

TECHNICAL SHEET



Article:	B0978B OREN ESD
Norm:	EN ISO 20345:2011
Safety Class:	S3 ESD SRC
Footwear height:	Mod. A, H 80 mm (< 113 mm, Rif. EN 20345-5.2.2)
Weight (size 42):	511 gr.
Width:	12
Construction:	STROBEL; MONO PU ESD SOLE
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:	Electronics (EPA=Electrostatic protected areas ESD), automotive, automated lines, building

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 ⁷ Ω	< 1,00 x 10 ⁹ Ω	CEI EN 61340-5-1
	Sole electrical transversal resistance (footwear resistance)	5,91 x 10 ⁷ Ω	≤ 1,00 x 10 ⁸ 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	Impact resistance (200 J)					
SLIM CAP toe-cap	• Free height after impact	14,0 mm	≥ 14 mm	5.3.2.3		
	• Compression resistance (15 kN)					
	• Free height after compression	14.5 mm	≥ 14 mm	5.3.2.4		
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 ⁸ Ω	≥ 10 ⁵ Ω, ≤ 10 ⁹ Ω	6.2.2.2	
			humid 1.8 x 10 ⁸ Ω	≥ 10 ⁵ Ω, ≤ 10 ⁹ Ω	6.2.2.2	
Sole/Upper	Thermal insulation					
		Heat (HI)	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 ²	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 ²	5.4.4
	Water steam permeability	2,0 mg/cm ² h	≥ 0.8 mg/cm ² 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
	Tear resistance	47 N	≥ 15 N	5.5.1
	Abrasion resistance	<ul style="list-style-type: none"> Dry : the surface shows no holes humid: the surface shows no holes 	No holes till 51.200 cycles No holes till 25.600 cycles	5.5.2
3D Hi Tech Fabric	Water steam release	21,1 mg/cm ² h	≥ 2,0 mg/cm ² 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 ²	≥ 70 mg/cm ²	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 ²	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 SCAN&FIT 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	100 mm ³	≤ 250 mm ³	5.8.3
	• relative volume loss			
	Flexion resistance	2,1 mm	≤ 4 mm	5.8.4
	• Notches increase after 30.000 cycles			
	Hydrolysis	3 mm	≤ 6 mm	5.8.5
	• Notches increase after 150.00 cycles			
	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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