PLANTSERVICES

Top Tips
Air System Solutions Safeguard Employees, Assets and Compliance

If left unchecked, dust and mist generated during normal operations can create an unsafe workplace, environmental pollution, poor equipment performance and housekeeping issues. Uncontrolled mist and dust also jeopardize compliance with U.S. Occupational Safety & Health Administration (OSHA) and Environmental Protection Agency (EPA) regulations.

The key to protecting employees, remaining compliant and improving plant performance is to select the right industrial dust and mist collection system for your facility. The following tips provide expert insight into specifying an air system that addresses your specific contaminants, ensuring the health and safety of your workforce, as well as the success of your operation.

1

Air systems are not one size fits all.
Choose a provider with the experience to solve your problem.

Almost every industrial operation generates airborne pollutants in the form of dry dust or mist. Dusts and powders, many of which are combustible, are commonly found in general manufacturing, food processing, woodworking and other industries, while mists are experienced in machine shops and metal working operations.

Because every application is unique, it's critical to find an equipment provider with experience and a portfolio of solutions to effectively address your business's specific air quality issues. A knowledgeable provider will not force-fit a solution; rather, they will strive to understand key details about your operation and direct you to the optimal solution.

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Your provider will want to know what types of pollutants are to be collected and whether they are hazardous or combustible. They will also ask questions regarding the process and the materials involved, the layout of the facility and the location of the application of concern.

2

Understand the basics of dust collection: Source capture vs. ambient capture.

Air systems are based on either source- or ambient-capture methods. The application itself will dictate which one will provide the best solution.

Source capture can include shrouds, extraction arms, side/back draft registers and canopy hoods and is applied in operations with a concentrated source of contaminants, such as dust, fumes and mists.

Source capture technologies like cartridge dust collectors, which can be portable or stationary, single or multiple extraction points, effectively remove harmful pollutants that result from common manufacturing processes, including grinding, welding, buffing and sanding, laser and plasma cutting, woodworking and food processing. Fume extractors provide a safe and effective solution for fumes generated by welding, laser cutting, bulk powders, stone, fiberglass and other materials.

Ambient capture filters and cleans pollutants that are suspended in the air throughout the entire facility and is used where source capture is not practical or possible, such as large-scale and heavy equipment manufacturing. Factory dust and mist collectors contain filters for removing smoke, oil mist and other pollutants from a facility and provide an economical solution for capturing harmful contaminants. Ambient and source capture solutions may be used together because there are occasions were either capture technology may not be 100% effective in removing pollutants on their own due to limitations of the application or facility.

Collection equipment is available in many forms, but finding the most effective solution for your specific contaminants is critical to success. A good starting point is to reference guidelines, standards and codes from the American Conference of Governmental Industrial Hygienists (AGCIH), EPA, National Fire Protection Association (NFPA) and OSHA, and to consider your particulate type, work process, facility and required outcome. Conducting a Dust Hazard Analysis (DHA) and using engineering controls, such as source capture, local extraction, ambient filtration and mechanical ventilation systems, will help you create the optimal solution for achieving compliance, reducing exposure and removing pollutants from the workplace.

3

Find the ideal air cleaning technology: ESP vs. Media.

Both electrostatic precipitator (ESP) and media technologies can be applied across a range of industrial dust and mist collection applications. Comparing ESP and media-type collectors will help you understand which will work best for your application.

ESP, an effective and efficient collection solution, removes particulate matter from the air stream via an electric charge that attracts particles to oppositely charged collector plates for removal. Ideal for collecting fine particles, including smoke, ESP is energy efficient and can collect wet or dry particulates. However, pre-filter and ESP component cleaning are required. ESP is best for clearing machining mists and pollutants generated during metal drilling/milling/turning, metal quenching, plastic and plastic extrusion processing, soldering, welding and wet grinding.

Media-based technologies employ specialized filter materials to capture, filter and contain dust and mist. Primary filters offer high levels of efficiency, and secondary filter options can further boost efficiency and offer a backup to the primary filter. Automated primary filter cleaning processes, proper coalescing design and long filter service life are advantages of media-based solutions, but routine filter replacement and disposal may be necessary. Media technologies are ideal in metal working, general manufacturing and woodworking operations.

4

Invest in a well-designed system to achieve savings.

Besides supporting OSHA and EPA compliance and adhering to the safety standards and codes developed by the National Fire Protection Association (NFPA), a well-designed and effective air system enhances workplace health and safety, improves equipment performance and product quality, and minimizes housekeeping efforts. Additionally, the reduction in employee absences increases productivity and slashes costs associated with workplace-related illness. Together these benefits achieve significant operational savings to boost the bottom line.

5

Don't be intimidated. Let experts tailor an air system that meets your requirements.

No matter the problem, you will need a partner with a portfolio of effective, efficient dust and mist collection solutions. Parker Hannifin application specialists are available to analyze your process and develop a configured air cleaning solution that will keep employees safe, facilities in compliance, equipment running and costs down.

Learn more about Parker Hannifin's solutions at www.parker.com/airquality and Click Here to Contact a Clean Air Expert Today