



## PERSONAL CARE

# Film-formers for next-generation skin care and color cosmetics

Within each of us is an infinite capacity for beauty. Help consumers maximize and protect their beauty at every age with film-forming technologies from Dow ... and set your creative spirit free.

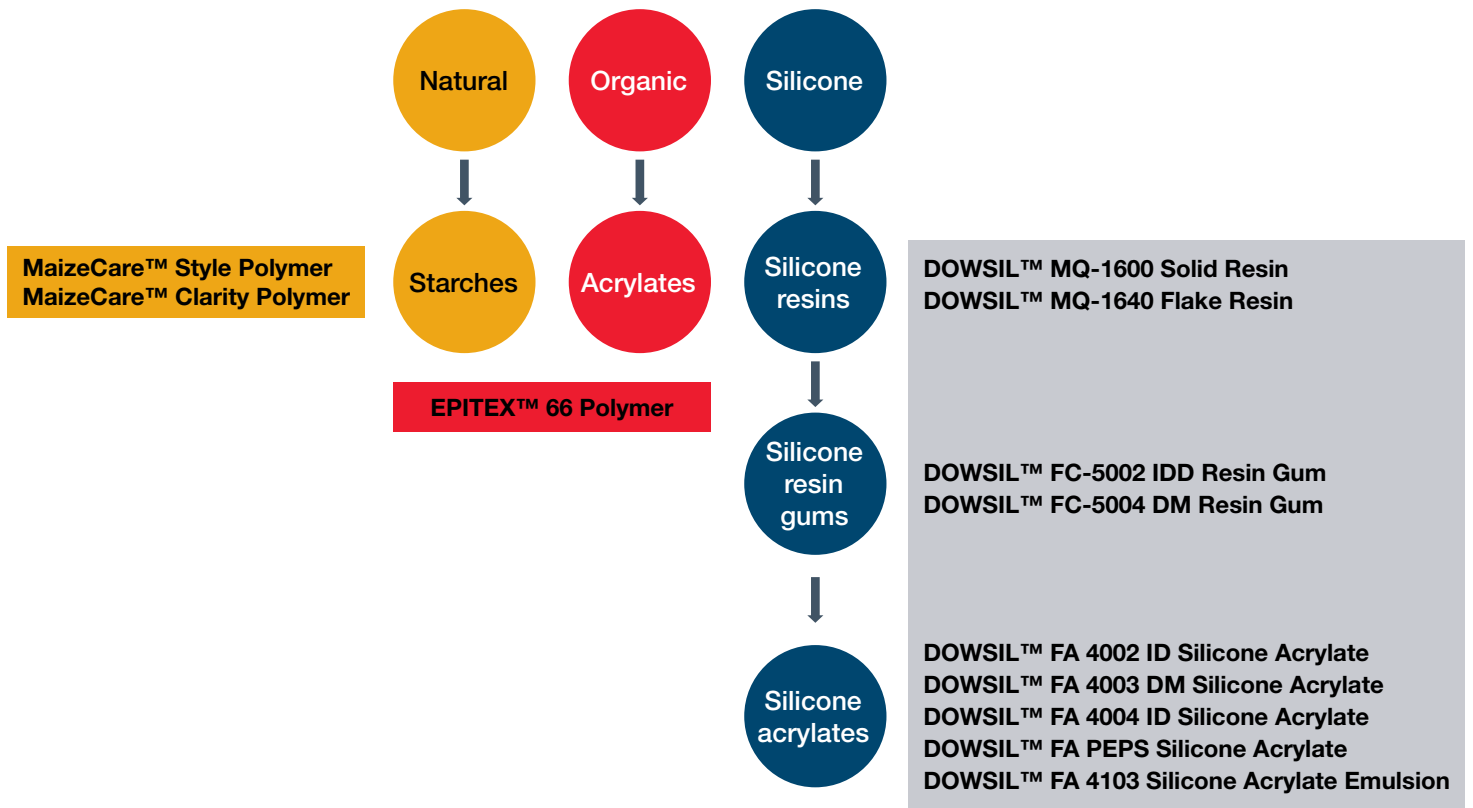
Film-formers are polymers capable of forming a cohesive and continuous film on keratinous surfaces with optimal adhesion and flexibility properties. They give you a different and complementary approach to meeting evolving consumer needs through the formation of a potentially long-lasting "second layer" over the skin.

This approach can be tailored:

- To your **application**
- To the **consumer's need**
- To deliver a **positive skin-care experience**



## Film formers from Dow – differentiation overview



## Offering ideal properties for personal care innovation

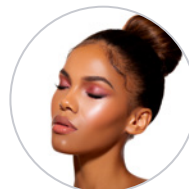
- Permeable to semi-occlusive
- Uniform and continuous
- Long-lasting and removable
- Comfort and sensory attributes



Skin Tightening



Sun Care



Long-Lasting  
Cosmetics



Skin Protection



Hair Care

Formulator Advantages	Consumer Advantages
<b>Multiple film-forming technologies</b> including from natural origin options available for greater versatility	<b>Use of non-occlusive materials</b> to preserve skin health and breathability
<b>Multiple carriers</b> available for greater formulation and manufacturing-process flexibility	<b>Variable film flexibility</b> for wearing comfort and enjoyment
<b>Good compatibility</b> with common cosmetic ingredients, allowing incorporation in common product types, such as face care, sun care and color cosmetics	<b>High sebum and water repellency</b> as well as <b>high rub-off resistance</b> properties to provide outstanding long-lasting benefits and a rewarding daily skin-care experience

## Explore our extensive film-former portfolio

TESTED WITH PURE FILM-FORMER AT 20% ACTIVE\* IN APPROPRIATE SOLVENT.

Technology	Product Trade Name	INCI Name	Visual Properties	Tactile Properties	Water Repellency <sup>1</sup>	Sebum Repellency <sup>1</sup>	Film Flexibility	Film Integrity <sup>2</sup>	Rub-Off Resistance <sup>3</sup>	Notes		
Silicone	Silicone MQ Resin	DOWSIL™ MQ-1600 Solid Resin	<b>Trimethylsiloxysilicate</b>	Clear and shiny film with resin aggregates appearing if volatile organic solvent is used	Hard, brittle	High	Medium	Low	Low	Medium	Solid resin that forms a hard film. Provides wash-off and sebum resistance. Compatible with organic carriers.	
		DOWSIL™ RSN-0749 Resin	Cyclopentasiloxane (and) <b>Trimethylsiloxysilicate</b>								Resin dispersion in volatile silicone carrier. Long-lasting.	
		DOWSIL™ 593 Fluid	Dimethicone (and) <b>Trimethylsiloxysilicate</b>								Resin dispersion in non-volatile silicone carrier. Provides wash-off resistance.	
	Silicone MQ/Tpropyl Resin Blend	DOWSIL™ MQ-1640 Flake Resin	<b>Trimethylsiloxysilicate (and) Polypropylsilsesquioxane</b>	Clear and shiny film with resin aggregates appearing if volatile organic solvent is used	Medium hard, slightly brittle	High	Medium	Low	Low	Medium	Solid resin that forms a semiflexible film. Provides wash-off, water and sebum resistance and is comfortable to wear. Compatible with organic carriers. Tightens skin.	
		DOWSIL™ FC-5002 IDD Resin Gum	Isododecane (and) <b>Trimethylsiloxysilicate/Dimethiconol Crosspolymer</b>	Clear and shiny film with no cracks appearing upon solvent evaporation	Soft, not brittle	High	Very high	High	Low to very high, depending on solvent	High	Ideal for foundation and eye shadow where sebum repellency and comfort are critical	
	DOWSIL™ FC-5004 DM Silicone Resin Gum	Dimethicone (and) <b>Trimethylsiloxysilicate/Dimethiconol Crosspolymer</b>										
	Silicone Acrylates	High Tg	DOWSIL™ FA 4001 CM Silicone Acrylate	Cyclopentasiloxane (and) <b>Acrylates/Polytrimethylsiloxymethacrylate Copolymer</b>	Clear and shiny film with few cracks appearing upon solvent evaporation	Slightly brittle	High	High	Low	Low	Very high	Silicone acrylate copolymer that forms a long-lasting, hard film with washoff, friction and transfer resistance. Good oil compatibility.
			DOWSIL™ FA 4002 ID Silicone Acrylate	Isododecane (and) <b>Acrylates/Polytrimethylsiloxymethacrylate Copolymer</b>								Silicone acrylate copolymer that forms a long-lasting, hard film with wash-off, friction and transfer resistance. Good oil compatibility. Provides protection against pollutants and tightens skin.
		Low Tg	DOWSIL™ FA 4003 DM Silicone Acrylate	Dimethicone (and) <b>Acrylates/Polytrimethylsiloxymethacrylate Copolymer</b>	Clear and shiny film with no cracks appearing upon solvent evaporation	Soft, not brittle	High	High	High	Low to medium, depending on solvent	Very high	Silicone acrylate copolymer that forms a long-lasting, flexible film that is comfortable to wear. Also provides wash-off, rub-off, sebum and transfer resistance. Good oil compatibility. Provides protection against pollutants.
			DOWSIL™ FA 4004 ID Silicone Acrylate	Isododecane (and) <b>Acrylates/Polytrimethylsiloxymethacrylate Copolymer</b>								
DOWSIL™ FA 4103 Silicone Acrylate Emulsion			<b>Acrylates/Polytrimethylsiloxymethacrylate Copolymer (and) Laureth-1 Phosphate</b>	Clear and shiny film with no cracks appearing upon solvent evaporation	Soft, not brittle	High	Very high	High	Very high	Very high	Ideal choice for water-based formulations for foundation and mascara	
DOWSIL™ FA PEPS			Undecane (and) Tridecane (and) <b>Acrylates/Polytrimethylsiloxymethacrylate Copolymer</b>	Clear and shiny film with no cracks appearing upon solvent evaporation	Soft, not brittle	High	High	High	Low to medium, depending on solvent	Very high	Excellent choice for foundation and lipstick where comfort and long wear are critical, allows formulations with a higher naturality content	

<sup>1</sup> Based on contact angle measurement (2 minutes after droplet deposition).

<sup>2</sup> Based on film integrity test (amount of diffused dye after 6 hours).

<sup>3</sup> Tested by colourimeter at 5% active with 10% pigment ( $\Delta E$  of transferred pigment on felt after 50 abrasion cycles).

\* 20% in active for all tested properties, except Rub-off resistance: 5% active

## Explore our extensive film-former portfolio (continued)

TESTED WITH PURE FILM-FORMER AT 20% ACTIVE\* IN APPROPRIATE SOLVENT.

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<b>Organic</b>	Organic Acrylates	EPITEX™ 66 Polymer	Acrylates Copolymer	Clear and shiny film with no cracks appearing upon solvent evaporation	Soft, not brittle	Low	Low	High	Very high	Very high	An organic film former for sunscreens and color cosmetics. Excellent water resistance, low cost in use.

<b>Starches</b>	Natural Starches	MaizeCare™ Style Polymer	Hydrolyzed Corn Starch	N.A.	N.A.	Low	Low	N.A.	N.A.	Very high	Ideal choice for water-based formulations, leading to long wear resistance including tightening and soft-focus claims, naturally derived film former
		MaizeCare™ Clarity Polymer									Ideal choice for water-based formulations, leading to long wear resistance including tightening and soft-focus claims, naturally derived film former, allows clear formulations

<sup>1</sup> Based on contact angle measurement (2 minutes after droplet deposition).

<sup>2</sup> Based on film integrity test (amount of diffused dye after 6 hours).

<sup>3</sup> Tested by colorimeter at 5% active with 10% pigment (ΔE of transferred pigment on felt after 50 abrasion cycles).

<sup>4</sup> N.A. for MaizeCare™ Polymers due to incompatibility with substrate.

\*20% in active for all tested properties, except Rub-off resistance: 5% active

## Create Innovations with Dow

Accelerating innovation to the **point of differentiation** with finished product concepts for brand owners around the world

### For more information

For technical data sheets, product samples and thought-starting formulations, visit [dow.com](http://dow.com).

### How can we help you today?

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