

TITLE: VAP Hazardous Substance Definition Scope

DATE EFFECTIVE: September 2015

HISTORY: New addition to the Technical Guidance Compendium .

KEYWORDS: Hazardous substances, pesticides, radionuclides, radioactive mixtures

RULE/ AUTHORITY: Ohio Revised Code (ORC) 3746.01, Ohio Administrative Code (OAC) 3745-300-01

QUESTIONS: What substances are encompassed by the “hazardous substance” definition under the Ohio Voluntary Action Program (VAP)? What substances are not, by definition, VAP hazardous substances?

ANSWER: Analysis of the VAP hazardous substance definition in ORC 3746.01 and OAC 3745-300-01 shows that the definition encompasses four overall categories:

1. Substances identified or listed in Table 302.4 of Part 302 of Title 40 of the Code of Federal Regulations (40 CFR 302.4). The VAP definition encompasses the substances in 40 CFR 302.4, including:
 - a. Substances listed generally, which may include the particular forms (i.e., reference to 1,2 dichloroethylene incorporates *cis* and *trans* isomers).
 - b. Substances listed as a class include the specific constituents (“zinc and compounds” includes zinc, zinc compounds).
 - c. Substances that meet the criteria for characteristic hazardous waste, D code wastes (i.e., barium in DOO5 waste).
 - d. Substances that are listed hazardous waste, F, P or U code wastes (i.e., trichloroethylene in FOO1 waste).
 - e. Substances listed with, or without, a designated reportable quantity (RQ) (i.e., hexachlorocyclohexane

isomers). Substances with, or without, a Chemical Abstracts Services assigned registration number (CASRN) (i.e., *cis* 1,2 DCE, chlorinated phenols).

- f. Radionuclides listed in 40 CFR 302.4, Appendix B (i.e., radium 226).
2. Pesticide products, Ohio registered, when used in a manner inconsistent with required labeling. This category encompasses such “misapplied” pesticides. Restricted use pesticides are considered misapplied if applied by either a person without the required certification or a person not working under the direct supervision of a certified applicator.
3. Pesticide products, for which the Ohio registration was suspended or canceled under ORC 921.05. However, no suspension or cancellation has occurred to-date under the Ohio law. Ohio generally follows the federal restrictions. Thus, check 40 CFR 302.4 for identified or listed pesticides.
4. Mixtures of any substance from prior categories with a radioactive material. Yet not all radioactive mixtures are encompassed by VAP because of the release definition exceptions, as described below.

More detail on the scope and interpretation of the VAP hazardous substance definition is discussed below.

DISCUSSION:

This guidance seeks to explain the VAP hazardous substance definition, found at ORC 3746.01(I) and OAC 3745-300-01(A), and describes what substances the definition encompasses. Specifically, the VAP definition provides that a “hazardous substance” includes the following:

1. Any substance identified or listed in rules adopted under ORC 3750.02(B)(1)(c).
2. Any product registered as a pesticide under ORC 921.02 when the product is used in a manner inconsistent with its required labeling.
3. Any pesticide product formerly registered for which the registration was suspended or canceled under ORC 921.05.

4. Any mixture of a substance described by prior categories with a radioactive material.

ORC 3746.01(I); OAC 3745-300-01(A)(60) (version effective 8/1/2014).

“Any substance identified or listed” - analysis of ORC 3746.01(I)(1)

The first category of the VAP hazardous substance definition speaks to any substance identified or listed in rules adopted under ORC 3750.02(B)(1)(c), which are rules administered by the State Emergency Response Commission (SERC). The rule adopted under ORC 3750.02(B)(1)(c) consists of OAC 3750-20-50. Analysis of OAC 3750-20-50 (version effective 1/2/2007) reveals that substances listed by USEPA under 40 CFR 302.4, and any other substances listed by SERC in rule, are encompassed in the VAP hazardous substance definition.

Hazardous wastes. All types of hazardous waste are encompassed. 40 CFR 302.4 gives a list of “listed hazardous substances” and “unlisted hazardous substances.” “Listed hazardous substances” includes the listed hazardous wastes (i.e., F, P and U-code wastes) as part of the large group of listed elements and compounds. In contrast, “unlisted hazardous substances” is a subset of hazardous waste exhibiting a characteristic of corrosivity, toxicity, reactivity, or ignitability (i.e., D-code wastes). In case of an F, P or U code waste listed in 40 CFR 302.4(a), it is not necessary - for purposes of determining the VAP hazardous substance constituents - to determine whether the substance is also an unlisted hazardous waste (i.e., D-code wastes).

Note: Waste handling requirements likely apply, including to waste generated during a voluntary action project; ORC 3746.10(D) and OAC 3745-300-11(B). Consult the applicable regulatory program.

Mere substance listing is sufficient; RQ and CASRN are non-applicable. The VAP definition does not by its terms incorporate the reportable quantity (RQ) concept of ORC 3750.02 or OAC 3750-20-50. RQ designations are not relevant to whether a substance is a hazardous substance for VAP purposes. A substance listed or identified under 40 CFR 302.4, whether with or without a RQ, thus qualifies as a hazardous substance based on the VAP definition. The fact that 40 CFR 302.4 gives no RQ for several identified or listed substances, such as the generic classes of arsenic, chromium, cobalt or selenium compounds and chlorinated phenols, does not affect the question of what substance is a hazardous substance. Also, Appendix A to 40 CFR 302.4 lists substances in sequential order by CASRN,

provides a per-substance grouping of regulatory synonyms (i.e., names by which each hazardous substance is identified in other statutes and their implementing regulations). Yet Courts have noted that RQs and CASRNs only go to reporting requirements.¹ The mere identification or listing of a substance in 40 CFR 302.4 indicates it is a VAP hazardous substance.

Broad categories included. Thus, the first category of the VAP hazardous substances definition, ORC 3746.01(l)(1), consists of the substances identified or listed under 40 CFR 302.4. Federal courts have adopted the USEPA's interpretation of its regulations and concluded that the generic categories, such as "chromium and compounds" were listed hazardous substances under CERCLA.² Similarly, the generic naming of a substance includes its more specific forms (i.e., "cis" and "trans" forms of 1,2-DCE.) The hazardous substance definition is intended to be broadly construed.

Radionuclides. Appendix B to 40 CFR 302.4 gives a radionuclides listing. The VAP definition consequently includes the listed radionuclides.

40 CFR 302.4 updates incorporated. OAC 3750-20-50 and SERC law also encompass any updates made by USEPA to 40 CFR 302.4. ORC 3750.02(B)(4) and (C)(5) require SERC rules to apply criteria consistent with and equivalent to the applicable criteria for identifying or listing hazardous substances under the "Comprehensive Environmental Response, Compensation, and Liability Act of 1980," 94 Stat. 2779, 42 USCA 9602, as amended (CERCLA) and regulations adopted under it.³ The CERCLA hazardous substance definition is likewise broad.⁴ OAC 3750-20-50(A) and (B) in effect

¹ See *U.S. v. Alcan Aluminum Corp.*, 990 F.2d 711, 720-21 (2d Cir. 1993), citing to *Alcan-Butler*, 964 F.2d at 262-63; *City of New York v. Exxon Corp.*, 766 F.Supp. 177, 182-83 (S.D.N.Y.1991) (also involving Alcan).

² Courts have rejected the argument that the listing for "chromium and compounds" was overly broad. The courts noted that USEPA expressly states in the preamble to its rulemaking that any substance that falls within any of the broad generic classes is a hazardous substance under Section 101(14) of CERCLA and that USEPA's interpretation is reasonable and consistent with the plain words of Section 101(14), and therefore is entitled to deference. See *ITT Corp. v. Borgwarner Inc.*, 2009 WL 2252147, *1-2 (July 28, 2009) (regarding cutting oils with metal shavings, potentially chromium and lead), citing to *City of New York v. Exxon Corp.*, 766 F. Supp. 177, 180, 183-184 (S.D.N.Y. 1991) (regarding a waste oil mixed with metal compounds that contained lead, chromium, and cadmium).

³ ORC 3750.02(B)(4) requires the criteria and procedures for identifying additional hazardous substances to be consistent with and equivalent to the applicable criteria under the "Comprehensive Environmental Response, Compensation, and Liability Act of 1980," 94 Stat. 2779, 42 U.S.C.A. 9602, as amended ("CERCLA"), and regulations adopted under it (i.e., 40 CFR 302.4.)

⁴ 42 U.S.C.A. 9601(14) defines the term "hazardous substance" as:

encompass 40 CFR 304.2 listing updates and direct SERC to reference these under OAC 3750-20-50(B), if they were not already incorporated through the OAC 3750-20-50(A) direct reference to 40 CFR 302.4.

Ohio-registered pesticide product that was used in a manner inconsistent with its required labeling – analysis of ORC 3746.01(I)(2)

In ORC 3746.01(I)(2), the VAP hazardous substance definition refers to any registered pesticide product under ORC 921.02 “when the product is used in a manner inconsistent with its required labeling.” This category of the VAP hazardous substance definition necessitates that a registered pesticide product has not been applied as required by its label (“misapplied”). Keep in mind that the release of a pesticide included in 40 CFR 302.4 is a VAP hazardous substance, regardless of its application.

Ohio pesticide registration overview. In general, the Ohio Department of Agriculture regulates pesticide registration under ORC § 921.02. "Pesticide" is defined by ORC § 921.01 as any substance or mixture of substances intended for either: (1) preventing, destroying, repelling, or mitigating any pest or (2) use as a plant regulator, defoliant, or desiccant. Therefore, pesticide products may include fungicides, herbicides, insecticides, and rodenticides, among other types. Unlike the diverse federal registration requirements, Ohio registration is required only to distribute pesticides in Ohio. Defined by

(A) any substance designated pursuant to section 311(b)(2)(A) of the Federal Water Pollution Control Act [33 U.S.C.A. § 1321(b)(2)(A)],

(B) any element, compound, mixture, solution, or substance designated pursuant to 42 U.S.C.A. 9602,

(C) any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act [42 U.S.C.A. § 6921] (but not including any waste the regulation of which under the Solid Waste Disposal Act [42 U.S.C.A. § 6901 et seq.] has been suspended by Act of Congress),

(D) any toxic pollutant listed under section 307(a) of the Federal Water Pollution Control Act [33 U.S.C.A. § 1317(a)],

(E) any hazardous air pollutant listed under section 112 of the Clean Air Act [42 U.S.C.A. § 7412], and

(F) any imminently hazardous chemical substance or mixture with respect to which the Administrator has taken action pursuant to section 7 of the Toxic Substances Control Act [15 U.S.C.A. § 2606].

The term does not include petroleum which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

ORC § 921.01, "distribute" includes to offer or hold for sale, sell, or deliver for shipment, pesticides in this state. The term also includes when a pesticide dealer holds for use, applies, or uses pesticides or dilutions of pesticides in the course of business with a commercial applicator employed by that pesticide dealer.

Searching for Ohio registered pesticides and labeling. A database of Ohio-registered pesticide products is maintained by Purdue University, and may be found at: <http://state.ceris.purdue.edu/>. Pesticide labeling information may be found by searching for the product name or for active ingredient, on USEPA's Pesticide Product Label System, at <http://iaspub.epa.gov/apex/pesticides/f?p=PPLS:1>. You can call or email staff with the Ohio Department of Agriculture's Pesticide & Fertilizer Regulation section, at <http://www.agri.ohio.gov/apps/odaprs/>, which maintains a detailed database that is not publically accessible.

Is there a reason to believe a pesticide was misapplied? Pesticides might be misapplied in a variety of situations according to the Ohio Department of Agriculture, Pesticide and Fertilizer Regulation Program. Examples range from the application of a non-appropriate pesticide, to pesticide drift from aerial spray, to over-application causing runoff to waterways. The VAP property assessment may reveal whether there is reason to believe pesticide was misapplied at a property; OAC § 3745-300-06(C). Each property evaluation must necessarily consider site-specific information. For example, if records show a former owner has ruptured containers, spilled product, or broadcast a restricted use pesticide product (see below), there is reason to believe that the pesticide was misapplied.

Restricted use pesticides considered misapplied if not applied by certified individual. Although general use pesticides can be bought and applied by anyone, the restricted-use designation limits who can apply the pesticide. In Ohio, certification of individuals involved in the application of restricted-use pesticides is handled through the Ohio Department of Agriculture. Restricted use pesticides may be applied by trained serviceperson, or immediate family member under direct supervision of commercial applicator. A restricted use pesticide spread by an uncertified person amounts to a misapplied pesticide. Examples of restricted use pesticides include: Lexar EZ Herbicide (Registered 14-Dec-2011; active ingredient Atrazine), Pocket Gopher Bait, 1-10 Formulation (Registered 08-Aug-2002; active ingredient Strychnine).

A list of Ohio-registered restricted use pesticides is posted at http://www.agri.ohio.gov/apps/Restricted_Products_Rpt/default.aspx. A federal list of restricted use pesticides is available at <http://www.epa.gov/opprd001/rup/>.

Pesticide products when its Ohio registration was suspended or canceled under ORC 921.05 - analysis of ORC 3746.01(I)(3)

Regarding ORC 3746.01(I)(3), the VAP hazardous substance definition refers to any formerly Ohio registered pesticide product “for which the registration was suspended or canceled” under ORC 921.05. Yet this third category of the definition to-date has remained empty, as described below. Keep in mind that 40 CFR 302.4 listed pesticides are VAP hazardous substances, even if not suspended or canceled under Ohio law.

Federal program leads in suspension and cancelation. USEPA cancels or suspends the registration of a pesticide under federal law. In general, the maker of the federally cancelled or suspended pesticide will not subsequently re-register the product. As a result no pesticide has been suspended or canceled under ORC 921.05. For example, registration for Atrazine 80 W Industrial Weed Killer was canceled under federal law in 1989, and has since not been Ohio-registered. Although the Ohio Department of Agriculture may pursue suspension of any product’s registration under the Ohio law for reasons independent of the federal program, this has not to date occurred. Neither the Ohio Department of Agriculture nor USEPA maintain a list of canceled or suspended registrations but refer to the query forms developed by California’s Department of Pesticide Regulation to search existing lists, posted at <http://www.cdpr.ca.gov/docs/label/labelque.htm>. Banned pesticides are listed at: <http://www.epa.gov/pesticides/regulating/restricted.htm>.

Is there a reason to believe pesticide releases occurred? The VAP property assessment may reveal whether there is reason to believe pesticide use occurred at a property. Each property evaluation must necessarily consider site-specific information, in accordance with OAC 3745-300-06(C). Once the property’s historical land use is known, the type of pesticides used may be determined. For example, industrial properties may have been treated for weed, insect and rodent control in certain areas or used products containing mercury, arsenic, chlordane or other organochlorine compounds. According to a USGS study (see <http://pubs.usgs.gov/fs/2006/3028/>), five herbicides commonly used in urban areas—simazine, prometon, tebuthiuron, 2,4-D, and diuron—and three commonly used insecticides—diazinon, chlorpyrifos, and carbaryl—were most frequently detected in urban streams throughout the nation, often at higher concentrations than in agricultural streams.

Review 40 CFR 302.4 list for historically used pesticides. Some pesticides named above: 2,4-D, diuron, diazinon, chlorpyrifos, and carbaryl, are listed in 40 CFR 302.4. Remember to check whether 40 CFR 302.4 includes the pesticides (by name or their active

ingredients) known to have been historically used at the property undergoing assessment. Any pesticides listed in 40 CFR 302.4 are VAP hazardous substances.

VAP hazardous substances mixed with radioactive material - analysis of ORC 3746.01(I)(4)

Regarding ORC 3746.01(I)(4), the VAP hazardous substance definition refers to any mixture of any substance described in ORC 3746.01(I)(1) to (3) (itself a VAP hazardous substance) with a radioactive material. Such a hazardous substance radioactive material mixture would necessarily have radioactive characteristics. The radionuclides listed in 40 CFR 302.4, Appendix B, are VAP hazardous substances even if not mixed with a radioactive material.

Deference to Ohio Department of Health expertise. When site circumstances involve any hazardous substance radioactive material mixture or radionuclide, Ohio EPA will defer to the expertise of the Ohio Department of Health regarding radioactive materials. See Radiological Materials under the Voluntary Action Program guidance at: <http://www.epa.ohio.gov/portals/30/vap/tgc/VA30000-09-003.pdf>. High level radioactive material is likely not encompassed by the VAP. This is because of the exception to the “release” definition at ORC 3746.01(P)(3).

Identification of chemicals of concern through VAP assessment procedures

The VAP hazardous substances that apply to a voluntary action will depend on the nature of releases at the property. Phase I and Phase II property assessment activities show the chemicals of concern (COC), through the determinations made under OAC 3745-300-06(C) and 3745-300-07(E)(3). Say a Phase I property assessment has determined that the COCs include cobalt compounds and *cis*-1,2-DCE and *trans*-1,2-DCE (a historical release from a facility that manufactured resins). These substances, and their degradation products, comprise the VAP hazardous substances for the release that is governed by the voluntary action.

See **Examples** table, final page.

SUMMARY:

Analysis of the VAP hazardous substance definition in ORC 3746.01 and OAC 3745-300-01 shows that the definition encompasses four overall categories: (1) substances identified or listed in 40 CFR 302.4; (2) pesticide products, Ohio registered, when applied in a manner inconsistent with required labeling; (3) pesticide products, for which the Ohio registration was suspended or canceled, if any; and (4) mixtures of any substance from the first three categories with a radioactive material. High level radioactive releases are not

encompassed by the VAP, given the exception in the release definition. The VAP hazardous substances that apply will depend on the type of releases at the property. The assessment activities determine the chemicals of concern for the property undergoing the voluntary action.

OHIO EPA
CONTACT:

For any questions concerning this issue, please contact the VAP central office at (614) 644-2924.

Examples

Substance	Is it a VAP hazardous substance?	Basis	Comments
Arsenic (CASRN 7440-38-2)	Yes	ORC 3746.01(I)(1)	Listed in 40 CFR 302.4
Barium (D005) – hazardous waste characteristic for barium	Yes	ORC 3746.01(I)(1)	Identified in 40 CFR 302.4
Cyanides, cyanide compounds (no CASRN)	Yes	ORC 3746.01(I)(1)	Listed in 40 CFR 302.4
ZP Rodent Bait AG (EPA No. 12455-17)	Yes	ORC 3746.01(I)(1), or ORC 3746.01(I)(2)	Active ingredient: Zinc phosphide (Zn3P2) Listed in 40 CFR 302.4 A restricted use pesticide – its application requires certified applicator or their supervision
Drexel Trizmet II Herbicide (EPA No. 19713-547)	Yes, when not applied by a certified applicator or some other misuse has occurred	ORC 3746.01(I)(2)	Restricted use pesticide Active ingredients: Metolachlor, atrazine (neither listed in 40 CFR 302.4)
TREE-äge™ (insecticide)	Yes, but only if the pesticide was misused based on required labeling	ORC 3746.01(I)(2)	Ohio registration only: OH080002, for treatment against the emerald ash borer beetle Active ingredient: Emamectin benzoate (not listed in 40 CFR 302.4)
2,4-D (herbicide)	Yes	ORC 3746.01(I)(1)	Listed in 40 CFR 302.4
Diazinon (insecticide)	Yes	ORC 3746.01(I)(1)	Listed in 40 CFR 302.4
Cobalt-60, radon-222, and plutonium-243 (radionuclides)	Yes	ORC 3746.01(I)(1) or possibly ORC 3746.01(I)(4)	Listed in 40 CFR 302.4, Appendix B