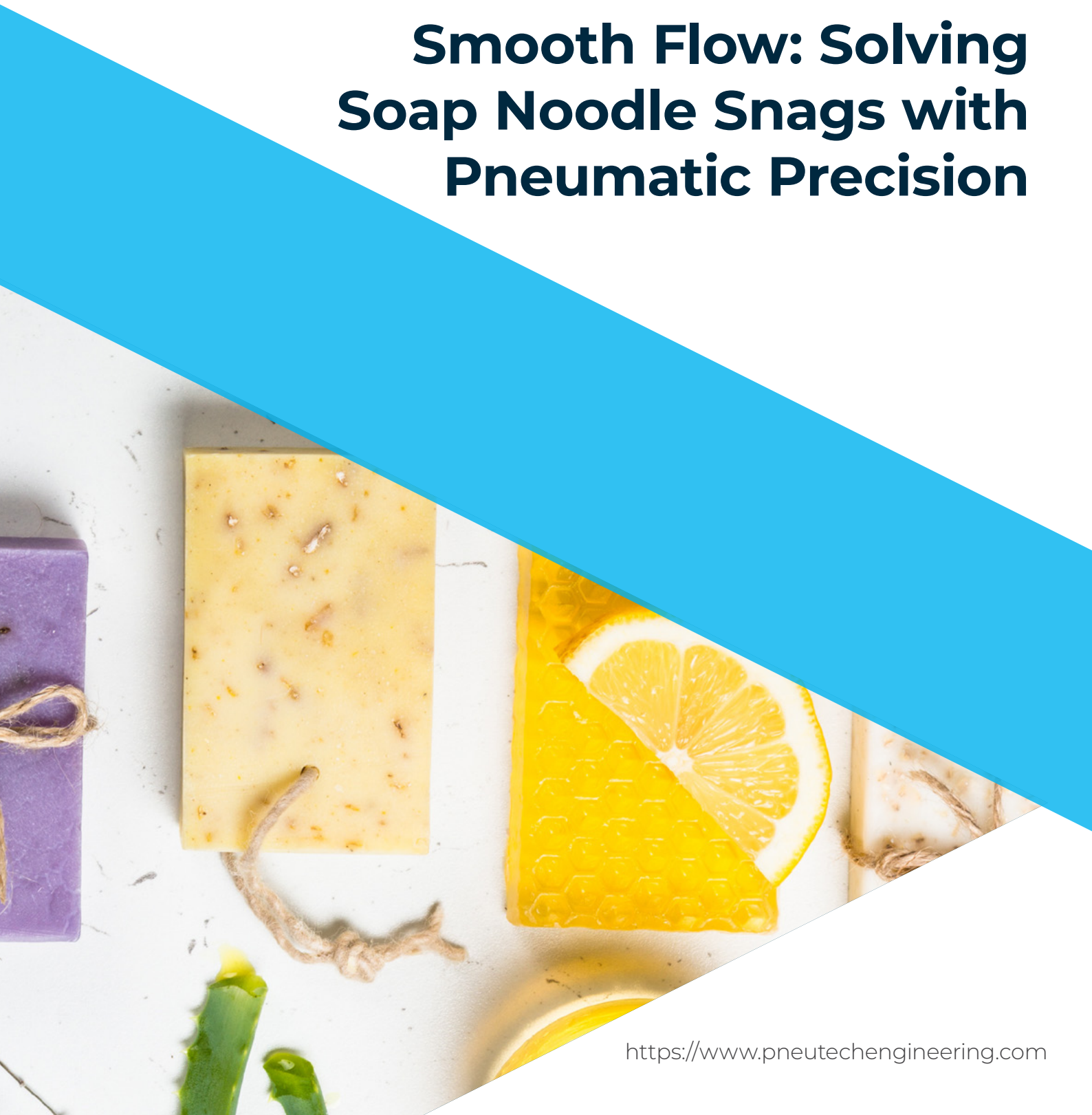


Industry Focus: Chemicals

Smooth Flow: Solving Soap Noodle Snags with Pneumatic Precision



Optimizing Dust Collection for a U.S. Bar Soap Manufacturing Facility





Pneutech Engineering resolved airflow limitations in a U.S. soap manufacturing facility's dust collection system. By upsizing ductwork and analyzing fan/blower performance, the team enabled dual-line pneumatic conveying into a single receiver, improving efficiency and safety.

Client Overview

A leading bar soap manufacturing facility in the United States faced operational challenges with its pneumatic conveying and dust collection systems. The facility utilizes multiple pneumatic receivers and silos to handle soap noodles, with dust collectors installed to maintain negative pressure and control airborne particles.

Project Objective

The client experienced performance issues when two pneumatic conveying lines fed soap noodles into a single receiver. The existing dust collector fans were unable to maintain sufficient airflow to keep the receiver under negative pressure, leading to potential safety and efficiency concerns. Pneutech Engineering was contracted to diagnose the issue and implement a solution.

Challenges Identified

- Dust collectors were originally designed for single-line operation.
- When two blowers (each rated at ~1,200 CFM) operated simultaneously, the system required ~2,500 CFM airflow.
- The existing 8" diameter piping between the receiver and dust collector created excessive static pressure loss, exceeding the fan's capability.

Expert Services

"A **Smart Fix** for Soap Manufacturing Dust Collection"

Engineering Approach

Pneutech Engineering conducted a comprehensive analysis:

- Measured airflow and static pressure across all dust collection systems.
- Reviewed fan curves for dust collectors and blower curves for positive displacement (PD) blowers.
- Verified blower operating pressures.
- Modeled the ductwork to perform static pressure calculations.
- Determined that the static loss in the 8" piping was the root cause of the airflow limitation.

Implemented Solution

The engineering team recommended upsizing the ductwork from 8" to 10" diameter between the receiver and dust collector. This modification significantly reduced static pressure loss, allowing the dust collector fans to handle the increased airflow demand efficiently.

Results & Impact

Post-implementation, the facility successfully operates two pneumatic conveying systems into a single receiver/dust collector setup without compromising performance. The solution improved:

- Airflow efficiency
- System reliability
- Operational flexibility

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