

# Silplex® J2-S-PG

## Silquat® Complex



### INNOVATIVE SILICONE SPECIALTIES

#### DESCRIPTION

**Silplex® J2-S-PG** is a unique ionic complex of a silicone quaternary compound and an anionic silicone compound. This product is our **Silplex J2-S** reformulated into the preferred propylene glycol solvent. The INCI name is *Silicone Quaternium-20 and propylene glycol*.

#### TYPICAL PROPERTIES

PROPERTY	Silplex J2-S-PG
Appearance	Clear Light Yellow Liquid
Colour, Gardner	2
Viscosity, cps	700
Solid Content %	80%
Solvent	Propylene Glycol
<b>Solubility (1%/10%)</b>	
Water	Soluble/Soluble
IPA	Soluble/Soluble
Mineral Oil	Insoluble/Insoluble

#### USES AND APPLICATIONS

**Silplex J2-S-PG** is water-soluble, alcohol soluble and hydro alcoholic soluble, has good compatibility with anionic surfactants and provides outstanding conditioning to hair and skin.

**Silplex J2-S-PG** especially imparts outstanding hair conditioning in 2-in-1 shampoos. It also provides a smooth silky feel to skin and can be used for shaving products.

**Silplex J2-S-PG** provides maximum dry combability.

**Silplex J2-S-PG** is non-irritating and very mild to the skin and eye allowing its use in baby shampoos and other highly sensitive applications.

#### Key Features And Benefits:

- Water Soluble Conditioning Agent
- Maximum Dry Combability
- Non-irritating
- Profoamer
- Soft, Silky Feel

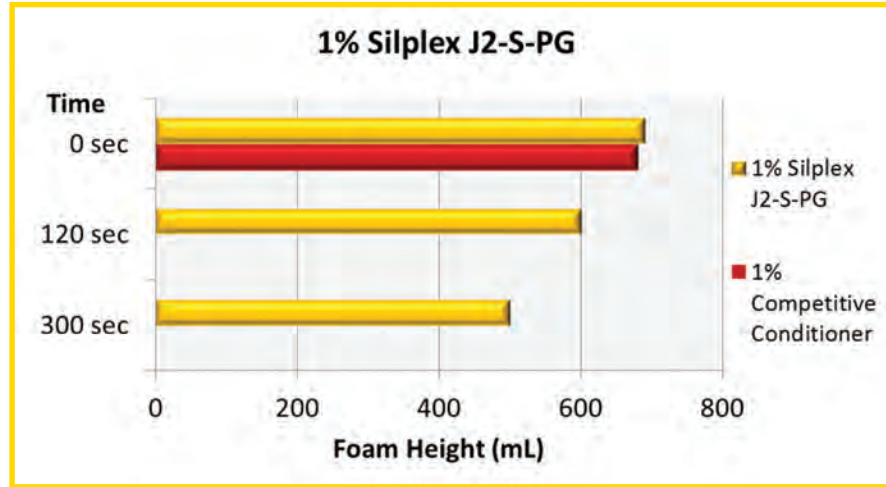
Typical use levels are 0.5 – 5%.

## APPLICATIONS DATA

Unlike most conditioning agents, **Silplex J2-S-PG** will stabilize foam in solution without additional surfactants. **Figure 1** shows the foam height of a 1% solution of **Silplex J2-S** at 0, 2, and 5 minute intervals after 20 seconds of sparge compared to a typical competitive silicone conditioning agent. Initial foam heights are similar but then the competition shows no foam stabilization.

Due to its ability to stabilize foam on its own, **Silplex J2-S-PG** will not harm the foam generation qualities of a shampoo in which it is formulated.

**FIGURE 1: FOAM HEIGHT**



**Silplex J2-S-PG** was formulated into the basic 2-in-1 conditioning shampoo (**Table 1**) and evaluated on 10 inch virgin brown hair tresses with 1 gm of the shampoo. Wet and dry combability was assessed and rated from 1-5 with 5 being the best.

**TABLE 1: CONDITIONING SHAMPOO FORMULATION**

PHASE A	GRAMS	PHASE B	GRAMS
D.I. Water	44.4	Citric Acid (40% aq)	q.s.
Silsurf® A208	0.4	Silplex® J2-S-PG	2.0
Na <sub>2</sub> EDTA	0.1	Nipaguard DMDMH	0.4
Sodium Laureth-2 Sulfate	33.5	Sodium Chloride	0.5
Cocamidopropyl Betaine	6.0	Crothix (PEG-150 Pentaerythrityl Tetrastearate)	0.2
Decyl Glucoside	3.0		
Disodium Cocoamphodiacetate	3.0		
DMDM Hydantoin	0.7		
Wheat Protein	0.5		

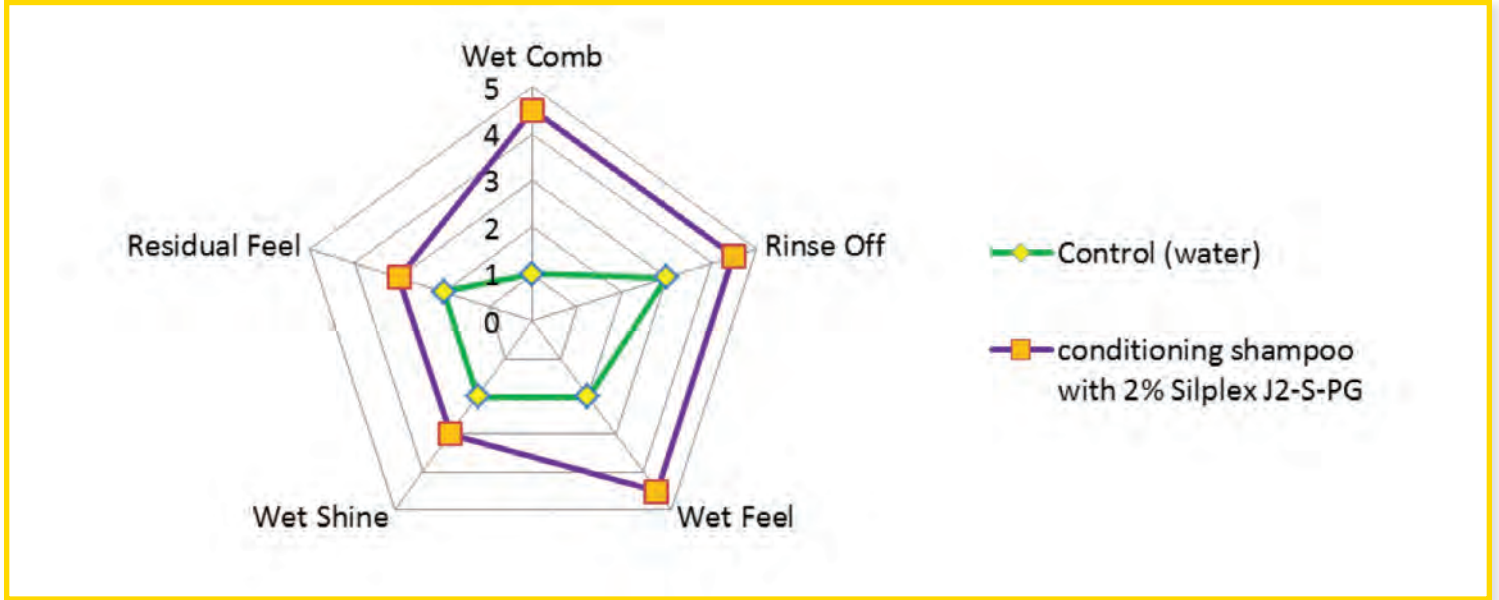
### Procedure:

1. Equip a clean container with a propeller mixer and add the water.
2. Slowly add the rest of the Phase A ingredients one by one with light stirring to minimize the incorporation of air.
3. Add the **Silplex J2-S-PG** and Nipaguard DMDH from Phase B.
4. Adjust pH with citric acid to between 5.0 and 6.5.
5. Add NaCl and up to 2% Crothix to adjust the viscosity from 3,600 to 12,000 cps.

The formulation with **Silplex J2-S-PG** was clear, pH 6.3, 8,300 cps and stable for more than four weeks at ambient conditions.

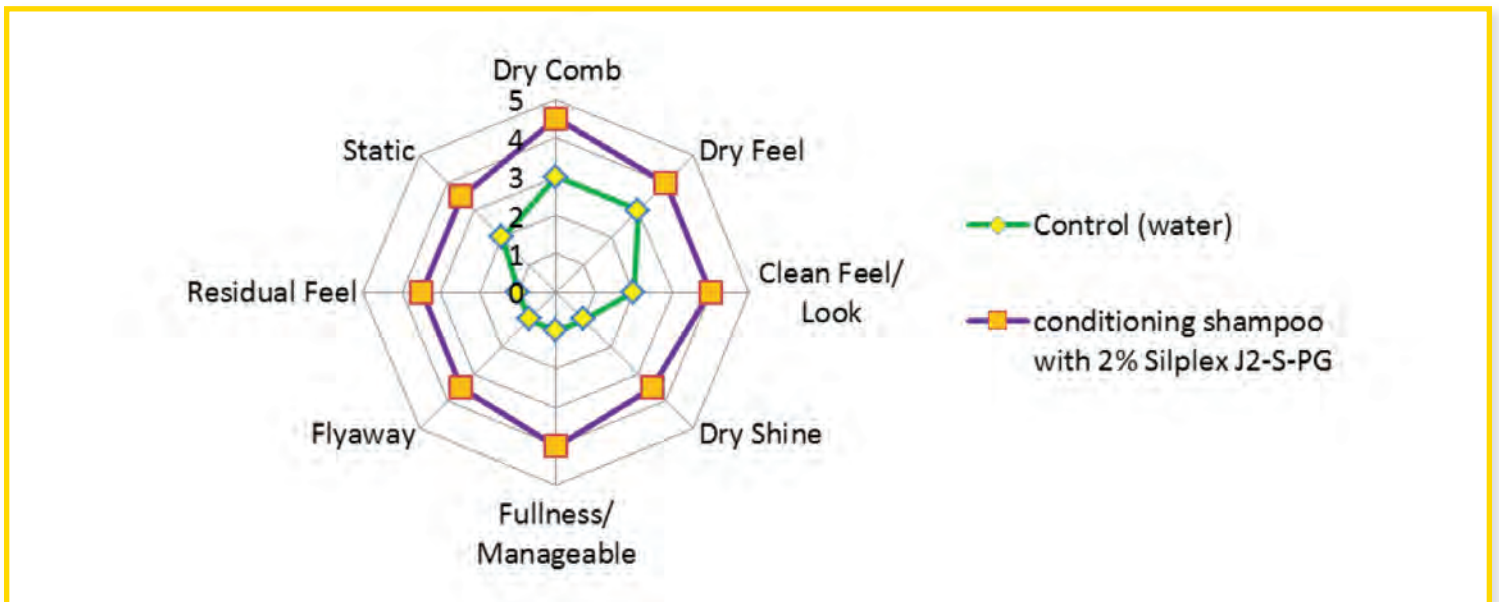
**Figure 2** shows the conditioning effects of **Silplex J2-S-PG** with wet hair. Shine, feel and combability are all strongly improved.

**FIGURE 2**



**Figure 3** shows the effects of **Silplex J2-S-PG** in dry hair. All properties are strongly improved over the shampoo without a conditioning agent.

**FIGURE 3**





## INNOVATIVE SILICONE SPECIALTIES

### APPLICATIONS DATA CONTINUED

More information is available in the following reference: O'Lenick T., "Anionic/cationic complexes in hair care", *J. Cosmet. Sci.* 2011 Mar-Apr; 62(2):209-28.

Detailed experimental data is available on request or the relevant technical papers can be downloaded from our website [www.siltech.com](http://www.siltech.com).

### SAFETY

Before handling, read the Material Safety Data Sheet and container label for safe use, physical and health hazard information.

### STORAGE AND SHELF LIFE

When stored in the original, unopened containers between 10 and 40°C, **Silplex J2-S-PG** has a shelf life of 36 months from date of manufacture.

### PACKAGING

**Silplex J2-S-PG** is available in 20 Kg and 200 Kg containers.

### LEGAL DISCLAIMER

Siltech believes that the information in this technical data sheet is an accurate description of the typical uses of the product. Siltech, however, disclaims any liability for incidental or consequential damages, which may result from the use of the product that are beyond its control. Therefore, it is the user's responsibility to thoroughly test the product in their particular application to determine its performance, efficacy and safety. Nothing contained herein is to be considered as permission or a recommendation to infringe any patent or any other intellectual property right.

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