



Filafresh® are flexible filaments based on TPU 96A with excellent physical and mechanical properties and a high degree of elasticity. They are developed with natural additives with personalized aromas. They have intense odors and their duration depends on their use, even reaching two years in static pieces and in indoor use.

It also has a pleasant touch feeling and perfect layer adhesion even at layer heights of 0.3 mm.

**General Properties**

**Material:** TPU 96A  
**Density:** 1.21 g / cm<sup>3</sup>  
**Diameter:** 1.75mm  
**Tolerance:** ± 0.03mm  
**Fragrances:**  
Apple, Mint, Licorice, Peach  
Lemon, Strawberry, Cola,  
Baby Cologne, Muffin ...

**Print properties**

**Printing T°:** 215°-245°c  
**Printing speed:** 20-70 mm / s  
**Bed T°:** 0-40°c  
**Optimal layer height:** 0.2 / 0.3 mm  
**Recommended nozzle:** 0.4 mm  
**Retracts:** 3.5-6.5mm (bowden) 1.2-1.8mm (direct)  
**Retraction speed:** 35mm / s

**APPLICATIONS**

Product especially suitable for the processing of THERMOPLASTICS.

**ACTIVE AGENTS**

Composed of Natural oils

**MAIN EFFECTS**

Aromatherapy acts on our sense of smell and through absorption into the bloodstream. About 15 percent of the air we inhale goes to the roof of the nose, where the receptors olfactory organs transport odors directly to a part of the brain called the limbic system creating perceptions.

These perceptions produce different stimuli in the human brain, they can provoke stimuli relaxing or even awaken a certain memory, as smells are managed in the limbic system, the place in the brain where emotions are processed.

**PHYSICAL PROPERTIES**

Physical appearance ..... Uniform granular solid.  
Carrier ..... THERMOPLASTICS  
Compatibility ..... THERMOPLASTICS

## Filafresh Filaments Technical data

200 grade series, ester / Shore hardness A 90 - 94

Extrusion- and injection molding grade; does not contain any anti-hydrolysis agent; Application; Blown films

### ISO Shortname

Property	Test Condition	Unit	Standard	typical Value		
				drying	annealed	-
according to specifications						
<b>Mechanical properties (23 °C/50 % r. h.)</b>						
C shore hardness A	1s	-	DIN ISO 7619-1		92	
Ultimate tensile strength	200 mm/min	MPa	DIN 53504		48,9	
Strain at break	200 mm/min	%	DIN 53504		442,2	
Stress at 10 % strain	200 mm/min	MPa	DIN 53504		4,3	
Stress at 50 % strain	200 mm/min	MPa	DIN 53504		9,4	
Stress at 100 % strain	200 mm/min	MPa	DIN 53504		11,9	
Stress at 300 % strain	200 mm/min	MPa	DIN 53504		30,1	
C Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method A		52	
C Compression set	72 h; 23 °C	%	DIN ISO 815-1		24	
C Compression set	24 h; 70 °C	%	DIN ISO 815-1, Method C		39	
C Abrasion resistance		mm <sup>3</sup>	ISO 4649 method A		60	
Rebound resilience		%	ISO 4662		25	
Tear strength	500 mm/min	kN/m	ISO 34-1		100	

### Thermal properties

Tensile storage modulus	-20 °C	MPa	ISO 6721-1,-4		1710	
Tensile storage modulus	20 °C	MPa	ISO 6721-1,-4		130	
Tensile storage modulus	60 °C	MPa	ISO 6721-1,-4		57	

### Other properties (23 °C)

C Density		kg/m <sup>3</sup>	ISO 1183-1			1205
-----------	--	-------------------	------------	--	--	------

### Recommended Processing and Drying Conditions

Injection molding-Melt temperature		°C	-	210 - 230		
Injection molding-Mold temperature		°C	-			20
Extrusion-Melt temperature		°C	-	190 - 210		
Maximum drying temperature		°C	-			80

C These property characteristics are taken from the CAMPUS plastics data bank and are based on the international catalogue of basic data for plastics according to ISO 10350.

Impact properties: N = non-break, P = partial break, C = complete break

### Recommended Processing Printing

Printing temperature		°C	-	210 - 235		
Printing Speed		mm/s	-	20-50		
Hot-Bed temperature		°C	-	0 - 40		
Optimal Nozzle diameter		mm	-	0,4 - 0,6		
Optimal layer height		mm	-	0,4		
Retraction parameters		mm	Bowden Direct	3,5 - 6,5 0,9 - 1,2		
Retraction Speed		mm/s	-	40		