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Test report H 151-2 rev. 1

Industrie Cotto Possagno – COPPI D.S.A.

Determination of hail impact resistance according ACFI Test Specifications

Client	**Industrie Cotto Possagno S.p.A.** Via Molinetto 80, 31054 Possagno (TV), Italy
Order	**Determination of hail impact resistance, application roof impact angle 90°**
Test Specification	ACFI Test Specification No. 00a, Version 1.03, 01.03.2018 ACFI Test Specification No. 00b, Version 1.02, 01.12.2018 ACFI Test Specification No. 01, Version 1.05, 01.02.2021 Draft protocoll ACFI-FER, Version 27, 30.08.2022
Test sample	**Industrie Cotto Possagno «COPPI D.S.A.»,** **in under and over tilling** Colour: Rosso
Delivery of test samples / Test date Test location	03.10.2023 / 6.11. and 27.11.2023 p+f expert AG, Leidenbergstrasse 1a, CH-6208 Oberkirch
Tester	T. Gehrig / K. Blechschmidt
Number of pages / Date	11 Pages / 16.09.2024
Communication	IB - Iceball HIR – Hail impact resistance
Finding	The impact tests at an impact angle of 90° with 5 cm and 4 cm diameter IB showed that the roof tile is resistant to 4 cm IB in terms of the functions of waterproofing and appearance. IB of 5 cm diameter caused material failure.
Results	Proposed HIR-class per function according ACFI: **HIR 4 Waterproofing** **HIR 4 Appearance**
Remark	none
Comment	Classification in the hail register is carried out by the technical commission of the ACIF.
Annex	Test protocol Photo documentation Product data

T. Gehrig — Building materials tester

K. Blechschmidt — Head of test laboratory

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1. Material description	Description
Test sample according test specification	roof tile
Test sample - colour	Rosso
Producer	Industrie Cotto Possagno
Material base	clay
Size of test sample	45.0 x 18.5 - 14.5 cm
Average cover mass	lenght 35.0 – 36.5 cm / width 20.0 cm
Weight according producer	~ 2.2 kg, according, Point 6 at the test report
Weight	mean weight 2´297 g single weight [g] 2´296 / 2´293 / 2´299 / 2´299 / 2´996
Measured thickness	mean thickness 13.95 mm / 12.14 mm
Condition	new
Appearance of back side	Industrie Cotto Possagno
Appearance of top side	Verro Coppo Di Passagno, 05.10.2023 (production date)
Test specimen	3 row with 11 roof tiles (5 over tiles/ 6 under tiles)
Substructure	Multi-layer board 27 mm, perforated metal profile as battens screwed on to multi-layer board, batten width 37.5 cm
Insallation type	Under and over tilling
Mounting	none
Remark	none

2. Specific test conditions	Description
Hail gun	Vertically arranged, Barrels 50-30mm
Impact angle	90°
Speed measurement	high precisions light beams, type Mehl BMC 21a, distance 200 mm
Balance	Mettler Toledo, Typ New Classic MF, 0.01g
Ice projektiles/ Production date	IB / 24.10.2023
Pre-storage	05.10.2023, Sample older than 28 days and < 12 months
Pre-treatment	moistening
Impact targets	according test specification
Other impact targets	none
Damage check	visual
Remark	Further details can be found in the ACFI test specifications.

3. Test procedure	Description
Phase 1	Shot with 5 cm IB on the overlapping edge area (5) and the trough area at the bottom → Breakage of the roof tile
Phase 2	Shots at all target areas points with 4 cm IB, at least 5 times in total.
Remark	Damage detection and assessment of the affected function were carried out after each shot and at the end of the test. For the identification of the sample material, the sample weight was weighed on five samples and the thicknesses in the surface and on the bead were measured and given as mean value.