# **CASE STUDY: AUTOMATING QUALITY CONTROL FOR IMPROVED PRODUCT PURITY**

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**Client:** SynthoChem Solutions, a specialty chemical manufacturer

**Challenge:**

Manual quality control procedures for a key solvent product were proving to be a major bottleneck.

Operators were required to take samples from the production line every hour and perform manual analyses to ensure product purity met regulatory standards.

This process was time-consuming, prone to human error, and often led to delays in production if a batch needed to be re-processed.

Management was concerned about the risk of non-compliance and the associated costs of product rework.

**Solution:**

SynthoChem partnered with NL corporation to implement a new inline analytical sensor system.

The system was installed directly on the production line, providing continuous, real-time data on the solvent's purity.

Instead of taking manual samples, operators could monitor the product's quality on a dashboard.

The system also included an automated alert feature that instantly notified the team if purity levels deviated from the specified range, allowing for immediate adjustments to the process.

**Results:** The implementation of the inline sensor system had a significant impact on SynthoChem's operations:

* **25% Reduction in Rework:** The real-time monitoring and immediate alerts allowed operators to make proactive adjustments, reducing the number of batches that required costly rework.
* **100% Regulatory Compliance:** The continuous data logging and automated system ensured that every batch consistently met and exceeded the required purity standards, eliminating the risk of non-compliance.
* **15 Hours of Labor Saved Per Week:** The automation of the sampling and analysis process freed up operators, allowing them to focus on more critical tasks and improving overall plant efficiency.
* **Increased Production Speed:** With reduced delays and fewer quality issues, SynthoChem was able to increase its production throughput without compromising on product quality.

**Conclusion:** By embracing automated inline sensors, SynthoChem Solutions transformed its quality control process from a reactive bottleneck into a proactive asset, proving that smart technology can directly lead to increased efficiency, reduced costs, and enhanced regulatory confidence.