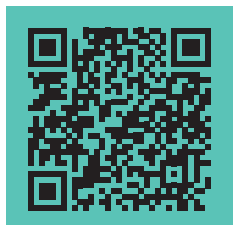# SPME-FFA
FIBERS

NEW
SPME-FFA Arrow

CHROMLINE, SPME AND MFX SYSTEM
Your team of experts

ITALIAN PATENT

Chromline, in 2006 has registered the patent that reinvents the use of this technique and add some new features capable of improving the robustness of SPME fibers and their use in the various analysis phases.
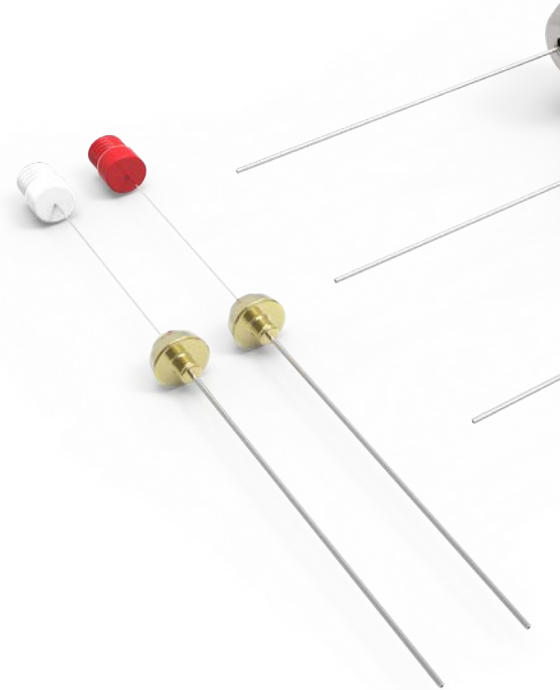
The fibers are housed in a metal body that protects the most fragile parts and also allows the introduction of a unique barcode that identifies each fiber.

READY FOR AUTOMATION (MFX)

The Multi Fiber eXchange System (MFX) performs automated exchange of SPME fibers (Standard and Arrow Fibers). Creating a new method will be quick and easy, you can also create multi-method sequences that use fibers with different phases (without stopping the autosampler and the GC). MFX benefits are:

- The development of new methods is faster. By setting a sequence that uses more fibers on the same sample, it is easy to understand which fiber highlights the best results for analytes of interest.

- Automatic replacement of fibers can be done at any time inside the sample list. Long analysis series can also be performed with different fibers and the same fibers can be cleaned automatically. You can also replace fibers used after a defined number of samples, so they always use fibers at maximum efficiency.

- In a tray can stay all the available phases of the SPME fibers (as in the picture)

- Automated analysis of SPME fibers that have been used as passive air samplers

- MFX tray for 15 fibers available (up to 45 fibers for each trayholder)

- Automated analysis of samples using multiple fibers, covering a wide range of analytes

- Multi-method sequences using different SPME phases for more selectivity

- Longer fiber life expectancy, mechanical impact is minimized during fiber change and operation.

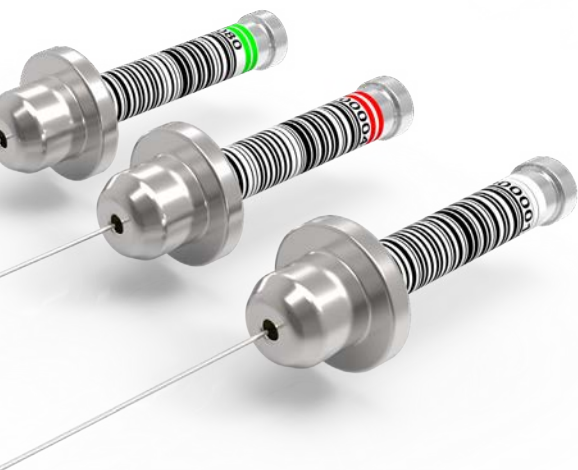- SPME-FFA and SPME-FFA Arrow available from Chromline Srl.

NEW SAMPLING DEVICES

We have a new complete line of devices for indoor and outdoor sampling to use with our SPME-FFA fibers. Some parts are made with 3D printing techniques, they are lighter, less expensive and completely customizable for special uses of our customers. We have devices for manual injections, for off-line simultaneously extraction on multiple samples (and desorption with the MFX automated system), for outdoor samples with exposed and retracted fiber (passive sampling) and probes for analysis of soil, food or Phytoscreening (above image).
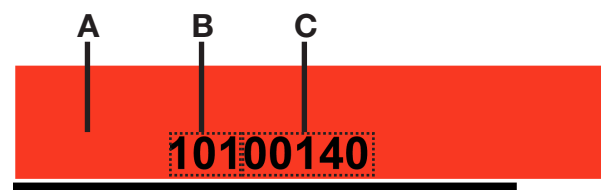
BARCODE AND TRACEABILITY

A complete traceability of the sample is possible with new FFA devices made by Chromline. The Barcode provides the user and information relating to the SPME-FFA fibers that are using. In particular, 3 different information can be identified on the fiber that generate a characteristic unique code of each fiber:

Standard fibers coding

A   B   C

11000611

12000121   11000611

Arrow fibers coding

A   B   C

10100140

10100140   10100140   10100140

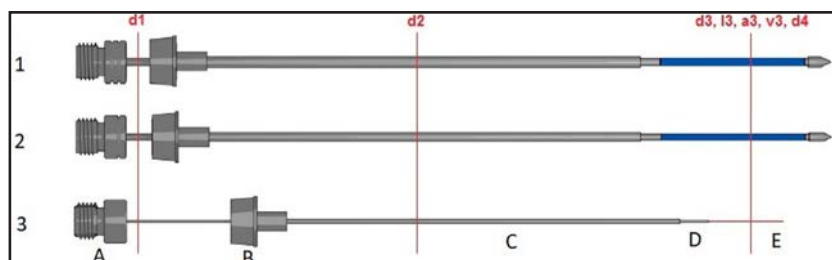(**1**) 1.1 mm   (**2**) 1.5 mm Wide   (**3**) 1.5 m

A. The color indicates the phase type. The color is the same as the colored hub present on traditional SPME fibers. The SPME-FFA Arrow fibers have a color-based encoding that considers the diameter of the needle and the phase diameter (based on the type of fiber used there will only be the color of the phase, the color with a line or the color with two lines);

B. The first two numbers (three on Arrow fibers) identify the type of fiber and represents the phase and the size of the needle;

C. The remaining numbers indicate the unique code of each fiber to ensure a perfect traceability of the samples.

The new Solid phase MicroExtraction (SPME) Arrows are available in 3 different configurations:

- (**1**) 1.1 mm SPME Arrow;
- (**2**) 1.5 mm Wide Sleeve SPME Arrow;
- (**3**) 1.5 mm SPME Arrow.

All SPME Arrows composed of the following parts:

- **A**: a color coded screw hub;
- **B**: a sealing septum;
- **C**: a septum piercing needle;
- **D**: a fiber attachment needle;
- **E**: a coated metal fiber;
- **d1**: Support tubing;
- **d2**: septum piercing needle;
- **d3**: phase diameter;
- **d4**: phase support tubing diameter;
- **l3**: phase length;
- **a3**: phase area;
- **v3**: phase volume.

Label	Description	Units	1.1 mm SPME Arrow	1.5 mm Wide Sleeve SPME Arrow	1.5 mm SPME Arrow
d1	Support tubing	mm	0.804	1.01	1.01
d2	Septum piercing needle	mm	1.1	1.50	1.50
d3	Phase diameter	mm	0.721	0.721	0.912
d4	Phase support tubing diameter	mm	0.647	0.647	0.498
l3	Phase lenght	mm	20.0	20.0	20.0
a3	Phase area	mm²	44.0	44.0	62.8
v3	Phase volume	µl	3.80	3.80	11.8

INFORMATION TO ORDER

MERCK FFA-FIBERS

ID	Product No.	Fibers / pack	Material Description
ID 17; ID 31; ID 33; ID 35	FFA57284-U	4	FFA SPME StableFlex™ fiber assortment kit, for use with autosampler, 23Ga
ID 11; ID 15; ID 17	FFA57285-U	3	FFA SPME fiber assortment kit 1, for use with autosampler, 23Ga
ID 17; ID 21; ID 43	FFA57286-U	3	FFA SPME fiber assortment kit 2, for use with autosampler, 23Ga
ID 11; ID 21; ID 43	FFA57287-U	3	FFA SPME fiber assortment kit 4, for use with autosampler, 23Ga
ID 13	FFA57289-U	3	FFA SPME 30 µm PDMS, for use with autosampler, 23Ga - Yellow
ID 15	FFA57291-U	3	FFA SPME 7 µm PDMS, for use with autosampler, 23Ga - Green
ID 31	FFA57293-U	3	FFA SPME 65 µm PDMS/DVB Stableflex™, for use with autosampler, 23Ga - Pink
ID 17	FFA57294-U	3	FFA SPME 85 µm PA, for use with autosampler, 23Ga - White
ID 33	FFA57295-U	3	FFA SPME 85 µm CAR/PDMS Stableflex™, for use with autosampler, 23Ga - Light Blue
ID 35	FFA57298-U	3	FFA SPME 50/30 µm DVB/CAR/PDMS Stableflex™, for use with autosampler, 23Ga - Grey (1 cm)
ID 45	FFA57299-U	3	FFA SPME 50/30 µm DVB/CAR/PDMS Stableflex™, for use with autosampler, 23Ga - Grey (2 cm)
ID 12	FFA57301	3	FFA SPME 100 µm PDMS, for use with autosampler, 24Ga - Red
ID 16	FFA57303	3	FFA SPME 7 µm PDMS, for use with autosampler, 24Ga - Green
ID 18	FFA57305	3	FFA SPME 85 µm PA, for use with autosampler, 24Ga - White
ID 12; ID 16; ID 18	FFA57307	3	FFA SPME fiber assortment kit 1, for use with autosampler, 24Ga
ID 14	FFA57309	3	FFA SPME 30 µm PDMS, for use with autosampler, 24Ga - Yellow
ID 22	FFA57311	3	FFA SPME 65 µm PDMS/DVB, for use with autosampler, 24Ga - Blue
ID 44	FFA57319	3	FFA SPME 75 µm CAR/PDMS, for use with autosampler, 24Ga - Black
ID 18; ID 22; ID 44	FFA57321-U	3	FFA SPME fiber assortment kit 2, for use with autosampler, 24Ga
ID 12; ID 32; ID 44	FFA57325-U	3	FFA SPME fiber assortment kit 4, for use with autosampler, 24Ga
ID 32	FFA57327-U	3	FFA SPME 65 µm PDMS/DVB Stableflex™, for use with autosampler, 24Ga - Pink
ID 36	FFA57329-U	3	FFA SPME 50/30 µm DVB/CAR/PDMS Stableflex™, for use with autosampler, 24Ga - Grey (1 cm)
ID 34	FFA57335-U	3	FFA SPME 85 µm CAR/PDMS Stableflex™, for use with autosampler, 24Ga - Light Blue
ID 11	FFA57341-U	3	FFA SPME 100 µm PDMS, for use with autosampler, 23Ga - Red
ID 43	FFA57343-U	3	FFA SPME 75 µm CAR/PDMS, for use with autosampler, 23Ga - Black
ID 21	FFA57345-U	3	FFA SPME 65 µm PDMS/DVB, for use with autosampler, 23Ga - Dark Blue
ID 46	FFA57348-U	3	FFA SPME 50/30 µm DVB/CAR/PDMS Stableflex™, for use with autosampler, 24Ga - Grey (2 cm)
ID 19	FFA57354-U	3	FFA SPME 60 µm PEG, for use with autosampler, 23Ga - Purple
ID 11; ID 31; ID 33; ID 35	FFA57362-U	4	FFA SPME fiber assortment kit 5, for use with autosampler, 23Ga
ID 44	FFA57439-U	3	FFA SPME StableFlex fiber Fiber Assembly Polydimethylsiloxane/Divinylbenzene (PDMS/DVB) df 75 µm (Coating thickness includes 65 µm coating + 10 µm OC (overcoating)), needle size 23 ga, for use with autosampler
ID 18; ID 32; ID 34; ID 36	FFA57551-U	4	FFA SPME StableFlex™ fiber assortment kit, for use with autosampler, 24Ga
ID 01	FFA57902-U	1	FFA SPME Metal alloy fiber PDMS/DVB df 65 µm, for use with autosampler, needle size 23 ga
ID 03	FFA57906-U	1	FFA SPME Metal alloy fiber assembly PA df 85 µm, for use with autosampler, needle size 23 ga
ID 07	FFA57907-U	3	FFA SPME Nitinol-core (NIT) SPME fiber assembly CAR/PDMS df 75 µm, needle size 23 ga, for use with autosampler
ID 08	FFA57908-U	3	FFA SPME Nitinol-core (NIT) SPME fiber assembly CAR/PDMS df 75 µm, needle size 24 ga, for use with autosampler

21	*	65 µm PDMS/DVB
43	**	75 µm CAR/PDMS

*Only available as part of kit 2 & 3—FFA57286-U & FFA57287-U.
**Only available as part of kit 2 FFA57286-U.

RESTEK FFA-FIBERS

ID	Product No.	Fibers/ pack	Material Description
70	FFA27478-5	5	Polyacrylate SPME Fiber (Polyacrylate) Fiber thickness 85um Fiber Length 10mm 23 gauge needle Gray
71	FFA27479-5	5	Carbon WR/PDMS SPME Fiber (Carbon Wide Range) Fiber Thickness 95um Fiber Length 10mm 23 gauge needle Dark Blue
72	FFA27480-5	5	PDMS SPME Fiber (Polydimethylsiloxane) Fiber thickness 100um Fiber Length 10mm 23 gauge needle Red
73	FFA27481-5	5	PDMS SPME Fiber (Polydimethylsiloxane) Fiber thickness 30um Fiber Length 10mm 23 gauge needle Golden
74	FFA27482-5	5	PDMS SPME Fiber (Polydimethylsiloxane) Fiber thickness 7um Fiber Length 1+F73:G890mm 23 gauge needle Green
75	FFA27873-5	5	SPME Fiber DVB/C-WR/PDMS Fiber Fiber thickness 50-30um Fiber length 10mm color code:dark gray
76	FFA27874-5	5	SPME Fiber DVB/PDMS (Divinylbenzene/ Polydimethylsiloxane) Fiber thickness 65um Fiber length 10mm Color code: violett

RESTEK ARROW FFA-FIBERS

ID	Product No.	Fibers/ pack	Material Description
600	FFA27484	1	SPME Arrow 1.5mm PDMS (Polydimethylsiloxane) Phase thickness 250um Phase length 20mm Color code: black
500	FFA27485	1	SPME Arrow 1.10mm PDMS (Polydimethylsiloxane) Phase thickness 100um Phase length 20mm Color code: red
510	FFA27486	1	SPME Arrow 1.10mm DVB\PDMS (Divinylbenzene) Phase Thickness 120um Phase length 20mm Color code: violet
520	FFA27487	1	SPME Arrow 1.10mm Carbon WR\PDMS Phase thickness 120um Phase length 20mm Color code: light blue
530	FFA27488	1	SPME Arrow 1.10mm Polyacrylate Phase thickness 100um Phase length 20mm Color code: grey
540	FFA27875	1	SPME Arrow 1.10mm: DVB/C-WR/PDMS Phase thickness 120um Phase length 20mm color code: dark grey Single
610	FFA27876	1	SPME Arrow 1.50mm: wide sleeve DVB/C-WR/PDMS Phase thickness 120um Phase length 20mm color code: dark grey Single
620	FFA27877	1	SPME Arrow 1.50mm: wide sleeve: PDMS Phase thickness 100um Phase length 20mm color code: red Single
630	FFA27878	1	SPME Arrow 1.50mm: wide sleeve DVB/PDMS Phase thickness 120um Phase length 20mm color code: violett Single
640	FFA27879	1	SPME Arrow 1.50mm: wide sleeve Carbon WR/PDMS Phase thickness 120um Phase length 20mm color code: light blue Single
	FFA27489	5	SPME Arrow Combo Pack Five SPME Arrows with phase length 20mm: 1.10mm Polyacrylate 100um (ID 54); 1.10mm Carbon WR/PDMS 120um (ID 53); 1.10mm DVB/PDMS 120um (ID 52); 1.10mm PDMS 100um (ID 51); 1.5mm PDMS 250um (ID 81)"