



## Koninklijke Hoogovens and the European Coil Coating Association

Koninklijke Hoogovens were requested by Dutch regulators to change from a solvent-based system in their coil coating operations to a water-based paint or powder systems. However, they were reluctant to do so mainly because of the high performance afforded by solvent based paints (proven durability for more than 25 years).

Coil coating is a process where in a continuous coil of metal is unwound, cleaned, surface-treated, coated (from a tray with a rollercoat system), heat-cured, cooled and rewound in one operation at a speed up to 100m/min. Coil coating has been a well established practice since 1930 and the process has been highly automated now.



Koninklijke Hoogovens and the European Coil Coating Association (ECCA) linked the coating process with solvent based paint to a capture system which feeds the evaporated solvents to an integrated incinerator. The resultant heat is used for the curing ovens. This has been shown to be best practice for the industry and indeed results in considerably lower VOC emissions (by a factor of 50-100) than the use of non-solvent coating systems with comparable energy requirement. Furthermore, the latest equipment has shown a further 90% emission reduction compared to the industry average. ECCA-Nederland asked an independent institute (TNO-industry in Delft) to make a study regarding the emissions of solvents from coil coating and energy consumption.

The results of the study indicated that solvent emissions were only 0.3% of the total use of solvents and only 0.02% in the newest production line. It was also established that the solvent emissions were only 0.006g/m<sup>2</sup> in a coil coating process versus 0.1-0.5g/m<sup>2</sup> in a powder coating process. The energy consumption of powder and coil coating processes were

comparable (5-10 Megajoule/m<sup>2</sup> coated material). Water based coatings could only be used in this application if they were heated (otherwise the water would cause corrosion). However, this would have increased energy consumption and the coating would not be durable enough for outdoor exposure in the Dutch climate.

Ultimately the Dutch authorities were convinced by the low emissions figures, the energy efficient process, and the fact that the process is constantly being improved. Based on the thorough evaluation, the company was not obliged to switch to a water-based or powder coating system.