Creating stable suspension of optical brightening agent by uniform dispersion of Xanthan gum in product slurry

Project Goal

Our aim was to obtain a stable suspension of optical brightening agent by uniform dispersion of Xanthan gum in product slurry as well as reducing the current process time.

Background

Xanthan gum is a polysaccharide being used as a common food additive, thickener and stabilizer. The client employed Xanthan gum for creating stable suspension of optical brightening agent. The major challenge faced by the client was the sedimentation of material which led to rejection at client’s end. Thus, trials were conducted to obtain stable suspension of desired viscosity (90 cps) using High Shear Mixer.

Challenge

During suspension preparation, the viscosity of Xanthan gum changed with respect to time and the suspension showed batch to batch variation. Due to non-uniform dispersion of Xanthan gum an unstable suspension was being formed. Additionally, the non-uniform dispersion led to clogged strainers which increased the process time. These drawbacks lead to rejection of the final product which was a costly affair.

Present approach:

In the existing process, the client adds Xanthan gum to the optical brightening agent slurry gradually for 3 hours in order to create a stable
suspension. The product slurry is then recirculated for about 24 hours through a cutting pump to get the final product.

Gansons Solution

Figure 1 Rotosolver (High Shear Mixer)

Details

Gansons-Admix Rotosolver:

The Rotosolver High Shear Mixer is a recognized industry leader, offering excellent performance and efficiency. It comes in an easy-to-clean design and is CIP enabled.

<table>
<thead>
<tr>
<th>Machine:</th>
<th>Rotosolver (High Shear Mixer)</th>
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<tbody>
<tr>
<td>Firm:</td>
<td>Chemical Company in Gujarat</td>
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<tr>
<td>Product:</td>
<td>Xanthan gum</td>
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</tbody>
</table>

Actual trials

Trials were conducted at customer's site with pilot scale model of High Shear Mixer Rotosolver (RS-02). Xanthan gum was rapidly added to the product slurry and mixed using Rotosolver to obtain the final product.
Samples were analysed for its stability and viscosity. The product slurry was monitored for a month to check for sedimentation.

Results

The final viscosity of 90 cps was achieved and the suspension was found to be stable after a 30 day period too.

When functional at the production level, the process was completed in less than 24 hours.

For more information on this whitepaper or any other Gansons products, please contact:

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