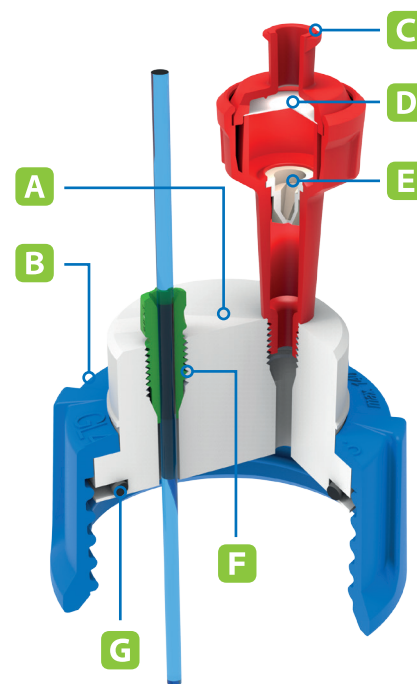


Material Data Sheet

S.C.A.T. SafetyCaps 2.0

Product Group	SafetyCaps for HPLC solvent supply, Generation 2.0
Intended use / basic function	Blocking solvent vapours during solvent supply to HPLC / UHPLC instruments, prevention of contamination and underpressure.
Cap / bottle size(s)	GL 45
Max. flow rate (air valve)	≤ 400 ml / min (suitable for preparative applications)
Pore size (air valve)	1 µm
Tubing connector type	One-piece fitting with integrated ferrule
Tubing connector sizes	1.6 / 2.3 / 3.2 / 4.76 / 6.35 mm OD tubing (depending on model)
Number of tubing connectors	1 / 2 / 3 / 4 / 6 (depending on model)



A Body: PTFE premium grade - medical grade		Test method
Color	White	-
Specific gravity	2.130 - 2.190 g/cm ³	ASTM D 792
Water absorption	0.01 %	ASTM D 570
Flammability	V-0	UL 94
Tensile strength	≥ 25 MPa	ASTM D 4894
Elongation	≥ 280 %	ASTM D 4894
Hardness	≥ 54 Shore D	ASTM D 2240
Ball hardness	≥ 23 MPa	ASTM D 785
Compression strength at 1% deformation	≥ 4 MPa	ASTM D 695
Deformation under load (140 kg/cm² for 24 hrs. at 23°C)	10 - 13 %	ASTM D 621
Permanent deformation (after 24 hrs. relaxation at 23°C)	6 - 7.5 %	ASTM D 621
Coefficient of static friction	0.08 - 0.10	ASTM D 1894
Coefficient of dynamic friction	0.06 - 0.08	ASTM D 1894
Wear factor K	2,900	ASTM D 3702
Wear coefficient	20,000 - 25,000 cm ³ min 10-8 kg m h	
Thermal conductivity	0.34 W/m·k	ASTM C 177
Coefficient of linear thermal expansion from 25 to 100 °C	12 - 15 10 ⁻⁵ / °C	ASTM D 696
Dielectric strength	≥ 30 kV/mm	ASTM D 149
Volume resistivity	10 ¹⁸ Ohm·cm	ASTM D 257
Surface resistivity	10 ¹⁷ Ohm	ASTM D 257

Address
S.C.A.T. Europe GmbH
Waldecker Straße 7
64546 Mörfelden-Walldorf
Germany

Contact
Phone: +49-(0) 6105 / 30 55 86 - 0
Fax: +49-(0) 6105 / 30 55 86 - 99
E-Mail: info@scat-europe.com
Web: www.scat-europe.com

Bank Account
Bank: Frankfurter Volksbank
I.B.A.N.: DE 0550 1900 0060 0151 1678
B.I.C.: FF VB DE FF
BLZ: 501 900 00
No.: 6101 539 146

Legal Information
Registered Office: 64546 Mörfelden-Walldorf
District Court: Darmstadt
Comm. Register: HRB 55045
Managing Director: Peter Rebehn
VAT-ID-No.: DE 227617033

Statement on suitability for contact with foodstuff

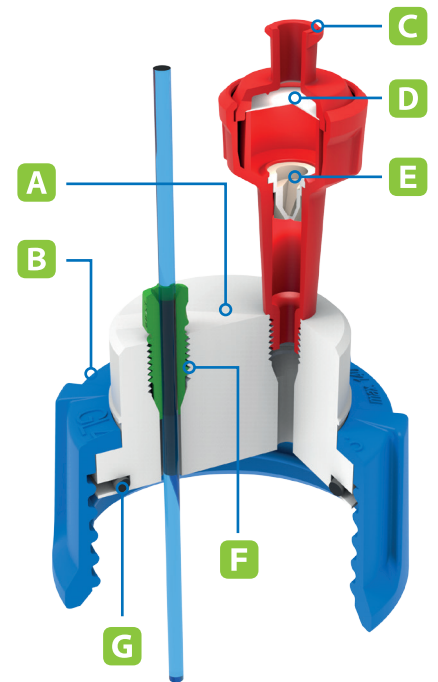
FDA approved US regulation

Code of federal regulation 21 CFR Ch.1; section 177.1550 Perfluorocarbon Resins of the Food and Drug Administration/US.

EU Regulation

EU 1935/2004 - 10/2011 on plastic materials and articles to come in contact with food.

B Screw Cap: Polyphenylensulfide (PPS)		Test method
E-Module (bending test)	13,500 MPa	ISO 178
Bending strength	260 MPa	ISO 178
Strain of the outer fibre (maximum load)	2.2 %	ISO 178
E-Module (tension test)	15,000 MPa	ISO 527
Breaking resistance (tension test)	190 MPa	ISO 527
Breaking elongation (tension test)	1.7 %	ISO 527
Izod impact resistance 1U	50 kJ/m ²	ISO 180 / 1U
Impact resistance 1eU	55 kJ/m ²	ISO 179 / 1eU
Impact resistance 1eU -30°C	52 kJ/m ²	ISO 179 / 1eU
HDT / A (1,8 MPa)	270 °C	ISO 75-1/-2
Melting temperature (DSC)	280 °C	ISO 11357
Density	1.650 kg/m ³	ISO 1183
Flammability, 0.75 mm	V-0	UL 94
Yellow card available	Yes	-
C Valve Housing: Polypropylene (PP)		Test method
Melt flow rate (MFR) at 230 °C and 2.16 kg	10.5 g/10 min	ASTM D 1238
Density	905 kg/m ³	ASTM D 792
Molecular weight distribution	Broad	-
Isotacticity	Medium	-
Anti block agent	No	-
Slip agent	No	-
Tensile test: stress at yield	36 MPa	ASTM D 638
Tensile test: strain at yield	9 %	ASTM D 638
Tensile test: secant modulus at 1% elongation	1,800 MPa	ASTM D 638
Vicat softening temperature at 10 N (VST/A)	154 °C	ASTM D 1525
Vicat softening temperature at 50 N (VST/B)	95 °C	ASTM D 1525



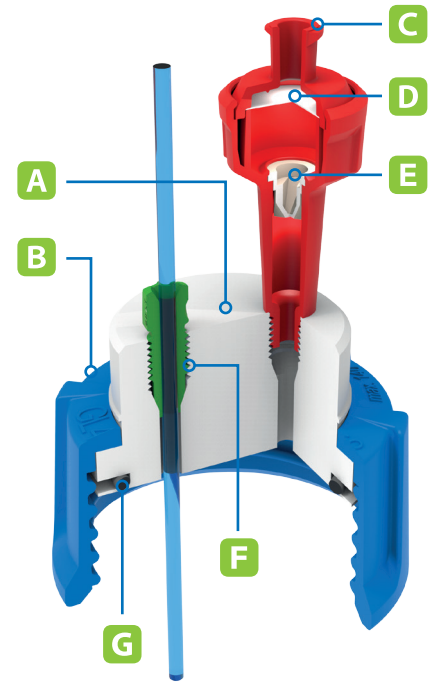
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D Valve Membrane: PTFE, virginal, porous	
Material characteristics	<ul style="list-style-type: none"> • Symmetric, porous structure • Hydrophobic on both sides • Free of PFOA • Free of heavy metals • Free of animal substances
Colour	white
Pore size	1 µm
Typical water inlet pressure (WIP)	> 0.4 bar
Temperature resistance	-200 to 250 °C
Chemical resistance	Almost universal
Conformity	<ul style="list-style-type: none"> • Protection class IP68 • ISO 16750-5:2010 • Directive 2000/53/EG • Directive 10/2011/EG on plastic materials and articles to come in contact with food (Implementation in Germany by BedGgstV), supplemented by directives 2011/8/EG, 2007/19/EG and 2002/72/EG • Directive 2002/95/EG on the restriction of the use of certain hazardous substances in electrical and electronic equipment • Directive 2003/11/EG relating to restrictions on the marketing and use of certain dangerous substances and preparations



E Valve Flap: Silicone VMQ	
Colour	white
Hardness (Shore A)	50
Max. flow rate	400 ml / min
Sterilisation resistance	ETO, Gamma, Steam
Cv	0.08
Max. back pressure	300 kPa
Opening pressure	0.5 kPa
Conformity	ISO 109993, USP class VI, BGW

F Tube Fitting: Teflon™ PFA 340		Test method
Melt flow rate	14 g/10 min	ASTM D 3307 / ISO 12086
Melting point	305 °C	ASTM D 4591
Specific gravity	2.15	ASTM D 792
Critical shear rate, 372 °C	50 1/s	-
Tensile strength: 23 °C	25 MPa	ASTM D 3307 / ISO 12086
Tensile strength: 250 °C	12 MPa	ASTM D 3307 / ISO 12086
Ultimate elongation: 23 °C	300 %	ASTM D 3307 / ISO 12086

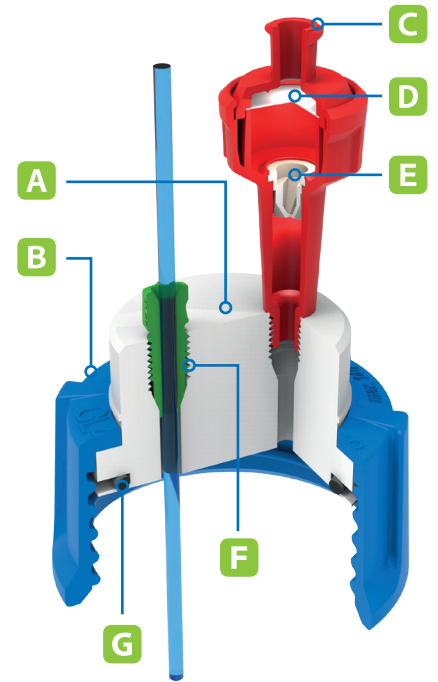
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Ultimate elongation: 250 °C	480 %	ASTM D 3307 / ISO 12086
Flexural modulus: 23 °C	590 MPa	ASTM D 790 / ISO 178
Flexural modulus: 250 °C	55 MPa	ASTM D 790 / ISO 178
MIT folding endurance (0,20 mm, 8 mil film)	15,000 cycles	ASTM D 2176
Hardness durometer	D55	ASTM D 2240 / ISO 868
Dielectric strength, short time, 0,25 mm (0,010 in)	80 kV/mm	ASTM D 149 / IEC 243
Dielectric constant, 1 MHz (10 ⁶ Hz)	2,03	ASTM D 150 / IEC 250
Dissipation factor, 1 MHz (10 ⁶ Hz)	< 0.0002	ASTM D 150 / IEC 250
Volume resistivity	10 ¹⁸ Ohm·cm	ASTM D 257 / ISO 1325
Water absorption, 24 hr	< 0,03 %	ASTM D 570
Weather and chemical resistance	Outstanding	-
Limiting oxygen index	> 95	ASTM D 2863 / ISO 4589
Continuous service temperature	260 °C	-
Flammability	V-0	UL 94



G	Cap Seal: VITON (FPM)	Test method
Colour	Black	-
Hardness	73 - 77 Shore A	ASTM D 2240
Operating temperature (air)	-20 to 200 °C	-
Density	1.85 - 1.98 g/cm ³	-
Tensile strength	12 - 14.86 MPa	ASTM D 412
Elongation at break	175 - 216 %	ASTM D 412
Compression strain 22 h / 200 °C	11 - 12 %	ASTM D 395

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