

**ENVIRONMENTAL PROTECTION AGENCY****40 CFR Part 261****(SWH-FRL 2442-3(b))****Hazardous Waste Management System; Identification and Listing of Hazardous Waste****AGENCY:** Environmental Protection Agency.**ACTION:** Proposed rule and request for comments.

**SUMMARY:** The Environmental Protection Agency (EPA) is today proposing a regulation under the Resource Conservation and Recovery Act (RCRA) that will list as hazardous a group of wastes of a generic category generated during the manufacture of chlorinated aliphatic hydrocarbons utilizing free radical catalyzed processes, having a carbon content ranging from one to five, with varying amounts and positions of chlorine substitution. The effect of this proposed regulation will be that all of these wastes will be subject to the hazardous waste management standards contained in 40 CFR Parts 262-266 and the permitting requirements of Parts 270, 271, and 124.

**DATE:** EPA will accept public comment on this proposal until April 10, 1984.

**ADDRESSES:** Comments should be sent to the Docket Clerk [Docket 261-83-2], Office of Solid Waste (WH-562), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, D.C. 20460. Communications should identify the regulatory docket "Section 3001/Generic Chlorinated Aliphatic."

**Public Docket:** The public docket containing the Background Document and all other supporting documentation for this regulation is located in Room S-212, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, D.C. 20460, and is available for viewing from 9:00 a.m. to 4:00 p.m. Monday thru Friday, excluding holidays.

**FOR FURTHER INFORMATION CONTACT:** RCRA Hotline, toll free at (800) 424-9346 or at (202) 382-3000. For technical information contact Dr. Cate Jenkins, Office of Solid Waste (WH-565B), Environmental Protection Agency, 401 M Street SW., Washington, D.C. 20460, (202) 382-4788.

**SUPPLEMENTARY INFORMATION:****I. Background**

As part of its regulations implementing Section 3001 of RCRA, EPA published a list of hazardous wastes which include hazardous wastes generated from non-specific sources.

This list has been amended several times, and is published in § 261.31 of Title 40 of the Code of the Federal Regulations. In this notice, EPA is proposing to amend this section to add a particular generic category of residual wastes generated during the manufacture of chlorinated aliphatic hydrocarbons by free radical catalyzed processes having carbon chain lengths ranging from one to five ("C<sub>1</sub>-C<sub>5</sub>"). These wastes are light ends, spent filters and filter aids, and dessicants from the manufacture of C<sub>1</sub>-C<sub>5</sub> chlorinated aliphatic hydrocarbons.

In addition, in another section of today's Federal Register, EPA is promulgating, as an interim final rule, hazardous waste listings for distillation residues, heavy ends, tars, and reactor clean-out wastes from this same generic category of manufacturing processes. Neither this proposed nor the interim final listing, however, include process wastewaters, wastewater treatment sludges, or spent catalysts.

The hazardous constituents in the wastes in this proposed listing include the same wide range of carcinogenic and other toxic chlorinated and non-chlorinated organic compounds as in the wastes listed in the accompanying interim final rule. One or more of these toxicants typically are present in high concentrations in each waste (although each waste does not contain all of the individual toxic constituents of concern). These wastes consequently are of particular environmental concern. EPA has evaluated these wastes against the criteria for listing hazardous wastes (40 CFR 261.11(a)(3)), and has determined that they typically contain high concentrations of toxicants, the toxicants are mobile and persistent, the wastes are generated in large volumes and have been mismanaged in the past, and many of the toxicants in the wastes are regulated by other EPA regulations as well as under regulations of other governmental agencies. The Agency believes, therefore, that these wastes are capable of posing a substantial present or potential threat to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed, and thus are hazardous wastes.

**II. Summary of the Proposed Regulation**

As stated, the proposed regulation would list as hazardous light ends, spent filters and filter aids, and spent dessicants generated during free radical catalyzed manufacturing processes of chlorinated aliphatic hydrocarbons having carbon chain lengths ranging from one to five. Available information in the Section 3007 RCRA Industry

Studies data base indicates that approximately 63 million pounds (29,000 metric tons) per year of wastes would be covered by this proposed regulation.

Our proposal to list these wastes by means of generic process, rather than by individual processes, is based on the similarity of chemical reaction and by-product formation within the C<sub>1</sub>-C<sub>5</sub> production processes, as described in the accompanying interim final listing and listing Background Document. The wastes covered by both this proposal and the interim final rule typically will contain significant aggregate concentration of one or more of the following contaminations of concern:

Carbon tetrachloride\*  
 Vinyl chloride (Chloroethene)\*  
 1,1-Dichloroethane (Ethylidene dichloride)  
 1,2-Dichloroethane (Ethylene dichloride)\*  
*trans*-1, 2-Dichloroethene  
 1,1-Dichloroethene (Vinylidene chloride)\*  
 1,1, 1-Trichloroethane \*\*  
 1, 1, 2-Trichloroethane \*  
 Trichloroethene (Trichloroethylene) \*  
 1,1,1, 2-Tetrachloroethane  
 1,1,2, 2-Tetrachloroethane \*  
 Tetrachloroethene (Perchloroethylene) \*  
 Pentachloroethane  
 Hexachloroethane \*  
 3-Chloropropene (Allyl chloride)  
 Epichlorohydrin (1-Chloro-2,3-epoxypropane) \*  
 Dichloropropane  
 Dichloropropene \*\*  
 2-Chloro-1,3-butadiene \*  
 Hexachloro-1,3-butadiene \*  
 Hexachlorocyclopentadiene \*\*  
*alpha*-Hexachlorocyclohexane \*  
*beta*-Hexachlorocyclohexane \*  
*gamma*-Hexachlorocyclohexane \*  
*delta*-Hexachlorocyclohexane \*\*  
 Benzen \*  
 Chlorobenzene \*\*  
 Dichlorobenzenes \*\*  
 1,2,4-Trichlorobenzene  
 Tetrachlorobenzene \*\*  
 Pentachlorobenzene \*\*  
 Hexachlorobenzene \*  
 Toluene \*\*  
 Naphthalene  
 Chloromethane (Methyl chloride) \*\*  
 Dichloromethane (Methylene chloride) \*\*  
 Trichloromethane (Chloroform) \*

\* Indicates compounds that have been determined by the U.S. EPA's Carcinogen Assessment Group (CAG) as having evidence of carcinogenicity. The weight of evidence for carcinogenicity varies. Some of the chemicals have human evidence (epidemiology data) while others have only animal evidence. Depending on the amount and quality of the data, the evidence could be classified as limited or sufficient using criteria developed by the International Agency for Research on Cancer. The EPA has established Ambient Water Quality Criteria Levels based on their potentially carcinogenic effects.

\*\* Indicates compounds for which Ambient Water Quality Criteria Levels have been determined by the Agency for chronic human health risk other than carcinogenicity.

The contaminants include chlorinated aliphatic hydrocarbons as well as aromatic compounds and chlorinated aromatic compounds that are currently identified in Appendix VIII of Part 261. The potential of all of these contaminants to cause harm to human health and the environment is described in the accompanying interim final listing notice, the listing Background Document, and the Health and Environmental Effects Profiles.

The wastes covered by these regulations are formed as residuals at several points in an integrated series of reactors and associated purification units utilizing one or more free radical catalyzed chemical conversion steps to produce a range of desired chlorinated aliphatic hydrocarbons. This proposed listing covers wastes from all sources within an integrated process utilizing free radical catalyzed conversions, whether or not the integrated process utilizes free radical catalyzed conversions solely or in conjunction with other types of chemically catalyzed conversions.

The usual plant sources of the light ends derive from the hot, gaseous overhead streams from reactor vessels and/or associated purification and distillation equipment. The light ends component of these overheads is in fact liquids at standard temperature and pressure, but because of elevated temperature and admixture with gases (e.g., hydrogen, methane) they require some form of physical condensation to be isolated as liquids. For example, freon condensers coupled with water condensers are currently used by industry to recover light ends, products, unreacted feedstock, or wastes from the overheads. Incineration, flaring, or release to the atmosphere of light ends, without either partial or complete condensation to ambient temperature, is also practiced.

The Agency considers these light ends to be solid wastes within the meaning of section 1004(28) of RCRA. Although these wastes are generated as gases, they are liquids at standard temperature and pressure, and can feasibly be condensed to the liquid phase after generation.

The exclusion from RCRA of "gaseous materials" that are not contained (section 1004(28)), in the Agency's view, applies only to true gases, namely those which are not capable of being condensed and which remain gases at standard temperature and pressure (for example, the hydrogen and methane admixed with the light ends). The Agency, of course, is not requiring that these light ends be condensed; however, as a RCRA hazardous wastes, these

light ends remain subject to the applicable regulations even if left in the gaseous state. Otherwise, one could evade regulation under RCRA simply by heating every waste to the gaseous state.<sup>1</sup>

The spent filters and filter aids, and spent dessicants are generated as residuals during product intermediate and feedstock purification. These wastes are currently managed by landfilling, incineration, or regeneration and recycling.

As shown in the Background Document, the hazardous constituents generally are present in these waste in significant concentrations, typically in concentrations many orders or magnitude above the levels related to human health concerns. For example, an analysis of one manufacturer's chlorinated propane distillation light ends (Table 1) shows the hazardous constituents at concentrations typically found in these wastes.<sup>2</sup> Chemical analyses obtained by the Agency and company supplied information in the Section 3007 RCRA Industry Studies data base demonstrate similar high concentrations of toxicants in all these wastes.<sup>3</sup> Although there were many differences between these wastes, both qualitatively and quantitatively, in all cases, there were one or more of the toxicants of concern present at levels which could present a substantial environmental hazard if the wastes are mismanaged.

TABLE 1.—CHLORINATED PROPANE  
DISTILLATION LIGHT ENDS

Constituent	Percent
dichloromethane and isopropyl alcohol *	0.7
chloroform, acetonitrile and dichloropropene	4.0
ethyl chloride * and 2-chloropropanes/propenes	17.0
1,1-dichloroethane	4.0
1,2-dichloroethane	0.2
ch'oropropane *	22.0
chloropropene	18.0
chlorodihydroxypropanes *	0.2
dichloropropanes	12.0
dichloropropanes	14.4
dichloropropanols *	0.2
epichlorohydrin	0.4

<sup>1</sup> The Agency has previously listed distillation light ends from the production of phthalic anhydride from naphthalene and orthoxylene as hazardous wastes KO23 and KO93 (40 CFR 261.32), thus establishing a precedent for regulating a waste which originates from a gaseous overhead process stream. No comments were received questioning the Agency's authority to regulate these wastes.

<sup>2</sup> U.S. EPA. Disposal of Organochlorine Wastes by Incineration at Sea. EPA Publication No. 430/9-75-041 (1975).

<sup>3</sup> The results of these analyses have been claimed by the individual companies to be confidential business information, and therefore are not presented here. The Background Document and supporting information for this action provides aggregate toxicant concentration ranges for the C<sub>1</sub> through C<sub>6</sub> process wastes sampled.

TABLE 1.—CHLORINATED PROPANE  
DISTILLATION LIGHT ENDS—Continued

Constituent	Percent
benzene	0.7

\* At the present time, the Agency does not have adequate information to classify these constituents as toxicants of concern.

<sup>1</sup> (i.e., 7,000 parts per million).

The Agency has calculated that persons face a 1 per million increase risk of cancer or other adverse health effects as a result of lifetime ingestion of water when the water is contaminated at levels above the Ambient Water Quality Criteria Levels (AWOCL). As an indication of how high toxicant concentrations in these wastes are, the benzene alone in the light ends waste approaches ten million times the AWOCL. The other toxic constituents likewise are frequently present in concentrations orders of magnitude greater than the AWOCL.

In all cases, the solubilities of the toxicants of concern are many orders of magnitude greater than the AWOCL. Thus, only a small fraction of the toxicants present in these wastes need migrate and reach environmental receptors to pose the potential for substantial harm if these wastes are landfilled improperly. Improper incineration is another exposure pathway of concern.

In summary, and as detailed in the listing Background Document, these wastes typically contain toxicants at concentrations that are of concern, these toxicants are capable of migration and persistence in hazardous concentration, and therefore these wastes are capable of causing substantial harm if mismanaged.

#### IV. Economic, Environmental and Regulatory Impacts

##### A. Regulatory Impact Analysis

Under Executive Order 12291, EPA must determine whether a regulation is "major" and therefore subject to the requirement of a Regulatory Impact Analysis. The effect of the present amendment is judged to be minor.

The total combined cost for disposal of the wastes as hazardous, assuming that all of these wastes would be managed for the first time as hazardous, and making conservative assumptions as to costs, is approximately \$15 million per year. This figure also overstates costs because information available from the Section 3007 RCRA Industry Studies data base indicates that over one fourth of these wastes are *already* being managed as hazardous waste at RCRA facilities. For these wastes, listing

will not add appreciably to the current cost of disposal except for the minimal additional cost of record keeping. It will also have very little additional cost impact on the permitting of these facilities since they are already handling hazardous wastes. Based on this reasoning, the estimated impact of this rule will be well under the \$100 million that constitutes a major regulation.

In addition, we do not expect that there will be adverse impacts on the ability of U.S.-based enterprises to compete with foreign-based enterprises in domestic or export markets. Therefore, since this proposed amendment is not a major regulation, a Regulatory Impact Analysis is not being conducted.

This proposed amendment was submitted to the Office of Management and Budget (OMB) for review as required by Executive Order 12291. Any comments from OMB to EPA, and any EPA responses to those comments, are available for public inspection in Room S-212 at EPA.

#### B. Regulatory Flexibility Act

Pursuant to the Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.*, whenever an agency is required to publish a general notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis which describes the impact of the rule on small entities (*i.e.*, small businesses, small organizations, and small governmental jurisdictions). No regulatory flexibility analysis is required, however, if the

head of the Agency certifies that the rule will not have a significant economic impact on a substantial number of small entities.

The hazardous wastes listed here are not generated by small entities (as defined by the Regulatory Flexibility Act), and the Agency does not believe that small entities will dispose of them in significant quantities. Accordingly, I hereby certify that this amendment is unlikely to have a significant economic impact on a substantial number of small entities. This regulation therefore does not require a regulatory flexibility analysis.

#### VII. List of Subjects in 40 CFR Part 261

Hazardous materials, Waste treatment and disposal, Recycling.

Dated: February 6, 1984.

Alvin L. Alm,  
Acting Administrator.

For the reasons set out in the preamble, Title 40 of the Code of Federal Regulations is proposed to be amended as follows:

#### PART 261—IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

1. The authority for Part 261 reads as follows:

Authority: Secs. 1006, 2002(a), 3001, and 3002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended [42 U.S.C. 6905, 6912(a), 6921, and 6922].

2. In § 261.31 add the following waste streams:

#### § 261.31 Hazardous waste from non-specific sources.

Industry and EPA hazardous waste No.	Hazardous waste	Hazard code
F025.....	Light ends, spent filters and filter aids, and spent desiccant wastes from the production of chlorinated aliphatic hydrocarbons, having carbon content from one to five, utilizing free radical catalyzed processes.	(T)

3. Add the following entry in numerical order to Appendix VII of Part 261:

#### APPENDIX VII—BASIS FOR LISTING HAZARDOUS WASTES

EPA hazardous waste No.	Hazardous constituents for which listed
F025.....	Chloromethane, dichloromethane, trichloromethane, carbon tetrachloride, chloroethylene, 1,1-dichloroethane, 1,2-dichloroethane, trans-1,2-dichloroethylene, 1,1-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethylene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, tetrachloroethylene, pentachloroethane, hexachloroethane, allyl chloride (3-chloropropene), dichloropropane, dichloropropene, 2-chloro-1,3-butadiene, hexachloro-1,3-butadiene, hexachlorocyclopentadiene, hexachlorocyclohexane, benzene, chlorobenzene, dichlorobenzenes, 1,2,4-trichlorobenzene, tetrachlorobenzene, pentachlorobenzene, hexachlorobenzene, toluene, naphthalene.

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