

# Improving Batch Consistency for a Critical Sensor Fluid

How GS Enterprises

refined a formula and implemented  
process controls to achieve zero  
rejections over 18+ months



# The Challenge

A customer producing small custom batches of a specialized fluid was experiencing costly batch-to-batch inconsistency. Two key factors drove the problem:

## **Uncontrolled Adjustments**

The process allowed for mid-batch chemical additions, making product variation difficult to control.

## **No Environmental Controls**

Lack of environmental controls during mixing created additional instability in the final product.

# The GSE Solution

GSE stepped in to refine the formula and implement a more disciplined production process.

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**Refined the Fluid Formula** — Optimized the chemical formulation for greater stability and repeatability.

02

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**Established Process Controls** — Implemented multiple mixing requirements and process controls to reduce variability.

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**Instituted Testing Standards** — Set clear, consistent testing benchmarks for every batch.

04

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**Scaled Production** — Transitioned from small custom batches to larger, more controlled monthly mix batches.

# The Results

**0**

## Rejections

Over 18+ months of continuous supply



## Tighter Tolerances

Significantly improved batch-to-batch consistency

**18+**

## Months

Of uninterrupted, high-quality delivery

Because this fluid plays a critical role in the customer's sensor technology and data collection, improved consistency also led to greater accuracy and reliability in their end product.

A pipette is shown dispensing a small amount of liquid into a beaker. The background is a soft-focus laboratory setting with various glassware.

# Key Takeaway

"Process control is just as important as product formulation — especially when performance depends on precision." — GSE

At GSE, we partner with customers to solve complex manufacturing challenges through disciplined formulation, rigorous process controls, and a commitment to consistent quality.