



EN 374-1:2016 establishes the capability of gloves to protect users against dangerous chemicals and/or micro-organisms. This standard outlines terminology and protection requirements for chemical-protective gloves.

The standard provides detailed information to help users choose the correct glove for their requirements. It also requires that glove manufacturers test for Penetration, Permeation and Degradation.

CLASS	TYPE A	TYPE B	TYPE C
Minimum Requirements	Level 2 (more than 30 minutes) against a minimum of 6 chemicals on the list of defined chemicals.	Level 2 (more than 30 minutes) against a minimum of 3 chemicals on the list of defined chemicals.	Level 1 (more than 10 minutes) against 1 chemical on the list of defined chemicals.
Standard Marking	EN 374-1/Type A  ABCDEF	EN 374-1/Type B  ABC	EN 374-1/Type C 

Penetration

Penetration is the movement of a chemical and/or micro-organism through porous materials, seams, pinholes, or other imperfections in a protective glove material at a non-molecular level. Testing measures the time taken for a chemical to break through the glove material and come into contact with the skin. A glove shall not leak when tested with an air leak and water leak test, and shall be tested and inspected in compliance with standard EN 374-2:2014.

Permeation

Permeation is the movement of a chemical and/or micro-organism through the protective glove material on a molecular level, as individual molecules of the chemical pass between the molecules of the protective glove material. Measuring the breakthrough times, or the time taken for the chemical to come in contact with the skin, requires three samples taken from the palm of the glove. Each of the 18 chemicals tested are classified in terms of breakthrough time performance level 0 to 6. Based on permeation performance, gloves are separated into three classification types – Type A, Type B or Type C. If the length of the chemical protective glove is 40 cm or more, the cuff area must also be tested for permeation.

Breakthrough Time	Protection Index
> 10 min	Level 1
> 30 min	Level 2
> 60 min	Level 3
> 120 min	Level 4
> 240 min	Level 5
> 480 min	Level 6

Degradation

Degradation is the change in one or more of the properties of the glove material when exposed to contact with a chemical. Signs of degradation on glove material can include hardening, softening, flaking, swelling, disintegration, brittleness, colour change, and changes in size, shape or appearance. Degradation testing is done in accordance with standard EN 374-4:2019, testing the change of puncture resistance after contact for all claimed chemicals. If the length of the chemical protective glove is 40 cm or more, the cuff area must also be tested for degradation.



Tests are verified by an accredited third party laboratory.

STANDARD EN 374-1:2016

CHEMICAL
RESISTANT



Defined Chemicals

CODE LETTER	CHEMICAL	CAS NUMBER	CLASS
A	Methanol	67-56-1	Primary alcohol
B	Acetone	67-64-1	Ketone
C	Acetonitrile	75-05-08	Nitrile compound
D	Dichloromethane	75-09-02	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	Ammonia 25%	1336-21-6	Organic base
P	Hydrogen peroxide 30%	7722-84-1	Peroxide
S	Hydrofluoric acid 40%	7664-39-3	Inorganic mineral acid
T	Formaldehyde 37%	50-00-0	Aldehyde