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Category: 28 Exempt Solvents

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

DATE: MAR 6 1979

SUBJECT: Regulation of Methyl Chloroform (1, 1, 1, Trichloroethane)
and Methylene Chloride

FROM: Walter C. Barber, Director
Office of Air Quality Planning and Standards

TO: Director, Air and Hazardous Materials Division, Regions I-X

During the past several weeks, we have received several telephone inquiries from State and Regional Office personnel regarding possible changes in EPA's position on the control of methyl chloroform and methylene chloride. In order to clarify any confusion, I am attaching three pieces of correspondence which articulate the Agency's Position.

In summary, there is no change in the Agency's concern over the uncontrolled use of these compounds. We continue to be concerned that exemptions for either of these compounds will encourage a major increase in their emissions, because by exempting these compounds, States will encourage existing sources to use them in lieu of the installation of controls. Both methyl chloroform and methylene chloride have been identified as mutagenic in bacterial and mammalian cell test systems. Further, methyl chloroform is suspected of contributing to the depletion of the stratospheric ozone layer. The magnitude of present emissions, and their persistence in the environment which would result from continued uncontrolled use, dictates caution in policies which would encourage increased emissions and consequently, significantly increase public exposure.

Attachments

Attachment 1

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

NOV 09 1978

Hugh A. Farber, Ph.D.
Manager, Environmental Affairs
Inorganic Chemicals Dept.
Dow Chemical U.S.A.
Barstow Building
2020 Dow Center
Midland, Michigan 48640

Dear Dr. Farber:

This is in reply to your letter of November 7, 1978, and our telephone conversation of November 17, concerning the Agency's policy in regard to air emissions of methyl chloroform (1,1,1,-trichloroethane) and methylene chloride.

My memorandum of August 24, 1978, to EPA Regional Administrators expressed my concern that EPA not encourage the uncontrolled use of a potentially harmful, high volume chemical such as methyl chloroform. The intent of the memorandum was to avoid an apparent endorsement of the uncontrolled substitution of a chemical for which several key health questions remain unresolved. I felt it important to inform the States of these uncertainties so that they could consider the available data in their development of control strategies affecting solvent use. My opinion in this matter has not changed.

The retention of methyl chloroform and the reinstatement of methylene chloride on EPA's list of organic solvents exempt from control requirements, as advocated by DOW, may encourage a major increase in substitution of the uncontrolled use of these chemicals for more reactive substances now requiring control. I am concerned that such a shift in the use of these chemicals, already emitted in billion pound quantities annually, could result in significant population exposure to substances with adverse health implications. As you know, both methyl chloroform and methylene chloride have been identified as mutagenic in bacterial and mammalian cell test systems, a circumstance which raises the possibility of human mutagenicity and/or carcinogenicity. In addition, methyl chloroform is suspect of contributing to the depletion of the stratospheric ozone layer. While I agree that inferences drawn from these data are subject to considerable uncertainty, particularly in view of conflicting results by other investigators, I am convinced that the evidence to date as well as the magnitude of projected emissions and persistence in the environment which would result from continued uncontrolled use, dictate caution in policies which might encourage significant increases in public exposure.

Both methylene chloride and methyl chloroform have been submitted to EPA's Carcinogen Assessment Group for review. Reports are expected by the end of the year. In addition, as you are aware, the Office of Toxic Substances is presently conducting an evaluation of the direct and indirect health implications of methyl chloroform. The outcomes of these analyses will have a bearing on subsequent modifications of the exempt solvent policy. In the event a modified policy is subsequently developed, it will be submitted to the full process of agency and external review. As before, with a recommended EPA policy, the final discretion on substitution will rest with the individual States.

Sincerely yours,

Walter C. Barber
Director
Office of Air Quality Planning
and Standards

cc: D. Goodwin
J. Merenda
J. Padgett
R. Rhoads
B. Walsh

Attachment 2

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

DATE: 14 AUG 1978

SUBJECT: Clarification of EPA Policy on Emissions of Methyl Chloroform

FROM: Walter C. Barber, Director
Office of Air Quality Planning and Standards (MD-10)

TO: Regional Administrator, Regions I-X

The purpose of this memo is to clarify EPA's position with regard to State and Federal regulation of emissions of methyl chloroform (1,1,1, trichloroethane). On July 8, 1977, EPA published the present "Recommended Policy on Control of Volatile Organic Compounds" (42 FR 35314). This policy exempts methyl chloroform from inventory requirements and regulations to meet the national ambient air quality standard for photochemical oxidants. However, the policy indicated that methyl chloroform had been implicated as having deleterious effects on stratospheric ozone and therefore may be subject to future controls. Nevertheless, the policy seems to be encouraging a shift to the uncontrolled use of methyl chloroform in place of trichloroethylene and other regulated solvents in metal degreasing operations.

We have been advised by the Office of Toxic Substances that methyl chloroform should be considered potentially harmful to the ozone layer and that they are performing the necessary evaluations and assessments prior to pursuing further regulatory initiatives. Hence, its use in an uncontrolled fashion should not be encouraged. Accordingly, OAQPS has begun the necessary actions to propose removal of methyl chloroform from the list of exempt volatile organic compounds (VOC). However, we do not expect this action to be completed before the State Implementation Plans for photochemical oxidants are to be submitted. In addition, I have directed that the new source performance standards to be proposed for solvent Metal cleaning operations, as well as any other solvent uses, require positive control of all VOC emissions including methyl chloroform.

I recognize that many States are well along in the preparation of their regulatory packages and inventories. In order not to change the existing guidance at this late date, I am requesting that you advise your State directors that, although we will not disapprove a State oxidant SIP submittal which exempts methyl chloroform from control, we are very concerned with the environmental risks associated with wide scale substitution to methyl chloroform; and that the uncontrolled use of methyl chloroform as an approved means for compliance should be avoided wherever possible.

cc: Director, Air & Hazardous Materials Division, Regions I, III-X
Director, Environmental Programs Division, Regions II
Chief, Air Branch, Regions IX
Steven D. Jellinek, Office of Toxic Substances
Warren Muir, Office of Toxic Substances

Attachment 3

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

DATE: MAR 22, 1979

SUBJECT: Regulation of Solvent Metal Cleaning Emissions under the
Clean Air Act

FROM: Walter C. Barber, Director
Office of Air Quality Planning and Standards (MD-10)

TO: Steven D. Jellinek, Chairman
Toxic Substances Priorities Committee (TS-788)

The purpose of this memorandum is to advise you of my intention to recommend regulatory action affecting several metal cleaning solvents. In February 1979, we plan to submit a regulatory package to the Steering Committee which would establish standards of performance under section 111 of the Clean Air Act for solvent metal cleaners. The standards will cover hydrocarbon emissions as well as emissions of trichlorethylene, 1,1,1-trichloroethane (methyl chloroform), perchloroethylene, methylene chloride, and trichlorotrifluoroethane. Since these five compounds are not included on a list published under sections 108 or 112 of the Act, they will be considered designated pollutants covered under section 11(d) of the Act. When such a pollutant is listed under section 111(d), the States must develop plans to control; emissions for stationary sources pursuant to guidance provided by EPA. This means that emissions from both new and existing solvent metal cleaners which use these five compounds will be regulated.

We believe that this action is appropriate because the available data indicate that all of these compounds, except possibly trichlorotrifluoroethane, are toxic or implicated as potentially carcinogenic, mutagenic, or teratogenic. Also, two compounds, 1,1,1-trichloroethane and trichlorotrifluoroethane, have been recognized as being potentially harmful to the ozone layer.

The guideline document will recommend equipment specifications and operational procedures to reduce the emissions from existing degreasers using the designated solvents and will present the results of health effects studies performed for each of the five solvents. Work to develop the guideline document will be initiated this month.

QUESTIONS AND ANSWERS ON VOC REGULATIONS

1. (Q) Should bulk plants with a gasoline throughput of less than 4,000 gallons per day be exempt?

(A) Yes. The basis for this determination is policy letters sent to congressmen (see letter to Rep. Cudger dated 11/13/78) and the Oklahoma fact sheet. It is pointed out, however, that to date, only two States have included this exemption in their regulations (Alabama and Virginia).

2. (Q) Is the use of a functional definition for bulk plants or bulk terminals acceptable?

(A) Qualified Yes. The basis for this determination has no policy; however, there would be no objection if the definition varied from the CTG document throughput provided the impact on emissions is less the five percent. (See Roger Strelow's memorandum to Regional Administrators dated December 9, 1976)

3. (Q) Should Stage I exemptions be based on throughput or tank size?

(A) Tank size exemptions are recommended; however, throughput exemptions would be acceptable provided the agency justifies the exemption by showing the impact on emissions is less than five percent. Probably, we would give conditional approval. (See Roger Strelow's memorandum to Regional Administrators dated December 9, 1976.)

4. (Q) What is policy on the definition of "vapor tight"?

(A) At present, there is no written policy on the definition of vapor tight. Some States have suggested that the absence of any visible or audible emissions would be considered as vapor tight for enforcement purposes. A test method for determining vapor tight will be included in a Group II (tank truck) CTG document.

5. (Q) What degreasers exemptions are allowed?

(A) (1) Conveyorized degreasers with less than 2M-squared) (21.5 Ft-squared) of air/vapor interface and (2) open top vapor degreasers with less than IM2 (10.9 Ft-squared) of open area are exempt. (3) Across the board exemptions for small sources are not recommended (e.g., 7 tons/year, 40 lbs/day, or 8 lbs/hour and 15 lbs/day, 3 lbs/hour), and (4) less than 100 ton/year sources in rural nonattainment areas are exempt. This 100 ton/year or less limitation should be on a facility-wide basis based on annual solvent purchase records. (See G. T. Helms' memorandum to Regional Chiefs, Air Branch, Air and Hazardous Materials Division, dated December 21, 1978 and R. G. Rhoads' memorandum dated September 7, 1978 sent to Directors, Air and Hazardous Materials Division.)

6. (Q) At bulk terminals, is a 90 percent efficiency standard equivalent to a mass emission standard of 80 mg/l for RACT purposes?

(A) Although no official policy has been issued on this question, it has been decided to consider the efficiency standard equivalent to the mass standard for RACT purposes. Reasoning for this determination is included in attachment "A" in the Region IX memorandum dated June 2, 1978 from A. M. Davis to R. Rhoads. Note: (1) A response to the 6/2/78 memorandum dated June 30, 1978 refers to the five percent rule. (2) The five percent rule is cited in Roger Strelow's memorandum to Regional Administrators, dated December 9, 1976.

7. (Q) What volatile organic compounds can be included in the definition of "non-methane" or are exempt from SIPs?

(A) The following VOC compounds are exempt:

1. Methane
2. Ethane
- *3. 1, 1, 1 - Trichloroethane (Methyl Chloroform)
- *4. Trichlorotrifluoroethane (Freon 113)

*Note: *These compounds have been implicated as having deleterious effects on stratospheric ozone and, therefore, may be subject to future controls.*

The following VOC compounds are not exempt:

1. Benzene
2. Acetonitrile
3. Chloroform
4. Carbon Tetrachloride
5. Ethylene Dichloride
6. Ethylene Dibromide
7. Methylene Chloride

Note: The above compounds have been identified as being carcinogenic, mutagenic, or teratogenic. Also Benzaldehyde forms a strong eye irritant. (See CTG document "Control of Volatile Organic Emissions From Existing Stationary Sources, Volume II, Appendix B, EPA-450/2-77-008, dated May 1977.)

8. (Q) Should cutback asphalt exemptions be based on temperature or seasonal considerations?

(A) Seasonal exemptions are preferred over temperature exemptions because of the enforcement problems involved. (See memorandum dated December 19, 1978 from Richard G. Rhoads to Director, Air and Hazardous Materials Division, Regions I-X.) Other exemptions may be based on (1) long-life (longer than one month) stockpile storage, (2) where asphalt used solely as a penetrating prime coat, or (3) where the user can demonstrate there are no emissions of organic compounds from asphalt under conditions of normal use.

9. (Q) Is the use of emulsified asphalt containing less than 15 percent by volume VOC acceptable?

(A) Only as an interim measure. The inclusion of an allowable emulsified asphalt solvent content in regulations is not considered RACT. (See memorandum dated December 19, 1978 from Richard G. Rhoads to Director, Air and Hazardous Materials Division, Regions I-X.)

10. (Q) Are changes in the degreaser freeboard ratio number for cold cleaners or open top vapor degreasers allowable?

(A) Changes that would give a greater freeboard ratio than that cited in the CTG (>0.7) would be acceptable. A lower freeboard ratio would not be acceptable.

11. (Q) Are throughput exemptions for Stage I service stations, bulk plants or bulk terminals based on yearly throughputs acceptable?

(A) There is no established policy for exemptions based on yearly, monthly, or daily throughputs. High short-term thruputs because of seasonal operation could allow compliance on a yearly basis, but, would not allow compliance on a monthly basis. A similar situation could occur for bulk plants that were in compliance with a monthly throughput exemption and not in compliance with a daily throughput exemption. Further consideration will be given to this situation.

Table 1

LISTING OF STATES THAT HAVE FINAL
VOC REGULATION OF 2.9 LBS/GAL FOR FABRIC COATING

New Jersey
Maryland
Virginia
Georgia
South Carolina
Tennessee

Table 2

LISTING OF STATES THAT HAVE A DRAFT
VOC REGULATION OF 2.9 LBS/GAL FOR FABRIC COATING

Delaware
Alabama
Oregon
West Virginia
Wisconsin
Washington
New Hampshire
Connecticut
Puget Sound Agency
Minnesota
North Carolina
Illinois
Michigan
Ohio
Texas
California - 265 gms/l (2.21 lbs/gal)
