

Solutions for Your TOUGHEST
MIXING Applications in
CHEMICALS



Production of
Automotive Polishes

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Automotive polishes are traditionally solvent based emulsions consisting of petroleum distillates, waxes and surfactants, produced in paste and liquid forms.

Some formulations contain cutting agents such as silicon dioxide. “Solvent-free” water-based emulsions are becoming more common due to technological advances and health and safety legislation.

The Process

The manufacturing process varies according to the formulation and ingredients used and whether the product is an oil in wax emulsion or wax in oil emulsion. A typical manufacturing process would be as follows:

- The wax is heated to melting point and thoroughly liquefied.
- Surfactants and other ingredients are dispersed into the solvent.
- The solvent and wax phases are emulsified together.
- Abrasive materials, if used, are added last to minimise wear to mechanical parts.
- The emulsion is cooled and the small suspended wax particles solidify forming the desired finished texture of the product.

The Problem

Using conventional mixers and agitators, a number of problems can be encountered during production:

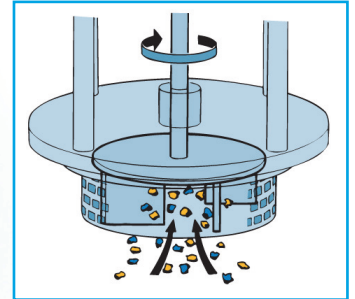
- Long processing times are required to fully disperse powdered ingredients.
- Conventional agitators cannot easily break down agglomerates.
- Dispersion of abrasive materials into the emulsion leads to severe wear on wetted parts.
- A stable emulsion cannot be formed by simple agitation, causing unpredictable finished product texture and inconsistent product quality.

The Solution

Intermediate stages of production can be eliminated, product quality and consistency improved and processing times dramatically reduced by using a Silverson High Shear mixer. Operation is as follows:

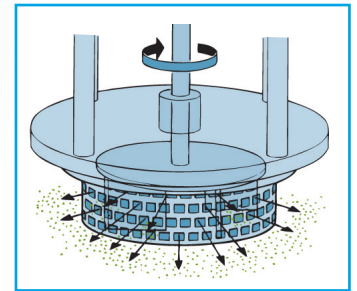
Stage 1

The vessel is charged with solvent. The mixer is started and the solid/powdered ingredients are then added. The powerful suction created by the high speed rotation of the rotor blades draws both liquid and solid ingredients into the workhead where they are rapidly dispersed.



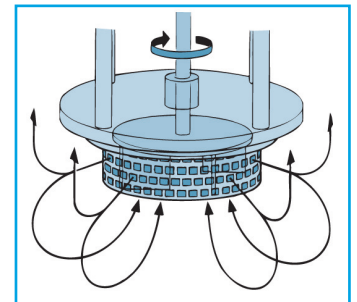
Stage 2

Once the powdered ingredients have been fully dispersed the melted, liquid wax is added, drawn into the workhead and expelled through the stator, progressively reducing globule size. A stable emulsion is rapidly obtained.



Stage 3

Abrasive materials, if used, are added to the emulsion last. In a short mixing cycle the material passes through the workhead many times, becoming rapidly dispersed. This increased efficiency of dispersion reduces the potential of wear to mechanical parts.



The Advantages

- Stable emulsion.
- Fine dispersion results in improved product quality and stability.
- Agglomerate-free mix.
- Consistent product quality and repeatability.
- Shorter processing times reduce wear to mechanical parts.
- Hard tipped rotors and hard surfaced shafts are available as optional extras where abrasive materials are processed.

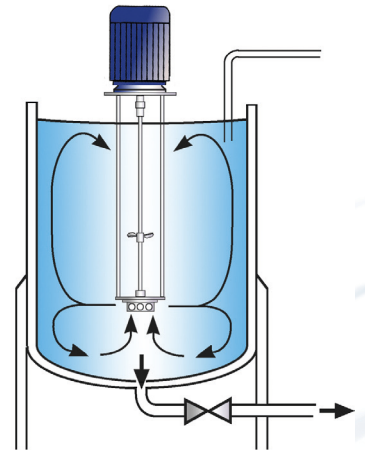
The batch size, formulation and viscosity of the end product dictates which machine from the Silverson product range is best suited to individual processing requirements:

High Shear Batch Mixers

- Suitable for batch sizes up to 1000 litres
- Can be used on mobile floor stands
- Sealed units available

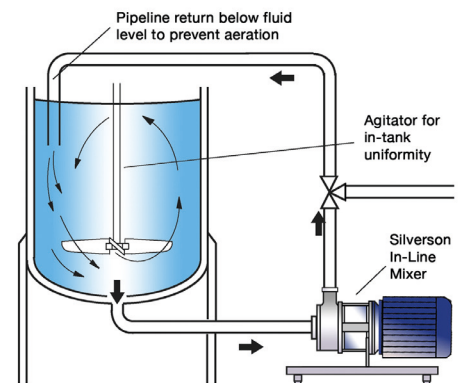
Abramix RBX Batch Mixers

- Designed for working with abrasives and cutting agents such as silicon dioxide
- No immersed bearing or bush
- Hard tipped rotor blades, heavy duty shaft
- Minimum maintenance
- These units offer all the advantages of standard Silverson Batch mixers



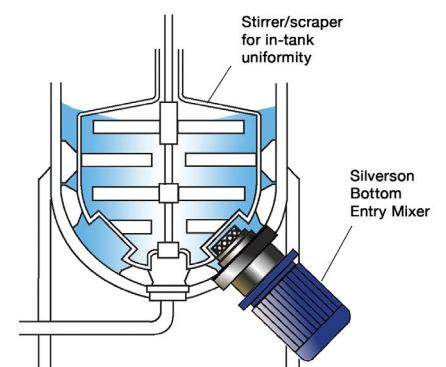
High Shear In-Line Mixers

- Ideal for larger batches
- Aeration free
- Easily retrofitted to existing plant
- Self-pumping
- Can be used to discharge vessel
- High Viscosity models available



High Shear Bottom Entry Mixers

- Normally used in conjunction with an anchor stirrer/scraper
- Suitable for products that increase in viscosity or solidify on cooling



For more information click here to go to www.silverson.co.uk

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