

EN Standards Guide

Standard EN 388:2016

This standard applies to gloves that give protection from mechanical risks.



1. ABRASION RESISTANCE
2. CUT RESISTANCE, COUP TEST
3. TEARING STRENGTH
4. PUNCTURE RESISTANCE
5. CUT RESISTANCE, TDM TEST ISO 13997
6. IMPACT PROTECTION

Each of the four numbers provide you with the performance level of each specific hazard. With 1 being the lowest to level 4. Cut resistance does have a level 5 it can achieve. The last two letters correspond to ISO Cut Resistance level performed under specified conditions and the second letter is impact protection.

EN 374:2016

This standard applies to gloves that give protection from chemicals and micro-organisms.



PENETRATION

Chemicals can penetrate through holes and other defects in the glove material. To secure a glove to be approved as a chemical protection glove the glove shall not leak water or air when tested.

DEGRADATION

The glove material might be negatively affected by chemical contact. If a glove soaks up the liquid it may degrade the glove and change the properties of the material due to contact with certain chemicals. This may cause the gloves appearance to change.

PERMEATION

The chemicals break through the glove material at a molecular level. The breakthrough time is then evaluated and the glove must withstand a breakthrough time of at least:

BREAKTHROUGH TIME	PROCTION INDEX
> 10 minutes	Level 1
> 30 minutes	Level 2
> 60 minutes	Level 3
> 120 minutes	Level 4
> 240 minutes	Level 5
> 480 minutes	Level 6

The chemical resistant glove pictogram may be accompanied by Type A, Type B or Type C. For a glove to achieve a Type A it will be tested with at least 6 chemicals (outlined in the table below) for a breakthrough time of at least 30 minutes (level 2). For a Type B, the glove will be tested with at least 3 chemicals (outlined in the table below) for a breakthrough time of at least 30 minutes (level 2). The minimum breakthrough time for a Type C glove is 10 minutes for one chemical (level 1). If it is a Type C, there may not be any letter or code letter.

TYPE A



EN ISO 374-1
Type A
ABCDEF

TYPE B



EN ISO 374-1
Type B
ABC

TYPE C



EN ISO 374-1
Type C

CODE LETTERS	CHEMICAL	CAS NO.	CLASS
A	Methanol	67-56-1	Primary alcohol
B	Acetone	67-64-1	Ketone
C	Acetonitrile	75-05-8	Nitrile compound
D	Dichloromethane	75-09-2	Chlorinated hydrocarbon
E	Carbon disulphide	75-15-0	Sulphur containing organic compound
F	Toluene	108-88-3	Aromatic hydrocarbon
G	Diethylamine	109-89-7	Amine
H	Tetrahydrofuran	109-99-9	Heterocyclic and ether compound
I	Ethyl acetate	141-78-6	Ester
J	n-Heptane	142-82-5	Saturated hydrocarbon
K	Sodium hydroxide 40%	1310-73-2	Inorganic base
L	Sulphuric acid 96%	7664-93-9	Inorganic mineral acid, oxidizing
M	Nitric acid 65%	7697-37-2	Inorganic mineral acid, oxidizing
N	Acetic acid 99%	64-19-7	Organic acid
O	Ammonium hydroxide 25%	1336-21-6	Organic base
P	Hydrogen peroxide 30%	722-84-1	Peroxide
S	Hydrofluoric acid 40%	7664-39-3	Inorganic mineral acid
T	Formaldehyde 37%	50-00-0	Aldehyde

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T	Formaldehyde 37%	50-00-0	Aldehyde

EN 374:2016

Pictogram below for gloves protective against bacteria and fungi. The glove must be tested for leakage proofness.



Standard EN 407:2004

This standard applies to gloves that give protection against thermal risks (Heat and/or fire)

This standard specifies demands and test methods for protective gloves that shall protect against heat and/or fire. The numbers given beside the pictogram indicates the gloves performance for each of the 6 tests in the standard. The higher



1. FIRE PROPERTIES OF THE MATERIAL
2. CONTACT HEAT
3. CONVECTIVE HEAT
4. RADIANT HEAT
5. SMALL SPLASHES OF MOLTEN METAL
6. LARGE QUANTITIES OF MOLTEN METAL

number the better performance level.

1. FIRE PROPERTIES OF THE MATERIAL (performance level 0-4)

The ignition time and how long the material glows or burns after ignition is measured in this test. If the seam comes apart after an ignition time of 15 seconds, the glove has failed the test.

2. CONTACT HEAT (performance level 0-4)

The glove is exposed to temperatures between + 100°C to + 500°C. Then it is measured how long it takes for the inner side of the glove to become 10°C warmer than it was from the beginning (about 25 ° C degrees). The glove must withstand the increasing temperature of maximum 10°C for at least 15 seconds for an approval. (performance level 0-4)

3. CONVECTIVE HEAT (performance level 0-4)

Here it is measured how long it takes to increase the inside temperature of the glove with 24°C, using a gas lubrication (80kW / m2).

4. RADIANT HEAT (performance level 0-4)

The average time is measured for a heat permeation of 2.5kW / m2.

5. SMALL SPLASHES OF MOLTEN METAL (performance level 0-4)

The test is based on the number of drops of molten metal that generates a temperature increase between the glove material and the skin with 40°C.

6. LARGE QUANTITIES OF MOLTEN METAL (performance level 0-4)

A PVC film is attached to the back of the glove material. Molten iron is poured onto the material. The test is failed if metal droplets remain stuck to the glove material or if the specimen ignites. The measurement consists of how many grams of molten iron required to damage the PVC film.

Standard EN 511:2006

This standard applies to gloves that give protection against cold

In cold environments it is extra important to protect the hands from cold burns. This standard measures how well the glove can withstand both convective cold and contact cold. In addition, water permeation is tested after 30 minutes.



PROTECTION AGAINST CONVECTIVE COLD

PROTECTION AGAINST CONTACT COLD

PROTECTION AGAINST WATER PENETRATION

1. Shows how well the glove protects against convective Cold
(performance level 0-4)
2. Shows how well the glove protects against contact Cold
(performance level 0-4)
3. Shows the glove protection against water Penetration.
(performance 0 or 1 where 0 indicates “water penetration after 30 minutes” and 1 indicates “no water penetration after 30 minutes”)

Standard EN 420:2003

EN 420 is a standard that all safety gloves must earn. EN420 is displayed by the pictogram below, indicating that the user should consult the instructions which outline the build and applications of the glove:

