

PAINTING OUR AIR:
REDUCING EMISSIONS OF HAZARDOUS WASTES
FROM AUTOBODY PAINT SHOPS

by
Daniel J. Sullivan
May 16, 1991

Submitted in partial fulfillment of the Requirements for the Degree of Bachelor
of Arts from the Center for Environmental Studies at Brown University.

Abstract

For the past ten years Rhode Island has been out of compliance with the ozone standards established by the EPA. The 1990 Amendments to the Clean Air Act call for further reductions in tropospheric ozone levels. Since ozone is formed from reactions involving volatile organic compounds (VOCs), it is important to reduce the amount of VOCs present in the atmosphere. Autobody paint shops in Rhode Island emit VOCs in almost all phases of their work, yet the automotive painting industry here has never been called upon to reduce its emissions. With the implementation of the 1990 Amendments to the Clean Air Act, autobody paint shops will have to change their operations to reduce the amount of VOC emissions. Fortunately, it appears that this changeover **will** be economically profitable for the autobody painting shops within the State.

Some new technological equipment has appeared on the market that greatly decreases the amount of VOCs released into the atmosphere from surface coating industries. High volume-low pressure (HVLP) spray guns, which are now being manufactured by a number of different companies, can reduce the amount of VOC emissions in the auto painting industry by one half of what they are now. These spray guns reduce the actual amount of materials used, so the paint shop itself can likewise reduce its costs on materials by one half. The main drawbacks of the HVLP system in Rhode Island are ignorance of their availability and reluctance to change the old ways of operating shops.

This study illustrates the need for the change in the practices of autobody paint shops in order to reduce the amount of their VOC emissions, as well as methods that can effect that change. The implementation of HVLP spray guns, along with other technological improvements, such as minimum-solvent level paints and air filtration systems, will bring about an immense reduction of VOC emissions.