

SilaFresh™ Additive: High Capacity Sebum Absorbent

About ABS Materials Inc.

www.absmaterials.com

ABS Materials is headquartered in Wooster, Ohio and serves diverse markets. The company's core competency is material science innovations centered around a patented suite of organosilica materials that volumetrically change upon absorption of organics. ABS Materials manufactures SilaFresh Additive, several granular medias, and commercial products.

What is our innovation?

A highly elastic and porous silica that can capture sebum at high capacity, while remaining dry to the touch. Applications include cosmetics for oily skin, dry shampoo, and other hair and skin care related products.

Description of SilaFresh™ Additive:

SilaFresh additive for personal care applications is a specially designed absorbent material to absorb oil and sebum. The proprietary synthetic method leads to microscale morphology that allows SilaFresh additive to swell and absorb >3 times its weight in oil. Water is not absorbed due to the hydrophobicity of the material, resulting in the selective removal of oil and other organics from surfaces.

Properties of SilaFresh® Additive:

Physical state	Semi-transparent porous solid
Surface chemistry	Hydrophobic siloxane
Surface area	90 m ² /g
Pore volume	0.65 (mL/g) dry state
Density (empty):	0.4 g/mL
Pore Size	<90% under 6 nm
Swell capacity	5.5 mL/g (organic liquids)
Thermal Stability:	>300°C
Particle size:	Millable to customer specifications without loss of function
CAS No.:	1914981-02-4
INCI name:	Dimethicone/Phenyl Silsesquioxane/Phenyl Bis-Silsesquioxane Crosspolymer
Staining:	None
Shelf life:	>5 years



Osorb media can be colored or formulated with various dyes and other wet and dry ingredients.

Ultrahigh Capacity Sebum Removal

SilaFresh™ additive is an elastic solid that can be ground to fine powders and mixed with a variety of other ingredients such as minerals, colorants, and hydrogels. SilaFresh additive tactilely feels dry even when laden with oil or sebum. It can be mixed with dry ingredients or formulated into aqueous phase gels to remove oil from skin or hair. SilaFresh additive has previously been formulated into dry shampoos.

SilaFresh additive instantaneously swells when it comes in contact with sebum, as demonstrated by the absorption of linoleic acid. The high capacity is due to a flexible pore architecture that expands upon absorption. Pore expansion greatly increases capacity and sequesters sebum so SilaFresh particles remains dry even when laden with oil. When absorbing oil from the skin, SilaFresh additive does not remove water, so it is cleansing and gentle to the skin without dehydrating the skin.

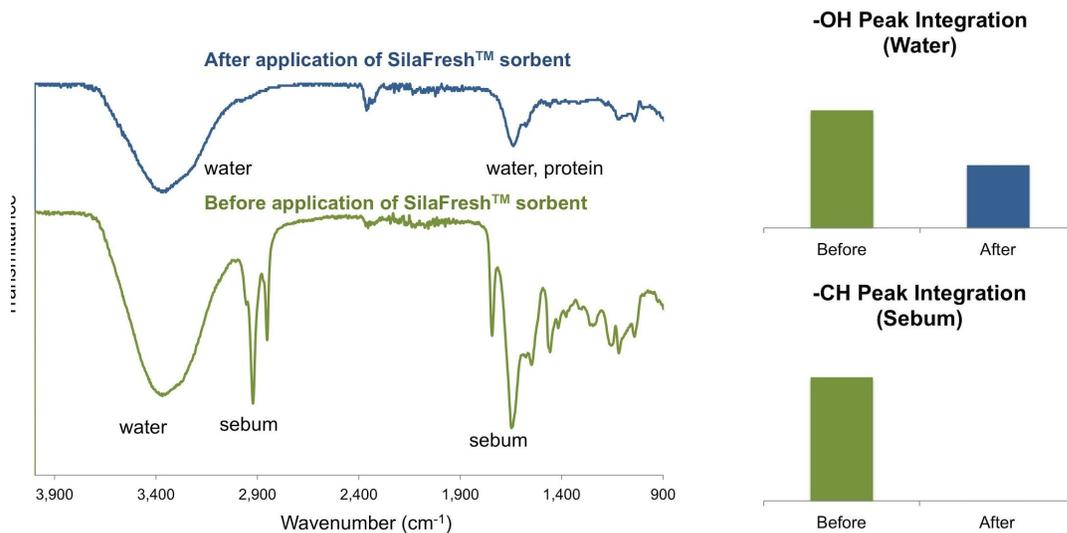
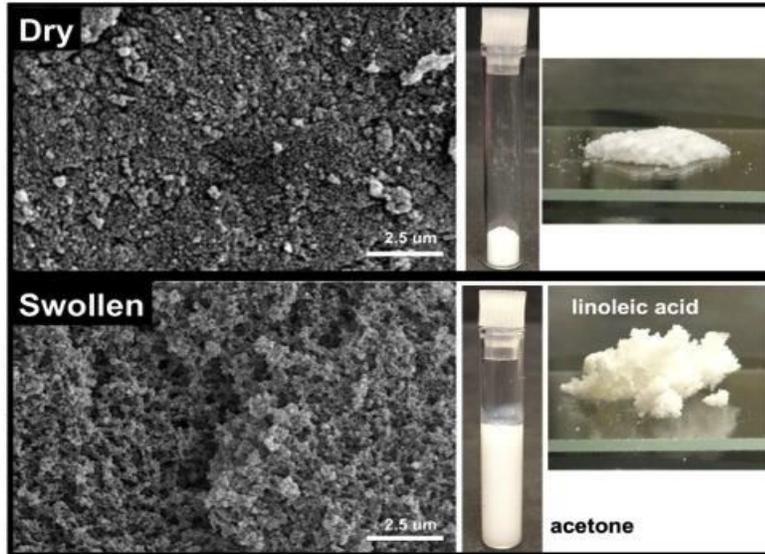


Figure 1. Above: Scanning electron microscopy shows how SilaFresh™ additive expands on the microscale to absorb large amounts of linoleic acid as a sebum simulant. **Below:** FT-IR-ATR spectroscopy of the skin before and after SilaFresh™ additive treatment shows complete removal of sebum without loss of hydration.

Summary



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ABS Materials has developed a unique material that can greatly improve many products in personal care and home care. SilaFresh additive has a greater capacity for sebum than other products on the market. SilaFresh additive can be incorporated into a variety of different formulations for sebum and oil removal.

Patent Portfolio

ABS Materials has 11 granted patents including composition of matter and applications such as personal care. Several key patents have been filed internationally including EU, Japan, China, Australia, Korea, Canada, Mexico, Brazil, India. The company also has 6 pending patents relevant to personal and home care applications. To date, there has been no limitations on field of use in personal care and home care.

Granted

7,790,830	Swellable sol-gels, methods of making, and use
8,367,793	Swellable materials and methods of use.
8,119,759	Swellable sol-gels, methods of making, and use thereof
8,217,131	Method for extracting a metal particulate from an aqueous solution...
8,563,649	Method of treating a material using a sol-gel derived composition
8,703,895	In-situ method and system for controlling the flow...
8,754,182	Sol-gel derived sorbent material containing a sorbate interactive material...
8,921,504	Method for removing ionic species contained in an aqueous phase...
14/481,077	Method for removing ionic species contained in an aqueous phase...
EP2601127	Method and system for applying force against a solid object...
14/156,326	Sorbent material and method for using the same.

Contact Information

For additional information regarding SilaFresh additive, please email info@absmaterials.com.