

# Environmental Issues and Non-Impact Printing

Velliyur R. Sankaran, Sankaran Consulting (USA)

## Abstract

*The emissions from low speed and high speed non-impact printers during their life cycle have been documented.*

*This paper emphasizes key environmental aspects of toner materials including material constraints, air quality, recycling and end of life disposition details. The material constraints were apparently driven by regulatory agencies guidelines and customer perceptions. The requirements of regulatory agencies like OSHA, US EPA, Prop 65, JIS and Blue Angel will be reviewed. The maximum emission levels will be discussed for volatile organic compounds like benzene, Styrene, toluene, aldehydes etc.*

*The regulatory agency requirements, test procedures and official test protocols for toner manufacturers, raw material suppliers, and end users will be discussed. The environmental requirements of two major types of toners (styrene-acrylate and polyester) will be reviewed. The styrene based toners have an historical performance database and polyester toners are gaining massive usage at the present time. With the advent of nano materials, they do pose newer challenges for this industry. These aspects will be discussed in this paper.*

## Author Biography

*Velliyur Sankaran is working as a consultant in the non-impact printing industry. He has worked for IBM Printing Systems Company for 20 years and worked for OCE Printing for four years. He has worked on material and component development. He has special expertise on coatings as well as media application for both ink jet and laser printing systems. Sankaran has published four patents and numerous publications. He worked as a chemical coordinator for IBM printing systems and wrote Environmental Impact Assessment for Many IBM printers. Sankaran has a master's degree in chemical engineering and a Master's degree in Polymer science.*