

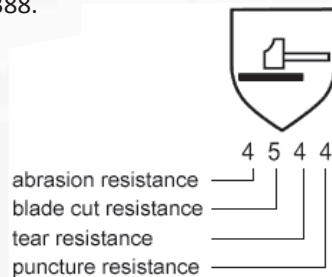
Cut Resistant Gloves — Understanding Standards

Many people do not fully understand the different cut levels of work gloves, what they mean and how they are tested in order to determine their cut level.

The Australia Standard Mechanical Protection for gloves is AS/NZS 2161.3:2005, which was adopted and is identical to the European Standard EN 388.

Any gloves that comply with these Australian Standards should have a 4 digit number visible on the gloves.

Each digit relates to a type and level of resistance, summarised as follows:



Digit number on glove	Performance Level	1	2	3	4	5
1	Abrasion (Cycles)	100	500	2000	8000	n/a
2	Cut (Index)	1.2	2.5	5	10	20
3	Tear (Force [N])	10	25	50	75	n/a
4	Puncture (Force [N])	20	60	100	150	n/a

From above, one can see that the second digit on the glove indicates the cut resistance of gloves - the highest level being level 5.

As can be seen, a Cut Level 5 glove offers substantially more (4 times) cut resistance than a Cut Level 3 glove.

A Sodemat cut tester is used to measure the resistance to cutting. Material samples are cut from gloves and placed in a frame which enables a circular, counter-rotating blade to slice through the glove material. The number of cycles required by the blade is recorded. These are converted into a cutting index by comparison with the number of cycles required to cut through a standard reference material. Performance levels are established according to cutting index. It is important to note that the pressure used during the test is constant. This test is very useful for every day applications. i.e. handling of sharp edged materials in the same or similar manner when there are no accidental slips occurring. In other words the material being handled does not move much while in the grip of the gloves.

However, a significant number of hand cut injuries occur where an abnormal incident happens – for example, where the sharp material or item is not gripped properly and slips through the glove grip. This creates a slicing motion of significant pressure. This type of a cut is a single motion action that could come with significant pressure and could result in a severe cut injury if adequate hand protection is not worn.

In the situation above, Safety Mate is of the opinion that the American Standard ASTM 1790-05 might have more relevance. This Standard differs to Australian Standards in the following manner. Instead of counting how many cycles, it takes a blade to cut through the glove material, ASTM 1790-05 tests to see the amount of pressure/load required to cut through the test glove material with a straight edged blade that moves along a straight path. This test is also known as the CPPT Test (Cut Protection Performance Test). This result of the test is looked at against the table below from which the cut level is determined.

Performance Level	Weight (g) needed to cut through material with 20mm blade travel
0	0–199
1	200–499
2	500–999
3	1,000–1,499
4	1,500–3,499
5	3,500–

The ASTM standard is actually the standard that has now been adopted by the International Standards – ISO.

As can be seen, both standards have a value and a cut resistant glove worth it's salt, should perform well in both standards.

According to the Australian Standards, MaxiCut 5 (34-470) achieved a cutting index of more than 120 times. With the cut level minimum requirement being a cutting index of 20 times, MaxiCut 5 (34-470) effectively exceeded the cut level 5 requirements by 6 times. A cut level of 5 was also achieved on the back (uncoated) of the hand.

Recently, samples of MaxiCut 5 (34-470) were sent to the U S to test them against the ASTM standards. The results indicated a cut level of 4. When considering that ASTM cut level 5 scores are attained mostly by metal fibre gloves, then the result was a formidable achievement. **n**

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