

GREEN FOUNDRY CASE STUDIES

AIR EMISSIONS

Volatile Organic Compound (VOC) Reduction with Switch to Water-Based Paint



BEFORE



AFTER



AFTER

Description

The facility switched from a high VOC solvent-based asphalt paint to a lower VOC water-based asphalt emulsion paint. The outdoor underground paint storage tank was replaced with an aboveground bulk storage tank located indoors.

Environmental Benefits

- VOCs were reduced by approximately 58%, including using 1,200 gallons less thinner and 2,500 gallons less solvent-based asphalt paint.
- Reduced reportable spill risk by moving the entire process indoors.
- Eliminated risk of an undetected leak occurring from the old outdoor underground paint storage tank.

Cost & Savings

Cost—the total cost for the indoor dip tank was \$41,000. This included the tank, built-in secondary containment, crane, cover and hoist system. There was an additional \$10,000 fee to have the outdoor tank removed.

Savings—a calculated savings of over \$25,000 per year due to reduced solvent and paint usage.

Other Benefits

Safety

- Unlike the solvent-based paint, the new asphalt emulsion paint is non-flammable.
- Reduced hazard of team members slipping or falling on ice and snow because the task is no longer performed outdoors.
- Team members were previously required to scrape the dried asphalt off the dipped part transport trays, which was very labor intensive.
- The old outdoor dip tank was flush with the ground and even though safety rails were installed, there was still a slight possibility for someone to accidentally fall into the tank. The new tank sits at ground level and the sides are about 5 feet high, thus decreasing the likelihood of falling in.

Production

- This process is now performed in the same work area in a continuous sequence without the need to transport machined parts by fork-lift to and from the outdoor dip tank (500 ft. away); thus, improving process efficiency.

Quality

- This dipping process can now be performed year-round and is no longer weather or temperature dependent. In the past, team members could not dip parts when the temperature was below -10 C (14 F) or during stormy weather.

Morale

- Team members appreciate being able to work indoors rather than outdoors in cold temperatures.
- There were several team members involved with this project from beginning to end and they appreciated the opportunity to offer their opinions to improve the process. Even team members who were not directly involved with the change were kept informed of the upgrades through tool talks and electronic communication boards.

Applicability

Water-based paints could be considered at any facility where solvent-based paints are used. Any process can be improved by reducing travel time and improving product movement and flow.

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