



# Formulator Report:

## Nonwoven Face Mask with Floraesters K-20W<sup>®</sup> Jojoba



**Floraesters K-20W Jojoba increases skin hydration, elasticity and firmness, reduces the appearance of pores and fine lines, and enhances consumer perception in both American and Asian subjects when included in a nonwoven face mask.**

**Floraesters K-20W Jojoba** [INCI: Hydrolyzed Jojoba Esters (and) Water] is a multifunctional ingredient that has been utilized and/or tested in a variety of cosmetic and personal care formulations such as creams/lotions, hand sanitizers, nonwoven wipes, sunscreens, sunless tanners, shampoos/conditioners, toners/astringents, and face washes.<sup>1</sup> Its film-forming properties make it ideal for rinse-off products and products that require water resistance or to extend the period of residence time on the skin.

The substantivity of Floraesters K-20W Jojoba makes it well-suited to entrap molecules at the skin surface. For example, in combination with glycerin, Floraesters K-20W Jojoba enhances skin moisturization;<sup>2</sup> sunscreen actives in combination with Floraesters K-20W Jojoba are retained on the skin after water immersion;<sup>3</sup> and many fragrances are retained on the skin longer in the presence of Floraesters K-20W Jojoba.<sup>4</sup> Clinical studies have also shown that Floraesters K-20W Jojoba is effective at reducing the appearance of irritation-associated erythema, as well as affecting skin barrier function and restoration.<sup>5</sup>

The botanically-derived Floraesters K-20W Jojoba is Ecocert certified, and EU and China REACh compliant.

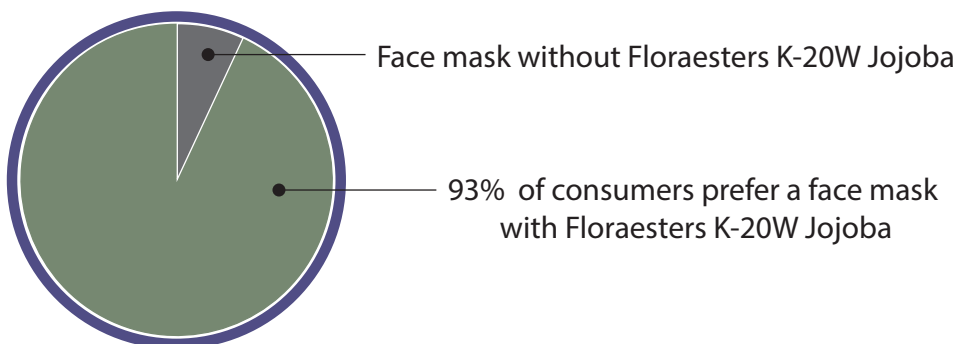
### Clinical Study Facts<sup>6</sup>:

In double-blind, vehicle-controlled, take-home, consumer-use studies, Floraesters K-20W Jojoba in a nonwoven face mask produced the following benefits:

- Improved skin hydration by more than 20% (**Figure 1**)
- Improved skin elasticity and firmness significantly better than the face mask without (**Figure 1**)
- Significantly reduced the appearance of pores and fine lines (**Figure 2**)
- Reduced the appearance of pores in 80% of subjects (**Figure 2**)
- Favored by 93% of surveyed American subjects for overall product performance (**Figure 3**)
- Favored by greater than 60% of surveyed American subjects for other skin and product attributes such as improved skin softness/smoothness, product absorbency, and pleasing texture of the product (**Figures 3 and 4**)
- Favored by 88% of surveyed Asian subjects for overall product performance preference (**Figure 5**)
- Favored by greater than 60% of surveyed Asian subjects for other skin and product attributes such as improved skin softness/smoothness, decreased skin redness, and pleasing texture of the product (**Figures 5 and 6**)

### Formulation Benefits:

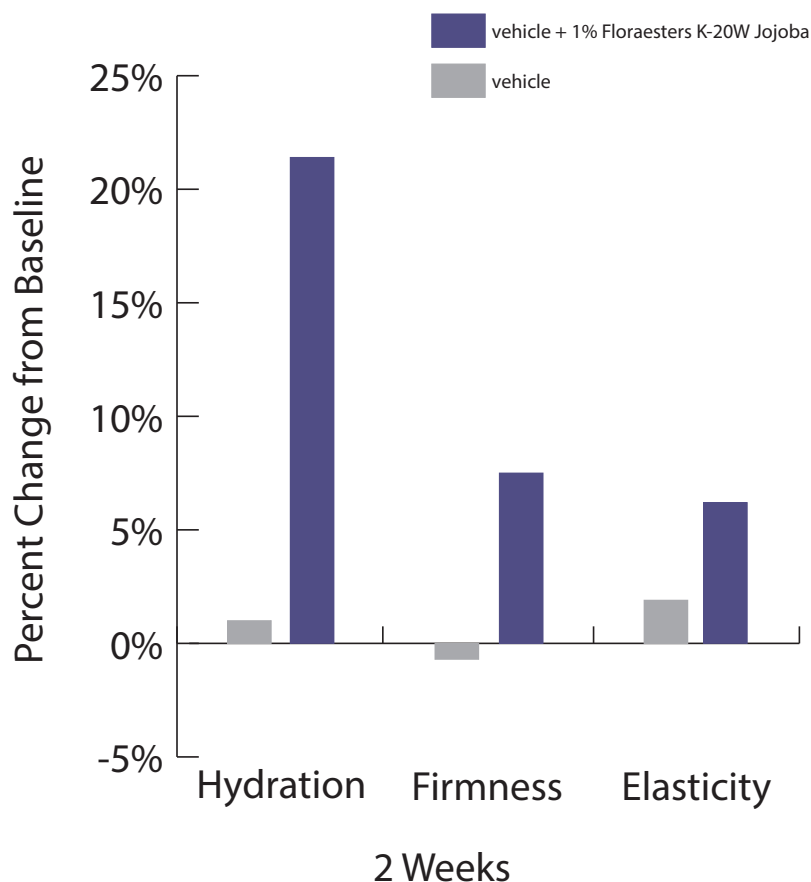
- Emolliency remains after rinse-off
- Results in rich emolliency on skin
- Substantivity
- Water resistant
- Soluble in most alcohols and glycols
- Botanically derived
- Readily biodegradable<sup>7</sup>



1. Cargill has not tested Floraesters K-20W Jojoba in final OTC drug formulations. Compliance with FDA regulations is the responsibility of the customer.  
2. See Claim Sheets 09-013, 09-014, 10-017, 10-024, and 13-052 for more information.  
3. See Claim Sheet 10-018 for more information.  
4. M Cummings. Built to last. *Soap, Perfumery & Cosmetics*. November 2001.  
5. See Claim Sheets 11-035 and 11-036 for more information.  
6. Final Reports available upon request. Figures can be found on the next two pages of this document.  
7. Biodegradable according to OECD 301B.

**Figures<sup>8</sup>:**

**Floraesters K-20W Jojoba Improved Skin Hydration, Firmness, and Elasticity**



**Figure 1:** The test article containing 1% Floraesters K-20W Jojoba produced statistically significantly ( $p < 0.05$ ) higher percent changes in skin hydration and firmness than the vehicle test article. The test article containing 1% Floraesters K-20W Jojoba also resulted in statistically significant increases ( $p < 0.05$ ) in skin elasticity, which was not seen for the test article without Floraesters K-20W Jojoba. (See Claim Sheet 14-059.)

**Floraesters K-20W Jojoba Reduced the Appearance of Pores and Fine Lines**

Skin Health Parameter 2 Weeks	Test Article	Mean Difference (count)	Subjects that Showed a Decrease (%)
Enlarged Pores	Vehicle + 1% K-20W	-115	80%
	Vehicle	-21	56%
Fine Lines	Vehicle + 1% K-20W	-5	67%
	Vehicle	2	40%

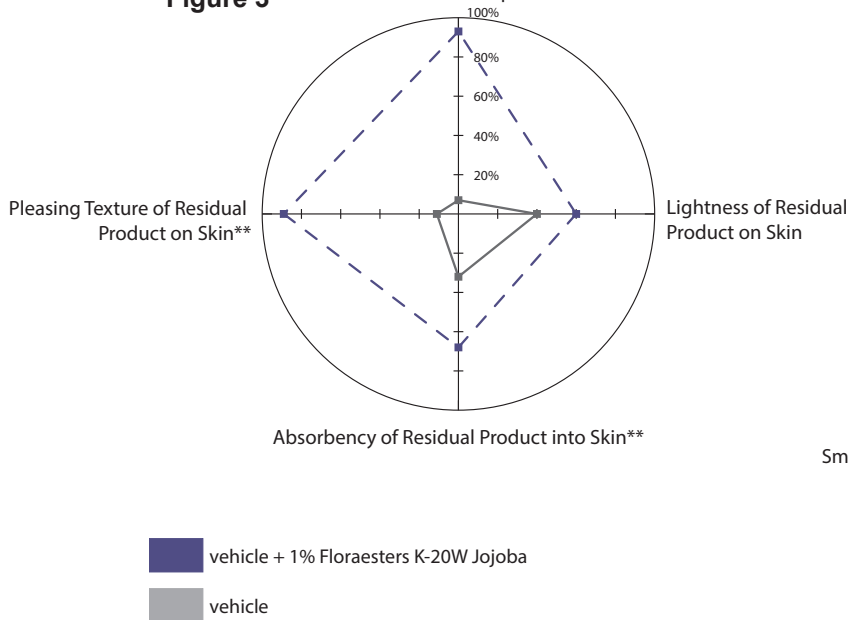
**Figure 2:** As shown in the table above, 1% Floraesters K-20W Jojoba in a face mask produced statistically significant decreases ( $p < 0.05$ ) in the appearance of pores (as determined by enlarged pore counts) and fine lines compared to the vehicle after two weeks of once-daily test article use (20 minute applications). (See Claim Sheet 14-060.)

8. All studies were conducted double-blind, vehicle-controlled, and randomized.

# Ninety-three Percent of American Subjects Preferred a Nonwoven Face Mask with Floraesters K-20W Jojoba

**Figure 3**

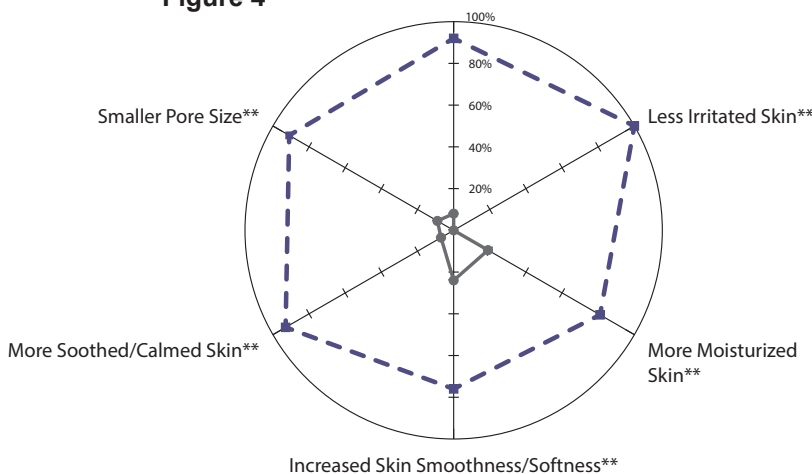
Overall Face Mask Experience\*\*



**Figures 3 and 4:** Ninety-three percent of consumers prefer a nonwoven face mask with 1% Floraesters K-20W Jojoba compared to a face mask without. Statistical (\*\*) significance was apparent where indicated ( $p < 0.05$ ). (See Claim Sheet 14-057.)

**Figure 4**

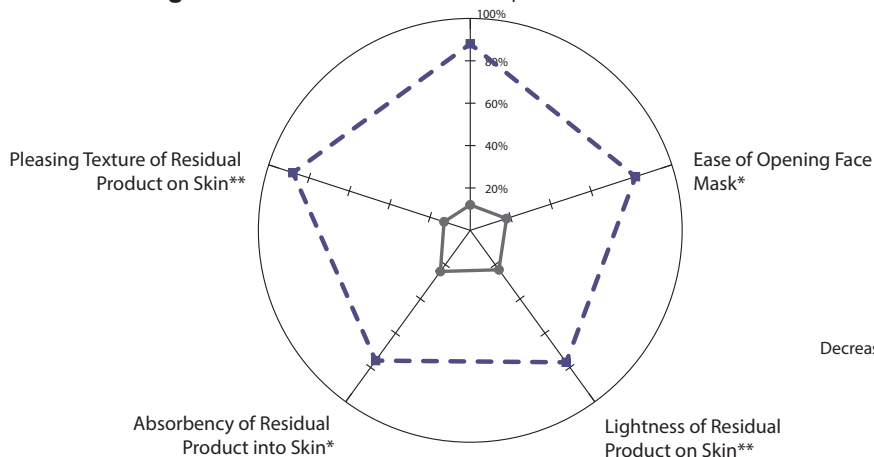
Overall Product Performance\*\*



# Eighty-eight Percent of Asian Subjects Preferred a Nonwoven Face Mask with Floraesters K-20W Jojoba

**Figure 5**

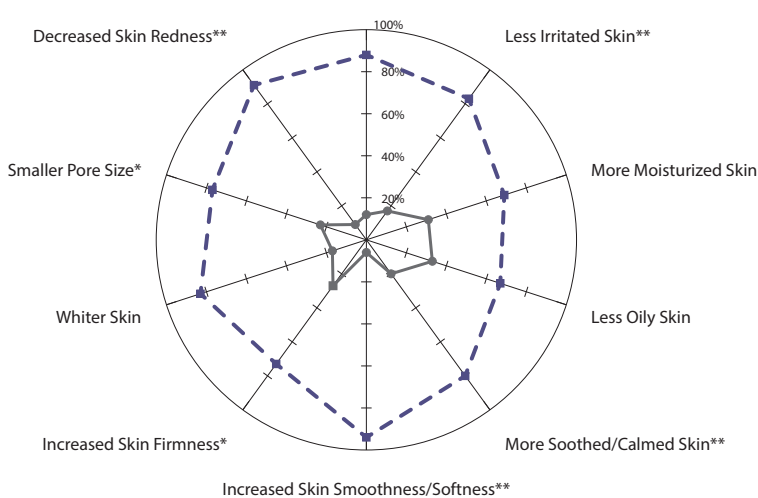
Overall Face Mask Experience\*\*



vehicle + 1% Floraesters K-20W Jojoba  
vehicle

**Figure 6**

Overall Product Performance\*\*



**Figures 5 and 6:** Eighty-eight percent of Asian subjects preferred a nonwoven face mask with 1% Floraesters K-20W Jojoba compared to a face mask without. Statistical (\*\*) and directional (\*) significance was apparent where indicated ( $p < 0.05$  and  $p < 0.1$ , respectively). (See Claim Sheet 14-058.)

## Formula: Moisturizing Face Mask with Floraesters K-20W Jojoba<sup>9</sup>

This nonwoven face mask, featuring Floraesters K-20W Jojoba, demonstrates the synergistic moisturizing effect of Floraesters K-20W Jojoba with glycerin.<sup>10</sup> The inclusion of Floraesters K-20W Jojoba enhances consumer preference for increased smoothness/softness, increased skin firmness, and overall product preference.

Phase	Trade/Common Name	INCI Name	Manufacturer	% wt./wt.
A	-----	Butylene Glycol	-----	4.00
	-----	Chlorphenesin	-----	0.05
B	-----	Xanthan Gum	-----	0.12
	-----	Hydroxyethylcellulose	-----	0.06
	-----	Sodium Hyaluronate	-----	0.02
C	-----	Glycerin	-----	1.50
	<b>Floraesters K-20W Jojoba</b>	<b>Hydrolyzed Jojoba Esters (and) Water (Aqua)</b>	<b>Floratech</b>	<b>1.00</b>
	-----	PEG-40 Hydrogenated Castor Oil	-----	0.40
D	Deionized Water	Water	-----	q.s.
E	-----	PEG-4 Laurate, Iodopropynyl Butylcarbamate	-----	0.04
	Preservative <sup>11</sup>	Preservative	-----	q.s.
			<b>Total</b>	<b>100.00</b>

## Formula: Face Mask without Floraesters K-20W Jojoba

Phase	Trade/Common Name	INCI Name	Manufacturer	% wt./wt.
A	-----	Butylene Glycol	-----	4.00
	-----	Chlorphenesin	-----	0.05
B	-----	Xanthan Gum	-----	0.12
	-----	Hydroxyethylcellulose	-----	0.06
	-----	Sodium Hyaluronate	-----	0.02
C	-----	Glycerin	-----	1.50
	-----	PEG-40 Hydrogenated Castor Oil	-----	0.40
D	Deionized Water	Water	-----	q.s.
E	-----	PEG-4 Laurate, Iodopropynyl Butylcarbamate	-----	0.04
	Preservative <sup>11</sup>	Preservative	-----	q.s.
			<b>Total</b>	<b>100.00</b>

### Procedure:

1. In the main vessel, mix the ingredients of Phase A at 50°C until completely dissolved. Maintain vessel at 50°C.
2. Add the ingredients of Phase B to Phase A.
3. In a separate vessel, heat the ingredients of Phase C with mixing to 50°C. Add Phase C to Phase AB.
4. Add Phase D to Phase ABC with mixing.
5. Add the ingredients of Phase E to Phase ABCD and mix until homogeneous.
6. Apply product to nonwoven face mask.

Ingredient Information  
24/7 Online

**iLabel**<sup>®</sup>  
www.floratech.com/info



Floraesters  
K-20W Jojoba

9. INCI/Trade names must be verified with each manufacturer.

10. Face masks were manufactured by Maxigen Biotech Inc. (New Taipei City, Taiwan). Please contact Maxigen Biotech Inc. for additional information.

11. Preservative: Methylisothiazolinone