



Applications for High Shear Mixers
Dispersion of Rubber Solutions



Applications for Rubber Solutions

Rubber is used across a wide range of industries and products, including adhesives, tires, electrical insulation, and sealants. Raw rubber may be natural, or it may be synthetic, such as Neoprene or butadiene.

Mixing Process

Properties of a rubber solution, such as viscosity, vary based on the ingredients used to achieve the desired end product. The preparation process using traditional agitators is as follows:

- A vessel is charged with a solvent, such as acetone, toluene, MEK, hexane, etc.
 - The agitator is turned on, and rubber is added. Raw rubber may be supplied as powder, crumbs, or blocks. Large granulates and blocks need to be chopped or granulated prior to mixing.
 - The solution is mixed until the rubber is fully dissolved.
 - Other ingredients are then added to achieve the desired product properties, such as colors, stabilizers, and lubricants.
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Mixing Issues

- Traditional agitators require long mixing times to fully dissolve the rubber in the solvent.
- Mixing time of other ingredients is slow, as well.
- Chopping and granulating adds time and cost, and pre-crumbed/powdered rubber is expensive.
- Synthetic rubbers are tough and require a minimum shear to disintegrate and disperse them.
- Vigorous mixing is required to prevent solids from settling on the bottom of the vessel.

Our Solution

Dispersion: Instead of slowly stirring the mixture until it is homogeneous, Coramix mixers use high-shear and mechanical design to disperse the rubber, 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 rubber powder or granulates are added directly into the hopper. The inline mixer pulls in the rubber and deagglomerates the powders as they pass through the high shear mixing zone.

Phase 3: After all of the rubber is added, the valve is shut and mixing continues while additional ingredients are added.

Advantages

- Agglomerate-free mix and reduced particle sizes create a stable solution.
- Rubber is rapidly dissolved, reducing mixing times.
- Coramix high shear mixers can break down tougher rubbers quickly and efficiently, as well as handle larger granulates, reducing cycle time and preparation costs.
- Vigorous mixing creates a vortex in the workhead to pull in solids and prevent them from sinking.



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.