

## Lobestar® Shear/Mixer Technical Data Sheet

### Introduction

Soda ash is a free-flowing, white crystal that is normally transported in 100 ton hopper cars or 25-35 ton hopper trucks. Since freight charges are a large percentage of the cost, soda ash is shipped dry to provide the best delivered economics. Soda ash, however, has application as an alkali alternative for caustic soda, which is most often shipped in solution. In order to utilize the existing liquid transfer process systems, soda ash must be converted from its dry, granular form into solution. Vortex Ventures, Inc. has worked jointly with Solvay Chemicals, Inc. to develop a system that will unload and dissolve a granular material. The solution can then be conveyed to an active process system or storage tank for future application.

### Lobestar® Shear/Mixer

The Lobestar® Shear/Mixer meets the challenging demands for providing a dust-free, efficient mixing, dissolving and conveying system in a one-step process. Pressurized liquid is converted into a high velocity jet stream as it passes through the patented Lobestar® jet nozzle. The high velocity jet stream produces a near-perfect vacuum at a relatively low pressure. The powerful vacuum draws the material through a flexible hose connected to a railcar collection pan adapter. Soda ash enters the Radial Premixer, which is subjected to a strong vortex. The individual particles are subsequently pre-wetted, providing intimate interfacial contact between the liquid and the dry material. The slurry is then drawn into the mixing chamber of the Lobestar® Mixing Eductor where turbulent mixing and product dissolution are completed in the throat of the diffuser. From there the solution is continuously recycled through the storage tank until the desired saturation is achieved. The Lobestar® Shear/Mixer is compact in design, measuring six-by-six feet in length and width. In addition to its small footprint, the equipment measures just over four feet in height.



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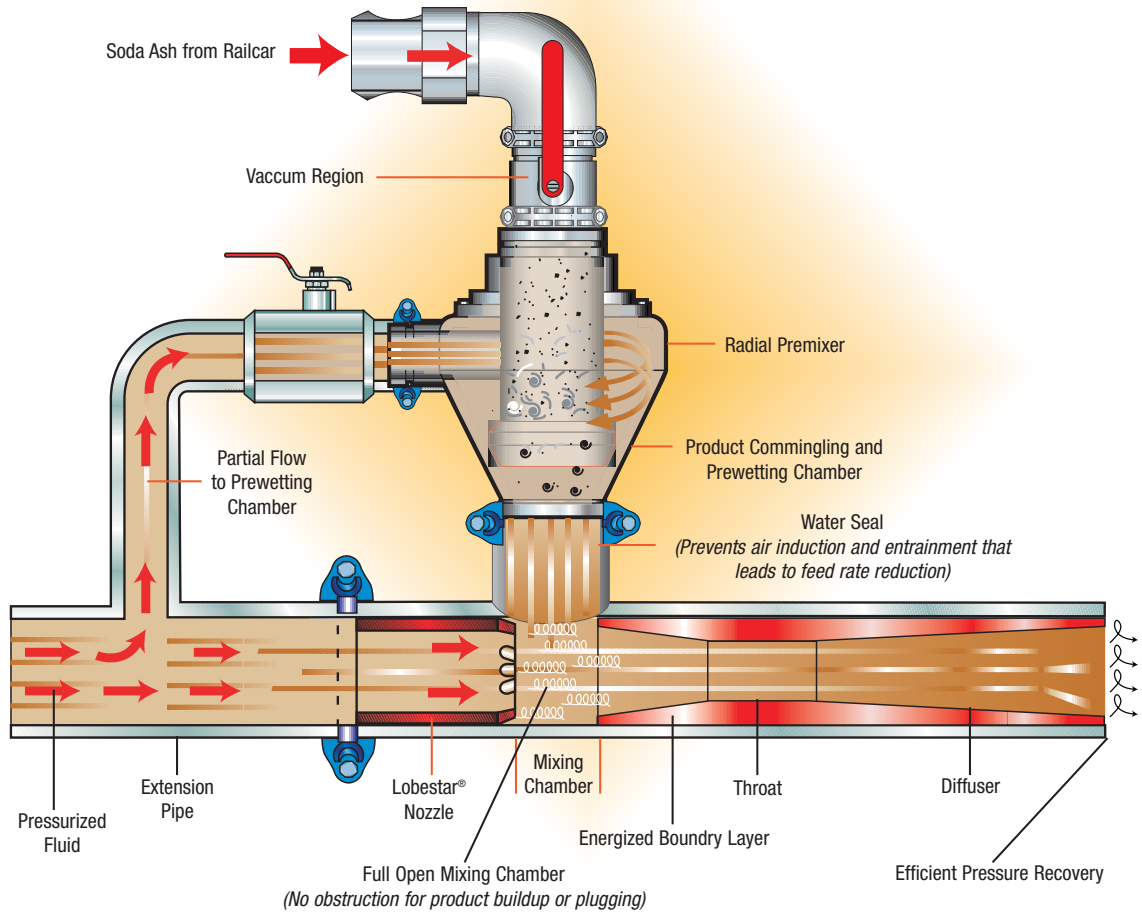
## Solvay Chemicals



## Interox, Fluorides & Minerals

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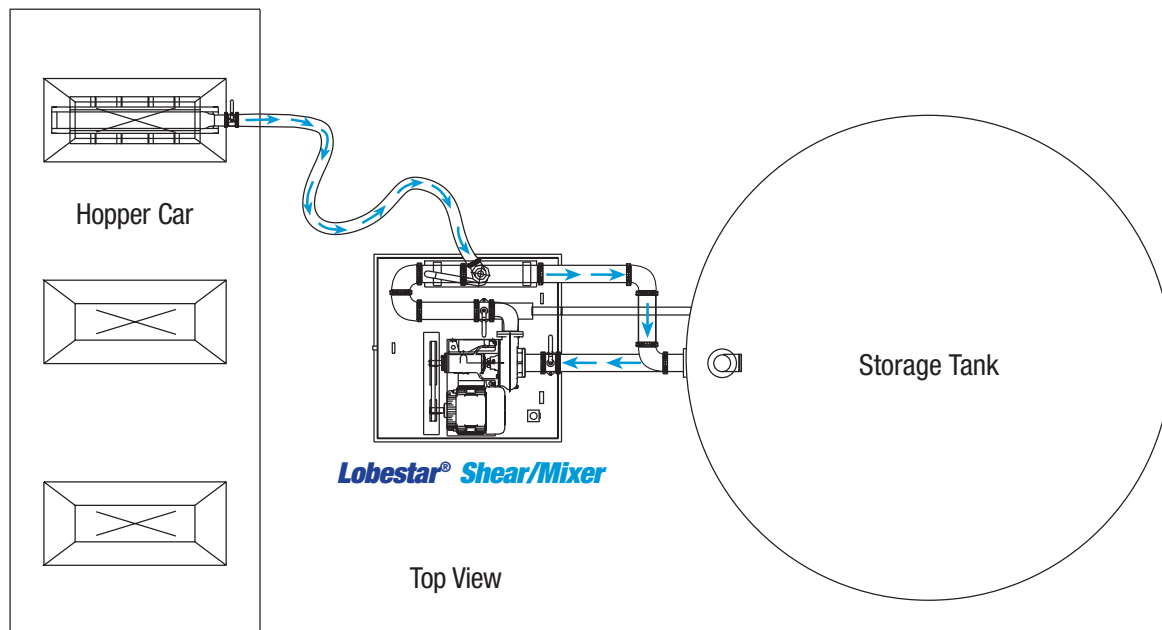
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PAT. No. 5,775,446

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There are essentially no limitations in processing and conveying free-flowing materials like soda ash. The mixing chamber has no passageway obstructions and will permit the material to be mixed without plugging the equipment, unloading dry product and delivering solution in an environmentally safe system with virtually no dust or spillage.

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