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For the attention of: Paul Ansell

Technical Report

Subject: TESTING OF GLOVES DESCRIBED AS "28163/28201" IN ACCORDANCE WITH EN 420: 2003 +A1: 2009 †, EN 388: 2003, & EN 407: 2004

Your ref:

Our ref: SPC0200238 / 1151 / 2 issue 2

Date: 23rd January 2012 (Date of first issue 18th January 2012)

Conditions of Issue:

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Results given in this report refer only to the samples submitted for analysis and tested by SATRA. Comments are for guidance only.

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Report signed by: D Mckeown
Position: PPE Technologist
Department: Safety Product Centre



WORK REQUESTED

Samples of gloves described by the client as “28163/28201”, were received by SATRA on 21st December 2011 for testing in accordance with EN 420: 2003 + A1: 2009† clauses 5.1 Length & Fit and 5.2 Dexterity, EN 388: 2003 & EN 407: 2004 clause 5.2 Contact Heat only.

CONCLUSION

SAMPLE REFERENCE	STANDARD	CLAUSE / PROPERTY	PASS / FAIL
28163/28201	EN 420: 2003 + A1: 2009†	5.1 Length and fit	PASS
		5.2 Dexterity	Level 1
	EN 388: 2003	6.1 Abrasion resistance	Level 2
		6.2 Blade cut resistance	See Note 4
		6.3 Tear resistance	Level 4
		6.4 Puncture resistance	Level 1
	EN 407: 2004	5.2 Contact Heat	PASS, Level 2

Note 1 – As no glove sizes were submitted with the samples described as “28163/28201”, samples were assessed to check the suitability as both size 9 and size 10 gloves.

TESTING

Testing was carried out in accordance with EN 420: 2003 + A1: 2009†, EN 388: 2003 & EN 407: 2004 between 10th and 11th January 2012.

Samples for testing in accordance with EN 420: 2003 + A1: 2009† & EN 388: 2003 were conditioned for at least 24 hours in a conditioned environment maintained at (23 ± 2) °C and (50 ± 5) % relative humidity. Testing was carried out within the same environment

Samples for testing in accordance with EN 407: 2004 were conditioned for at least 24 hours in a conditioned environment maintained at (20 ± 2) °C and (65 ± 5) % relative humidity. Testing of each sample was begun within 5 minutes of removal from this environment.

Figure 1 – Gloves reference “28163”



REQUIREMENTS

Table 1 – Requirements for EN 388: 2003

Performance Level	1	2	3	4	5
6.1 Abrasion resistance (cycles to failure)	100	500	2000	8000	N/A
6.2 Blade cut resistance (minimum cut resistance index)	1.2	2.5	5.0	10	20
6.3 Tear resistance (lowest peak force – newtons)	10	25	50	75	N/A
6.4 Puncture resistance (lowest peak force – newtons)	20	60	100	150	N/A

Table 2 – Requirements for EN 420: 2003 + A1: 2009† clause 5 Size and dexterity

Glove size	6	7	8	9	10	11
Minimum length / mm	220	230	240	250	260	270

Performance level	1	2	3	4	5
Diameter of dexterity pin /mm	11.0	9.5	8.0	6.5	5.0

Table 3 – Requirements for EN 407: 2004 clause 5.2 Contact heat

Performance Level	Contact Temperature / °C	Threshold Time / s
1	100	≥ 15
2	250	≥ 15
3	350	≥ 15
4	500	≥ 15

TEST RESULTS

Table 4 – Testing of gloves reference “28163/28201” in accordance with EN 420: 2003 + A1: 2009† (See Note 1)

EN 420: 2003 + A1: 2009† CLAUSE / TEST	EN 420: 2003 + A1: 2009† REQUIREMENT	TEST RESULTS	UoM (See note 2)	PASS / FAIL
5.1 Glove length	See table 2	Size Length / mm 9 L: 290 R: 285 10 L: 290 R: 285	± 0.3 mm	PASS
5.1 Comfort and fit	See table 2	Size: 9 <i>Wearer hand size</i> Left: L: 9, C: 8 Right: L: 9, C: 8.5 <i>Comments on fit: Satisfactory</i> Size: 10 <i>Wearer hand size</i> Left: L: 10.5, C: 8.5 Right: L: 10.5, C: 8.5 <i>Comments on fit: Satisfactory</i>	N/A	PASS
5.2 Dexterity	See table 2	Size Minimum pin diameter / mm 9 8.0 10 11.0	N/A	Level 1

Table 5 – Testing of gloves reference “28163/28201” in accordance with EN 388: 2003

EN 388: 2003 CLAUSE / TEST	EN 388: 2003 REQUIREMENT	TEST RESULTS	UoM (See note 2)	PASS / FAIL
6.1 Abrasion resistance	See table 1	Sample Failure between / cycles 1 550 & 2000 2 550 & 2000 3 550 & 2000 4 550 & 2000	± 10 % See note 3	Level 2

EN 388: 2003 CLAUSE / TEST	EN 388: 2003 REQUIREMENT	TEST RESULTS	UoM (See note 2)	PASS / FAIL
6.2 Blade cut resistance	See table 1	Sample Cut index Left 2.90, 2.79, 2.33, 2.50, 2.43 Mean 2.59 Right 2.76, 2.88, 2.72, 2.72, 2.63 Mean 2.74	± 0.15	See Note 4
6.3 Tear resistance	See table 1	Sample Peak force / N 1 117.2 2 129.8 3 108.8 4 127.6	± 2.5 %	Level 4
6.4 Puncture resistance	See table 1	Sample Peak force / N 1 23.0 2 22.2 3 43.2 4 68.9	± 2.5 %	Level 1

Table 5 – Testing of gloves reference “28163/28201” in accordance with EN 407: 2004

EN 407: 2004 CLAUSE / TEST	EN 407: 2004 REQUIREMENT	TEST RESULTS	UoM (See note 2)	PASS / FAIL
5.2 Contact Heat	See table 3	Palm / Back Contact Threshold time / s Temperature / °C 250 17.6 250 16.4 250 16.0 Mean 16.7	± 0.7 s	PASS, Level 2

ADDITIONAL INFORMATION / NOTES

Note 2 – ‘UoM’ denotes estimated Uncertainty of Measurement for stated test results. This uncertainty value is based on a standard uncertainty multiplied by a coverage factor $k = 2$, which provides for a confidence level of approximately 95%

Note 3 – Estimated uncertainty of measurement applied at point of test (e.g. to applied force or to tolerance limits) to ensure product meets requirements of the standard

Note 4 – Test result was found to exceed the requirements of EN 388: 2003 clause 6.2 Blade Cut Resistance for a level 2. However, when uncertainty (as stated in UoM column) is applied in the most onerous manner, this result may be considered to fulfil the requirements of a level 1 only.

***** END OF REPORT *****

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Issue Date: 1st October 2009