



Applications for High Shear Mixers
Dispersion of Sugar Syrups



Sugar Syrup in Soda Drinks

Sugar syrup is prepared as either ready to drink or as a concentrated syrup, and is mixed with multiple other ingredients, such as flavorings, preservatives, stabilizers, and antioxidants. Alternatively, artificial sweeteners may be used to reduce the overall caloric content [see “Artificial Sweeteners” at coramix.com/learn].

Mixing Process

Small scale batches may only require a simple blend of liquid sweetener and water. For larger scale batches, granulated sugar is dispersed alongside other powdered ingredients using traditional agitators. While solutions with a lower sugar concentration may be dispersed at ambient temperatures, higher concentration solutions must be heated to aid with dissolving the sugar granulates. Other powdered ingredients may be premixed with the sugar to assist with dispersion.

Mixing Issues

While granulated sugar is more difficult to process, liquid sweetener is significantly more expensive. Difficulties that come along with dispersing powdered sweetener using traditional agitators include:

- Even with heating, traditional agitators are slow to disperse, increasing mixing times.
- Heating is energy and time inefficient, and requires additional time to cool.
- Improperly dispersed material by the agitator builds on the walls of the vessel, resulting in increased material and cleaning costs.
- Traditional agitators are incapable of dissolving high concentrations of sugar at ambient temperatures.
- The sugar may crystallize during the heating and cooling processes.

Our Solution

Dispersion: Instead of slowly stirring the mixture until it is homogeneous, Coramix mixers use high-shear and mechanical design to disperse the sugar, greatly reducing each batch's cycle time while eliminating any agglomerates.

Phase 1: The Coramix inline mixer is connected with the eductor assembly, as well as pipes from the tank outlet to the mixer inlet and from the mixer outlet to the top of the tank. Base fluid is added to the tank, and the mixer is started to recirculate the fluid.

Phase 2: The powder feed valve is opened, and granulated sugar is added directly into the hopper. The inline mixer pulls in the sugar and deagglomerates the granulates as they pass through the high shear mixing zone.

Phase 3: After all of the sugar is added along with any additional ingredients, the valve is shut and mixing continues.

Advantages

Coramix high shear mixers offer a variety of advantages over traditional agitators and mixing processes.

- Agglomerate-free mixture.
- High mixing speeds reduce batch cycle times.
- Rapid incorporation of sugar, no premixing required.
- Reduced particle sizes stabilize the suspension.
- Higher concentrations of sugar are able to be dispersed at ambient temperatures due to the reduction in particle size.



Contact: For more information on Coramix products go to Coramix.com, or contact our sales team at Sales@Coramix.com for help in configuring a mixer to fit your needs.