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TECHNICAL DATA SHEET

SilPlex® J2-S

Silicone Quaternary Complex

DESCRIPTION

SilPlex® J2-S is a unique complex of a quaternary silicone compound and an anionic silicone compound. The resulting **Silplex J2-S** complex is water soluble, has good compatibility with anionic surfactants and provides outstanding conditioning to hair and skin. The INCI name for **SilPlex J2-S** is Silicone Quaternium-20 and the CAS number is 280569-78-0.

TYPICAL PROPERTIES

Appearance	Clear Light Yellow Liquid
Colour, Gardner	2
Specific Gravity	1.04
Water Solubility (1%)	Soluble
Activity, %	80
Solvent	Hexylene Glycol
Viscosity @ 25°C, cps	700

USES AND APPLICATION

Silplex J2-S is a water-soluble, alcohol soluble and hydro-alcoholic soluble silicone that imparts outstanding hair and skin conditioning as well as excellent shine. It also provides a smooth silky feel to skin and can be used for shave products. **Silplex J2-S** has no effect on foam, clarity or viscosity of the shampoo base. **Silplex J2-S** is very mild to the skin and eye making its use in baby shampoos an important application.

Silplex J2-S is typically used at concentrations ranging from 0.5 - 3.0% by weight.

APPLICATION DATA

Silplex J2-S was evaluated for conditioning and formulation impacts in a standard anionic 2-in-1 shampoo base. Two controls were used, the base shampoo without conditioning agent and a comparable use level of **Silquat® J208-1B**, a quaternary ammonium silicone conditioning agent.

The base formulation is shown in Table 1. The **Silplex J2-S** infused shampoo formulation was completely clear and had the same viscosity and foam height as the base without conditioning agent. Comparatively the **Silquat J208-1B** activated shampoo formulation was slightly hazy with less foam and a slightly reduced viscosity. All three formulations were light yellow in color.

Table 1: Shampoo Base

Ingredient	%
Water	q.s.
Sodium laureth-2 sulfate	30.00
Cocamidopropyl betaine	7.00
Cocamide DEA	4.00
Na ₂ EDTA	0.10
Silquat® J208-1B or SilPlex® J2-S	2.50
Germaben II	1.00
Citric Acid (25% solution)	to pH 6.65 to 6.80

These three shampoo formulations were evaluated for wet and dry combing on 10 inch Virgin Brown Hair. Three 2 gram swatches of hair with 1 gram of shampoo for each swatch were evaluated. The water temperature used for wetting and rinsing the hair was a constant 25°C. All the swatches were rinsed until squeaky clean in 25°C tap water or for at least one minute.

The wet hair swatches were evaluated and scored from 1-5 where 5 represents the best conditioning. The swatches were left to air dry and then the dry comb evaluations were similarly conducted. Results are shown in Tables 2 and 3.

SilPlex® J2-S is an excellent conditioning agent for use in a 2 in 1 shampoo. In addition, added sheen and softness was observed to color treated hair. It left the hair silky soft with no residual feel and the combing was without any tugging or pulling. The shine was far superior to that provided by the **Silquat® J208-1B**. Overall, **SilPlex J2-S** provides conditioning comparable to high molecular weight dimethicone, yet in a clear product.

Table 2: Wet Combing Results

WET COMBING EVALUATION			
	Shampoo Base	Silquat® J208-1B	SilPlex® J2-S
Wet Comb	1	4	5
Rinse Off	3	4	5
Clean Feel	1	4	5
Shine	3	4	5
Average	2	4	5

Table 3: Dry Combing Results

DRY COMBING EVALUATION			
	Shampoo Base	Silquat® J208-1B	SilPlex® J2-S
Dry Comb	2	4	5
Feel	2	4.5	5
Manageability	2	4	5
Shine	3	5	5
Clean Look	2	4	5
Flyaway	2	3	4.5
Static	2	3	4.5
Residual feel	3	4.5	5
Average	2.25	4.0	4.9

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** has a shelf life of 36 months from date of manufacture.

PACKAGING

Silplex J2-S is available in 20kg and 200kg plastic containers

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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