

WHAT IS EN374:2003?



PROTECTION FROM CHEMICALS AND MICRO-ORGANISMS

The EN374:2003 Standard specifies the capability of gloves to protect the user against chemicals and/or micro-organisms. The standard consists of two parts, 1. the EN374-2 which tests to ensure the glove has an effective barrier against liquids and micro-organisms and 2. the EN374-3 which tests the resistance to permeation and records breakthrough time.

EN374-2: DETERMINATION OF RESISTANCE TO PENETRATION



Gloves must pass this test in order to prove that they are an effective barrier against liquids and micro-organisms. A statistical sample taken from a batch of gloves is subject to checks for bulk flow of a chemical agent through closures, porous material, seams, pinholes, leaks or other imperfections of the glove by either inflation with air or by filling with water. Performance levels are assessed according to the acceptable quality levels (AQL) of the gloves.

Gloves must meet at least level 2 of EN 374-2 to be considered micro organism resistant and will carry the micro-organism pictogram

PERFORMANCE LEVEL	AQL (ACCEPTABLE QUALITY LEVEL)	INSPECTION LEVEL
LEVEL 3	0.65	G1
LEVEL 2	1.5	G1
LEVEL 1	4.0	S4



AIR LEAK TEST



WATER LEAK TEST



EN374:2003 CHEMICAL & MICRO-ORGANISMS

- A.** EN374-2: Gloves must pass this test (at least a Performance level 2) in order to prove that they are an effective barrier against liquids and micro-organisms.
- B.** EN374-3: Resistance to permeation is assessed by measuring the time for a chemical to break through the glove material. Chemicals tested against are designated by an identifying letter from A-L.
- C.** EN374-3: Limited Chemical: To be used for gloves that do not achieve a breakthrough time of at least 30 minutes against 3 chemicals, but passes EN374-2 AQL 4 or lower.

EN 374-2



A

EN 374-3



B

EN 374-3



C



EN374-3: RESISTANCE TO PERMEATION

Resistance to permeation is assessed by measuring the time for a chemical to break through the glove material. Samples, cut from the palms of the gloves are placed in a permeation cell which enables the chemical to be placed in contact with the outer surface of the glove. Collection air or water is passed through the cell to collect any chemical that has broken through to the inside surface of the glove samples.

The 'Chemical resistant' glove pictogram must be accompanied by a 3-digit code. This code refers to the code letters (A-L) of 3 chemicals (from a list of 12 standard defined chemicals as shown below), for which a breakthrough time of at least 30 minutes has been obtained.

CODE LETTER	CHEMICAL	CAS NUMBER	CATEGORY
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 Paraffin
E	Carbon Disulfide	75-15-0	Sulphur <small>Containing Organic Compound</small>
F	Toluene	108-88-3	Aromatic hydrocarbon
G	Diethylamine	109-89-7	Amine
H	Tetrahydrofuran	109-99-9	Heterocyclic & Ethereal
I	Ethyl Acetate	141-78-6	Ester
J	n-Heptane	142-85-5	Saturated hydrocarbon
K	Sodium hydroxide 40%	1310-73-2	Inorganic base
L	Sulfuric Acid 96%	7664-93-9	Inorganic Mineral Acid

Permeation: The process by which a chemical agent migrates through the protective glove at a molecular level (performance level 0 to 6). Performance levels are assessed according to the breakthrough times of the chemicals. Breakthrough is deemed to have occurred when the flow rate of 1ug/cm²/min is reached

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

PERMEATION TEST

