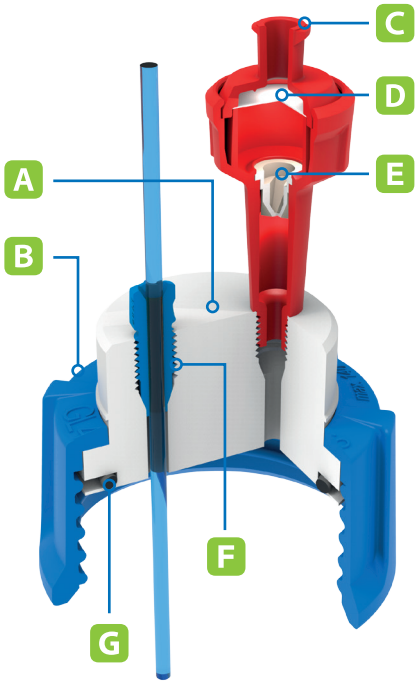
Material Data Sheet
S.C.A.T. SafetyCaps 2.0

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/cm³	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 cm³ min 10-8 kg m h	
	Thermal conductivity	0.34 W/m·k	ASTM C 177
	Coefficient of linear therman 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

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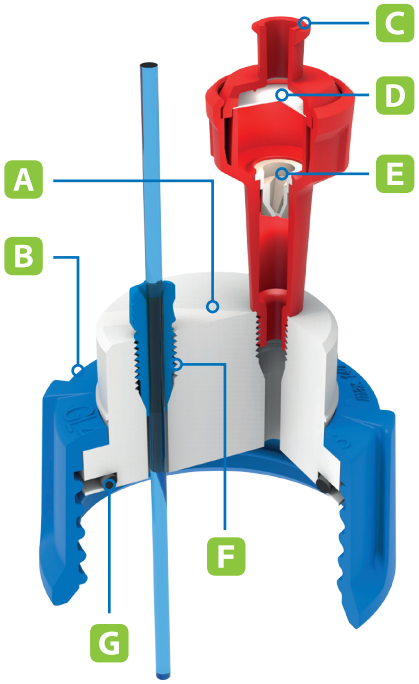
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B.I.C.: FF VB DE FF
BLZ: 501 900 00
No.: 6101 539 146

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 Perfourocarbon 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/m²	ISO 180 / 1U
	Impact resistance 1eU	55 kJ/m²	ISO 179 / 1eU
	Impact resistance 1eU -30°C	52 kJ/m²	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/m³	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/m³	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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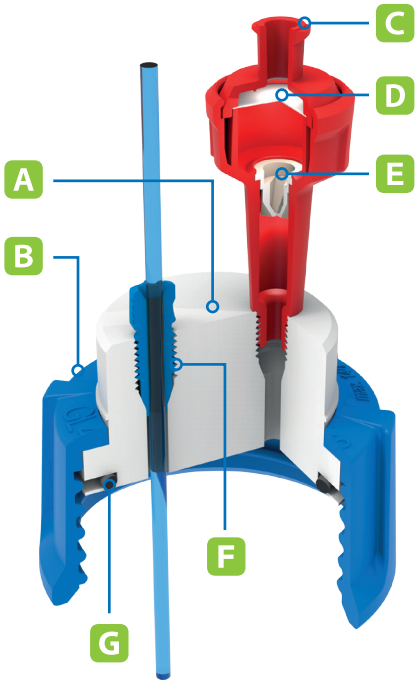
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D	Valve Membrane: PTFE, virginal, porous	
	Material characteristics	• Symmetric, porous structure • Hydrophobic on both sides • Free of PFOA • Free of heavy metals • Free of animal substances
	Colour	white
	Pore size	1 µm
	Typical water inlet pressure (WIP)	> 0.4 bar
	Temperature resistance	-200 to 250 °C
	Chemical resistance	Almost universal
	Conformity	• 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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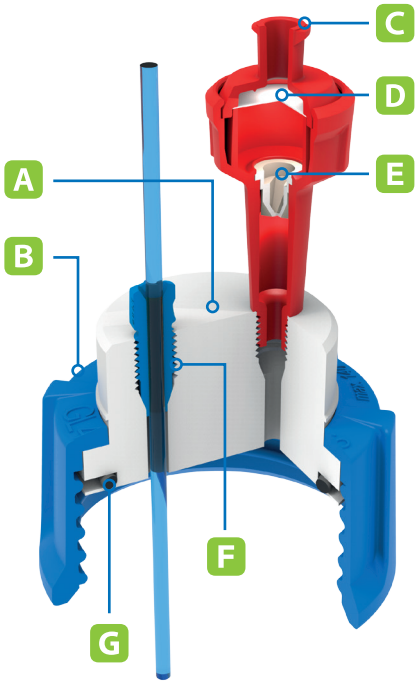
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Ultimate elongation: 250 °C	480 %	ASTM D 3307 / ISO 12086
Flexural modulus: 23 °C	590 MPa	ASTM D 790 / ISO 178
Flexural modulus: 250 °C	55 MPa	ASTM D 790 / ISO 178
MIT folding endurance (0,20 mm, 8 mil film)	15,000 cycles	ASTM D 2176
Hardness durometer	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/cm³	-
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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