

# UNDERSTANDING NEW GLOVE & SLEEVE PPE STANDARDS

International (ISO) and Australian/New Zealand standards classify and communicate the quality and protection levels of PPE (personal protection equipment). Numeric codes and symbols are used for specifying the correct level of protection for their task. Matching the right product to the appropriate risk can also help with cost controls. These ratings are earned via appropriate testing under the supervision of a third party registered certifying body.

## EN 388 – MECHANICAL PROTECTION

EN388:2016		PERFORMANCE LEVEL RATING	1	2	3	4	5	UNITS
	<b>ABCD XF</b>	<b>A</b> Abrasion Resistance	100	500	2000	8000	–	CYCLES
		<b>B</b> Blade Cut Resistance	1.2	2.5	5.0	10.0	20.0	COUPE TEST/INDEX
		<b>C</b> Tear Resistance	10	25	50	75	–	NEWTONS
		<b>D</b> Puncture Resistance	20	60	100	150	–	NEWTONS
EN388:2016		<b>X</b> EN ISO 13997 Cut Resistance						
	<b>ABCD XF</b>	RATING	NEWTONS	LEVEL	TYPICAL TASKS			
		<b>A</b>	2	MINIMAL TO LOW	Light general handling & assembly			
		<b>B</b>	5	LOW	Materials handling & assembly			
		<b>C</b>	10	LOW TO MODERATE	Glass, metal sheet and materials handling. Assembly			
		<b>D</b>	15	MODERATE TO HIGH	Machine tool operation, welding, glass and metalwork			
		<b>E</b>	22	HIGH	Heavy loads, metal & glass edge handling, cutting of dry materials, recycling			
		<b>F</b>	30	EXTREME	Heavy final assembly, grinding, primary assembly and stamping			
		<b>F</b> EN Impact Protection	<b>X</b> = 'NOT TESTED' OR 'NOT APPLICABLE' / <b>P</b> = PASS / <b>NO CODE</b> = FAIL					

### MAIN CHANGES FROM THE EN 388:2003 STANDARD

**PREVIOUS RATING** **EN 388:2003**  
**1 ABRASION:** New abrasion paper used in testing.  
**2 CUT:** New procedure for COUPE TEST/INDEX which also determines if dulling occurs. If dulling occurs, the new EN ISO 13997 test method becomes the reference whilst the COUPE TEST/INDEX would only be indicative.  
**3 IMPACT:** Test method for areas claiming impact protection.

## EN ISO 374 – CHEMICAL PROTECTION AND/OR PROTECTION AGAINST MICRO-ORGANISMS

**EN 374-5:2006** **EXISTING:** AQL (Acceptable Quality Level) for liquid penetration. A high index number is poor and a low index number is good. Gloves need to pass water and air leak test  
*THIS TEST METHOD REMAINS UNCHANGED*

**IN ADDITION:** NEW VIRAL PENETRATION TEST. For protection from bacteria and fungi.

PERFORMANCE LEVEL RATING		
1	2	3
4.0	1.5	0.65

**PREVIOUS RATINGS**  
**EN 374:2003** **EN ISO 374-1:2003** **NOTE:** The BEAKER icon (low chemical resistance/water-proof) has been eliminated.  
**EN Level <2**

## CHEMICAL PROTECTION



**Type C** protection from **1** or more chemicals on the list for **10min** +

**Type B** protection from **3** or more chemicals on the list for **30min** +

**Type A** protection from **6** or more chemicals on the list for **30min** +

**NOTE:** Cuffs tested on gloves 40cm +

PERMEATION BREAKTHROUGH TIMES	LEVEL						
MINUTES	0	1	2	3	4	5	6
	< 10	10+	30+	60+	120+	240+	480+

X	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	142-85-5	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%	7722-84-1	Peroxide
S	Hydrogen fluoride 40%	7664-39-3	Inorganic mineral acid, contact poison
T	Formaldehyde 37%	50-00-0	Aldehyde

**PREVIOUS RATING**  
**EN 374:2003** **AKJ**  
 Protection from 3 or more chemicals from the **CHEMICALS LIST** with a breakthrough time of 30 minutes +

## EN 407 – HEAT PROTECTION



PERFORMANCE LEVEL RATING		1	2	3	4
<b>A</b>	Burning behaviour (after flame and after glowtime)	< 20 secs no requirement	< 10 secs < 120 secs	< 3 secs < 25 secs	< 2 secs < 5 secs
<b>B</b>	Contact heat (contact temperature and threshold time)	100°C > 15 secs	250°C > 15 secs	350°C > 15 secs	500°C > 15 secs
<b>C</b>	Convective heat (heat transfer delay)	> 4 secs	> 7 secs	> 10 secs	> 18 secs
<b>D</b>	Radiant heat (heat transfer delay)	> 7 secs	> 20 secs	> 50 secs	> 95 secs
<b>E</b>	Small drops molten heat (number of drops)	> 10	> 15	> 25	> 35
<b>F</b>	Large quantity molten metal (mass)	30g	60g	120g	200g

## EN 511 – COLD PROTECTION



PERFORMANCE LEVEL RATING		0	1	2	3	4
<b>A</b>	Convective cold. Thermal insulation ITR in m2. °C/W I	< 0.10 0.10 <	l < 0.15 0.15 <	l < 0.22 0.22 <	l < 0.30	0.30 < l
<b>B</b>	Contact cold. Thermal insulation R in m2. °C/W	R < 0. 0.25 0. 0.25 <	R < 0. 0.05 0. 0.05 <	R < 0. 100 0. 100 <	R < 0. 150	0. 150 < R
<b>C</b>	Water penetration test	Fail	Pass			

**NOTE:** 0 is the lowest rating while 4 is the highest.

Disclaimer: This guide has been prepared to allow viewers to understand the concepts of cut resistance. No glove provides complete protection against cuts, abrasions or chemicals. Users of hand protection must ensure that they undertake their own testing within their own work environment to ensure that the products are suitable for the intended task. No reliance may be made on this guide as evidence of the efficacy or fit for purpose of these gloves.



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