40 CFR Part 799

[OPTS-42104B; FRL 3661-4]

RIN 2070-AB07

Testing Consent Order On 4-Nonylphenol, Branched

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This document announces that EPA has signed an enforceable testing Consent Order with GAF Chemicals Corporation, GE Specialty Chemicals Incorporated, Kalama Chemicals Incorporated, Monsanto Company, Rohm & Haas Company, Schenectady Chemicals Incorporated, Texaco Chemical Company, and Uniroyal Chemical Company Incorporated, hereinafter referred to as the Alkyl Phenols and Ethoxylates (APE) Program Panel of the Chemical Manufacturers Association (CMA). The APE Program Panel has agreed to perform certain chemical fate and environmental effects tests on 4-nonylphenol, branched (4-NP) with CAS No. 84852-15-3*. This chemical substance is added to the list of testing Consent Orders in 40 CFR 799.5000 for which the export notification requirements of 40 CFR part 707 apply.

EFFECTIVE DATE: February 21, 1990.

FOR FURTHER INFORMATION CONTACT: Michael M. Stahl, Director, Environmental Assistance Division (TS-799), Office of Toxic Substances, Rm. E543B, 401 M St., SW., Washington, DC 20460, (202) 554-1404, TDD (202) 554-0551.

SUPPLEMENTARY INFORMATION: Under procedures described in 40 CFR part 790, the APE Program Panel has entered into a testing Consent Order with EPA, and has agreed to perform certain chemical fate and environmental effects tests for 4-NP with CAS No. 84852-15-3* (Ref. 1). The Chemical Abstracts Service does not consider this registry number (CAS No.) to represent a unique chemical substance; therefore, this is denoted by an asterisk (*). For the purposes of this rule in accordance with section 3 of the Toxic Substance Control Act (TSCA), 4-NP with CAS No. 84852-15-3* is herein referred to as a chemical substance comprised of mostly *para*-branched C9-alkylphenols. This rule amends 40 CFR 799.5000 by adding 4-NP to the list of chemical substances and mixtures subject to testing Consent Orders.

I. Recommendation

On July 30, 1987, the Testing Priority Committee (TPC) of EPA formally nominated nonylphenol as a candidate for rulemaking under TSCA. The recommendation was based on the review of a draft Chemical Hazard Information Profile (CHIP) and interaction between EPA and other Federal offices in a program review process. The TPC did not detail specific testing recommendations with regard to the various forms of nonylphenol (2-, 4-, monoethoxylated-, and polyethoxylated nonylphenol) that were identified in the CHIP.

The CHIP review was considered the first stage in the assessment of risk for "nonylphenol." Chemical information was provided for 2-nonylphenol, normal (CAS No. 136-83-4), 4-nonylphenol, normal (CAS No. 104-40-5), and nonylphenol, mixed isomers (CAS No. 25154-52-3); three distinct chemical entities. The TPC requested an investigation of the data gaps and environmental testing needs for nonylphenol. From the program review, EPA's Office of Water Regulations and Standards (OWRS) recommended environmental effects testing, and the U.S. Food and Drug Administration (FDA) and EPA's Office of Solid Waste (OSW) recommended chemical fate testing.

Following the TPC's recommendation to identify data gaps and testing needs, EPA initiated discussions with industry manufacturers and other EPA offices.

II. Background

EPA issued a Federal Register notice on October 21, 1987 (52 FR 39273), announcing the first public meeting and

EPA's consideration of developing a testing Consent Order or a test rule for nonylphenol. The meeting convened on October 27th, when CMA announced the formation of the APE Program Panel, proposed the testing of nonylphenol through a Consent Order, and indicated the APE Program Panel's intent to conduct a voluntary environmental monitoring survey of nonylphenol in addition to tests conducted pursuant to the Consent Order. Provisions of this multi-site survey, developed following consultation with EPA's Exposure Evaluation Division in the Office of Toxic Substances, are not a part of this testing Consent Order and will not be addressed. However, the protocol is available in the public docket (Ref. 2).

In response to questions raised during the October 27th public meeting, the APE Program Panel submitted comments to EPA concerning information from the CHIP (Ref. 3) In summary, the Panel believed that the Chemical Abstracts Service (CAS) registry numbers for 2-nonylphenol, 4-(normal) nonylphenol, and nonylphenol-mixed isomers previously reported by the manufacturers in the 1979 TSCA Inventory of Chemical Substances did not now represent the correct commercially manufactured products on the market today. The Panel believes that currently the commercial product that best represents "nonylphenol" is a chemical substance comprised of branched C9-alkyl phenols with CAS No. 84852-15-3*. The CHIP reported information for the normal-nonyl alkyl-chain isomers, which do not meet the current commercial product specifications.

In addition, on January 14, 1988, EPA proceeded with delisting 2-nonylphenol from the TSCA Public Inventory (53 FR 949), since it was no longer manufactured (Ref. 4) As a result, EPA has modified its original intention of requiring testing for nonylphenol-mixed isomers (CAS No. 25154-52-3), and is recommending that testing be conducted with the chemical substance comprised of mostly *para*-branched C9-alkylphenols with CAS No. 84852-15-3*, hereinafter referred to as 4-NP.

III. Testing Consent Order Negotiations

In the **Federal Register** of February 6, 1989 (54 FR 6170), and in accordance with the procedures established in 40 CFR 790.28, EPA requested persons interested in participating in or monitoring of testing negotiations on 4-NP to contact the Agency by February 24, 1989. On February 13, 1989, EPA convened a second public meeting to discuss 4-NP testing. Prior to this meeting, EPA drafted a testing Consent Order for 4-NP and submitted it to the APE Program Panel for review (Ref. 5) Subsequent meetings were convened to modify the draft testing Consent Order. On January 12, 1990, eight members of the APE Program Panel signed a testing Consent Order for 4-NP. The members agreed to perform certain chemical fate and environmental effects tests by specified dates according to the test standards included in this Order.

IV. Production and Use

Technical grade 4-NP is produced by the liquid-phase alkylation of phenol with propylene trimer in the presence of an acid catalyst. Based on an aggregate report of sales from the producers, 245.1 million pounds of nonylphenol were produced by eight U.S. companies in 1987.

Approximately 65 percent of nonylphenol is used as an intermediate in the production of nonionic ethoxylated surfactants. In addition to its use as a reactive intermediate to produce ethoxylates for surfactant use, nonylphenol is used as a reactive intermediate in other industrial applications: Lube additives (appropriately 15 percent); formaldehyde resins, polymeric stabilizers, and epoxy resins (collectively accounting for approximately 18 percent of nonylphenol end use); and, to a lesser extent, (approximately <10 percent) in the manufacture of phosphate antioxidants, oil additives,synthetic lubricants, and corrosion inhibitors.

V. Testing Program

EPA will use the data generated by these tests to determine the chemical fate of 4-NP and potential environmental risks associated with the manufacture, use, and disposal of 4-NP. OWRS intends to utilize these data to issue water quality advisories for the protection of aquatic organisms. OSW and the FDA intend to utilize these data in a risk analysis and evaluation of chemical fate as part of program reviews.

A. Chemical Fate

High levels of unspecified nonylphenol were reported in stabilized sewage sludge containing surfactants, suggesting that the point of origin of 4-NP is from anaerobic degradation of alkylphenol ethoxylates. Several studies have identified nonylphenols in secondary effluents from municipal treatment plants or in rivers receiving wastewater from various chemical industries.

The APE Program Panel has agreed to determine the following physical and chemical properties of 4-NP: Boiling point, melting point, dissociation constant, partition coefficient and vapor pressure. The APE Program Panel has agreed to also measure the water solubility of 4-NP in freshwater and saltwater. The APE Program Panel has agreed to develop the following chemical fate data: Sediment adsorption isotherm, anaerobic biodegradation, and aerobic microcosm biodegradation as seen in the following table.

TABLE—TESTING REQUIRED FOR 4-NONYLPHENOL, BRANCHED

Test	Test standards in 40 CFR	Start date [1]	Final report date [2]
Tier I:			
Environmental Effects Tests:			
Algae bioassay, *Selenastrum* sp. and *Skeletonema* sp.	§.797.1050	3	9
Acute toxicity, sheepshead minnow	§ 797.1400	3	9
Acute toxicity, mysid shrimp	§ 797.1930	3	9
Bioconcentration, fathead minnow	§ 797.1520	6	18
Chemical Fate Tests:			
Boiling point	§ 796.1220	3	6
Melting point [3]	CG 1300	3	6
Dissociation constant	§ 796.1370	3	6
Partition coefficient	§ 796.1550	3	6
Water solubility	§ 796.1860	3	6
Vapor pressure	§ 796.1950	3	6
Sediment adsorption isotherm	§ 796.2750	3	6
Anaerobic biodegradation	§ 796.3140	9	12

TABLE—TESTING REQUIRED FOR 4-NONYLPHENOL, BRANCHED—Continued

Test	Test standards in 40 CFR	Start date [1]	Final report date [2]
Aerobic microcosm biodegradation [4]	Bourquin	3	12
Tier II:			
Environmental Effects Tests:			
Chronic toxicity, invertebrate [5]	§ 797.1330	6	15
	§ 797.1950	6	15
Fish early life stage [6]	§ 797.1600	6	15
Benthic sediment bioassay, midge [7]	EPA protocol	6	18
Benthic sediment bioassay, tadpole [8]	EPA protocol	6	18

[1] Number of months after the effective date of the Consent Order or the completion of Tier I test(s).
[2] Number of months after the effective date of the Consent Order. Interim (6-month) progress reports shall be submitted to EPA for all tests having final report dates of greater than 9 months, starting 6 months after the start date.
[3] Chemical Guideline (CG) 1300 is appended to the testing Consent Order for 4-NP.
[4] Bourquin et al. (1977) is appended to the testing Consent Order for 4-NP.
[5] *Daphnia magna* (§ 797.1330) or mysid shrimp (§ 797.1950) will be selected as the test species, based on sensitivity to 4-NP during acute toxicity testing.
[6] Fathead or sheepshead minnow will be selected as the test species, based on sensitivity to 4-NP during acute toxicity testing.
[7] The chironomid sediment toxicity test guideline is appended to the testing Consent Order for 4-NP.
[8] The tadpole/sediment subchronic toxicity test guideline is appended to the testing Consent Order for 4-NP.

B. Environmental Effects

Nonylphenols of different structure and purity than 4-NP are highly toxic to aquatic organisms (CHIP). The 4-NP 96-hour fathead minnow LC50 value was 0.30 mg/L (Ref. 6). The 4-NP 48-hour *Daphnia magna* EC50 value was 0.44 mg/L (Ref. 7). Acute toxicity testing of 4-NP in algae and marine organisms (sheepshead minnow and mysid shrimp), and bioconcentration testing in fish, will be sponsored by the APE Program Panel.

The APE Program Panel and EPA have agreed to a tiered testing program described in the Table in Unit V.A. of this preamble. All tests are required; the tiering is necessary for species selection for the aquatic invertebrate chronic toxicity and the fish early life stage tests.

The APE Program Panel agrees to perform the testing according to cited EPA test standards and specified test schedules presented in the Table in unit V.A. Tier I testing will be completed within 18 months, and interim status reports are due in 6-month increments for tests with final report dates due 9 months or more after the effective date of the testing Consent Order. Tier II testing will be completed in 18 months, with interim status reports due in 6-month increments after the start of each test.

C. Test Substance

EPA recognizes that the chemical substance, 4-NP, is a commercial mixture containing up to 95 percent of the branched *para*-nonylphenol isomer. The commercial production of 4-NP does not result in a single pure chemical entity. Moreover, low-volume, high-purity laboratory synthesis would, most likely, not produce a material comparable to the commercial mixture. Industrially produced 4-NP, both technical and high-purity grades, is a mixture of several components. The predominant components of commercial 4-NP are *para*-branched C9-alkylphenols (95 to 96 percent) which differ only in the branched configuration of the C9-alkyl chain. The remaining components consist of *ortho*-branched C9-alkylphenols (approximately 2 to 3 percent), di-nonylphenol (less than 0.01 percent), and phenol/propylene trimer (less than 0.03 percent) (Ref 8). The synthetic process involves a multi-component system with impurities present in the feedstocks. Separation of the individual impurity components with chromatographic techniques in order to purify the final 4-NP produced may result in a product which is not indicative of the 4-NP mixture commercially produced. Therefore, testing will be conducted using a non-radiolabelled, high-purity grade, industrially produced 4-NP at a 95 percent purity level.

VI. Export Notification

The issuance of this testing Consent Order subjects any person who exports or intends to export the chemical substance, 4-NP with CAS No. 84852-15-3* at any purity grade, to the export notification requirements of section 12(b) of TSCA. The specific requirements are listed in 40 CFR part 707. Chemicals subject to testing Consent Orders are listed at 40 CFR 799.5000. This listing serves as notification to persons who export or intend to export the chemical substance which is the subject of this testing Consent Order that 40 CFR part 707 applies.

VII. Rulemaking Record

EPA has established a record for this rule (docket number OPTS-42104B). This record contains the information considered by EPA in developing this Consent Order. This record includes the following information:

A. Supporting Documentation

(1) Testing Consent Order for 4-NP.

(2) **Federal Register** notices pertaining to this notice and consent order consisting of:

(a) Notice soliciting interested parties for developing a consent order for nonylphenol, mixed isomers, and possibly 2- and 4-nonylphenol (October 21, 1987; 52 FR 39273).

(b) Notice announcing public meeting for February 13, 1989, and soliciting interested parties for developing a consent order for 4-nonylphenol, branched (4-NP) (February 8, 1989; 54 FR 6170).

(c) Notice of intent to remove incorrectly reported chemical substances from the TSCA Inventory (January 14, 1988; 53 FR 949).

(3) Communications consisting of:

(a) Written letters.

(b) Contact reports of telephone conversations.

(c) Meeting summaries.

(4) Reports—published and unpublished factual materials including: Chemical Hazard Information Profile (CHIP)—Nonylphenol 25154-52-3 (draft). EPA Office of Toxic Substances, Existing Chemical Assessment Division. (September 17, 1985).

B. References

(1) CA file computer search, completed May 20, 1988.

(2) Chemical Manufacturers Association (CMA). Cover letter to "Environmental Monitoring and Modeling Studies", from Geraldine V. Cox to Sarah Shapley (Exposure Evaluation Division), Environmental Protection Agency (EPA; March 16, 1989). Includes attachment "Environmental Sampling and Analysis for Nonylphenol Ethoxylate Species in the Alabama and

Saginaw Rivers," prepared for the Alkyl Phenols and Ethoxylates (APE) Program Panel. (February 1989).

(3) CMA. Letter with attached nonylphenol report on CAS numbers and structures, from Henry J. Sauer (APE Program Panel Manager) to Yvette Hellyer (Test Rules Development Branch), EPA. (May 11, 1988).

(4) CMA. July 5, 1988, cover letter from Schenectady Chemicals, Inc., from Henry J. Sauer (APE Program Panel Manager) to Henry P. Lau (Chemical Inventory Section), EPA. (July 13, 1988).

(5) EPA. Letter with attached draft testing Consent Order from Yvette P. Hellyer (Test Rules Development Branch) to Henry J. Sauer, CMA. (February 3, 1989).

(6) Monsanto Industrial Chemicals Company. Static Acute Bioassay Report #26822. Analytical Bio Chemistry Laboratories. (February 3, 1981).

(7) Calvert, C., and Adams, W. J. "Acute toxicity of nonylphenol* to *Daphnia magna*." Monsanto Industrial Chemicals Company. Report No. ES-81-SS-19. (June 8, 1981).

(8) Yunick, R. Technical Data Report for *para*-nonylphenol, CAS No. 84852-15-3, presented at EPA Headquarters, Washington, DC. (June 14, 1988).

Confidential Business Information (CBI), while part of the record, is not available for public review. A public version of the record, from which CBI has been deleted, is available for inspection in the TSCA Public Docket Office, Rm. NE-G004, 401 M St., SW., Washington, DC, from 8 a.m. to 4 p.m., Monday through Friday, except legal holidays.

VIII. Other Regulatory Requirements

Paperwork Reduction Act

The Office of Management and Budget (OMB) has approved the information collection requirements contained in this rule under the provisions of the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.*, and has assigned OMB Control number 2070-0033.

Public reporting burden for this collection of information is estimated to average 900 hours per response. The estimates include time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to, Chief, Information Policy Branch, PM-223, US Environmental Protection Agency, 401 M St., SW., Washington, DC 20460; and the Office of Management and Budget, Paperwork Reduction Project (2070-0033), Washington, DC 20503.

List of Subjects in 40 CFR Part 799

Chemicals, Chemical export, Chemical fate, Environmental effects, Environmental protection, Hazardous substances, Laboratories, Recordkeeping and reporting requirements, Testing.

Dated: February 3, 1990.

Linda J. Fisher,

Assistant Administrator for Pesticides and Toxic Substances.

Therefore, 40 CFR part 799 is amended as follows:

PART 799—[AMENDED]

1. The authority citation for part 799 continues to read as follows:

Authority: 15 U.S.C. 2603, 2611, 2625.

2. Section 799.5000 is amended by adding 4-NP to the table in CAS Number order, to read as follows:

§ 799.5000 Testing consent orders.

* * * * *

CAS No.	Substance or mixture name	Testing	FR citation
84852-15-3*	4-Nonylphenol, branched	Environmental effects	2/21/1990
		Chemical fate	2/21/1990

[FR Doc. 90-3965 Filed 2-20-90; 8:45 am]

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