

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 51

[FRL -5880-9]
RIN 2060-AG70

Air Quality: Revision to Definition of Volatile Organic
Compounds - Exclusion of 16 Compounds

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This action revises EPA's definition of volatile organic compounds (VOC) for purposes of preparing State implementation plans (SIP's) to attain the national ambient air quality standards (NAAQS) for ozone under title I of the Clean Air Act (Act) and for any Federal implementation plan (FIP) for an ozone nonattainment area. This revision would add 16 compounds (shown in Table 2) to the list of compounds excluded from the definition of VOC on the basis that these compounds have negligible contribution to tropospheric ozone formation. These compounds have potential for use as refrigerants, aerosol propellants, fire extinguishants, blowing agents and solvents.

DATES: This rule is effective September 24, 1997.

ADDRESSES: The EPA has established a public docket for this action, A-96-36, which is available for public inspection and copying between 8 a.m. and 4 p.m., Monday through Friday, at EPA's Air and Radiation Docket and Information Center, (6102), 401 M Street, SW, Washington, DC 20460. A

reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: William Johnson, Office of Air Quality Planning and Standards, Air Quality Management Division (MD-15), Research Triangle Park, NC 27711, phone (919) 541-5245.

SUPPLEMENTARY INFORMATION:

Regulated entities. Entities potentially regulated by this action are those which use and emit VOC and States which have programs to control VOC emissions.

<u>Category</u>	<u>Examples of regulated entities</u>
Industry	Industries that use refrigerants, blowing agents, or solvents
States	States which have regulations to control volatile organic compounds

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This table lists the types of entities that EPA is now aware could potentially be regulated by this action. Other types of entities not listed in the table could also be regulated. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in

the preceding "FOR FURTHER INFORMATION CONTACT" section.

I. **Background**

On September 25, 1995 the Alliance for Responsible Atmospheric Policy submitted to the EPA a petition which requested that the compounds shown in Table 1 be added to the list of compounds which are considered to be negligibly reactive in the definition of VOC at 40 CFR 51.100(s).

(The original petition also included five other compounds (CFC-111, CFC-112, CFC-112A, CFC-113a, and CFC-114a) not shown in Table 1, but the petitioner later requested that these compounds be removed from consideration.)

Potential uses for these compounds are also shown in Table 1. Blowing agent refers to products used in the manufacture of foamed plastic. The compounds for which no use is shown have no currently recognized commercial end-use. However, they may be either intermediates or unintentional byproducts resulting from the manufacture of other compounds.

Table 1

**Compounds Petitioned for VOC Exclusion
(along with potential uses of compounds)**

<u>Compound</u>	<u>Potential Use</u>
HFC-32	refrigerant

HFC-161	aerosol propellant, blowing agent
HFC-236fa	fire extinguishant, refrigerant
HFC-245ca	refrigerant, blowing agent
HFC-245eb	refrigerant, blowing agent
HFC 245fa	refrigerant, blowing agent
HFC 245ea	solvent
HFC-236ea	refrigerant, blowing agent
HFC-365mfc	blowing agent
HCFC-31	
HCFC-150a	
HCFC-151a	
HCFC-123a	blowing agent
$C_4F_9OCH_3$	solvent
$(CF_3)_2CFCF_2OCH_3$	solvent
$C_4F_9OC_2H_5$	solvent
$(CF_3)_2CFCF_2OC_2H_5$	solvent

In support of the petitions, the Alliance for Responsible Atmospheric Policy supplied information on the photochemical reactivity of the individual compounds. This information consisted mainly of the rate constant for the reaction of the compound with the hydroxyl (OH) radical. This rate constant (k_{OH} value) is commonly used as one measure of the photochemical reactivity of compounds. The petitioner compared the rate constants with that of ethane

which has already been listed as photochemically negligibly reactive (ethane is the compound with the highest k_{OH} value which is currently regarded as negligibly reactive). The scientific information which the petitioner has submitted in support of the petition has been added to the docket for this rulemaking. This information includes references for the journal articles where the rate constant values are published.

For the petition submitted by the Alliance for Responsible Atmospheric Policy, the existing data support that the reactivities of the compounds submitted (except for HCFC-150a), with respect to reaction with OH radicals in the atmosphere, are substantially lower than that of ethane. Based on the information submitted with the petition, EPA proposed on March 17, 1997 (62 FR 12583) to add the 16 compounds shown in Table 2 below to the list of negligibly reactive compounds in EPA's definition of volatile organic compound found in 40 CFR 51.100(s). One of the compounds in the petition (HCFC-150a) was not proposed for exemption since EPA thought that the supporting information did not justify a "negligibly reactive" rating at this time.

II. Comments on the Proposal and EPA Response

The EPA received written comments on the proposal from four organizations. The comments were from the petitioner and three manufacturing companies. All four comment letters

supported the exclusion of the 16 compounds as VOC. Copies of these comments have been added to the docket (A-96-36) for this action.

In the proposal for today's action, EPA indicated that interested persons could request that EPA hold a public hearing on the proposed action (see section 307(d)(5)(ii) of the Act). During the comment period, no one requested a public hearing so none was held.

Based on the information presented in the proposal notice and on the comments received during the public comment period, EPA has decided to list the compounds in Table 2 as negligibly reactive.

Table 2

Compounds Added to the List of Negligibly

Reactive Compounds

<u>Compound</u>	<u>Chemical Name</u>
HFC-32	difluoromethane
HFC-161	ethylfluoride
HFC-236fa	1,1,1,3,3,3-hexafluoropropane
HFC-245ca	1,1,2,2,3-pentafluoropropane
HFC-245ea	1,1,2,3,3-pentafluoropropane
HFC-245eb	1,1,1,2,3-pentafluoropropane
HFC-245fa	1,1,1,3,3-pentafluoropropane
HFC-236ea	1,1,1,2,3,3-hexafluoropropane
HFC-365mfc	1,1,1,3,3-pentafluorobutane

HCFC-31	chlorofluoromethane
HCFC-123a	1,2-dichloro-1,1,2-trifluoroethane
HCFC-151a	1-chloro-1-fluoroethane
C ₄ F ₉ OCH ₃	1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy- butane
(CF ₃) ₂ CFCF ₂ OCH ₃	2-(difluoromethoxymethyl)-1,1,1,2,3,3,3- heptafluoropropane
C ₄ F ₉ OC ₂ H ₅	1-ethoxy-1,1,2,2,3,3,4,4,4- nonafluorobutane
(CF ₃) ₂ CFCF ₂ OC ₂ H ₅	2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3- heptafluoropropane

Table 3 gives Chemical Abstract Service (CAS) numbers for the compounds in Table 2.

Table 3

Chemical Abstract Service (CAS) Numbers for Compounds

<u>Compound</u>	<u>CAS number</u>
HFC-32	75-10-5
HFC-161	353-36-6
HFC-236fa	690-39-1
HFC-245ca	679-86-7
HFC-245ea	24270-66-4
HFC-245eb	431-31-2
HFC-245fa	460-73-1
HFC-236ea	431-63-0

HFC-365mfc	406-58-6
HCFC-31	593-70-4
HCFC-123a	354-23-4
HCFC-151a	1615-75-4
C ₄ F ₉ OCH ₃	163702-07-6
(CF ₃) ₂ CFCF ₂ OCH ₃	163702-08-7
C ₄ F ₉ OC ₂ H ₅	163702-05-4
(CF ₃) ₂ CFCF ₂ OC ₂ H ₅	163702-06-5

III. Final Action

Today's action is based on EPA's review of the material in Docket No. A-96-36. The EPA hereby amends its definition of VOC at 40 CFR 51.100(s) to exclude the compounds in Table 2 as VOC for ozone SIP and ozone control for purposes of attaining the ozone national ambient air quality standard. The revised definition will also apply for purposes of any Federal implementation plans for ozone nonattainment areas (see e.g. 40 CFR 52.741(a)(3)). States are not obligated to exclude from control as a VOC those compounds that EPA has found to be negligibly reactive. However, States should not include these compounds in their VOC emissions inventories for determining reasonable further progress under the Act (e.g., section 182(b)(1)) and may not take credit for controlling these compounds in their ozone control strategy.

IV. Administrative Requirements

A. Docket

The docket is an organized and complete file for all information submitted or otherwise considered by EPA in the development of this rulemaking. The principle purposes of the docket are: (1) To allow interested parties to identify and locate documents so that they can effectively participate in the rulemaking process; and, (2) to serve as the record in case of judicial review (except for interagency review materials) (section 307(d)(7)(A)).

B. Executive Order 12866

Under Executive Order 12866 (58 FR 51735, October 4, 1993), the Agency must determine whether a regulatory action is "significant" and therefore subject to Office of Management and Budget (OMB) review and the requirements of this Executive Order. The Order defines "significant regulatory action" as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) materially alter the budgetary impact of

entitlements, grants, user fees, or loan programs, or the rights and obligation of recipients thereof; or

(4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, it has been determined that this rule is not "significant" because none of the listed criteria apply to this action. Consequently, this action was not submitted to OMB for review under Executive Order 12866.

C. Unfunded Mandates Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), PL. 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of \$100 million or more in any one year. Before promulgation of an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost

effective, or least burdensome alternative that achieves the objective of the rule, unless EPA publishes with the final rule an explanation of why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments including tribal governments, it must have developed under section 203 of the UMRA a small government plan which informs, educates and advises small governments on compliance with the regulatory requirements. Finally, section 204 provides that for any proposed or final rule that imposes a mandate on a State, local or tribal government of \$100 million or more annually, the Agency must provide an opportunity for such governmental entities to provide input in development of the proposed rule.

Since today's rulemaking is deregulatory in nature and does not impose any mandate on governmental entities or the private sector, EPA has determined that sections 202, 203, 204 and 205 of the UMRA do not apply to this action.

D. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) of 1980 requires the identification of potentially adverse impacts of Federal regulations upon small business entities. The Act specifically requires the completion of an RFA analysis in those instances where the regulation would impose a substantial impact on a significant number of small

entities. Because this rulemaking imposes no adverse economic impacts, an analysis has not been conducted. Pursuant to the provision of 5 U.S.C. 605(b), I hereby certify that this rule will not have an impact on small entities because no additional costs will be incurred.

E. Paperwork Reduction Act

This action does not impose an information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 et seq.

F. Submission to Congress and the General Accounting Office

Under 5 U.S.C. 801(a)(1)(A) as added by the Small Business Regulatory Enforcement Fairness Act of 1996, EPA submitted a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives and the Comptroller General of the General Accounting Office prior to publication of the rule in today's **Federal Register**. This rule is not a "major rule" as defined by 5 U.S.C. 804(2).

List of Subjects in 40 CFR Part 51

Administrative practice and procedure, Air pollution control, Carbon monoxide, Intergovernmental relations, Lead, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Volatile organic compounds.

Dated: August 18, 1997

Carol M. Browner

Administrator

For reasons set forth in the preamble, part 51 of chapter I of title 40 of the Code of Federal Regulations is amended as follows:

Part 51-REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS.

1. The authority citation for part 51 continues to read as follows:

Authority: 42 U.S.C. 7401-7671g

2. Section 51.100 is amended by revising paragraph (s) introductory test and paragraph (s)(1) to read as follows:

51.100 Definitions

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(s) "Volatile organic compounds (VOC)" means any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions.

(1) This includes any such organic compound other than the following, which have been determined to have negligible photochemical reactivity: methane; ethane; methylene chloride (dichloromethane); 1,1,1-trichloroethane (methyl chloroform); 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113); trichlorofluoromethane (CFC-11); dichlorodifluoromethane (CFC-12); chlorodifluoromethane (HCFC-22); trifluoromethane (HFC-23); 1,2-dichloro 1,1,2,2-tetrafluoroethane (CFC-114); chloropentafluoroethane (CFC-115); 1,1,1-trifluoro 2,2-dichloroethane (HCFC-123); 1,1,1,2-tetrafluoroethane (HFC-134a); 1,1-dichloro 1-fluoroethane (HCFC-141b); 1-chloro 1,1-difluoroethane (HCFC-142b); 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124); pentafluoroethane (HFC-125); 1,1,2,2-tetrafluoroethane (HFC-134); 1,1,1-trifluoroethane (HFC-143a); 1,1-difluoroethane (HFC-152a); parachlorobenzotrifluoride (PCBTF); cyclic, branched, or linear completely methylated siloxanes; acetone; perchloroethylene (tetrachloroethylene); 3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca); 1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb); 1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC 43-10mee); difluoromethane (HFC-32); ethylfluoride (HFC-161); 1,1,1,3,3,3-hexafluoropropane (HFC-236fa); 1,1,2,2,3-pentafluoropropane (HFC-245ca); 1,1,2,3,3-pentafluoropropane (HFC-245ea); 1,1,1,2,3-pentafluoropropane (HFC-245eb); 1,1,1,3,3-pentafluoropropane (HFC-245fa); 1,1,1,2,3,3-hexafluoropropane (HFC-236ea); 1,1,1,3,3-pentafluorobutane (HFC-365mfc); chlorofluoromethane (HCFC-31); 1-chloro-1-fluoroethane (HCFC-151a);

1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a);
 1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane ($C_4F_9OCH_3$); 2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane ($(CF_3)_2CFCH_2OCH_3$); 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane ($C_4F_9OC_2H_5$); 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane ($(CF_3)_2CFCH_2OC_2H_5$); and perfluorocarbon compounds which fall into these classes:

- (i) Cyclic, branched, or linear, completely fluorinated alkanes;
- (ii) Cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;
- (iii) Cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and
- (iv) Sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

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