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Category: 5 – Surface Coating of Automobiles

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

DATE: June 18, 1982

SUBJECT: Prime Coating at Chrysler Assembly Plants

FROM: Darryl D. Tyler, Acting Director
Control Programs Development Division (MD-15)

TO: See Below

As you are aware, in 1979 EPA approved a schedule for the installation of reasonably available control technology (RACT) for volatile organic compounds (VOC) at Chrysler auto assembly plant paint shop facilities. This program calls for the installation of the electrophoretic deposition process (EDP) at these facilities prior to 1987. At the time of these negotiations, Chrysler considered the conversion to EDP necessary for competitive reasons related to improving corrosion resistance. Since that time, due to lack of funds, Chrysler has had to modify its approach to corrosion protection. In brief, they have placed greater emphasis on the use of precoated galvanized material in lieu of EDP. This has led to a request to restructure the agreed upon RACT plan.

Chrysler's prime coating operations differ significantly from those of other manufacturers. Historically, most auto assembly plants have applied the prime coat with a solvent-borne spray prime system. Chrysler's plants use a waterborne dip operation. While not as effective as EDP, the waterborne dip emitted significantly less VOC than the industry norm of spraying solvent-borne prime. Presently, Chrysler has efforts underway to further extend the use of galvanized material and its priming process to eventually totally eliminate the need for the dip operation. Although the technology has future promise for further reducing emissions, it is not sufficiently developed at this time to be considered RACT for existing plants.

Tables 1 and 2 present the emission limits and typical annual emissions from a facility. Because of the high capital costs involved in installing EDP (typically on the order of \$20-30 million per facility), approving the Chrysler waterborne dip operation as RACT appears reasonable. Accordingly, State Implementation Plan (SIP) revisions for Chrysler auto assembly plants which adopt a 2.2 lbs VOC/gal (less water) VOC emission limit, should be considered approvable as RACT for these facilities.

If you have any question in this regard, please call me or John Calcagni at (FTS 629-5665).

Attachment

Addressees:

Stephen Wassersug, Director, AWMD, Region III

Dave Kee, Director, AMD, Region V

David Wagoner, Director, AWMD, Region VII

cc: Director, AWMD, Regions II, IV, VI, VIII, X
Director, AMD, Regions I, IX

Attachment

Table 1

 Comparison of Chrysler Emission Limits to
 the Presumptive Norms

	lb VOC/gal applied (less water)		
	RACT	1982 Typical Chrysler Levels	1987 Recommended Chrysler Limits
Dip Prime	—	3.02	2.2
EDP	1.2	—	
Guide Coat	2.8 ¹	3.67	3.67

¹ The effect of Chrysler's much higher transfer efficiency more than offsets the solvent content of paint. Waterborne equivalence or RACT would result in 15 lbs. of VOC emissions per gallon of deposited solids. Chrysler will emit only 13.1

Table 2

Comparison of Typical Annual Emissions From
 Priming and Surfacing Operations at a Chrysler Facility

	Tons/year
Typical spray prime system	750
Chrysler DIP system (1982)	474
Chrysler DIP system (1987)	414
EDP system	197