

## TECHNICAL SHEET



Article:	<b>B0979B OREN TOP ESD</b>
Norm:	<b>EN ISO 20345:2011</b>
Safety Class:	<b>S3 ESD SRC</b>
Footwear height:	<b>Mod. B, H 115 mm (≥ 113 mm, Rif. EN 20345-5.2.2)</b>
Weight (size 42)	<b>533 gr.</b>
Width:	<b>12</b>
Construction:	<b>STROBEL; MONO PU ESD SOLE</b>
Cleaning and maintenance:	Use only soft brushes and water. Do not use substances such as alcohol, thinners, gasoline, oil or any other chemicals. Keep the footwear, dry and clean, in a proper place at room temperature.
Suggested fields:	<b>Electronics (EPA=Electrostatic protected areas ESD), automotive, automated lines, building</b>

### ESD Protection (Electrostatic discharges) for electronic devices

Suitable for use in EPA areas (Electrostatic discharges protected area)



Component	Description	Value	Norm Requirements	EN 20345
Entire footwear	Total resistance footwear/ground (footwear worn on a metal ground)	7,41 x 10 <sup>7</sup> Ω	< 1,00 x 10 <sup>9</sup> Ω	CEI EN 61340-5-1
	Sole electrical transversal resistance (footwear resistance)	5,91 x 10 <sup>7</sup> Ω	≤ 1,00 x 10 <sup>8</sup> Ω	CEI EN 61340-5-1
	Chargeability	< 50 V	< 100 V	CEI EN 61340-5-1

Entire footwear: protections				
Component	Description	Value	Norm Requirements	EN 20345
Composite SLIM CAP toe-cap	Impact resistance (200 J)	14,0 mm	≥ 14 mm	5.3.2.3
	• Free height after impact			
	Compression resistance (15 kN)	14.5 mm	≥ 14 mm	5.3.2.4
	• Free height after compression			
Sole (SRC)	Slip resistance			
	• SRA – Sole (entire sole)	0,48	≥ 0,32	5.3.5.4
	• SRA – Heel (Angle of 7°)	0,45	≥ 0,28	5.3.5.4
	• SRB – Sole (entire sole)	0,22	≥ 0,18	5.3.5.4
	• SRB – Heel (Angle of 7°)	0,20	≥ 0,13	5.3.5.4
Fresh'n Flex (P)	Puncture resistance	No perforation	≥ 1100 N	6.2.1.1.2
Footbed (A)	Antistatic properties			
	• Electrical resistance	dry 4,0 x 10 <sup>8</sup> Ω humid 1.8 x 10 <sup>8</sup> Ω	≥ 10 <sup>5</sup> Ω, ≤ 10 <sup>9</sup> Ω ≥ 10 <sup>5</sup> Ω, ≤ 10 <sup>9</sup> Ω	6.2.2.2 6.2.2.2
Sole/Upper Heat (HI)	Thermal insulation			
	Insole temperature increase	N/A	≤ 22°C	6.2.3.1
Cold (CI)	Insole temperature decrease	N/A	≤ 10°C	6.2.3.2
Heel (E)	Shock-absorption in the heel region	35 J	≥ 20 J	6.2.4
(WR)	Water resistance (Water absorption)	N/A	≤ 3 cm <sup>2</sup>	6.2.5
(M)	Metatarsal protection	N/A	≥ 40 mm	6.2.6

Upper				
Component	Description	Value	Norm Requirements	EN 20345
Sublimated technical textile	Tear resistance	245 N	≥ 60 N	5.4.3
	Traction resistance	N/A	≥ 15 N/mm <sup>2</sup>	5.4.4
	Water steam permeability	2,0 mg/cm <sup>2</sup> h	≥ 0,8 mg/cm <sup>2</sup> h	5.4.6
	pH value	N/A	≥ 3,2	5.4.7
	Chromium VI	N/A	Not detectable	5.4.9
	Water passed	0,0 g	≤ 0.2 g	6.3
	Water absorption	26%	≤ 30%	6.3

Lining				
Component	Description	Value	Norm Requirements	EN 20345
3D Hi Tech Fabric	Tear resistance	47 N	≥ 15 N	5.5.1
	Abrasion resistance	<ul style="list-style-type: none"> <li>Dry : the surface shows no holes</li> </ul>	No holes till 51.200 cycles	5.5.2
		<ul style="list-style-type: none"> <li>humid: the surface shows no holes</li> </ul>	No holes till 25.600 cycles	5.5.2
	Water steam release	21,1 mg/cm <sup>2</sup> h	≥ 2,0 mg/cm <sup>2</sup> h	5.5.3
	pH value	N/A	Not detectable	5.5.4
	Chromium VI	N/A	Not detectable	5.5.5

Insole				
Component	Description	Value	Norm Requirements	EN 20345
Fresh'n Flex ESD	Thickness	3,4 mm	≥ 2,0 mm	5.7.1
	pH value	N/A	Not detectable	5.7.2
	Water absorption	102 mg/cm <sup>2</sup>	≥ 70 mg/cm <sup>2</sup>	5.7.3
	Water release	97 %	≥ 80 %	5.7.3
	Abrasion resistance (after 400 cycles)	No damage	Damage ≤ to norms reference	5.7.4.1
	Chromium VI	N/A	Not detectable	5.7.5

Removable footbed*				
Component	Description	Value	Norm Requirements	EN 20345
Dry'n air Omnia ESD	Thickness	3,5 ± 0,5 mm	N/A	5.5.1
	Ph value	N/A	Not detectable	5.5.2
	Water absorption	Permeable	Permeable or ≥ 70mg/cm <sup>2</sup>	5.5.3
	Water release	Permeable	Permeable or ≥ 80%	5.5.3
	Abrasion resistance	No damage	Dry No holes till 25.600 cycles Humid no holes till 12.800 cycles	5.5.4.2
	Chromium VI	N/A	Not detectable	5.7

\*Footwear also certified with DRY'N AIR OMNIA footbeds

Sole					
Component	Description	Value	Norm Requirements	EN 20345	
PU Monodensity Sole ESD	Sole thickness without profiles	6,5 mm	≥ 4 mm	5.8.1.1	
	Profiles height	4,5 mm	≥ 2,5 mm	5.8.1.3	
	Tear resistance	6,2 kN/m	≥ 5 kN/m	5.8.2	
	Abrasion resistance	<ul style="list-style-type: none"> <li>relative volume loss</li> </ul>	100 mm <sup>3</sup>	≤ 250 mm <sup>3</sup>	5.8.3
	Flexion resistance	<ul style="list-style-type: none"> <li>Notches increase after 30.000 cycles</li> </ul>	2,1 mm	≤ 4 mm	5.8.4
	Hydrolysis	<ul style="list-style-type: none"> <li>Notches increase after 150.00 cycles</li> </ul>	3 mm	≤ 6 mm	5.8.5
	Outsole – insole detachment	N/A	≥ 4 N/mm; (*) ≥ 3 N/mm with sole ripping	5.8.6	
	(HRO) Contact heat resistance (300°C)	N/A	No damage (melting, breaking)	6.4.1	
	(FO) Fuel resistance (volume changes)	6 %	≤ 12%	6.4.2	

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