

# Equipment Manufacturer Keeps Workers and Environment Safe with Dust Control System



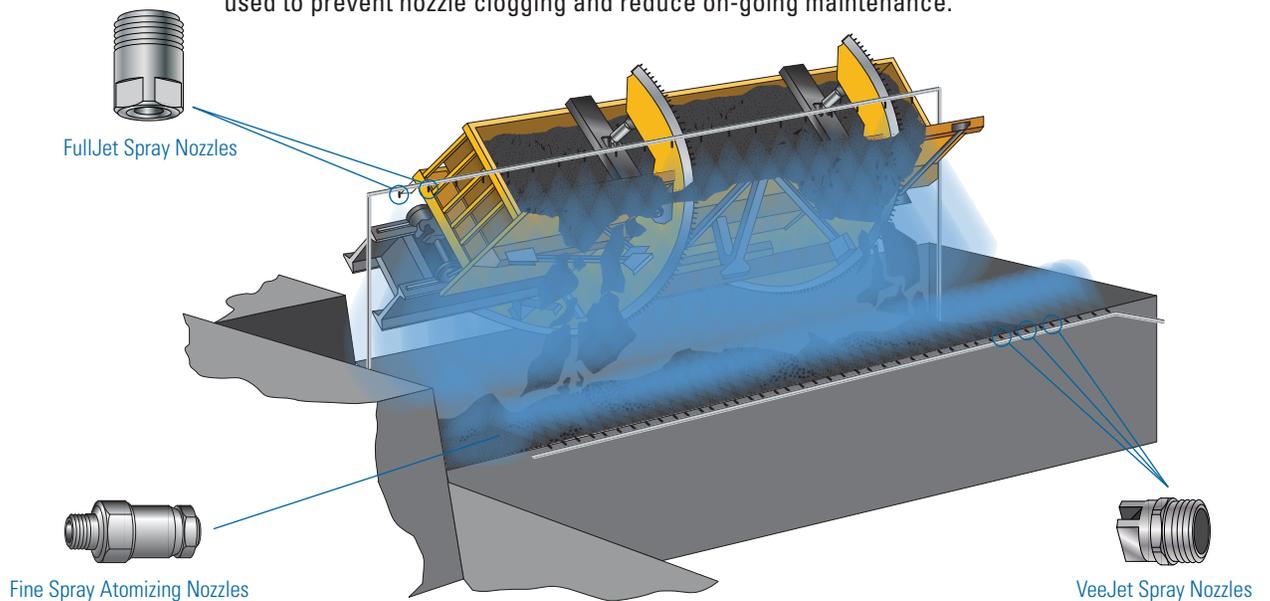
## Problem:

A leading manufacturer of bulk handling equipment in Brazil needed a system to control iron ore dust. When the rail cars are used by customers, they are inverted for unloading so the iron falls from the cars into chutes. The manufacturer's customers could be jeopardizing the health of its employees and facing significant environmental fines without effective dust control. The manufacturer determined a specific volume of water with specific drop sizes was required to effectively suppress the dust without creating sludge.

## Solution:

The Spraying Systems Co. solution was a fluid delivery system including pumps, filtration, and three spray manifolds. One manifold, positioned above the tracks, sprays in a downward direction. Two other manifolds spray the iron ore directly as it falls from the inverted rail car. This arrangement effectively controls the dust during unloading.

The dust control system uses hydraulic nozzles and eliminates the need for the costly compressed air often required in other systems. The top header uses FullJet® full cone nozzles to provide a uniform distribution above the rail car. The headers spraying directly on the falling material each use VeeJet® flat spray nozzles for greater impact on the iron ore. Additional hydraulic fine spray nozzles are installed in the chutes below the rail car to further minimize the dust. More than three hundred hydraulic nozzles are used in the system. Centrifugal pumps supply water to the spray manifolds and liquid line strainers are used to prevent nozzle clogging and reduce on-going maintenance.





## Equipment Manufacturer Keeps Workers and Environment Safe with Dust Control System – Continued

### Results:

Dust is now effectively suppressed at the equipment manufacturer's customer locations. A safe work environment for employees is ensured in the unloading area and customers are able to maintain compliance with environmental regulations, avoiding fines which could amount to several hundred thousand dollars per year. An additional benefit for end-user customers is that the system operates without costly compressed air and gives the manufacturer a competitive advantage.

### A CLOSER LOOK AT THE SYSTEM



**FullJet® nozzles** produce a solid cone-shaped spray pattern with medium to large drops that are frequently used for dust control systems. Positioned above the rail cars, the FullJet nozzles cover the dumping area with the correct size drops for effective containment of the dust.



**VeeJet® nozzles** produce a thin, tapered-edge, rectangular spray pattern with medium sized drops and higher impact. Positioned to the side of the rail cars, the higher impact spray penetrates the falling iron ore and provides effective dust control.



**Fine spray atomizing nozzles** produce a finely atomized hollow cone spray pattern with very small drops. Positioned in the chutes below the rail car, the misting spray of the LN nozzles helps contain the dust created under the rail cars.



**Spraying Systems Co.®**  
Experts in Spray Technology

North Avenue and Schmale Road, P.O. Box 7900, Wheaton, IL 60187-7901 USA

Tel: 1.800.95.SPRAY Intl. Tel: 1.630.665.5000

Fax: 1.888.95.SPRAY Intl. Fax: 1.630.260.0842

www.spray.com



Case Study No. 193 ©Spraying Systems Co. 2014