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Transdermal Patch Adhesive Case Study

Application:

Continuously process an adhesive **paste** used as a drug delivery medium for use in **pharmaceutical** adhesive patches.

Challenge:

This application had two distinct challenges:

- 1) **mix two** liquid solutions with the proper residence time and shear to allow the solution to **chemically react** and form a homogeneous paste within the mixing chamber, and
- 2) **discharge** the material **quickly** to coat the patch before the patch adhesive sets.

Process Conditions:

Solution A	83%
Solution B	17%
Jacket Temperature	Ambient
Shaft Speed	100 rpm



Solution:

Having **multiple injection ports** to augment the material feed inlet facilitated the sequential introduction of ingredients necessary for **chemical reaction**. An adjustable discharge slide-gate and rpm allows for precise control of both residence time and discharge output. Additionally, the highly adaptable and flexible paddle arrangement is capable of producing shear ranging from low to high—**producing a consistent homogeneous material with a high level of dispersion**.

Benefits:

Low horsepower usage and **short residence time** results in reduced energy consumption. The Continuous Processor can be quickly **cleaned in-place** with minimal downtime. Continuous feeding of materials in addition to concise control and metering, results in **less waste** and greater consistency. The continuous stream of mixed material allows a more streamlined, on-demand packaging process without the need for large hoppers or other work in progress storage.

Continuous Processor—CP

Features and Benefits:

Customized Paddle Arrangement

Shorter Cycle Time

Fewer Process Steps

Less Waste

Product Consistency