

## Liquid PK-SG\* Processing Instructions

\*Made with 100% RSPO certified segregated sustainable Palm Kernel Oil.

The **Liquid PK-SG** provides a simple way of producing a variety of Personal Care and Household Cleaning Products that can then be marketed as using 100% RSPO Sustainable Palm Kernel Oil\*.

The use of **Liquid PK-SG** allows you to efficiently and cost effectively manufacture a range of cleansing products including Hand Washes, Hand Foamers, Foam Baths, Cleaning Products and much more. Opaque cleansing products can be produced by the addition of **Opacifiers**, thereby increasing the number of possible variants.

Simply dilute the **Liquid PK-SG** with softened or Deionised water, add further Chelate, perfume, colour and preservative of your choice, proceed to thicken with your selected thickener, such as Cellulose Gum- (**Note- Salt cannot be used**). Surfactants can be added to the **Liquid PK-SG** to both lower pH and/or enhance cleansing properties such as foaming (*more of a factor once diluted*) the soap base can also be used as a replacement or part replacement of surfactants themselves in product formulation.

Like all water based personal care products, Liquid PK-SG is susceptible to microbial contamination. Good hygiene and manufacturing practices must be carried out when using this product at alltimes.

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*\*100% RSPO Claim can only be made if the filler / co packer conforms to RSPO Guidelines & Procedures.*

We have a growing portfolio of RSPO [certified soap bases](#), for more information you can view our RSPO profile at

<http://www.rspo.org/members/584/Stephenson-Group-Ltd>

and review our progress at <http://www.rspo.org/>



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## KEY FACTORS

Below are the Key Factors to be aware of when using **Liquid PK-SG**, on any further dilution this soap base will require – **CHELATING & PRESERVATION.**

## COLD PROCESS

**Liquid PK-SG** is a **COLD PROCESS** base- therefore no heat is required during the processing / formulation of finished products using this liquid soap.

## INGREDIENT LIST

Aqua  
\*Potassium Palm Kernelate  
\*\*Glycerin  
Citric Acid  
Potassium Citrate

*\*Made with 100% RSPO certified segregated sustainable Palm Kernel Oil.*

*\*\*Derived from Palm Kernel Oil, during the soap making Process.*

## PHYSICAL PROPERTIES

Appearance: Amber/Clear Yellow Liquid  
FFA as Stearic (MW 282) : 0.7 - 1.1%  
Non Volatile Solids: 42% - 45%  
pH (neat) 25°C : 10.0- 10.5

## PROCESSING STEPS

1-WATER + CHELATE 2- DILUTION OF SOAP 3- PRESERVE 4-FRAGRANCE 5-  
COLOUR  
6-THICKEN 7-STABILITY

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## 1. DILUTION

Diluting the **Liquid PK-SG** must be done with Softened Water / Deionised water. **ANY FURTHER** dilution from the concentrate requires a Chelate and Preservative. Lack of additional Chelate following dilution may cause the liquid to cloud and sediment to form.

## 2. CHELATING

It is recommended that a Chelate is added to any product derived from **Liquid PK-SG**, particularly those that involve dilutions. This prevents sediments forming and clouding of products. Compatibility of chelates and products should be checked with a supplier- for examples some will be pH dependent. Chelates should be added into the water phase when formulating.

## 3. PRESERVING

In its concentrated form (*45% active*) the soap base does not require a preservative. Once any dilution takes place a suitable preservative **must** be added to the product. The choice and percentage of preservative will depend on marketing/certification requirements, pH dependency, and formulation compatibility.

## 4. FRAGRANCING

Synthetic perfumes or essential oils can be added to fragrance a Liquid PK-SG soap base product.

These should be added before thickening the product and can require a solubiliser (*choice* dependent). This prevents the fragrance dropping out of the formulation and giving a heterogeneous product. Compatibility of fragrances with soap can differ greatly; consulting your fragrance house is advised.

\* **Please note.** Due to the nature of the **Liquid PK-SG**, which is derived from natural

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ingredients, additives such as *some* essential oils can turn it cloudy. Over time some of these ingredients may slowly dissolve so that the product looks slightly clearer, but others can agglomerate and make the product look hazy or not homogenous. Although the appearance may not be aesthetically appealing the product can be perfectly functional. *Stability testing should be performed.*

## 5. COLOURING

**Colours** can be added to **Liquid PK-SG**, and these should go into the formulation before any thickening. Depending on the requirements of the formulation (e.g. organic), the choice of colourants is down to the product finisher- compatibility should be checked and tested. **Opacifiers** can also be used to create an opaque finished product. The levels of opacifier required can vary depending on formulations, dilutions and on the actual chosen opacifier- Opacifiers should be charged pre-thickening.

## 6. THICKENING

Thickening the diluted **Liquid PK-SG** can be achieved using thickeners such as cellulose. A Salt solution does not thicken the **Liquid PK-SG**. When formulating ensure the thickener is charged at the last possible point (after fragrance and colour) to ensure that components can become homogenous in the solution.

## PH ADJUSTMENT

The pH of **Liquid PK-SG** is 10.0 – 10.5. The pH cannot be adjusted using citric acid-this causes the soap to revert to fatty acid at which point solids will form. Some Surfactants\* can be used to alter the pH of the soap base. **\*Note some surfactants will negate an RSPO Sustainable Palm Kernel Oil claim**

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## LIQUID PK-SG & SURFACTANT COMPATABILITY\*

*\*Please note that some surfactants are derived from palm kernel oil that does not carry sustainable certification, thus the origin of surfactant used should be clarified prior to any sustainable palm oil claim being made.*

### SODIUM LAUROYL METHYL ISETHIONATE

When **Liquid PK-SG** (25%) is blended with Sodium Lauroyl Methyl Isethionate (75%) a clear solution of pH 7.95 is achieved.

### COCAMIDOPROPYL BETAINE

When **Liquid PK-SG** (25%) is blended with Cocamidopropyl Betaine (75%) a clear solution of pH 7.90 is achieved. Also 3% Cocamidopropyl Betaine can be added to a cellulose/gum thickened hand wash to improve wash/foaming performance.

### SODIUM LAURETH SULPHATE

When **Liquid PK-SG** (30%) is blended with Sodium Laureth Sulphate (70%) a clear solution of pH 9.72 is produced.

*Note- Surfactants should be added to water prior to mixing.*

## FINISHED PRODUCT OPPORTUNITIES

**HAND FOAMER**- a dilution of 5-1, with added Chelate, Preservative, and Fragrance in conjunction with a Foamer pump bottle can create a unique Hand Foamer product, with great feel and wash off properties.

**HAND WASH** - a dilution of 4-1, Chelated, Preserved; Fragranced then thickened with a Cellulose gum produces an effective finished Hand Wash product.

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**SPRAY CLEANING PRODUCTS** – The use of soap in cleaning products is highly effective- a 20-1 dilution of Liquid PK-SG, with added Tri Potassium Citrate (removes soap scum and grime) Preservative and Fragrance creates a more natural soap based cleaning product. Alcohol can also be added to eliminate streaking and improve drying performance.

**LAUNDRY** – Soap can be used as an *anti-foam* in Laundry Detergent, following tests it is clear the product Liquid PK-SG controls foaming levels- therefore the base can be used as part replacement of surfactants to achieve a more natural formulation. Performance & compatibility testing is recommended.



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