Technical notes

Cross-cut & pull off test
The cross-cut test is a method of determining the resistance of paints and coatings to separation from substrates by utilizing a tool to cut a right angle lattice pattern into the coating, penetrating all the way to the substrate. A quick pass/fail test can be accomplished through this method. When testing a multi-coat system, determination of the resistance to separation of different layers from one another can be accomplished.

TEST METHOD
On an area of at least 10 x 10 cm, make a grid incision with a cutter or appropriate metal blade, all the way down to the substrate. Create evenly spaced incisions (8-10 mm) horizontally and vertically to create a lattice pattern on the surface of the test area. Apply adhesive tape to cover the cut area and remove vigorously. Observe the area to determine the result.

TEST RESULTS
The adhesion is classified with the following scale in accordance with regulations.

STANDARDS
ASTM D 3359-09e2 - Standard Test Methods for Measuring Adhesion by Tape Test
ISO 2409:2013 - Paints and varnishes – Cross-cut test
#01

The edges of the cuts are completely smooth; none of the squares in the grid have detached.
The wall is suitable for painting after necessary preparation.

#02

Small flakes of coating have detached at intersections.
A cross-cut area of 5% is affected.
The wall is suitable for painting after necessary preparation.

#03

Small flakes of coating have detached along edges and at intersections of cuts. A cross-cut area of between 5%, to 15%, is affected.
The wall is suitable for painting after necessary preparation.
#04

The paint has flaked partially or completely along the edges and/or some squares have partially or completely detached. A cross-cut area of between 15%, to 35%, is affected.

Before painting apply a consolidating fixative primer to the grid and once dried repeat the test to evaluate adhesion. If values improve, the wall can be painted after a coat of fixative primer. Otherwise scrape part or all of the surface before repainting.

#05

The paint has flaked in large strips along the edges of the cuts and/or some squares have partially or completely detached. A cross-cut area of between 35%, to 65%, is affected.

Partial or total scraping of the surface is necessary before painting.

#06

Any degree of flaking that cannot fall within classification 4, where the detached paint exceeds 65% of the cross-cut area.

Total scraping of the surface is necessary before painting.
In order to test the tensile strength of a substrate to be repaired and restored, a surface pull off test can be made. Apply on a significant area of approximately 0.5 - 1.0 m² a coat of POLYFIX and sink within the coating layer the reinforcing mesh ARMANET 4x4 taking care not to constrain a part of the mesh which will be used in the pull off phase. Apply a second coat and wait 5 days before testing. Pull off the mesh with force and check it.
If only the second coat of product has been pulled off the substrate is suitable to receive the coating and restoration cycle directly.
If not, or if previous plaster or paint has been removed, the substrate is not adequate. In this case it is necessary to remove weak or non-cohesive parts and repair the substrate before proceeding with the application of a new coating.
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