

Solutions for Your TOUGHEST  
MIXING Applications in

# FOOD

**Introduction**

Production of

**The Process**

Salad Dressings

**The Problem**

**The Solution**

**The Advantages**



## Production of Salad Dressings

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There are many products which could be described as salad dressings, including many sauces. There are further variations of low calorie or low fat sauces.

## The Process

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Generally these are oil-in-water emulsions and are manufactured in a similar manner. A typical method would be as follows:

- The vessel is charged with water (the continuous phase) and the mixer is started.
- Powdered ingredients such as stabilizers, thickening agents, flavorings, preservatives and coloring are dispersed in the water. In some instances these are pre-mixed in dry form.
- The oil phase (the dispersed phase) is added to the mix and an emulsion is formed.
- Mixing is continued until a smooth, agglomerate-free product is obtained.

## The Problem

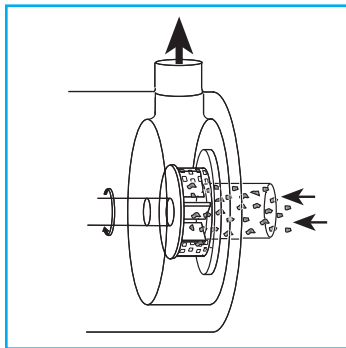
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Using conventional mixers and agitators several difficulties arise:

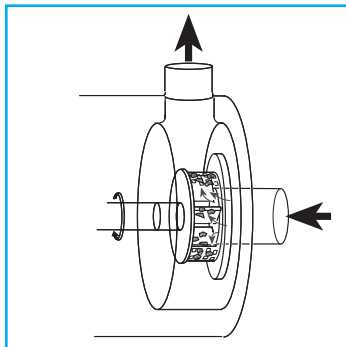
- Additives designed to thicken the product are by nature liable to form agglomerates which a conventional mixer cannot easily break down.
- Partially hydrated ingredients can build up on the vessel wall and parts of the mixer.
- A stable emulsion is not easily formed using conventional agitators.
- Long processing times are often required to achieve a satisfactory consistency.

## The Solution

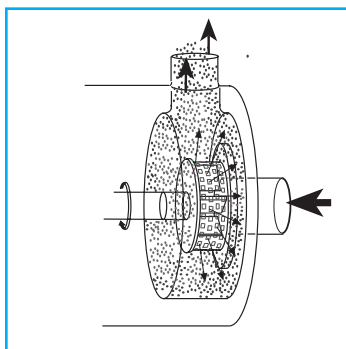
A Silverson High Shear mixer is able to overcome all of these difficulties. This can be achieved using a batch mixer immersed in the vessel or with an In-Line mixer as illustrated in the following stages:



The high speed rotation of the rotor blades creates a powerful suction which draws the liquid and solid/powdered ingredients into the workhead. These can be added without the need for pre-mixing



The materials are subjected to intense shear in the confined area of the workhead. Agglomerates are broken down by the intense mixing action. A lump-free mixture is rapidly obtained



The product is forced out of the stator as fresh material is drawn into the workhead. A circulatory mixing cycle develops in which all the material passes through the Silverson workhead. The oil phase ingredients are added to the vessel and emulsified into the water.

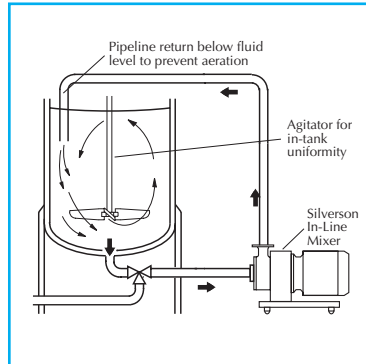
## The Solution

- Premixing of powdered ingredients is not necessary.
- Agglomerate free mix.
- Stable emulsion.
- Rapid Mixing times.
- Maximized yield of raw materials as thickening agents are fully hydrated and other ingredients are fully dispersed.

# FOOD

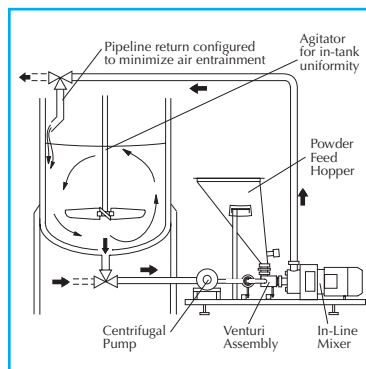
# The Advantages

Batch size, formulation, type of ingredients used and the viscosity of the end product dictate which machine from the Silverson product line is suited to individual process requirements. Generally three types of machine are used in manufacture of salad dressings:



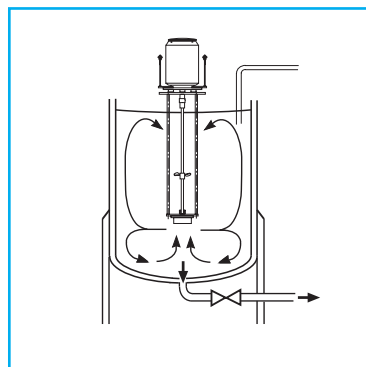
## High Shear In-Line Mixers

- Ideal for larger batches.
- Aeration free.
- Easily retro fitted to existing plant.
- Self pumping.
- Can be used to discharge vessel.
- Designed to be cleaned in place.



## Flashblend

- Ideal for larger batches.
- Capable of rapidly incorporating large volumes of powder.
- Minimized aeration.
- Minimized cleaning requirements.
- Minimum operator input required.
- Easily automated.



## High Shear Batch Mixers

- Suitable for batches of up to 400 gallons.
- Immersed in the mixing vessel, batch mixers can be either vessel mounted, or fitted to a mobile hydraulic floor stand.
- Can easily be moved from vessel to vessel.
- Easily cleaned.



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