

# ChemBrief



**Southern Clay Products, Inc.** • 1212 Church Street • Gonzales, Texas 78629  
Tel: (830) 672-2891 • Fax: (830) 672-1903

## Optiflo® TVS

### Background

Formulators have historically had trouble dealing with viscosity reduction when latex systems were tinted with 8 – 16 ounces of colorant per gallon. Southern Clay Products, Inc. Additives has designed a nonionic associative thickener specifically to meet this need - Optiflo® TVS (Tinted Viscosity Stabilizer).

Before now, formulators had few options to improve viscosity loss upon tinting, especially in deep or neutral bases. Typically, they would use associative thickeners to develop an extremely high base viscosity to accommodate a viscosity loss of 40 – 50 KU, or they would use HEC by itself or in combination with a HASE. Each of these methods has their limitations. When formulating to a very high viscosity, one can get dramatically different rheology for different colors. The HEC and HASE products in the right system do an excellent job of maintaining viscosity upon tinting, but they come with certain pitfalls. HEC provides excellent color acceptance, but also yields very poor leveling, poor syneresis resistance, reduced gloss and poor spatter resistance. HASE products, on the other hand, can have issues with water sensitivity that limit their use in areas such as bathrooms, kitchens and on exterior applications. Another concern with HASE products is their incorporation. The low pH of these products may shock the system and cause stability problems.

Optiflo® TVS used in conjunction with the proper high shear building nonionic associative thickener such as Optiflo® L100 can provide excellent resistance to viscosity reduction upon tinting in most systems. This rheological package can provide excellent flow and leveling while maintaining good sag resistance. Excellent syneresis resistance can be achieved, along with easy incorporation. And due to the pH being slightly basic, there is virtually no chance of shocking the system as with a HASE.

### Formulating Guidelines for Optiflo® TVS

Optiflo® TVS is a nonionic associative thickener designed to maintain viscosity upon tinting. It is possible to achieve a drop of less than 10 KU upon tinting with 8 or more ounces of colorant. Optiflo® TVS also generates very strong low shear rheology, which provides excellent sag and syneresis resistance.

**Southern Clay Products, Inc.**  
Gonzales, TX USA  
830-672-2891  
www.scprod.com

**Rockwood Clay Additives**  
Widnes, UK  
44-151-495-2222

**Rockwood Clay Additives**  
(Singapore)  
65-6532-0676

Disclaimer of Warranty: The information presented herein is believed to be accurate but is not to be taken as a warranty, guarantee or representation for which we assume legal responsibility. This information does not grant permission, license, or any rights or recommendations to practice any form of proprietary intellectual property without obtaining the appropriate license or grant from the property owner. The information is offered solely for your consideration, investigation and verification, but you must determine the suitability of the product for your specific application. The purchaser assumes all risk of use of handling the material, including but not limited to transferring the material within purchaser's facilities, using the material in applications specified by the purchaser and handling any product which includes the material, whether or not in accordance with any statements made herein.

When formulating with Optiflo® TVS one should determine the priorities of the rheological balance they wish to achieve. Keeping in mind the balance between flow, sag and the satisfactory viscosity drop upon tinting. Due to Optiflo® TVS providing noticeably more low shear viscosity than conventional nonionic associative thickeners, it is possible to formulate at a lower KU viscosity and still maintain more than enough sag resistance.

### Formulating Methodology

A) Typically, a low level of HMHEC or HEC, 0.5 to 2.0 pounds is suggested, depending on the grind paste viscosity, spatter resistance and leveling that is needed from the finished paint. The next step is to work with the low shear viscosity builder Optiflo® TVS. Conducting a ladder study using between 2 – 10 wet pounds of TVS should determine the correct amount. To provide the proper balance, the high shear viscosity builder Optiflo® L100 should be added at between 15 and 25 wet pounds.

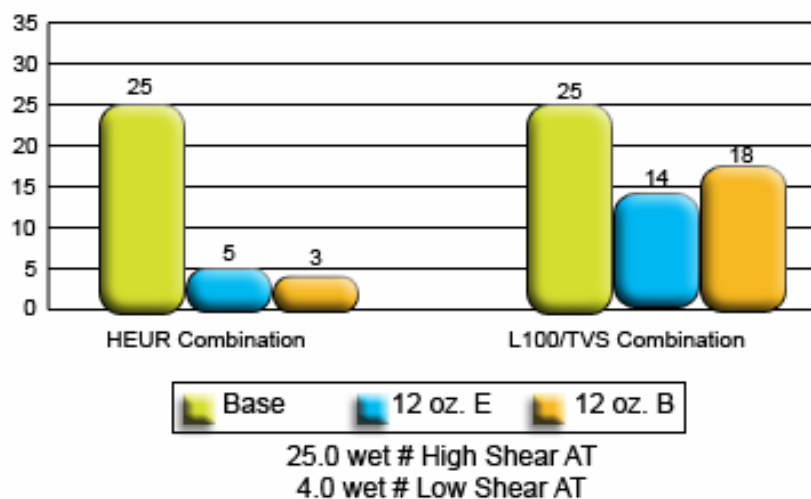
Many items will play a role in what the optimum level of Optiflo® TVS and Optiflo® L100 will be. It is system dependent - the level that works well in an acrylic may not begin to work in a PVA based system. All areas of the rheology of the paint need to be properly balanced. Keep an open mind, and do not lock into a specific limitation on KU viscosity drop upon tinting. It may not provide the proper flow and leveling or the correct sag resistance.

Use more than one color when checking for viscosity drop. Typically, 2 or 3 colors should be evaluated. We suggest that the formulator look at Lampblack, Phthalo Blue and / or Yellow Iron

Once tinted, check the leveling and sag resistance, to see if the final product has the proper rheological balance. If the final product has too much sag resistance then replace part of the Optiflo® TVS with either Optiflo® H370 or H600 to obtain less sag resistance and improve the leveling. Another way to reduce sag resistance is to reduce Optiflo® TVS and increase the Optiflo® L100. This step may increase the viscosity drop upon tinting, however, it will increase the flow to produce better leveling.

## Sag Resistance

*Acrylic Neutral Base*



**ROCKWOOD**  
ADDITIVES



Southern Clay Products, Inc. • 1212 Church Street • Gonzales, Texas 78629  
Tel: (830) 672-2891 • Fax: (830) 672-1903

ChemBrief

B) Optiflo® TVS may also be used as an additive to improve viscosity loss in your current formulation by post adding at levels between .5 and 4.0 wet pounds. This is a fairly simple approach which produces results quickly. However, if results are not what is desired, the more detailed approach previously outlined will need to be done to find the optimum rheological balance.

### Other Suggestions

Minimize the level of co-solvent or glycols in the formulation as the glycols and surfactants in the colorant can activate the Optiflo® TVS.

Heat age stability can be improved by incorporating the Optiflo® TVS into the grind portion of the formulation.

Avoid low resin solid formulations with inefficient binders, such as, PVA's & EVA's.

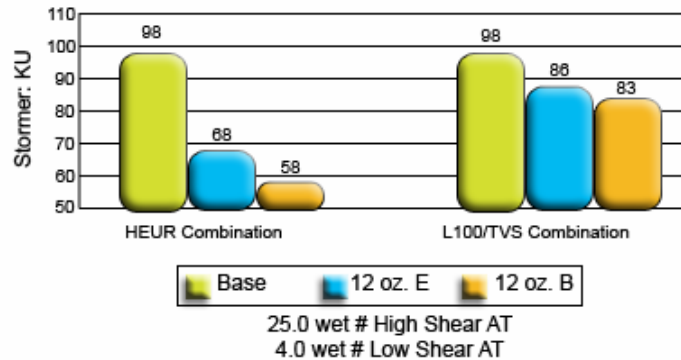
### Summary

Optiflo® TVS offers new flexibility to the formulator, and will maintain viscosity when tinted in most systems. There is more than one way to achieve viscosity retention using Optiflo® TVS. It can be added in combination with the current rheology package in small amounts or it can be used as the primary non-ionic associative thickener. Additions of Optiflo® TVS can be added in the grind or the let down. The key to successful formulating is to use the proper amount of all rheological products, achieving a good balance of overall properties.

For more information on how Southern Clay Products can assist you, please contact us at (800) 324-2891 or visit us on the internet at [www.scprod.com](http://www.scprod.com).

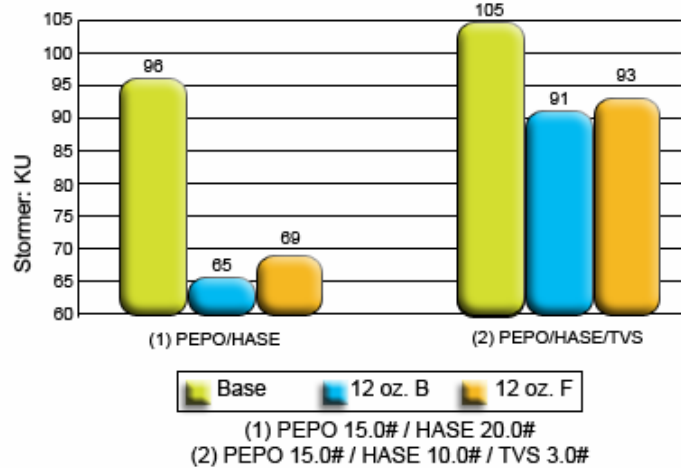
## Stormer Viscosity Loss

Acrylic Neutral Base



## Stormer Viscosity Loss

Styrene-Acrylic Accent Base



## Stormer Viscosity Loss

pVa / Acrylic Eggshell NB

