APPLICATION SUMMARY:

Xanthan gum is an additive commonly found in processed foods, cosmetics and personal care products. It provides stability, modifies viscosity and improves texture. It is also used in the oil industry to control the rheology of drilling and fracturing fluids.

Dispersions of xanthan gum powders are challenging to make, particularly on a large scale, because many grades of this gum tend to form tough lumps upon contact with water. The mixing procedure must typically provide vigorous agitation to efficiently hydrate individual gum particles yet avoid over-shearing the product to prevent a permanent loss of functionality.

RECOMMENDED MIXING EQUIPMENT FOR

Xanthan Gum Dispersions

Ross High Shear Mixers with SLIM Technology

The Ross Solids/Liquid Injection Manifold (SLIM) Technology is proven to be extremely effective in dispersing hydrophobic powders such as xanthan gum and other thickening agents. The SLIM consists of a unique rotor/stator generator specially designed to create a powerful vacuum that draws and injects powders directly into the mixer’s high shear zone. Because solids and liquids are combined at precisely the point where intense mixing takes place, the formation of lumps and “fish eyes” is greatly reduced, if not eliminated.

The SLIM technology is available in both batch and inline designs, making it simple to retrofit into existing processes. This system is used for dispersing small concentrations of powders like xanthan gum (<1%) but it also routinely handles solid loadings as high as 70%, depending on the application, while operating within a wide viscosity range: from water-like to up to 10,000 cP during powder injection. After all the solids are added, product viscosity may continue to climb. For instance, batch SLIM rotor/stators are installed on Ross Multi-Shaft Mixers used for batching formulations with a final viscosity of several hundred thousand centipoise.
The Ross SLIM is proven technology for fast and efficient dispersion of different types of solids including:

- Alginates
- Alumina
- Bentonite Clay
- Boric Acid
- Calcium Carbonate
- Carbomers
- Carbon Black
- Carrageenan
- Cellulose gum / CMC
- Citric Acid
- Dye Powders
- Guar
- Gum Arabic
- Hydroxyethyl Cellulose
- Magnesium Hydroxide
- Milk
- Pectin
- Starch
- Talc
- Titanium dioxide
- Whey

**Processing advantages of the SLIM Technology**

- **Simple and straightforward operation.** Just turn on the mixer and start inducting powders. No eductors or vacuum pumps to deal with.

- **Easier material handling.** The inline SLIM mixer is usually installed at floor level so operators no longer have to climb up mezzanines carrying heavy bags of powder. Solids can also be delivered via automatic feeding devices.

- **Cleaner and safer mixing.** A “hose & wand” attachment is used for dipping into bulk bags or containers to conveniently induct lightweight powders without creating a dusty environment.

- **Increased yield and higher quality dispersions.** By preventing the formation agglomerates and eliminating floating powders, the SLIM maximizes both yield and functionality of solid raw materials.

- **Flexibility.** The portable inline SLIM easily serves multiple process lines.

- **Shorter cycle times.** SLIM users reduce their overall mixing time, often by as much as 80% or more.

**For more information on the Ross SLIM Technology**

Visit [www.highshearmixers.com](http://www.highshearmixers.com) or click here to download a brochure.