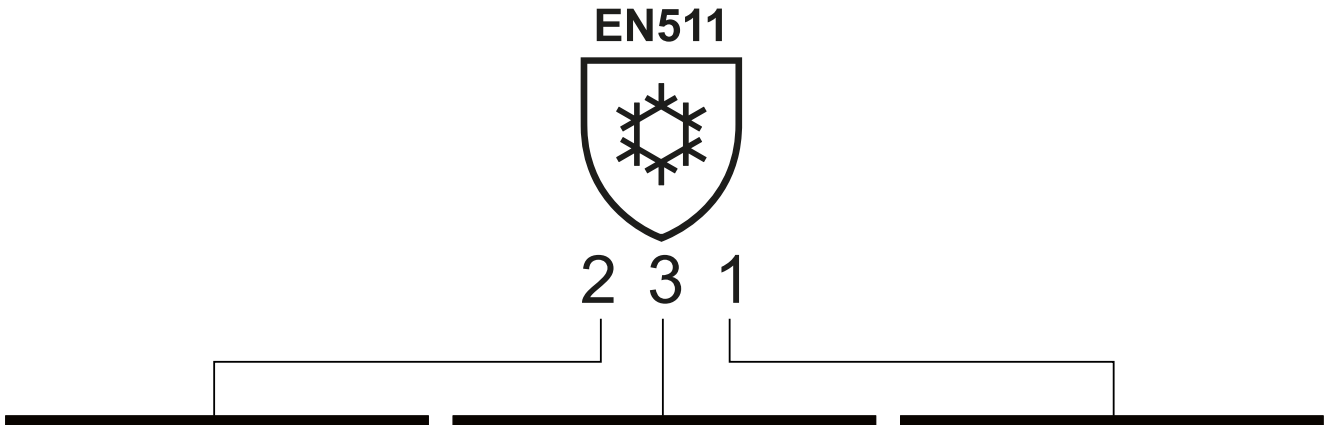
EN511 EXPLAINED

GLOVE PROTECTION Against Cold Handling (UK, Europe & Australia)

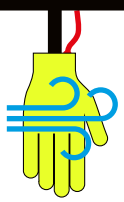
EN511:2006

In cold environments it is important to protect the hands from cold burns. EN511 is a European Standard that details how a glove responds to cold working conditions and water. EN511 has three tests: convective cold, contact cold and water penetration, the results are shown as numbers under the EN511 symbol, the higher the number the better resistance. The first 2 numbers are a score from 1 to 4. A score of 0 means the glove has failed that test. An N/A in any position means that the glove was not tested. A glove can only achieve a pass or a fail for the waterproof penetration, a 0 is a fail and a 1 is a pass, this can be replaced with an X under the EN511 symbol.

Before a glove is tested for Cold Handling it must have scored at least level 1 in the EN388 Mechanical handling test for Abrasion and Tear resistance.



Convective Cold



Convective Cold is a test for Thermal Insulation (TR) and how well a glove will insulate and maintain your hand temperature against the surrounding cold air.

The glove is put on a mannequin hand which is electrically heated to body temperature (30°C and 35°C) in a controlled chamber. The chamber is cooled to 20°C below that of the heated hand and constant air flow is applied. The device measures how much power is required to maintain the hand temperature. The higher the power requirement, the lower the convective cold rating. The results of this test in real world conditions may vary.

Performance Level	Thermal Insulation (TR) in m2°C/W
Level 1	0.10 TR < 0.15
Level 2	0.15 TR < 0.22
Level 3	0.22 TR < 0.30
Level 4	0.30 TR

Contact Cold

Contact Cold (conduction) is a measurement of the Thermal Resistance (R) of the glove, it will give you a guide of the heat transfer when the glove is holding a cold object, i.e lifting boxes in a freezer.

The test for Contact Cold places the glove material between two metal plates which are at different temperatures. The temperature drop is measured across the test glove material and used to calculate its thermal resistance.

Performance Level	Thermal Resistance (R) in m2°C/W
Level 1	0.025 R < 0.050
Level 2	0.050 R < 0.100
Level 3	0.100 R < 0.150
Level 4	0.150 R

Water Penetration

The water penetration test is a simple pass/fail test. The glove is fully submerged in a tank of water for 30 minutes to test the permeability (waterproof) properties of the material. If any amount of water passes through the material it will class as a Fail shown with 0, if after 30 minutes the water hasn't penetrated to the inside, the glove will score a Pass shown as 1.

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