A BETTER WAY TO FORMULATE

SYNERGEL®

BLENDING RECOMMENDATIONS

Due to the solubility characteristics of the gellants used in the Synergel product lines the critical factors that impact the stability of the gels or the success of the finished products are:

- The order of the other chemicals being added to the formula
- Mixing time
- Mixing temperature

ORDER OF ADDITION FOR OTHER CHEMICALS BEING ADDED TO THE FORMULATION

The rule of thumb for adding chemicals to the gel is to always add the ingredients with the least polarity first. If the formula contains the same base oil as the gel, it should be added first. **Polar materials tend to break down the gel network so they should be added last.** The following is the order generally followed:

- Mineral Oil, Hydrocarbons, Waxes
- Fatty Esters and Fatty Alcohols
- Emulsifiers
- Silicones
- Essential Oils

MIXING TIME

Generally, the blend is complete when no lumps are visible, the blend has a smooth texture, a consistent viscosity at the appropriate temperature, and the blend does not immediately separate once the mixing stops.

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To request a sample, visit penreco.com.

SYNERGEL®

BLENDING RECOMMENDATIONS

HEATING & INCORPORATION OF FINISHED PRODUCT INGREDIENTS RECOMMENDATIONS

The viscosity range of the Synergel directly affects the ease at which ingredients are incorporated. Higher viscosity products may require more heat while lower viscosity products may require less heat.

Synergel HB 125 and MR 500

- The recommended heating/incorporation temperature of these two mineral oil based Synergel products is **75 ° - 95 °C**. This recommendation is based on the higher flash points of the substrate or base material being used.

Synergel SC V50, LVP-100 and A-200 V50

- The recommended heating/incorporation temperature of these solvent based Synergel products is **65 ° - 75 °C**. This recommendation is based on the lower flash points of the substrate or base material being used.

Synergel SA V50

- The recommended heating/incorporation temperature of this solvent based Synergel is **45 ° - 55 °C**. This recommendation is based on the low flash point of the substrate or base material being used. **CAUTION:** Flash point is approximately 65 °C.

Synergel PC and BG

- The recommended heating/incorporation temperature of these two mineral oil based Synergel products is **130 °C**. These two Synergel products are solid at room temperature and must be heated to a temperature of **130 °C** to become molten. Once in the molten state finished product ingredients may be added.

Synergel VM&P

- **CAUTION: This is a low flash material.** The flash point of the substrate or base material used is **50 ° - 60 °F**. **No heat should be used when working with this material.**

CLEANING EQUIPMENT RECOMMENDATIONS

- Allow the vessel to drain while warm.
- Mineral oil may be heated and added to the vessel to wash out the remaining product.

If there are any further questions, please don't hesitate to contact our Product Support team.

Any technical advice or assistance furnished herein is given and accepted at the customer's sole risk. Calumet Refining, LLC shall have no liability whatsoever for the use of or results obtained from such advice or assistance.

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