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DUST, FUME AND MIST COLLECTION

Chemical Mist, Fume and Dust Collection is Critical

Chemical applications entail handling of organic or inorganic raw materials while they undergo chemical conversion or processing into finished products. Some of the more common chemical processes include weighing, batching, blending, mixing (mulling), drying, burning, calcining, hydrating, sizing, screening and packaging.

Benefits of a successful industrial filtration system applied on chemical processes include:

- Worker health and safety
- Facility and asset safety
- Extended machine life
- Improved product quality and consistency
- Reduced housekeeping and equipment maintenance
- Regulatory compliance

Are you faced with any of these air filtration chemical process control difficulties? We can help.

- Moisture carryover and upset conditions
- Cross contamination issues
- Static difficulties in dust cake release or even explosion related hazards of the dust
- Sticky or lightweight dusts that create high differential pressure issues
- Continuous production bottlenecks
- Plugged ventilation lines, abrasion in ductwork and filters

OVERVIEW AND PRODUCT SOLUTIONS

- **Overview**

Contaminant Characteristics

Contaminants from chemical processes range from large heavy to light fine particulates, liquid mists and fumes. Collected material may have reactivity with the collection equipment materials. Some contaminants may be hygroscopic or agglomerative when exposed to moisture. Process contaminants can present additional challenges including hazardous effects on workers, material value, chemical reclamation and spent chemical disposal.

Chemical Contaminant Hazards Worker inhalation and exposure to contaminants is a critical concern in chemical applications. An additional concern is cross-contamination with other materials which may impact product quality and safety. Many materials commonly used in chemical applications may also be combustible and/or explosive posing a significant threat to workers and facility safety. A complete assessment of material characteristics is essential to mitigate the hazards associated with controlling the

contaminant.

Recommended Approaches for Chemical Contaminant Control

Approaching chemical applications begins with aligning the control technique with the process as well as any related considerations such as product reclamation, cross-contamination or disposal:

Source Capture. Whenever possible, capturing and controlling the contaminant at the source is the recommended approach. Source capture involves utilizing various types of hoods to extract the contaminant at or near the generation point to protect the worker and prevent the fume or dust from migrating elsewhere into the facility. Source capture is the most effective means of capture and requires the least amount of energy and initial investment to accomplish. Source capture can be accomplished utilizing dust or fume extraction arms or local fixed hoods incorporated as part of the chemical process machinery.

Local Containment. Containment isolates the dust or fume-generating process from the rest of the facility and protects the contained area. An example would be a portioned area kept under negative pressure with the extracted air ducted to a dust or mist collector located remotely or drawn directly into a local collector. In some cases, the filtered air can be safely returned back into the facility to create a push-pull airflow pattern to improve the contaminant control.

Industrial filtration solutions for chemical processes may also require special options or accessories to improve the safety and reliability of the system. Bag-in / bag-out filter and collection drum options can be used to limit exposure and cross-contamination of collected material when performing filter and dust removal maintenance. Additional features such as duct and equipment clean-out doors, stainless steel construction, safety after filters (ASHRAE, HEPA) and FDA compliant paint are also commonly utilized with the air filtration unit based on contaminant properties. Fire retardant cartridges, sprinkler connections, explosion vents, suppression systems, backdraft dampers or other safety devices are common when handling combustible and / or explosive materials.

Product Solutions

We deliver unparalleled support. We produce, install, inspect and troubleshoot after the sale, all from a single source. You will find we have the most comprehensive selection of commercial and industrial filtration products and systems in the market that can be utilized to safely control chemical contaminants. The list below indicates our products that are most commonly applied in these applications. Our application engineers can help you select the right product with the appropriate options and accessories such as explosion vents (swing door or rupture panels), sprinklers, safety after-filters, dust collection filters for your baghouse, rotary air locks, and more to meet your specific application and facility needs

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