
Less Paint is More at International Truck and Engine Corporation

International Truck and Engine Corporation (<http://www.internationalengines.com/index.aspx>) participated in the Illinois Waste Management and Research Center's (WMRC's) Cutting Edge Partnership and reduced the amount of coating and volatile organic compounds (VOCs) used in their production process.

Background

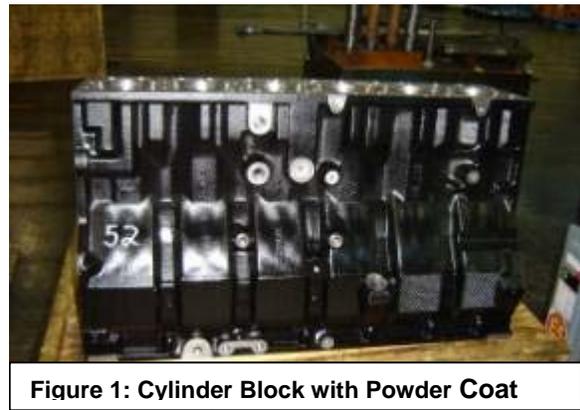
International Truck and Engine's Melrose Park facility manufactures inline six cylinder diesel engines that are used for Class 6 and 7 trucks and school buses. During its lifetime, the facility has manufactured more than 1.5 millions engines and was one of the first Diesel Engine Manufacturers in North America to be ISO14001 Certified.

As part of their commitment to the environment and ISO14001, International is always looking for new pollution prevention opportunities. Part of the engine manufacturing process at the Melrose Park Plant requires painting the engines to prevent rust.

Pollution Prevention Project

The plant recently began manufacturing the company's new I-326 2007 EPA compliant diesel engine. Previously, all engines manufactured at the plant were completely spray painted for protection. However, some of the components of the new engine were already powder coated and did not require repainting (Figure 1).

International staff and WMRC engineers worked together to find a more effective, efficient, and environmentally friendly coating alternative that also complied with EPA standards. They identified engine components that needed protection and developed a new paint that satisfied the company's quality and environmental requirements. At the start of the project, the engineers identified amount of paint used in the manufacturing process. The paint booth meters measured the amount of paint used. Company personnel monitored the amounts and recorded the data in their environmental management system.

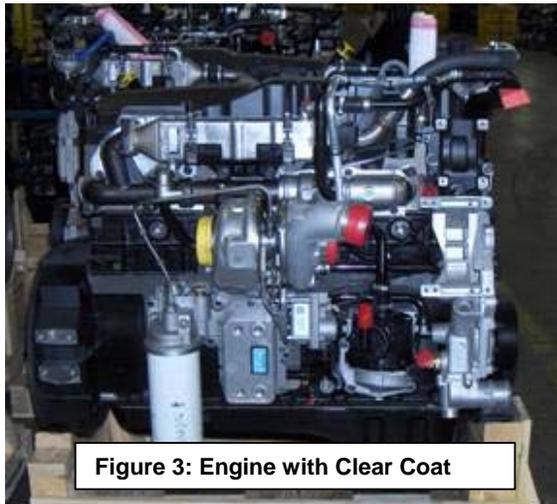


The Production and Environmental departments of the plant worked together with the technical and sales personnel from Hentzen Coatings, Inc. (<http://www.hentzen.com/>) to formulate a product that met International's specifications and EPA Air Permit requirements. The new coating is water-based, which reduces VOC emissions. Shown in Figure 2 is an engine covered in the Blue Coat paint used on all engines of this model prior to January 2007. A gallon of Blue Coat paint covered only 4 engines (4 engines/gallon).



The new Clear Coat formulation (Figure 3) covers an average of 23 engines per gallon. This allows maximum protection of the engines with minimum use of paint.

The Clear Coat paint is used with a pre-programmed robot to coat only certain areas of the engine. This finish gives the engine a bolder look by allowing all parts to be seen in their natural or machined finish (Figure 3). Manufacturing Engineers, Test & Paint Process Engineers, Quality Engineers, and the Environmental Team implemented this project, with the support of the plant management.



Benefits

This project reduced International's paint costs. Because they use less paint, they also reduced their paint sludge waste and the associated disposal costs. One gallon of Clear Coat paint covers 23 engines. Thus, the annual savings on paint purchased and on paint sludge waste disposal costs are:

Paint Reduction (from 2006 to 2007) = 82% (about 11,000 gallons/year)

Paint Sludge Reduction (from 2006 to 2007) = 12.5%
Annualized Savings (paint usage & waste disposal savings) = \$ 115,000/year

For more information

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