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Case Study

Optimizing Airflow and Capture Efficiency at Innospec

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+1-888-890-0728

info@kogi-es.com

P.O. Box 18461, Greensboro, NC 27419, USA

The Challenge

Kogi Environmental Solutions was brought in to assess a critical air quality problem at Innospec's facility. Buildings 4 and 7 were experiencing insufficient airflow and poor fume capture, traced back to a combination of system limitations that had compounded over time.

The site assessment revealed three core issues.

First, the existing exhaust fan was severely undersized, delivering only 5,000 CFM at 2" static pressure, while the Smoghog scrubbers required 8,250 CFM at 3.25" static pressure each.

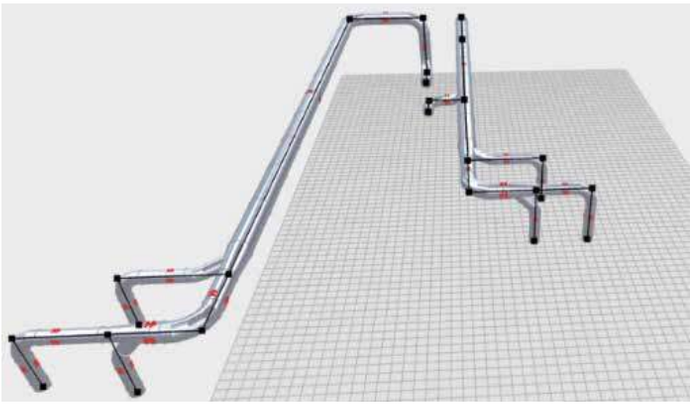
Second, ductwork had been progressively reduced from the original 18" inlets down to 10" and in some cases 8", with several pickup points capped off entirely, drastically restricting airflow.

Third, hood enclosure gaps at conveyor ends were allowing mist and fumes to escape into the facility, further reducing capture efficiency.

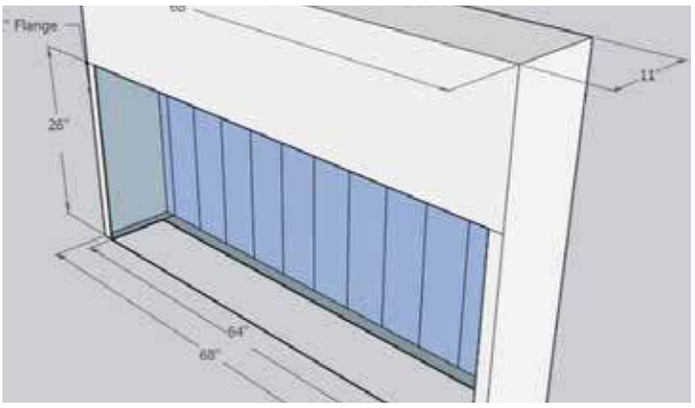
The Solution

Kogi developed a comprehensive technical plan covering three areas of intervention.

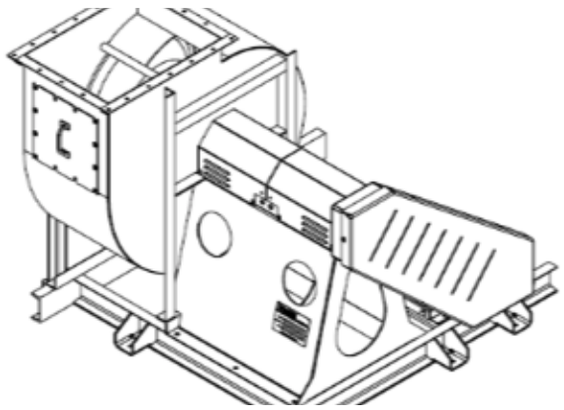
Ductwork	Hood Containment	Fan System



On the ductwork side, the plan called for restoring duct inlets back to the original 18" diameter, installing three strategically placed pickup points per hood, and using water-tight ductwork throughout to ensure long-term system integrity.



For hood containment, corrosion-resistant strip curtains were specified to fully enclose conveyor ends and minimize fugitive emissions, along with stainless steel hood extensions to close existing gaps.



For the fan system, a new roof-mounted stainless steel industrial blower rated for 8,250 CFM at 11" static pressure was selected, complete with five wash nozzles for improved cleaning and longevity. A Variable Frequency Drive (VFD) was integrated to enable dynamic airflow control and pressure-based calibration.

As a forward-looking measure, Kogi also proposed mechanical filter testing within one Smoghog stage to evaluate efficiency gains, with potential scalability if results proved positive.

Implementation Scope

The installation plan included full ductwork and hood upgrades, curtain installation, and fan replacement, with an estimated lead time of 10 to 12 weeks following submittal approval.

Maintenance recommendations were also upgraded significantly, moving from an 8 to 9 month service cycle to monthly maintenance, with enhanced cleaning protocols and increased electronic component monitoring.

Results and Next Steps

The proposed upgrades deliver improvements across three fronts.
On the mechanical side, restoring original duct diameters and replacing the fan with a new industrial blower sized for 8,250 CFM at 11" static pressure **brings the system back to its designed performance capacity.**

For containment, stainless steel hood extensions and corrosion-resistant strip curtains **minimize fugitive emissions and improve long-term durability.**

Looking ahead, VFD integration enables dynamic airflow control and pressure-based calibration, while mechanical filter testing in the Smoghog units **will evaluate potential efficiency gains for future scalability.**

On the maintenance side, the project also addresses a critical service gap. **Maintenance frequency moves from every 8 to 9 months to a monthly schedule,** electronic component monitoring is upgraded from standard to increased, and cleaning requirements are elevated from routine to enhanced, ensuring the system performs reliably well beyond the initial installation.

The project positions Innospec's facility to restore full system airflow, dramatically improve fume capture efficiency, and achieve long-term operational reliability, while staying ahead of tightening OSHA and EPA requirements for industrial air quality.

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Looking for more details?
Let us guide you!

USA
1-888-890-0728
info@kogi-es.com
kogi-es.com

Canada
1-888-890-0728
info@kogi-es.ca
kogi-es.ca