

APPLICATION SUMMARY:

The most commonly used carrier systems of cosmetic ingredients, emulsions impart the desired consistency and texture to lotions, creams, make-up, hair conditioners and other products.

Proper mixing is critical in the production of stable quality emulsions. By investing in a high-throughput mixing strategy that handles a wide range of viscosities and shear requirements, cosmetic manufacturers can gain increased flexibility to respond to ever-changing consumer tastes and market trends.

RECOMMENDED MIXING EQUIPMENT FOR Cosmetic Emulsions



Ross High Shear Mixers and Multi-Shaft Mixers

Cosmetic manufacturers rely on a range of high speed mixers to accomplish various processing objectives including emulsification, powder wet-out and particle size reduction. High Shear Mixers, for instance, are widely used throughout the industry for preparing emulsions under 10,000 centipoise (cP). The basic single-stage design features a four-blade rotor that turns at tip speeds around 3,000-4,000 ft/min within a close tolerance fixed stator. It creates mechanical and hydraulic shear by continuously drawing product components into the rotor and expelling them radially through the openings in the stator. This type of mixer is available in both batch and inline (continuous) configurations.

Products that undergo viscosity changes peaking well over 50,000 cP are typically batched in Multi-Shaft Mixers. These machines are equipped with two or more independently-driven agitators working in tandem to deliver a combination of high shear agitation and laminar bulk flow. A Triple-Shaft Mixer featuring a low-speed anchor, a rotor/stator assembly and a saw-tooth disperser blade is particularly ideal for creating highly-filled cosmetic emulsions. The wings of the anchor agitator normally include adjustable scrapers for wiping the vessel bottom and sidewalls. This allows for tighter temperature control in addition to enhanced product turnover. The saw-tooth disperser generates a vortex in the liquid surface for quick incorporation of solid ingredients and, along with the anchor, continues to agitate the batch when it becomes too thick to flow through the rotor/stator.

Cosmetic Applications prepared in Ross Mixing Equipment

- Body Wash
- Clay Dispersions
- Concealer
- Eye Creams
- Facial Cleansers
- Foundation
- Gum Dispersions
- Hair Gels
- Lipstick
- Mascara
- Moisturizers
- Nail Polish
- Ointments
- Perfumes
- Pigment Dispersions
- Shampoo
- Silicone Gels
- Soaps
- Sunscreen
- Toothpaste

For more information
on Ross Mixers for Cosmetics

Visit www.cosmeticmixers.com
or click [here](#) to download a
brochure.

Ross Ultra-High Shear Mixers

More challenging emulsions generally require agitation at greater shear levels to achieve stability. When conventional rotor/stator devices cannot produce the desired droplet size distribution in a cosmetic emulsion, the next practical step is to utilize an Ultra-High Shear Mixer. Several designs are available including the Ross X-Series, a special inline rotor/stator engineered to run at tip speeds over 11,000 ft/min. It consists of concentric rows of intermeshing teeth; product enters at the center and moves outward through channels in the rotor/stator. The extremely close tolerance between adjacent surfaces of the rotor and stator is adjustable for fine-tuning shear levels and flow rates. X-Series Ultra-High Shear Mixers are proven to replace expensive colloid mills while producing better quality emulsions at much higher throughputs.



Batch High Shear Mixers



X-Series Ultra-High Shear Mixer



Triple-Shaft Mixer