

# A Spark of Prevention: Trinity Mitigates Manufacturer's Combustible Dust Risks



## CHALLENGE

A global leader in healthcare solutions generates significant plastic dust within their high-volume manufacturing environments. To remain proactive, avoid future incidents, and comply with global regulations, the manufacturer needed a DHA for one of its largest U.S. facilities to determine what mitigation steps might be necessary.

## SOLUTION

Trinity conducted a detailed DHA to map out potential dust hazards and ignition sources and recommended engineering controls, updated SOPs, and a global management framework to address combustible dust risks effectively.

## RESULT

The manufacturer installed new dust suppression and venting systems, implemented enhanced training and inspection programs, and enlisted Trinity's support to complete DHAs throughout the U.S. and Latin America. The partnership has led to a safer work environment and a strong, ongoing relationship.

A global leader in healthcare solutions faced a critical need to address combustible dust hazards at one of its major U.S. facilities, which produces healthcare support products using high volumes of plastic materials. Concerned about safeguarding both its workforce and operational integrity, the manufacturer needed a reliable way to identify potential dust explosions and bring its operations in line with rigorous safety standards. Already familiar with Trinity Consultants' expertise from other environmental initiatives, the EHS&S team enlisted Trinity's help to conduct a thorough Dust Hazard Analysis (DHA) and recommend effective risk-reduction measures.

## CHALLENGE

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One of the global healthcare manufacturer's U.S. facilities specializes in producing personal healthcare products that require large amounts of plastic materials. When processed at high volumes, these plastics can generate significant fine dust particles, leaving the facility vulnerable to potential fires or explosions if the dust accumulates or ignites. The EHS&S team wanted to stay ahead of any potential problems by understanding exactly where dust hazards existed, how severe they were, and what engineering or procedural improvements might be necessary.

The company also needed to maintain compliance with multiple layers of regulation, including OSHA's General Duty Clause, which requires employers to provide a workplace free from recognized hazards that are causing or are likely to cause death or serious physical harm, and the National Fire Protection Association (NFPA) standards. These regulations also served as a roadmap for the company's global facilities, creating the additional challenge of developing a cohesive strategy that could be adapted to regional regulatory requirements around the world. Eager to be proactive rather than reactive, the client's leadership team understood that the company needed expert support to conduct a formal DHA and identify the best path forward.

## SOLUTION

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Trinity was brought in as the manufacturer's leadership team was confident in the firm's previous track record delivering practical, effective solutions in other environmental and safety areas. Trinity's experts began by carefully examining each step in the plastics manufacturing process to determine where dust was generated and where it could accumulate. Through site visits and in-depth discussions with the manufacturer's teams, Trinity assessed the equipment currently in use, highlighted possible dust hot spots, and documented potential ignition sources. Building on these findings, Trinity developed a highly detailed DHA that delved into the explosibility properties of the plastic materials and established clear risk tolerance criteria. This comprehensive evaluation outlined hazard classifications, described potential ignition sources and their likelihood of occurrence, and rated each piece of equipment according to severity and risk. Trinity's DHA offered equipment-specific recommendations—from specialized dust collection and venting systems to grounding and bonding measures—while also emphasizing updated safe work procedures, personal protective equipment, and a robust change management process. Trinity also suggested the client formalize an SOP that aligned with U.S. regulatory requirements yet remained flexible enough to be adapted to regional regulations around the world.

## RESULT

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Following Trinity's thorough DHA and targeted recommendations, the EHS&S team moved swiftly to implement a range of corrective actions at its U.S. facility. The company installed enhanced dust collection systems, introduced new suppression and venting equipment, and adopted a rigorous maintenance and inspection program to ensure long-term effectiveness. Employees received updated training and clear guidance on safe work practices, creating a culture of proactive safety and accountability.

Buoyed by the success of the first site, the manufacturer replicated the analysis at several other US facilities and a facility in Latin America. By adapting Trinity's recommendations to local regulations, the local team gained corporate approval to roll out similar systems and operational procedures, ensuring that each site follows a consistent, high standard of safety. Looking ahead, the manufacturer anticipates expanding this combustible dust management framework to other facilities around the globe. The teams continue to maintain close communication to address new challenges and regulatory requirements as they emerge, ensuring that their successful partnership continues to evolve.

"Trinity's deep expertise and attention to detail made all the difference as we worked to proactively manage our combustible dust challenges," said Associate, EHS&S Training and Development at Global Healthcare Product Manufacturer. "Trinity's recommendations didn't just help us meet regulations; they empowered us to think differently about risk and safety across our facilities. We are a stronger organization because of their guidance."

### ABOUT TRINITY CONSULTANTS

Trinity Consultants, a leading global environmental consulting firm, provides services and solutions in the EHS Regulatory Compliance, Built Environment, Life Sciences, and Water & Ecology markets. Founded in 1974, Trinity has the technical expertise, industry depth, and capabilities to help clients achieve their goals across the natural and built environments.