



TOXICS RELEASE INVENTORY

List of Toxic Chemicals within the Warfarin and Salts Category

Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) requires certain facilities manufacturing, processing, or otherwise using listed toxic chemicals to report their environmental releases of such chemicals annually. Beginning with the 1991 reporting year, such facilities also must report pollution prevention and recycling data for such chemicals, pursuant to section 6607 of the Pollution Prevention Act, 42 U.S.C. 13106. When enacted, section 313 established an initial list of toxic chemicals that was comprised of more than 300 chemicals and 20 chemical categories. Section 313(d) authorizes EPA to add chemicals to or delete chemicals from the list, and sets forth criteria for these actions. EPCRA section 313 is also known as the Toxics Release Inventory (TRI).

CONTENTS

Section 1.	Introduction	2
Section 2.	CAS Number List of Chemicals within the Warfarin Category	4
Section 3.	CAS Number List of Mixtures Within the Warfarin Category.....	5

Section 1. Introduction

On November 30, 1994 EPA added nearly 300 chemicals and chemical categories to the list of toxic chemicals subject to reporting under EPCRA section 313, 42 U.S.C 11001. These additions are described at 59 FR 61432, and where effective January 1, 1995 for reports due July 1, 1996. The warfarin and salts category was included in these additions. At the time of the addition, EPA indicated that the Agency would develop, as appropriate, interpretations and guidance that the Agency determines are necessary to facilitate accurate reporting for these categories. This document constitutes such guidance for warfarin and salts.

EPCRA section 313 requires threshold determinations for chemical categories to be based on the total of all chemicals in the category manufactured, processed, or otherwise used. For example, a facility that manufactures three members of a chemical category would count the total amount of all three chemicals manufactured towards the manufacturing threshold for that category. When filing reports for chemical categories, the releases are determined in the same manner as the thresholds. One report is filed for the category and all releases are reported on this form.

The warfarin salts category is subject to the one percent *de minimis* concentration. Thus, mixtures that contain members of these categories equal to or in excess of the *de minimis* should be factored into threshold and release determinations.

Any compound which has a warfarin salt component is reportable. EPA is providing the following list of CAS numbers and chemical names to aid the regulated community in determining whether they need to report the Warfarin category. However, this list is not exhaustive. If a facility is manufacturing, processing, or using a chemical which has a warfarin salt component, they must report to TRI, even if this chemical does not appear on the following list.

Who Must Report

A plant, factory, or other facility is subject to the provisions of Section 313, if it meets all three of the following criteria:

1. It is included in the following North American Industrial Classification System (NAICS) manufacturing codes (corresponding to Standard Industrial Classification (SIC) codes 20 through 39): 311*, 312*, 313*, 314*, 315*, 316, 321, 322, 323*, 324, 325*, 326*, 327, 331, 332, 333, 334*, 335*, 336, 337*, 339*, 111998*, 113310, 211130*, 212324*, 212325*, 212393*, 212399*, 488390*, 511110, 511120, 511130, 511140*, 511191, 511199, 512230*, 512250*, 519130*, 541713*, 541715* or 811490*. *Exceptions and/or limitations exist for these NAICS codes.

Facilities included in the following NAICS codes (corresponding to SIC codes other than SIC codes 20 through 39): 212111, 212112, 212113 (corresponds to SIC code 12, Coal Mining (except 1241)); or 212221, 212222, 212230, 212299 (corresponds to SIC code 10, Metal Mining (except 1011, 1081, and 1094)); or 221111, 221112, 221113, 221118, 221121, 221122, 221330 (limited to facilities that combust coal and/or oil for the purpose of generating power for distribution in commerce) (corresponds to SIC codes 4911, 4931, and 4939, Electric Utilities); or 424690, 425110, 425120 (limited to facilities previously classified in SIC code 5169, Chemicals and Allied Products, Not Elsewhere Classified); or 424710 (corresponds to SIC code 5171, Petroleum Bulk Terminals and Plants); or 562112 (limited to facilities primarily engaged in solvent recovery services on a contract or fee basis (previously classified under SIC code 7389, Business Services, NEC)); or 562211, 562212, 562213, 562219, 562920 (limited to facilities regulated under the Resource Conservation and Recovery Act, subtitle C, 42 U.S.C. 6921 et seq.) (corresponds to SIC code 4953, Refuse Systems); and

2. It has 10 or more full-time employees (or the equivalent 20,000 hours per year); and
3. It manufactures, imports, processes, or otherwise uses any of the toxic chemicals listed on the EPCRA Section 313 list in amounts greater than the "threshold" quantities specified below.

Thresholds

Thresholds are specified amounts of toxic chemicals used during the calendar year that trigger reporting requirements.

If you *manufacture* or *import* any of the listed toxic chemicals, the threshold quantity will be:

- 25,000 pounds per toxic chemical or category over the calendar year.

If you *process* any of the listed toxic chemicals, the threshold quantity will be:

- 25,000 pounds per toxic chemical or category over the calendar year.

If you *otherwise use* any of the listed toxic chemicals (without incorporating it into any product or producing it at the facility), the threshold quantity is:

- 10,000 pounds per toxic chemical or category over the calendar year.

Section 2. CAS Number List of Chemicals that have CAS numbers within the Warfarin Category

EPA is providing the following list of CAS numbers and chemical names to aid the regulated community in determining whether they need to report for the Warfarin category. However, this list is not exhaustive. If a facility is manufacturing, processing, or using a chemical which has a Warfarin component, they must report to TRI, even if this chemical does not appear on the following list.

Table 1. Listing by CAS Number of Each Individual Chemical within the Warfarin and Salts Category		
Collective Index Name	Common Name	CAS Number
Warfarin	N/A	81-81-2
2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, sodium salt	Warfarin sodium salt	129-06-6
Coumarin, 3-(α -acetylbenzyl)-4-hydroxy-, calcium salt	Warfarin calcium salt	2084-55-1
Coumarin, 3-(α -acetylbenzyl)-4-hydroxy-, magnesium salt	Warfarin magnesium salt	2084-56-2
2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, potassium salt	Warfarin, potassium salt	2610-86-8
2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, lithium salt	Lithium warfarin	2784-36-3
2H-1-benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, sodium salt, (S)-	Sodium S-warfarin	5543-79-3
2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, sodium salt, (R)-	Sodium R-warfarin	36508-91-5
2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, sodium salt, (\pm)-	(\pm)-Warfarin sodium	51821-81-9
2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, thallium(1+) salt	Warfarin, thallium salt	67523-25-5

Section 3. CAS Number List of Mixtures Within the Warfarin Category

EPA is providing the following list of CAS numbers and chemical names for mixtures which contain Warfarin and its salts. This list will aid the regulated community in determining whether they need to report for the Warfarin category. However, this list is not exhaustive. If a facility is manufacturing, processing, or using a mixture that contains Warfarin or a Warfarin salt component, they must report to TRI, even if this chemical does not appear on the following list. Threshold calculations for the Warfarin category should account only for the percentage of the Warfarin component contained in the mixture.

Table 2. Mixtures Containing Warfarin and its Salts		
Mixture Name	Warfarin Component	Mixture CAS Number
Benzenesulfonamide, 4-amino-N-2-quinoxalanyl-, mixt. with 4-hydroxy-3-(3-oxo-1-phenylbutyl)-2H-1-benzopyran-2-one	Warfarin 81-81-2	37341-99-4
1,2,3-Propanetricarboxylic acid, 2-hydroxy-, sodium salt, mixt. with acetaldehyde, 2-butanone, N,N-dimethylmethanamine, formaldehyde, α -hydro- ω -hydroxypoly(oxy-1,2-ethanediyl), 4-hydroxy-3-(3-oxo-1-phenylbutyl)-2H-1-benzopyran-2-one sodium salt and 2,2',2''-nitriлотris[ethanol]	Warfarin Sodium Salt 129-06-6	39366-36-4
9,10-Secoergosta-5,7,10(19),22-tetraen-3-ol, (3 β ,5Z,7E,22E)-, mixt. with 4-hydroxy-3-(3-oxo-1-phenylbutyl)-2H-1-benzopyran-2-one	Warfarin 81-81-2	54842-06-7
1H-Indene-1,3(2H)-dione, 2-(2,2-dimethyl-1-oxopropyl)-, mixt. with 4-hydroxy-3-(3-oxo-1-phenylbutyl)-2H-1-benzopyran-2-one	Warfarin 81-81-2	58934-24-0
Benzenesulfonamide, N-[(butylamino)carbonyl]-4-methyl-, mixt. with 4-hydroxy-3-(3-oxo-1-phenylbutyl)-2H-1-benzopyran-2-one	Warfarin 81-81-2	60177-49-3
Retinol, acetate, mixt. with 4-hydroxy-3-(3-oxo-1-phenylbutyl)-2H-1-benzopyran-2-one	Warfarin 81-81-2	63610-50-4
Antimycin A, mixt. with 4-hydroxy-3-(3-oxo-1-phenylbutyl)-2H-1-benzopyran-2-one	Warfarin 81-81-2	64782-63-4
1H-Indole-3-acetic acid, 1-(4-chlorobenzoyl)-5-methoxy-2-methyl-, mixt. with 4-hydroxy-3-(3-oxo-1-phenylbutyl)-2H-1-benzopyran-2-one	Warfarin 81-81-2	136153-10-1
2-Naphthaleneacetic acid, 6-methoxy- α -methyl-, (S)-, mixt. with 4-hydroxy-3-(3-oxo-1-phenylbutyl)-2H-1-benzopyran-2-one	Warfarin 81-81-2	136153-11-2
2H-1,2-Benzothiazine-3-carboxamide, 4-hydroxy-2-methyl-N-2-pyridinyl-, 1,1-dioxide, mixt. with 4-hydroxy-3-(3-oxo-1-phenylbutyl)-2H-1-benzopyran-2-one	Warfarin 81-81-2	136153-09-8
2H,5H-1,3-Oxazino[5,6-c][1,2]benzothiazine-2,4(3H)-dione, 5-methyl-3-(2-pyridinyl)-, 6,6-dioxide, mixt. with 4-hydroxy-3-(3-oxo-1-phenylbutyl)-2H-1-benzopyran-2-one	Warfarin 81-81-2	136153-12-3

Table 2. Mixtures Containing Warfarin and its Salts

Mixture Name	Warfarin Component	Mixture CAS Number
Benzoic acid, 2-(acetyloxy)-, mixt. with 4-hydroxy-3-(3-oxo-1-phenylbutyl)-2H-1-benzopyran-2-one	Warfarin 81-81-2	136153-08-7
Benzeneacetic acid, 2-[(2,6-dichlorophenyl)amino]-, mixt. with 4-hydroxy-3-(3-oxo-1-phenylbutyl)-2H-1-benzopyran-2-one	Warfarin 81-81-2	136153-13-4
3,5-Pyrazolidinedione,1,2-diphenyl-4-[2-(phenylsulfinyl)ethyl]-, mixt. with 4-hydroxy-3-(3-oxo-1-phenylbutyl)-2H-1-benzopyran-2-one	Warfarin 81-81-2	136153-14-5
2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, mixt. with 5-[(2-chlorophenyl)methyl]- 4,5,6,7-tetrahydrothieno[3,2-c]pyridine	Warfarin 81-81-2	136153-15-6