

Dow Corning[®] VM-2270 Aerogel Fine Particles

FEATURES

- White free-flowing powder
- Capable of absorbing non-polar and polar oils
- Thickening agent for organic oils and silicone fluids

BENEFITS

- Superior oil and sebum absorption
- Highly efficient viscosity enhancement of oil phase
- Fragrance retention

INCI Name: Silica Silylate

APPLICATIONS

- AP/Deo
- Skin care
- Fragrance
- Hair care

TYPICAL PROPERTIES

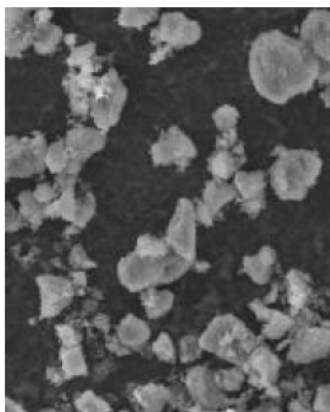
Specification Writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

Property	Unit	Value
Appearance		White, free-flowing, powder
Bulk density	kg/m ³	40-100
Average particle size	microns	5-15
Surface area	m ² /g	600-800
Porosity	%	>90

DESCRIPTION

The *Dow Corning*[®] VM-2270 Aerogel Fine Particles are supplied as a white free flowing powder. The particles are completely hydrophobic providing a vehicle for thickening oil phase materials, reducing the volatility of many volatile fluids and the absorption of many lipophilic materials including sebum.

Figure 1: S.E.M of *Dow Corning* VM-2270 Aerogel Fine Particles.



HOW TO USE

It is recommended to first disperse the *Dow Corning* VM-2270 Aerogel Fine Particles into a low molecular weight silicone or organic fluid and then add this pre-mix to the formulation with high shear mixing to break up any agglomerated particles.

When making an emulsion with the *Dow Corning* VM-2270 Aerogel Fine Particles, incorporate the particles into the oil phase and mix with high shear to break up any agglomerate particles.

Premixing the oil phase is preferred over post addition of the particles after the emulsion is made.

Recommended use level is 0.5 to 5%.

HANDLING PRECAUTIONS

Product safety information required for safe use is not included. Before handling, read product and safety data sheets and container labels for safe use, physical and health hazard information. The material safety data sheet is available on the Dow Corning website at www.dowcorning.com. You can also obtain a copy from your local Dow Corning sales representative or Distributor or by calling your local Dow Corning Global Connection.

USABLE LIFE AND STORAGE

When stored at or below 40°C (104°F) in the original unopened containers, this product has a usable life of 24 months from the date of production

PACKAGING

This product is available in 10kg box.

Samples are available in 1 liter bottles.

LIMITATIONS

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

HEALTH AND ENVIRONMENTAL INFORMATION

To support Customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Product Safety and Regulatory Compliance (PS&RC) specialists available in each area.

For further information, please see our website, www.dowcorning.com or consult your local Dow Corning representative.

LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that our products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

Dow Corning's sole warranty is that our products will meet the sales specifications in effect at the time of shipment.

Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

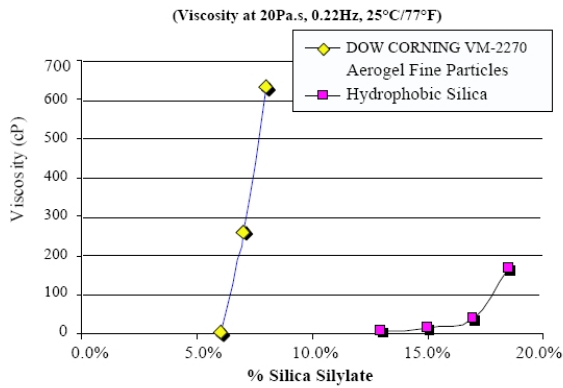
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DOW CORNING DISCLAIMS LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

We help you invent the future.™

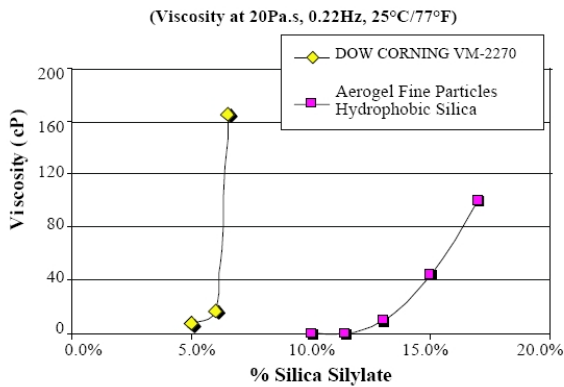
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Figure 2: Thickening effect in mineral oil₁.



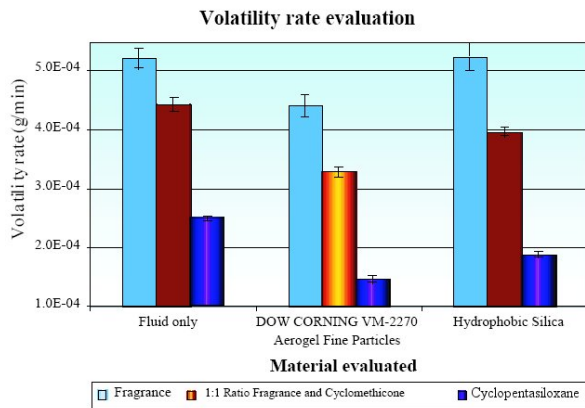
1. Data generated using Carrimed Rheometer

Figure 3: Thickening effect of Dimethicone (10cs)₁.



1. Data generated using Carrimed Rheometer

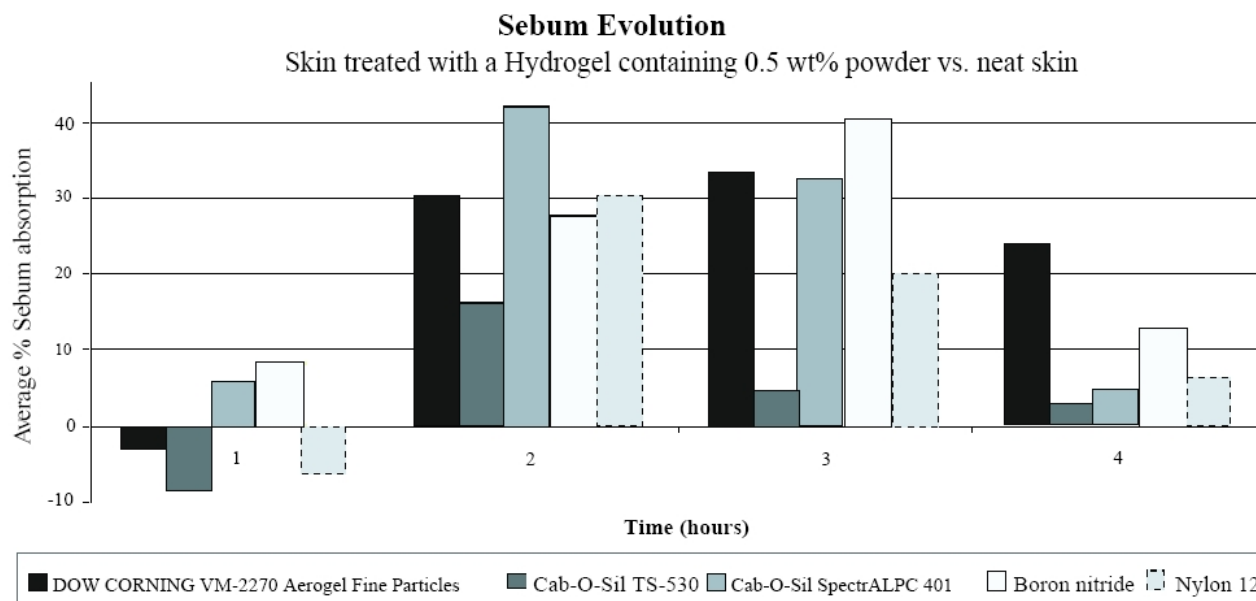
Figure 4: Volatility reduction evaluation₁.



(Results significant at 95% confidence level).

1. Weight loss measured at 20°C (68°F), 41% R.H. Fluids tested: XIAMETER® FMX-0245 Fluid and Fragrance Oil provided by Givaudan (Lot L400329). Cyclopentasiloxane

Figure 5: Sebum absorption.



1. Data generated using Sebumeter SM 810.

Table 1: Fluid absorption properties.

Ingredient	Absorption results (g fluid/g Aerogel)
Solvents	
Water	Not Compatible
Glycerin	Not Compatible
Esters	
Octyl palmitate	>15
Isopropyl myristate	>15
Oils	
Essential oil (lavender)	>10
Fragrance	7-10
Jojoba oil	8
Castor oil	6
Sunflower oil	>15
Mineral oil	>15
Retinyl palmitate	>10
Hydrocarbons	
Hydrogentate polyisobutylene	>10
Isododecane	>15
Silicones	
XIAMETER® PMX-0245 Cyclopentasiloxane	>15
Dow Corning® 5562 Carbinol Fluid	8-9
XIAMETER® PMX-200 Silicone Fluid, 10 cSt	10

Table 2: Prototype formulations.
HYDROGEL

Ingredients	INCI Name	Weight %	Supplier
Carbomer gel (1% in water)	Carbomer	50.0	Noveon Inc.
Water		38.5	
Propylene glycol	Propylene glycol	5.0	
<i>Dow Corning</i> VM-2270 Aerogel Fine Particles	Silica Silylate	0.5	Dow Corning
XIAMETER [®] PMX-0345 Cyclosiloxane Blend	Cyclopentasiloxane (and) Cyclohexasiloxane	6.0	XIAMETER

Procedure:

- a) Prepare the carbomer gel (1% water) and neutralize it with NaOH (10% solution).
- b) Put the carbomer gel in a beaker, add water and mix (1200rpm) using the carbomer propeller.
- c) Add propylene glycol and mix (1200rpm) until the batch becomes homogeneous.
- d) In a separate vessel, add XIAMETER[®] PMX-0345 Cyclosiloxane Blend to the powder and mix.
- e) When it is homogeneous, add the blend to the hydrogel and mix until complete homogenization.

ANTIPERSPIRANT

Ingredients	INCI Name	Weight %	Supplier
<i>Dow Corning</i> [®] 9040 Elastomer Blend	Cyclopentasiloxane (and) Dimethicone Crosspolymer	30.0	Dow Corning
XIAMETER [®] PMX-200 Silicone Fluid 10 cSt	Dimethicone	15.0	XIAMETER
XIAMETER [®] PMX-0245 Cyclopentasiloxane	Cyclopentasiloxane	29.0	XIAMETER
Aluminum chlorhydrate (reach 103)	Aluminum Chlorohydrate	25.0	Reheis Inc.
<i>Dow Corning</i> VM-2270 Aerogel Fine Particles	Silica Silylate	1.0	Dow Corning

Procedure:

- a) Mix all ingredients together and mix for 5 minutes at 500rpm, using a strong mixer (carbomer mixer).