



Satra Technology Centre, SATRA House
Rockingham Road, Kettering
Northants NN16 9JH, United Kingdom
Tel: +44 (0) 1536 410000
Fax: +44 (0) 1536 410626
e-mail: admin@satra.co.uk

SATRA Technology Centre Ltd. A subsidiary of SATRA. Registered in England No. 3856296

Firm: Dneteuropa
31 The Grange
NEWBRIDGE
County Kildare
Eire

For the attention of: Mrs M Malcolm

Technical Services Report

Subject	Testing of Black VR overshoe against SATRA document M21 (includes tests from the EN 20345:2004 standard).
Our reference	80283/0626/X/MAB/2 (previously 69946/0617/MPE-X)
Samples received	May 2006
Date	5 th September 2006

Conditions of Issue:

This report may be forwarded to other parties concerned provided that it is not abbreviated or changed in any way. It must not be published, for example by including it in advertisements, without the prior, written permission of SATRA.

Results given in this report refer only to the samples submitted for analysis and tested by SATRA. Comments are for guidance only and are not part of the reported results. All comments and interpretations are outside the scope of UKAS accreditation and are based on current SATRA knowledge.

A satisfactory test report in no way implies that the product tested is approved by SATRA and no warranty is given as to the performance of the product tested. SATRA shall not be liable for any subsequent loss or damage incurred by the client as a result of information supplied in the report.

Tests marked † are not UKAS accredited.

Report prepared by: Mark Burnett
Report signed by: Kala Tidball-Wykes
Footwear Technologist
Footwear Technology - Testing
On behalf of SATRA Technology Centre Ltd

K Tidball-Wykes

INTRODUCTION

Purpose of testing: Testing in support of CE marking
 Sample reference: VR overshoes incorporating ISCO TZ steel toe caps
 Construction: All moulded
 Bottom: VR
 Steel toe cap reference: ISCO TZ
 Samples received: April 2006
 Samples tested: May to July 2006

CONCLUSIONS

The VR overshoes footwear achieved the following results when tested against BS EN ISO 20345:2004 plus slip assessment.

TEST	RESULT
BS EN ISO 20345:2004 Clause 5.3 Whole Footwear	PASS 5.3.2.2, 5.3.2.3, 5.3.2.4, 5.3.4
BS EN ISO 20345:2004 Clause 5.4 Uppers	PASS 5.4.2, 5.4.3, 5.4.4
BS EN ISO 20345:2004 Clause 5.8 Outsoles	PASS 5.8.1, 5.8.3, 5.8.4, 5.8.7

Additional testing (by request)

TEST	RESULT
ISO 6112 1992 Oleic acid resistance	Satisfactory

RESULTS

ENISO 20345:2004 Clause 5.3 (Whole Footwear)				
Clause in ENISO 20345	Specification requirements	Sample	Sample Result	Final result
<i>Reference and description VR overshoe (black)</i>				
Clause 5.3.2 Toe protection				
*Toecap internal length (5.3.2.2)	Size: 7# length: ≥39mm Size: 9# length: ≥40mm Size: 12# length: ≥42mm	Size: M Size: L Size: XL	51.7mm 51.6mm 47.6mm	PASS
*Impact resistance of safety footwear (5.3.2.3)	Size: 7# clearance: ≥20.5mm Size: 9# clearance: ≥21.5mm Size: 12# clearance: ≥22.0mm	Size: M Size: L Size: XL	L: 30.0mm, R: 29.0mm L: 30.0mm, R: 30.0mm L: 31.0mm, R: 32.5mm	PASS
*Compression Resistance of safety footwear (5.3.2.4)	Size: 7# clearance: ≥20.5mm Size: 9# clearance: ≥21.5mm Size: 12# clearance: ≥22.0mm	Size: M Size: L Size: XL	L: 35.0mm, R: 33.5mm L: 35.0mm, R: 36.5mm L: 36.0mm, R: 37.5mm	PASS

* The requirements quoted are those stated in EN12568 (1998) as stated in the M21 (2006) document.

ENISO 20345:2004 Clause 5.3 (Whole Footwear)				
Clause in ENISO 20345	Specification requirements	Sample	Sample Result	Final result
<i>Reference and description VR overshoe (black)</i>				
Clause 5.3.4 Specific ergonomic features				
Wearer 1	Wearer foot size: 8	Footwear size assessed: M		
Wearer 2	Wearer foot size: 10	Footwear size assessed: L		
Wearer 3	Wearer foot size: 11	Footwear size assessed: XL		
Specific Ergonomic features (5.3.4)	1. Is the inside surface of the footwear free from rough, sharp or hard areas that cause irritation or injury to the wearer?	Wearer 1 Wearer 2 Wearer 3	yes yes yes	PASS
	2. Are there no pinch points caused by the toe cap or the edge covering of the toe caps?	Wearer 1 Wearer 2 Wearer 3	yes yes yes	
	2. Is the footwear free from features that are considered to make wearing of the footwear hazardous?	Wearer 1 Wearer 2 Wearer 3	yes yes yes	
	4. Can the fastenings be adequately adjusted? *	Wearer 1 Wearer 2 Wearer 3	n/a n/a n/a	
	5. Can the following be performed without problems:	Wearer 1 Wearer 2 Wearer 3	Walking yes yes yes	

approximation of size

* No fastenings used in this product

Technical Services Report

ENISO 20345:2004 Clause 5.4 (Uppers)				
Clause in ENISO 20345	Specification requirements	Sample	Sample Result	Final result
<i>Reference and description VR overshoe</i>				
Thickness (5.4.2)	Minimum 1.5 for rubber uppers	Size: M Size: L Size:XL	4.3 4.4 5.5	PASS
Tear Strength (5.4.3)	≥5kN (3 test pieces per size, lowest result of 3 recorded)	Size: M Size: L Size:XL	13.0 13.7 13.8	PASS
Modulus at 100% (5.4.4)	Range 1.3 to 4.6MPa (5 test pieces per size, median result)	Size: M Size: L Size:XL	2.3MPa 2.4MPa 2.4MPa	PASS
Extension at break (5.4.4)	Minimum 250% (5 test pieces per size, median result)	Size: M Size: L Size:XL	780% 778% 757%	PASS

ENISO 20345:2004 Clause 5.8 (Outsoles)				
Clause in ENISO 20345	Specification requirements	Sample	Sample Result	Final result
<i>Reference and description VR overshoe</i>				
*Thickness of soles (5.8.1)	Not less than 2.5mm	Size: M Size: L Size:XL	Mean thickness: 6.1mm Mean thickness: 4.5mm Mean thickness: 6.9mm	PASS
Abrasion Resistance (5.8.3)	Density ≤0.9g/ml: Volume loss ≤ 250mm ³	Size: M Size: L Size:XL	Density: 0.91g/ml, Volume loss: 84mm ³ Density: 0.90g/ml, Volume loss: 75mm ³ Density: 0.91g/ml, Volume loss: 65mm ³	PASS
Flexing resistance (5.8.4)	Cut growth ≤4.0mm	Size: M Size: L Size:XL	0.1mm 0mm 0mm	PASS
Resistance to Fuel Oil (5.8.7)	Volume increase ≤12%. If volume shrinks by > 0.5% or changes in hardness by >10 Shore A (>10 IRHD). Oil ross flex cut growth of ≤6mm.	Size: M Size: L Size:XL	Swell: +0.8%, Hardness: -1 IRHD Swell: +0.6%, Hardness: 0 IRHD Swell: +0.8%, Hardness: 0 IRHD	PASS

* Mean thickness across heel region (sectioned and measured with eyepiece).