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Category: 16 – Surface Coating of Miscellaneous Metal Parts and Product

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

DATE: August 14, 1981

SUBJECT: Applicability of Miscellaneous Metal Parts CTG to the Coating of Electromotive Parts

FROM: G. T. Helms, Chief
Control Programs Operations Branch (MD-15)

TO: Chief, Air Programs Branch, Regions I-X

Inquiries have been received from several States on the applicability of the miscellaneous metal parts CTG to the coating of electromotive parts.

As explained in the attached letter from Dennis Crumpler, the coating of electromotive parts is covered under the Volume VI CTG, "Surface Coating of Miscellaneous Metal Parts and Products." It would be helpful if this information could be provided to the States.

Additional questions should be directed to the Technical Guidance Section, Tom Williams at 629-5516.

Attachment

cc: VOC Contacts. Regions I – X

Attachment

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

August 6, 1981

Mr. Thomas Tucker
Regional Air Pollution Control Agency
Post Office Box 972
Dayton, Ohio 45422

Dear Mr. Tucker:

You have asked if the control techniques guideline (CTG), Control of Volatile Organic Emissions From Existing Stationary Sources; Volume VI: Surface Coating of Miscellaneious Metal Parts and Products, was intended to cover varnish coating of electromotive field coil windings, D. C. motor armatures, and stator and coil assemblies.

Page 1-1 of Volume VI states that metal parts and products are coated for "decorative and protective purposes." "Protection" is further explained on Page 1-3 by listing several adverse conditions for which coatings provide protection, i.e., "moisture, sunlight, extreme temperature, abrasion and corrosive chemicals." Clearly the varnish is applied to the electromotive parts to provide protection against moisture, metal filings, or dust.

Your inquiry was the result of an allegation that varnish application in this industry is not truly metal-coating because of the dip and partially because some of the cured coating must subsequently be stripped from certain areas of the metal surfaces. From our perspective this can be likened to overspray from a spray operation which must periodically be removed from the walls of the spray booth, the conveyor and hangers. In both cases, coating is wasted because of an inherent inability to deposit the coating only in those areas where it is desired.

It is our opinion that this operation is truly a metal-coating operation subject to the Volume VI analysis for determination of the technology that is reasonably available for control.

Since use of a dip tank is typically one of the most efficient methods of applying a coating, (for these products, it may also be the only reasonable method), the coater is left with only two other possibilities: improving his air management and conversion to a low-solvent coating.

To select the most cost-advantageous the coater must appraise his entire coating operation. Good air management involves optimizing the capture efficiency of vapor collection devices associated with the coating line. It is particularly important when using many low-solids coatings, such as the

electromotive varnishes, because 70 to 90% of the solvent evaporates during the flash-off period before the coated substrate enters the oven. This greatly reduces the quantity of solvent that enters the oven and, as a result, installation of a incinerator often would not yield enough air pollution control to meet local standards. As a result, some companies will reevaluate their coating process, focusing on the delay between the dip tank and the oven, perhaps enclose this flash-off area, reduce and perhaps even recirculate its ventilation air in order to concentrate it sufficiently to render it more economical to incinerate or recover the solvent.

The second avenue for the coater, use of low-solvent coatings, may be more cost-advantageous. Two possibilities exist. He must seek coatings with acceptable performance that will comply with the regulations, or he must work closely with a coatings manufacturer to develop a satisfactory replacement coating.

Over the longer term it is likely that use of low-solvent coatings will be the most economical solution.

Sincerely yours,

Dennis W. Crumpler
Chemical Applications Section
Chemicals and Petroleum Branch

cc: Tom Williams, CPDD-EPA