TECHNICAL SHEET

Article:	**B0474 QUARK ESD**
Norm:	**EN ISO 20345:2011**
Safety Class:	**S1 P SRC ESD**
	CEI EN 61340-5-1:2008 and
	CEI EN 61340-4-3:2002,
ESD Protection:	**Environment 2 (T=23°C, 25% Relative Humidity) Mod. A, H 90 mm (< 113 mm; Ref. EN ISO 20345-5.2.2)**
Footwear height:	**11**
Fitting	**STROBEL; INJECTED BIDENSITY SOLE**
Weight:	
Construction:	Use only soft brushes and water. Do not use substances like alcohol, thinners, gasoline, oil or any other chemicals. Keep the footwear, dry and clean, in a proper place at room temperature.
Cleaning and maintenance:	**Electronic (EPA=Electrostatic protected areas ESD), automotive, automated lines, building, light industry, services, mechanics.**

ESD Protection (Electrostatic discharges) for electronic devices

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

Environment 2 (Temperature = 23±2°C; Relative Humidity = 25±3%)

Component	Description	Value	Norm Requirements	EN 20345
Entire footwear	Total resistance footwear/ground (footwear worn on a metal ground)	8,1 x 10^6 Ω	< 3,5 x 10^7 Ω	**CEI EN 61340-5-1**
	Sole electrical transversal resistance (footwear resistance)	7,8 x 10^7 Ω	≥ 10^5 Ω e ≤ 10^8 Ω	**CEI EN 61340-4-3**

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Entire footwear: components				
Component	**Description**	**Value**	**Norm Requirements**	**EN 20345**
Steel toe-cap	Impact resistance(200 J)			
	• Free height after impact	14 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)	0,40	≥ 0,32	5.3.5.4
	• SRA – Heel (Angle of 7°)	0,38	≥ 0,28	5.3.5.4
	• SRB – Sole (entire sole)	0,18	≥ 0,18	5.3.5.4
	• SRB – Heel (Angle of 7°)	0,15	≥ 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 8,27 x 10^8 Ω	≥ 10^5 Ω , ≤ 10^9 Ω	6.2.2.2
		humid 5,44 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 release	N/A	≤ 10°C	6.2.3.2
Heel (E)	Shock-absorption in the heel region	34 J	≥ 20 J	6.2.4
(WR)	Water resistance (Water absorption)	N/A	≤ 3 cm^2	6.2.5

Upper				
Component	**Description**	**Value**	**Norm Requirements**	**EN 20345**
	Tear resistance	198 N	≥ 120 N	5.4.3
Suede leather	Traction resistance	N/A	≥ 15 N/mm^2	5.4.4
	Water steam permeability	4,5 mg/cm^2 h	≥ 0.8 mg/cm^2 h	5.4.6
	pH value	3,85	≥ 3,2	5.4.7
	Chromium VI	Non detected	Non detectable	5.4.9
	Water passed	N/A	≤ 0.2 g	6.3
	Water absorption	N/A	≤ 30%	6.3

Lining				
Component	**Description**	**Value**	**Norm Requirements**	**EN 20345**
	Tear resistance	30 N	≥ 15 N	5.5.1
	Abrasion resistance	• Dry : the surface shows no holes	No holes till 51.200 cycles	5.5.2
3D hi-tech fabric		• humid: the surface shows no holes	No holes till 25.600 cycles	5.5.2
	Water steam release	7,2 mg/cm^2 h	≥ 2,0 mg/cm^2 h	5.5.3
	pH value	N/A	Non detectable	5.5.4
	Chromium VI	N/A	Non detectable	5.5.5

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Insole				
Component	**Description**	**Value**	**Norm Requirements**	**EN 20345**
Fresh'n Flex	Thickness	3,5 mm	≥ 2,0 mm	5.7.1
	pH value	N/A	Non detectable	5.7.2
	Water absorption	98 mg/cm^2	≥ 70 mg/cm^2	5.7.3
	Water release	92 %	≥ 80 %	5.7.3
	Abrasion resistance (after 400 cycles)	No damage	Damage ≤ to norms reference	5.7.4.1
	Chromium VI	N/A	Non detectable	5.7.5

Removable footbed				
Component	**Description**	**Value**	**Norm Requirements**	**EN 20345**
Anatomical, breathable, textile and expanded polymeric material	Thickness	3,5±0,5 mm	N/A	5.7.1
	pH value	N/A	Non detectable	5.7.2
	Water absorption	Permeable	Permeable or ≥ 70mg/cm^2	5.7.3
	Water release	Permeable	Permeable or ≥ 80%	5.7.3
	Abrasion resistance	No damage	Dry No holes till 25600 cycles Humid no holes till 12800 cycles	5.7.4.2
	Chromium VI	N/A	Non detectable	5.7.5

Sole				
Component	**Description**	**Value**	**Norm Requirements**	**EN 20345**
Midsole: PU	Sole thickness without profile	10 mm	≥ 4 mm	5.8.1.1
Outsole TPU SKIN: (TPU high density)	Profile height	4 mm	≥ 2,5mm	5.8.1.3
	Tear resistance	5,5 kN/m	≥ 5 kN/m	5.8.2
	Abrasion resistance • relative volume loss	38 mm^3	≤ 250 mm^3	5.8.3
	Flexion resistance • Notches increase after 30.000 cycles	2,5 mm	≤ 4 mm	5.8.4
	• Hydrolysis	3,5 mm	≤ 6 mm	5.8.5
	Notches increase after 150.00 cycles	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

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