

PV 1210 Salt spray Test Standard

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VOLKSWAGEN AG Body and Add-on Parts (Corrosion Test) PV 1210

Konzernnorm

Descriptors: corrosion, body, add-on part

Changes

The following changes have been made as compared to Test Specification PV 1210,2001-05:-Referenced standards updated

Previous issues

1981-08;2001-05

1 Scope

This Test Specification is used for corrosion testing in sample and standard-production tests conducted on completely painted bodies, body panels, assemblies and components with differing anti-corrosion coatings.

It serves to monitor and evaluate corrosion behavior or corrosion protection measures of these parts when exposed to static load.

2 Designation

Corrosion resistance according to PV 1210.

3 Test method

3.1 Principle

The test is an alternating cycle consisting of a combination of various climatic and/or corrosion loads.

A test cycle consists of

4 h salt spray fog test according to DIN 50021-SS,

4 h aging in the DIN 50014–23/50-2 standard climate (including cooling-off phase),

16 hours humid aging at elevated temperature, climate according to DIN 50017- KK
(40 ± 3) °C; 100% humidity.

After 5 cycles, a 2-day rest phase takes place in the DIN 50014–23/50-2 standard climate.

Using this test method, corrosion behavior under static load resulting from salt, humidity and temperature is evaluated.

Under these defined corrosion conditions, different anti-corrosion coatings can be comparatively assessed.

A correlation with the corrosion mechanism in actual driving operation is not necessarily possible, as the types of vehicle damage and corrosion curves are complex and are not completely covered and reflected by the changing corrosion load.

A short interruption of the test for inspection purposes and/or the removal of test specimens is permitted. Interrupting the test by changing the test program is not permitted.

3.2 Test fixtures

Assemblies, components and test panels can also be tested in suitable single or alternate devices. The devices must comply with the specifications in DIN 50014, DIN 50017 and DIN 50021.

3.3 Body test

Testing is performed according to Section 3.1. Examples are given in Section 3.6. In order to carry out a specific evaluation of cavities, the body can be turned. Before being initially brought into the salt spray test chamber, the body, mounted on the pivoting frame, is preconditioned in the DIN 50014–23/50-2 standard climate, and is then moved into the test chamber kept at a constant temperature.

3.3.1 Salt spray phase

During the test sequence with rotation, before each salt spray cycle, the body is turned about its lengthwise axis so that it is positioned as in the following sequence: 0°,45°,135°,225°and 315°.

3.3.2 Standard climate aging / humid aging at elevated temperature During the cooling-off phase and during humid aging at elevated temperature,the body is positioned horizontally.

3.3.3 Repeating the test cycles

After humid aging at elevated temperature is completed according to Section 3.1,the body is immediately placed in the salt spray test chamber and turned 90°in a clockwise direction to 45°, 135°, 225°or 315°, according to the respective test cycle.

3.3.4 Weekend aging

The rest phase entails aging in the DIN 50014–23/50-2 standard climate,with the body in a horizontal position and placed either in a suitable garage/hall or in the test chamber.

3.4 Component test

The required minimum for complete testing is 5 parts.

The components or their sections are tested in accordance with DIN EN ISO 7253 (see Section 4).

Cavities must be exposed to the salt spray fog by cutting/opening of parts. If necessary, unprotected trim edges must be covered before testing.

3.5 Evaluation

After 15,30,60 and 90 cycles, the specimens are evaluated with regard to

Type of corrosion (coating and/or base metal corrosion),

Form of corrosion (surface or edge corrosion),

Time of appearance and development of corrosion,

as well as with regard to additional changes in the anti-corrosion coating such as loss of adhesion or blistering.

Organic coatings can be evaluated according to DIN EN ISO 4628-1, Table 3.

Signs of rust creep on painted sheets can be examined using a non-destructive thermographic method for quantitative evaluation of the development and spread of defects.

The test is concluded when corrosion grade Ri5 according to DIN EN ISO 4628-3 or corrosion perforations occur.

The following must be stated in the test report:

Parts examined : e.g., painted sheets

Corrosion protection measures: e.g., paint finish (coating thickness: 96 μm, measure in the sheet center)

Test:	Start/end
Evaluation:	
Start of base metal corrosion:	e.g., after 15 cycles:surface corrosion Ri 2
Blistering:	e.g., after 18 cycles: blistering grade 2 (S4)
Adhesion loss:	e.g., D = 3 mm
End of test.	e.g., after 30 cycles

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