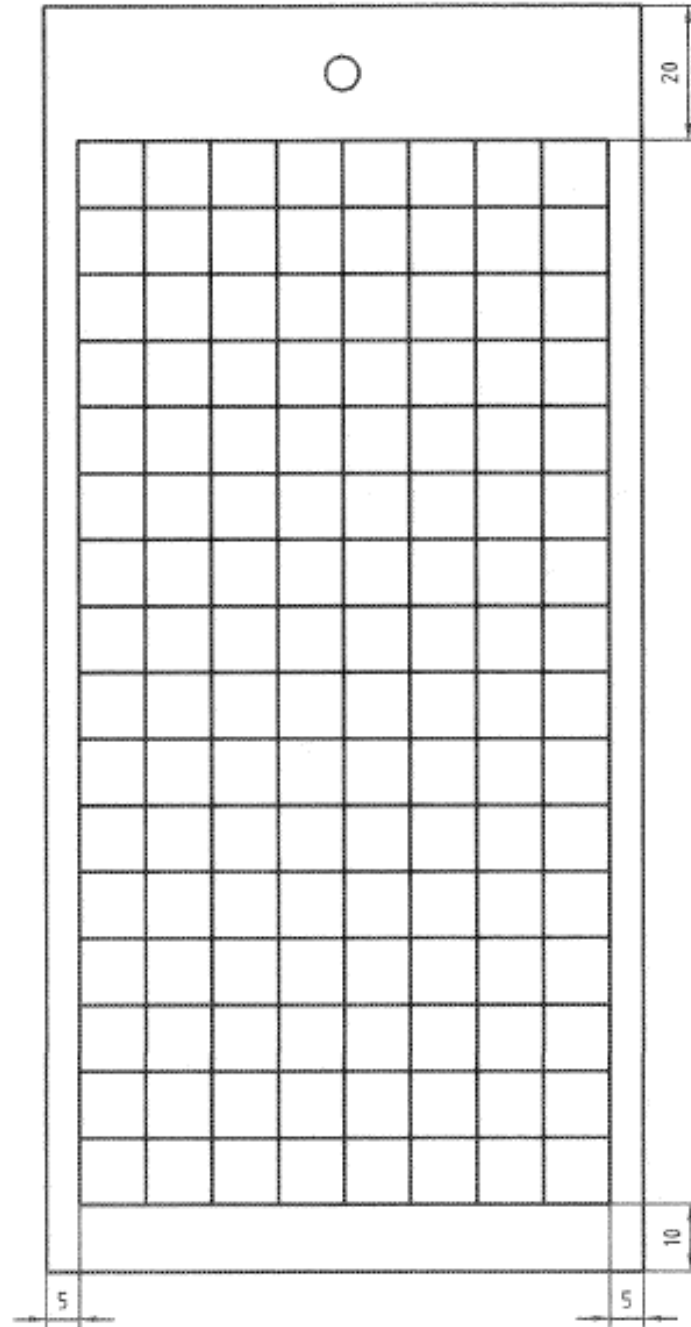
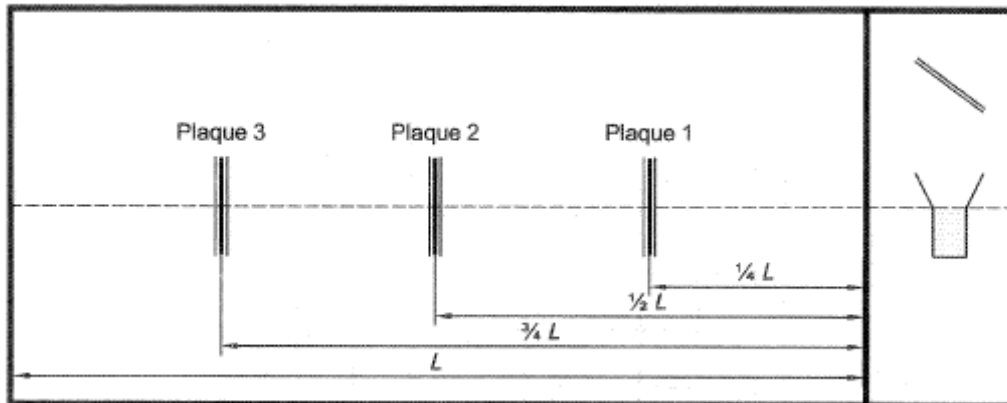


Plate Galvanisée = 190 mm X 90 mm
Surface of a patch = 1 cm²
Exposed Entire Surface = 128 cm²

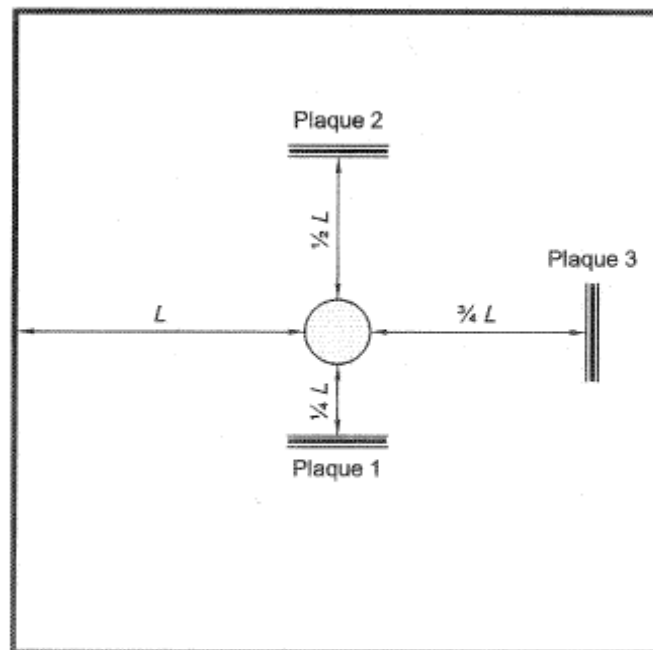
% corroded = N patches X 0,78

Appendix 1.2

Drawing of positioning of the slabs of assembly reference parts



Chamber with excentred sprayer



Chamber with centred sprayer

Appendix 2

Example of report of daily tracking

Mounth	
Chamber name	
N° PI	
Corrosivity	

Dates	Each daylight				Each préparation				Each daylight						Once by week		Op
	Time of counter (h)	Duration test (h)	Temp ferment °C	Temp saturator °C	Pression saturator bar	pH saline solution	Densité sal sol kg/L	conductivity water <20µS/cm	Collected 1 mL	Collected 2 mL	Collected 3 mL	Collected 4 mL	Collected moy mL/h	pH collected	Density collected kg/L	Drain saturator	
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
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Appendix 3

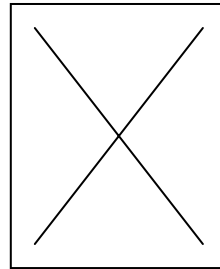
Linings of paintings, sealants and related products

1. PREPARATION OF THE TEST-TUBES OR THE PARTS BEFORE TEST BS

- Unless otherwise specified, the test of salt spray should not be carried out that on conditioned parts with 23 °C \pm 2 °C and with 50% \pm 5% of relative humidity for one minimum length of time of:
 - 7 days in the case of a painting hardening with ambient temperature,
 - 24 hours in the case of a painting hardening with the furnace.

The preparation of the test-tubes must satisfy the requirements of the standards relating to the linings tested (see § 9).

- The sharp edges of the painted platelets or the test-tubes cut out in a painted part are protected in an adequate way by an adapted lining, unattackable under the conditions of test, such as wax, painting or adhesive tape.
- The painted test-tubes or parts are obligatorily striped (scratches in the shape of cross of Saint André 10 cm length roughly) to the substrate, using the tools to be striped below.



Die to stripe ELCOMETER 1538

If the use of the die to be striped is not possible, to use centers of hardness 63 to 65 HRC and affutée at a peak truncated of diameter at the end of 3/10 Meters.

- Possibly, the test-tubes or parts undergo a test of gritting according to the mode of operation of ME [D24 1312](#) before being introduced into the chamber of BS.

2. QUOTATIONS AFTER TEST BS

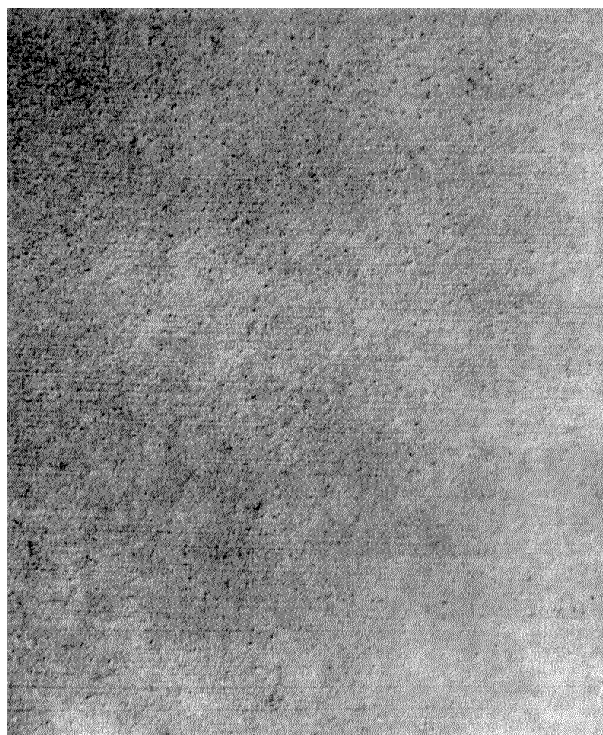
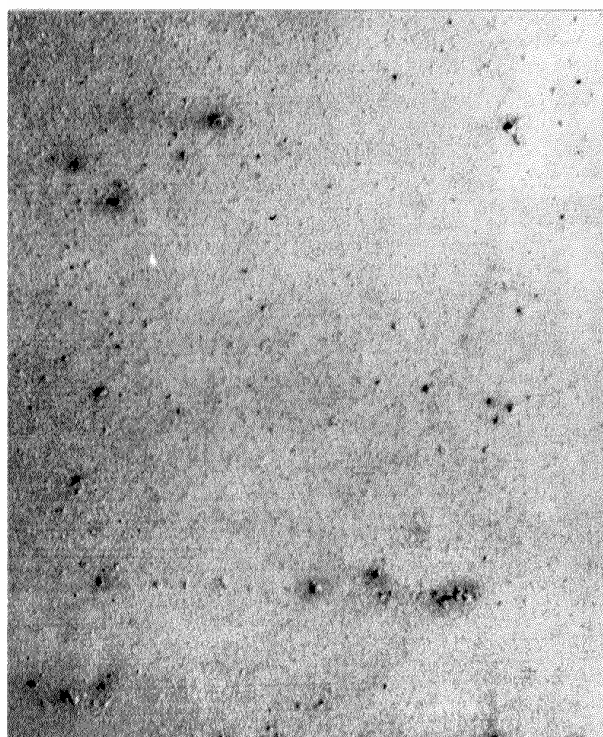
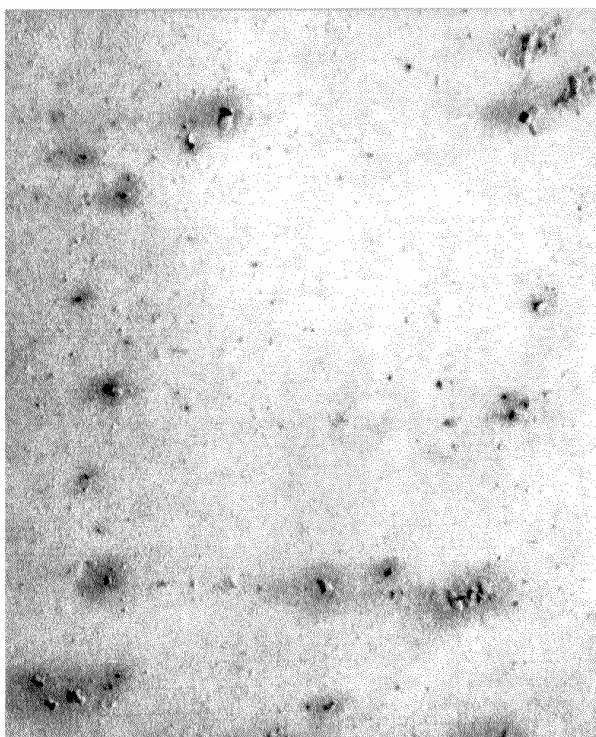
At the end of the test, the test-tubes or the parts are withdrawn from the room of salt spray, washed with running water and immediately dried (for example with absorbent paper). To await 1 hour and to dimension the pads in 48 h.

Note: If the test-tubes are not stripped in the 48 hours, them stocked in an drying apparatus.

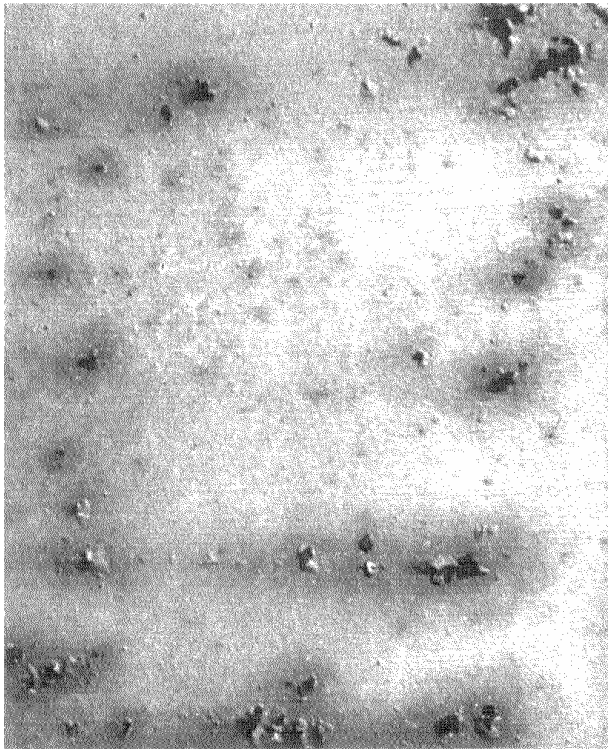
2.1. OXIDIZING AGENT IN FULL STEEL PLATE (RED OXIDIZING AGENT IN THE CASE OF A FERROUS FIXTURE OR OXIDIZING AGENT BLANK IN THE CASE OF A GALVANIZED PILLAR OR OUT OF ALUMINIUM)

The quotation from 0 to 9 must be done according to the European scale of oxidation steps (see photographs hereafter).

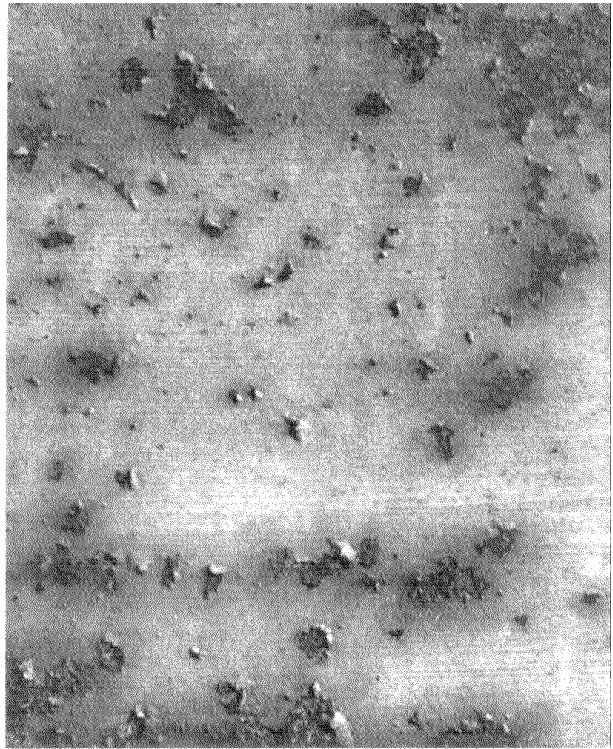
The scale includes/understands 10 negative-standards representing the same steel pad painted, afterwards of times of corrosion of increasing duration. □ □

European scale of oxidation steps in full steel plate**0****1****2****3**

Photographic accelerations of these images are reserved to the users and will be transmitted to them on request.

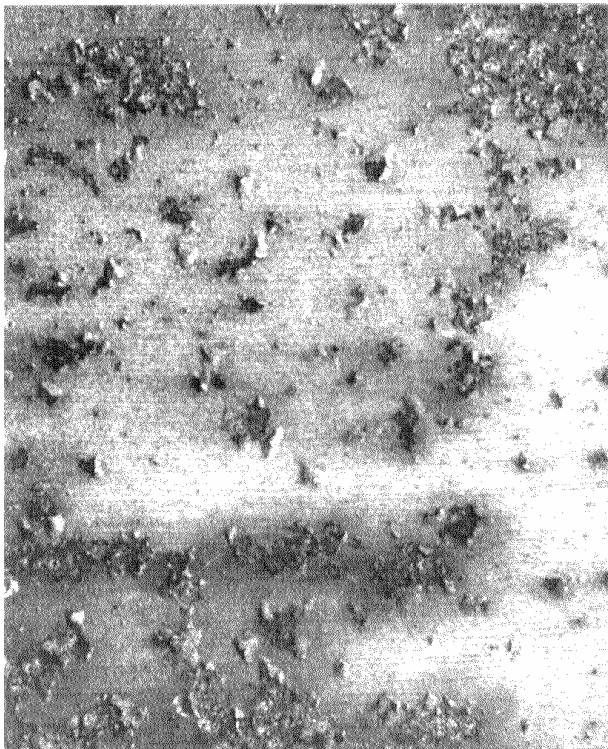


4

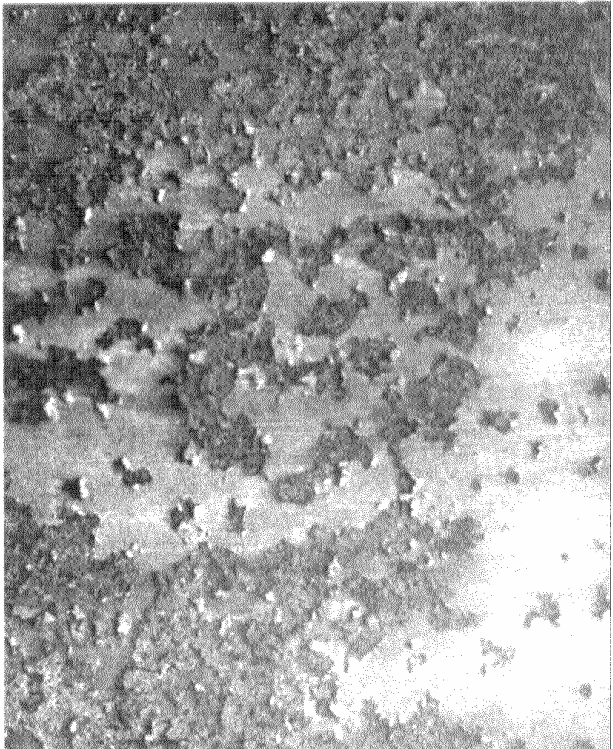


5

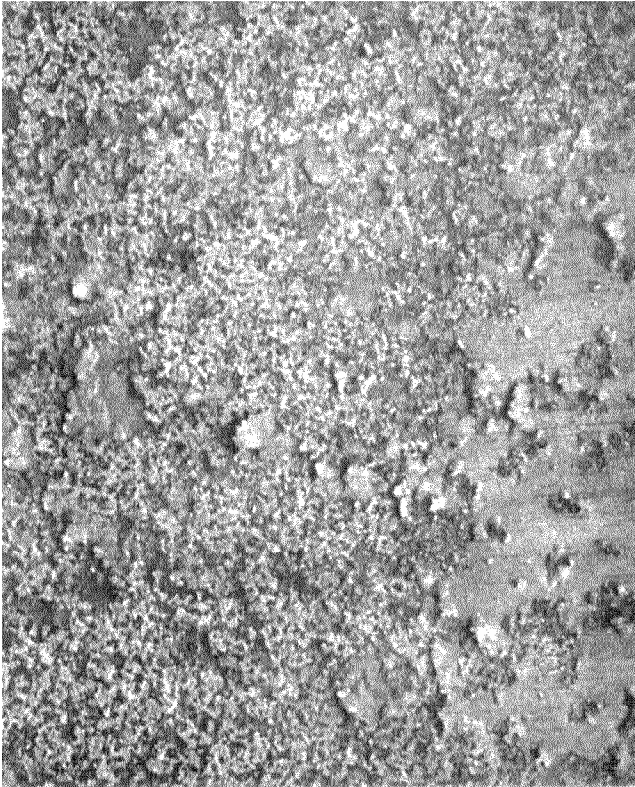
6



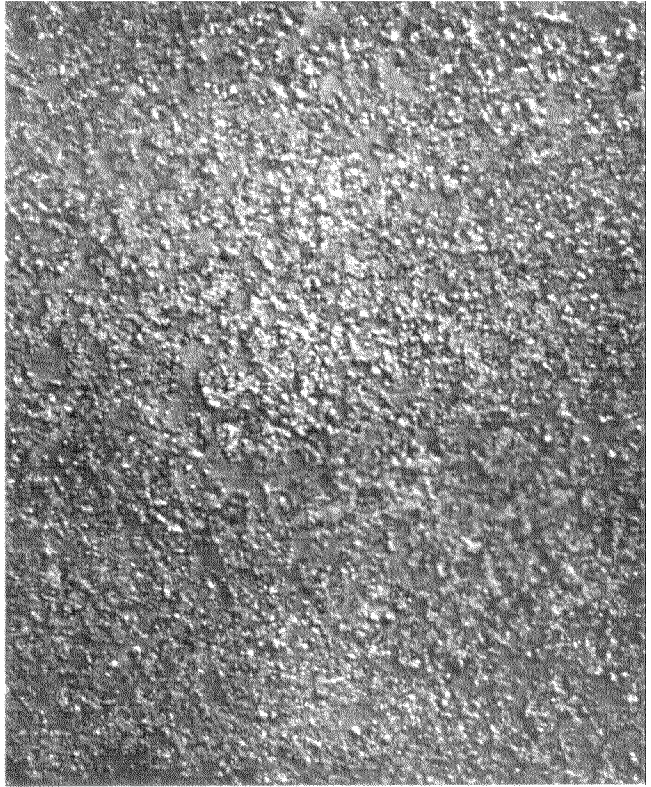
7



Photographic accelerations of these images are reserved to the users and will be transmitted to them on request.



8



9

Photographic accelerations of these images are reserved to the users and will be transmitted to them on request.

2.2. LET-GO WITH THE SCRATCH

To eliminate the surplus of rust and to take off using a scalpel scales and/or blisters of painting.

To carry out the application of the adhesive strip then conforms to the requirements of ME [D25 1075](#) over the overall length of the one of the scratches, i.e. on 10 cm (or over the length available of the part).

To then tear off the adhesive tape of a dry blow. To reiterate the operation with a new Scotch tape until complete elimination of the scales of painting.

To note the total width of the let-go or the blistering of the lining, its continuity or its discontinuity.

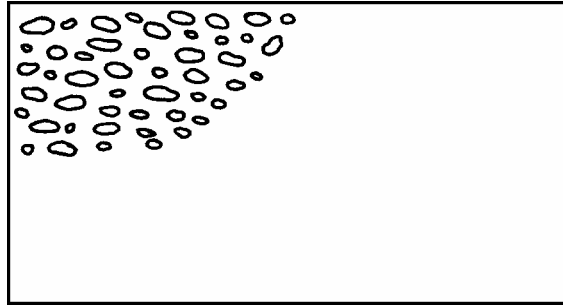
2.3. BLISTERING

The quotation from 0 to 9 defines the percentage of surface having a failing of blistering compared to the surface of the part.

- 0 - no blistering
- 1 - 10% of surface present a blistering
- 2 - 20% of surface present a blistering
- 3 - 30% of surface present a blistering
- 4 - 40% of surface present a blistering
- 5 - 50% of surface present a blistering
- 6 - 60% of surface present a blistering
- 7 - 70% of surface present a blistering
- 8 - 80% of surface present a blistering
- 9 - 90% of surface present a blistering

One can indicate the aspect of the blisters compared to the scale of the test method [D27 1571](#).

Example: Quotation 2 (20% of surface present a failing of blistering, to see rough drawing below).



2.4. GRIP

To carry out a paint adhesion test afterwards according to the standard ME [D25 1075](#).

Appendix 4

Rapport of test to follow the appearance of white rust and red rust

This report/ratio is to be used for the linings of zinc, electrolytic zinc, zinc lamellate, etc

IDENTIFICATION																				
N° Environmental chamber:										Type of test: Ask test n°: OF										
Name of the customer: Order/N° of crate:										Designation:										
Type of lining: Applicator:										Goal of the test:										
Thickness requested: µm Measured thickness:																				
CONTROL AGGRESSIVENESS ROOM										RECIPIENTS REPORT										
Date from the last checking: Date from the next checking: Note aggressiveness BS (has with D, good B and C):																				
TEST PARAMETERS										Requirements:										
Go back to starting: Many parts:										N° normalizes test White oxidation appearance > Red oxidation appearance >										
TEST RESULTS																				
With each observation the number of parts concerned is indicated. The sum of each post corresponds to the full number of parts tested 0: no oxidizing agent ---- 1: white oxidizing agent < 5% of surface or white veil ----- 2: white oxidizing agent ---- 3: Red oxidation appearance																				
3																				
2																				
1																				
0																				
hours	24	48	72	96	120	144	168	192	216	240	264	288	312	336	384	408	432	456	480	504
3																				
2																				
1																				
0																				
hours	528	552	576	600	624	672	696	720	744	768	792	816	840	864	888	912	936	960	984	1008
White oxidation appearance :							Red oxidation appearance :							Total duration of the test :						
CONCLUSION OF THE TEST																				
CONFORM							NOT CONFORM							%						
Remarks :																				
Operator :							Signature :							Date :						