

Solvent Usage and VOCs decreased at Silgan Containers in Savage!



"It is important to reduce emissions to ensure long-term success of Silgan, our employees, and the environment." –Silgan Sustainability Group

Background:

Silgan Containers is the largest provider of metal food packaging in the United States. Its history can be traced all the way back to 1899, when Carnation Company opened its first self-made can operation. In 1987, Silgan Containers Corporation was created with the purchase of Carnation's Can Division. As a manufacturer of a 100% recyclable can, Silgan Containers is aware of the importance of operating a sustainable business. Reducing emissions is a win-win solution for their production, their people, and the environment.

Process:

VOC reduction occurred at the Silgan Containers facility in Savage in their metal sheet coating operations. Pre-cut steel sheet metal is passed through the roll-coaters to transfer protective coatings to the surface of the metal. After coating each sheet, the lower roll coater must be cleaned to prevent imperfections in the transfer of coating to the next sheet of metal. The coated sheets are then conveyed into a curing oven. After curing, the coated sheet metal is further processed at the Savage facility or other Silgan Can locations to make can bodies or can ends.

Motivation:

The motivation to find solvent and VOC (Volatile Organic Compound) reductions stems from Silgan's commitment to protecting the environment, the health and safety of its employees, and the public. This reduction process has helped the company on the path to accomplishing this mission by reducing TRI (Toxic Release Inventory) air releases and VOC emissions over the past decade.

Reduction Process:

The solvent and VOC reductions at Silgan in Savage occurred through two changes. The largest reduction involved the implementation of a hardened steel scraper (or "doctor") blade in the roll-coating process. Similar to a doctor blade used in lithographic processes, the steel scraper blade removes residual coating on the roll after the transfer of coating to the sheet of metal. Unlike the previously used plastic scraper blades, the steel on steel contact eventually hones the blade to exactly fit the grooves and imperfections on the coating roller. Since small amounts of coating no longer remain on the coating roller, there is no longer a need for the coating roller to pass through a felt wiping pad saturated with solvent to removed coating residuals. The elimination of the secondary step of solvent wiping decreased cleaning solvent usage throughout the process on the two roll coaters from 20,000 gal in 2003 to 6,000 gal in 2013.

The second change was the adoption of water based coatings. Silgan was fortunate enough to have suppliers willing to develop these waterbased coatings and to have customers welcoming of the changes. These changes have resulted in significant reductions in both VOC and TRI reportable air releases at Silgan in Savage.

YEAR	TRI AIR RELEASES (LB)	TOTAL VOC (LB)
2003	48,470	393,749
2011	3,087	317,482
% REDUCTION	93.6 %	19.4 %

