

**PRELIMINARY INDUSTRY CHARACTERIZATION:
AUTOMOBILE AND LIGHT-DUTY TRUCK SURFACE COATING**

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I. Overview of First Phase and Next Steps for MACT Development

Under Section 112(d) of the Clean Air Act (the Act), the U.S. Environmental Protection Agency (EPA) is developing national emission standards for hazardous air pollutants (NESHAP) for the automobile and light-duty truck surface coating source category. The EPA is required to publish final emission standards for the automobile and light-duty truck surface coating source category by November 15, 2000. For this category, a national volatile organic compound (VOC) rule or control techniques guideline (CTG) under Section 183(e) is being developed on a similar schedule.

The Act requires that the NESHAP for new sources be no less stringent than the emission control achieved in practice by the best controlled similar source. For existing sources, the emission control can be less stringent than the emission control for new sources, but it must be no less stringent than the average emission limitation achieved by best performing 12 percent of existing sources (for which the EPA has emissions information). The NESHAP are commonly known as maximum achievable control technology (MACT) standards.

The MACT standards development for the automobile and light-duty truck surface coating category began in the summer of 1997 and continues as a coordinated effort to promote consistency and joint resolution of issues common across nine coating source categories.¹ For each of these categories, the first phase of standards development is one in which EPA gathers readily available information about the industry with the help of representatives from the regulated industry, State and local air pollution agencies, small business assistance providers, and environmental groups. The goals of the first phase were to either fully or partially:

- C Understand the coating process
- C Identify typical emission points and the relative emissions from each emission point
- C Identify the range(s) of emission reduction techniques and their effectiveness
- C Make an initial determination on the scope of each category
- C Determine the relationships and overlaps of the categories
- C Locate as many facilities as possible, particularly major

¹ The other eight categories are: fabric printing, coating and dyeing; large appliances; metal can; metal coil; metal furniture; miscellaneous metal parts; plastic parts; and wood building products. Work on these categories began with a Coating Regulations Workshop for representatives of EPA and interested stakeholders in April 1997.

- sources
- C Identify and involve representatives from each industry segment
 - C Complete informational site visits
 - C Identify issues and data needs and develop plans for addressing them
 - C Develop questionnaire(s) for additional data gathering and
 - C Document results of the first phase of regulatory development for each category.

The industry representatives that have participated in the first phase of the automobile and light-duty truck project were members of the American Automobile Manufacturers Association (AAMA), the Association of International Automobile Manufacturers (AIAM), the National Paint and Coatings Association, the Chemical Manufacturers Association and the Institute for Clean Air Companies. The States that participated in the process were Illinois, Louisiana, Ohio and Missouri. The Wyandotte County, Kansas Health Department also participated. The U. S. EPA was represented by Region V, the Office of Air Quality Planning and Standards, and the Office of Prevention, Pesticides and Toxic Substances. Representatives of the United Auto Workers and the Ecology Center of Ann Arbor also participated. Appendix A contains a list of participants.

The information summarized in this document may be useful to States that may have to make case-by-case MACT determinations under Section 112(g) of the Act. The first phase of the regulatory development focused primarily on paint shop emissions. Other HAP and VOC emitting operations conducted at automobile and light-duty truck assembly plants are also being considered, to the extent they are not covered by other source categories. This document represents the conclusion of the first phase of rule development.

This document includes a brief description of the emission control technologies EPA identified that are currently used in practice by the industry and that could serve as the basis of MACT. Within the short time-frame intended for this initial phase, however, only limited data were collected. The information summarized in this document was collected prior to August 31, 1998. Additional information will be collected and considered before the automobile and light-duty truck surface coating standards are proposed.

During the next phase, EPA will continue to build on the knowledge gained to date and proceed with more focused investigation and data analyses. We will also continue our efforts to coordinate cross-cutting issues. We will continue to identify technical and

policy issues that need to be addressed in the rule making and enlist the help of the stakeholders in resolving those issues.

Questions or comments on this document should be directed to Dave Salman (EPA/OAQPS) at 919-541-0859 or at salman.dave@epa.gov.

II. Summary of First Phase of MACT Development

EPA held two round table meetings in Research Triangle Park, North Carolina, on September 16, 1997, and December 10, 1997. The issues discussed at the meetings included overlap between source categories, emission points, possible formats for the standards, availability of information, mechanism for obtaining information from the automobile industry and from other stakeholders, State permitting practices and project timing. AAMA and AIAM representatives met with EPA on two other occasions to discuss approaches to information gathering.

EPA conducted site visits to three automobile assembly plants in the Detroit area. The primary focus of the site visits was paint shop operations. EPA also observed paint storage and mixing, windshield installation, wastewater treatment and emissions control systems.

State permit information and data from State agency files were reviewed. Other available information from the Common Sense Initiative Automobile Sector, the President's Council on Sustainable Development Automobile Project, and the EPA Office of Compliance Sector Notebook Project was also reviewed.

III. Industry Characterization

Background

At the present time there are 50 - 60 automobile and light-duty truck assembly plants in the U. S. The plants are all major sources for HAP emissions. Some other facilities may be within the scope of the source category. For example, facilities that coat sets of body parts for new vehicles at a location separate from the assembly plant.

Some of the facilities also have operations that will be subject to standards being developed for other coating source categories such as plastic parts coating and miscellaneous metal parts coating. At present, most assembly plants are subject to limitations on VOC emissions under New Source Performance Standards,

and State rules. Performance test and compliance data, permit limitations and coating compositions are available with regard to VOC. Much less information is available on an organic HAP or compound-specific basis.

General information on the automobile industry is available in, "Profile of the Motor Vehicle Assembly Industry", EPA 310-R-95-009, September, 1995, and "Common Sense Initiative: Automobile Manufacturing Sector Reference Notebook", December, 1994.

Emissions

The bulk of automobile and light-duty truck assembly plant VOC and HAP emissions originate in the paint shop, either as a result of the evaporation of solvents from the coatings applied or as a result of cleaning activities using VOC and HAP containing materials. VOC and HAP are emitted during the application and curing of primer, surfacer and anti-chip, topcoat, and to a lesser extent, sealers, deadeners and final (off-line) repair coatings.

Information on paint shop cleaning practices and emissions is available in "Automobile Assembly Plant Spray Booth Cleaning Emission Reduction Technology Review", EPA-453/R-94-029, March, 1994. Information on air emissions and waste streams from one assembly plant is available in "An Environmental Analysis of the Paint Shop at the Orion Assembly Center of the General Motors Corporation", President's Council on Sustainable Development, November, 1994.

A substantial amount of VOC and HAP containing solvent is used to clean spray booths, grates, and application equipment within the paint shop. Some emissions also occur as a result of paint mixing and storage.

Activities at assembly plants outside of the paint shop which may result in some VOC and HAP emissions include wastewater treatment, windshield installation, adhesive trim installation and fluid fill.

Control Techniques

Emissions of VOC and HAP have been decreased as a result of reformulation of coatings and other materials used. Emissions have also been reduced through improvements in the efficiency of the application process so that less coating material is used.

Control devices used on exhaust streams from spray booths, flash-off areas and bake ovens include concentrator systems and various types of oxidizers. The capture efficiency, i.e. the fraction of VOC and HAP used which is delivered to the control device is the major variant in the overall control efficiency. Practices vary within the industry with regard to which solvent laden air streams are directed to VOC and organic HAP control devices and which are not.

APPENDIX A. LIST OF PARTICIPANTS

NAME	ORGANIZATION
Aburrano, Doug	EPA Region V
Becker, Julie	AAMA
Berry, Jim	Berry Environmental
Butt, Kevin	Toyota
Calcagni, John	SAI/ICF
Chapell, Linda	EPA/Economics
Cibula, Gary	MSX
Coburn, Stacey	Ohio EPA
Comai, Andy	UAW Health/Safety
Cripe, Don	MO DNR
Darling, David	NPCA
Dickson, Wendell	BASF
Ewing, Gary	Nissan
Farmer, Jack	RTI
Fedorko, Bob	GM
Gearhart, Jeff	Ecology Center
Geil, Steve	US EPA
Giroir, Eric	MO DNR
Green, David	RTI
Griffith, Charles	Ecology Center
Gupta, Ajay	Durr
Hamilton, Briggs	BMW
Hanzel, Ronnie	Kevric
Heyob, Karen	Honda
Hirner, Stephanie	Wyandotte County, KS
Hopkins, Peg	Geomatrix
Horvath, Stan	DuPont
Jones, Eric	MSX
Kafer, Natalie	Mitsubishi
Koman, Trish	EPA/CCPG
Leutterbach, Mark	Red Spot Paint
Lilly, Amy	AIAM
Litton, Ronald	Eastman Chemical Company
Madigan, Sean	Honda
Marable, Brent	EPA Region V
Marting, Robert	LA DEQ
Mazzocco, Dave	PPG
Molinich, Stacey	RTI
Moy, Allan	BASF
Naour, Hank	IL EPA

Nelson, Bob
Penna, Dick
Pierre, Kris

NPCA
AIAM
EPA/OPPTS

NAME	ORGANIZATION
Praschan, Gene	AAMA
Reeves, Kathleen	US EPA
Rosenthal, Steve	EPA Region V
Ross, Rhonda	Howard and Howard
Salman, Dave	EPA/CCPG
Schnepp, Jason	IL EPA
Schultz, Carl	DuPont
Seamon, Cathie Jo	Ford
Sell, Jim	NPCA
Serne, Jim	TRC
Sorrell, Candace	EPA
Sparks, John	EPA/OPPTS
Strabbing, Patty	Chrysler
Tebow, Cheryl	Munters Zeol
Vashishta, Annie	LA DEQ
Vizzi, Tara	AIAM
Voss, Greg	Honda
Wax, Michael	ICAC
Wehrum, Bill	Swidler-Berlin
Wells, Bob	Versar, Inc.
Williamson, Maresa	BMW
Zysman, Bernie	Occidental Chemical