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De Minimis Exemption

On this page:

Section 1: Regulatory Text

40 CFR §372.38(a):

> *"De minimis concentrations of a toxic chemical in a mixture. If a toxic chemical is present in a mixture of chemicals at a covered facility and the toxic chemical is in a concentration in the mixture which is below 1 percent of the mixture, or 0.1 percent of the mixture in the case of a toxic chemical which is a carcinogen as defined in 29 CFR 1910.1200(d)(4), a person is not required to consider the quantity of the toxic chemical present in such mixture when determining whether an applicable threshold has been met under §372.25 or determining the amount of release to be reported under §372.30. This exemption applies whether the person received the mixture from another person or the person produced the mixture, either by mixing the chemicals involved or by causing a chemical reaction which resulted in the creation of the toxic chemical in the mixture. However, this exemption applies only to the quantity of the toxic chemical present in the mixture. If the toxic chemical is also manufactured (including imported), processed, or otherwise used at the covered facility other than as part of the mixture or in a mixture at higher concentrations, in excess of an applicable threshold quantity set forth in §372.25, the person is required to report under §372.30. This exemption does not apply to toxic chemicals listed in §372.28, except for purposes of §372.45(d)(1)."*

Section 2: Summary

The de minimis exemption allows covered facilities to disregard certain minimal concentrations of non-PBT chemicals in mixtures or trade name products. The de minimis exemption does not apply to the manufacture of a non-PBT chemical except if that toxic chemical is manufactured as an impurity and remains in the product distributed in commerce, or if the toxic chemical is imported below the appropriate de minimis level. The de minimis exemption does not apply to a byproduct manufactured coincidentally as a result of manufacturing, processing, otherwise use, or any waste management activities.

When determining whether the de minimis exemption applies to a listed non-PBT chemical, the owner/operator should consider only the concentration of the non-PBT chemical in mixtures and trade name products. If the non-PBT chemical is manufactured as an impurity, imported, processed, or otherwise used and is below the appropriate de minimis concentration level, then the quantity of the toxic chemical in that process stream does not have to be applied to threshold determinations nor included in release or other waste management calculations. If a non-PBT chemical in a mixture or trade name product is below the appropriate de minimis level, all releases and other waste management activities associated with the toxic chemical in the mixture or trade name product are exempt from EPCRA Section 313 reporting. It is possible to meet an activity (e.g., processing) threshold for a toxic chemical on a facility-wide basis, but not be required to calculate releases or other waste management quantities associated with a particular process because that process involves only mixtures or trade name products containing the toxic chemical below the de minimis level.

Once a non-PBT chemical concentration is above the appropriate de minimis level in mixture or trade name product, threshold determinations and release and other waste management calculations must be made, even if the chemical later falls below the de minimis level in the same mixture or trade name prodct. Thus, all releases and other quantities managed as waste that occur after the de minimis level has been exceeded are subject to reporting. If a non-PBT chemical in a mixture or trade name product above de minimis is brought on-site, the de minimis exemption never applies.

The 0.1 percent de minimis levels are dictated by determinations made by the National Toxicology Program (NTP), Annual Report on Carcinogens, the International Agency for Research and Cancer (IARC) ADDENDUM EPCRA Section 313 Questions and Answers Addendum 32 Monographs, or 29 CFR part 1910, subpart Z. Therefore, once a chemicals status under NTP, IARC, or 29 CFR part 1910, subpart Z indicates that the chemical is a carcinogen or potential carcinogen, the reporting facility may disregard levels of the chemical below the 0.1 percent de minimis concentration provided that the other criteria for the de minimis exemption is met. De minimis levels for chemical categories apply to the total concentration of all chemicals in the category within a mixture, not the concentration of each individual category member within the mixture. All other listed toxic chemicals have a one percent (1.0 percent) de minimis level.

Section 2.1: De Minimis Application to the Processing or Otherwise Use of a Mixture

The de minimis exemption applies to the processing or otherwise using, of a listed non-PBT chemical in a mixture. Threshold determinations and release and other waste management calculations begin at the point where the chemical exceeds de minimis. If a listed non-PBT chemical is present in a mixture at a concentration below the de minimis level, this quantity of the substance does not

have to be included for threshold determination, release and other waste management reporting. The exemption will apply as long as the mixture containing de minimis amounts of a non-PBT chemical never goes above the de minimis limit. Also, see the two examples below in which a manufacturing activity would qualify for the de minimis exemption.

Section 2.1.1: Examples of Process and Otherwise Use Scenarios

There are many cases in which the de minimis limit is crossed or recrossed within a process or otherwise use scenario. The following examples are meant to illuminate these complex reporting scenarios. These applications are further described in the general section of the Toxic Chemical Release Inventory Reporting Forms and Instructions.

Section 2.1.1.1: A. Example of Increasing Process Concentration to Above De Minimis Levels

A manufacturing facility receives toluene which contains less than the de minimis concentration of chlorobenzene. Through distillation, the chlorobenzene content in process streams is increased over the de minimis concentration of 1 percent. From the point at which the chlorobenzene concentration exceeds 1 percent in process streams, the amount present must be factored into threshold determinations and release and other waste management calculations. The facility does not need to consider the amount of chlorobenzene in the raw material, i.e., when below de minimis levels, when making threshold determinations. The facility does not have to report emissions of chlorobenzene from storage tanks or any other equipment where the chlorobenzene content is less than 1 percent.

Section 2.1.1.2: B. Example of Fluctuating Process Concentration

A manufacturer produces an ink product which contains toluene, a listed toxic chemical below the de minimis level. The process used causes the percentage of toluene in the mixture to fluctuate: it rises above the de minimis level for a time but drops below the level as the process winds down. The facility must consider the chemical toward threshold determinations from the point at which it first exceeds the de minimis limit. Once the de minimis limit has been crossed the exemption cannot be taken.

Section 2.1.1.3: C. Example of Concentration Levels that Straddle the De minimis Level

A facility processes 9,500,000 lbs. of mixtures containing 0.25–1.25 percent manganese. Manganese is subject to 1 percent de minimis concentration exemption. The amount of mixture subject to reporting is:

9,500,000 × (1.2 - 0.99)/(1.2 - 0.25) = 2,000,000 lbs. non-exempt mixture

The average concentration above de minimis is 1.1 percent.

2,900,000 × 0.011 manganese = 22,000 lbs manganese (below threshold)

In this example, because the facility's information pertaining to the toxic chemical is available to two digits past the decimal point, the facility used 0.99 to determine the amount of the toxic chemical below the de minimis level. If the facility has information pertaining to the chemical that is available only to one digit past the decimal point, the facility should use 0.9.

Section 2.2: De Minimis Application in the Manufacture of the Listed Chemical in a Mixture

De Minimis Application in the Manufacture of the Listed Chemical in a Mixture The de minimis exemption generally does not apply to the manufacture of a non-PBT chemical. The de minimis exemption may apply to mixtures and trade name products containing non-PBT chemicals that are imported into the United States. Another exception applies to non-PBT chemicals that are coincidentally manufactured as impurities that remain in the product distributed in commerce at below the de minimis levels. In that case, the amount remaining in the product is exempt from threshold determinations. If the non-PBT chemical is separated from the final product, thereby classifying the chemical as a byproduct, it cannot qualify for the exemption. Any amount that is separated, or is separate from the product, is considered a byproduct and is subject to threshold determinations and release and other waste management calculations. Any amount of a toxic chemical that is manufactured in a wastestream must be accounted for on the Form R.

Section 2.2.1: Examples of Coincidental Manufacture Scenarios

Section 2.2.1.1: A. Example of Coincidental Manufacture as a Product Impurity

Toluene 2,4-diisocyanate reacts with water to form trace quantities of 2,4-diaminotoluene. The resulting product contains 99 percent toluene 2,4-diisocyanate and 0.05 percent 2,4-diaminotoluene. The 2,4-diaminotoluene would not be subject to Section 313 reporting nor would supplier notification be required because the concentration of 2,4-diaminotoluene is below its de minimis concentration of 0.1 percent in the product. Coincidental manufacture/production refers only to production of a chemical via a chemical reaction. It would not include separation of a byproduct from a purchased mixture during a processing operation.

Section 2.2.1.2: B. Example of Coincidental Manufacture as a Commercial Byproduct and Impurity

Chloroform is a reaction byproduct in the production of carbon tetrachloride. It is removed by distillation to a concentration of less than 150 ppm (0.0150 percent) remaining in the carbon tetrachloride. The separated chloroform at 90 percent concentration is sold as a byproduct. Chloroform is subject to a 0.1 percent (1,000 ppm) de minimis level. Any amount of chloroform manufactured and separated as byproduct must be included in threshold determinations because the de minimis exemption does not apply to manufacture of a chemical byproduct. Releases of chloroform prior to and during purification of the carbon tetrachloride should be reported. The de minimis level can, however, be applied to the chloroform remaining in the carbon tetrachloride as an impurity. Because the concentration of chloroform remaining in the carbon tetrachloride is below the de minimis level, this quantity of chloroform is exempt from threshold determinations, release and other waste management reporting, and supplier notification.

Section 2.2.1.3: C. Example of Coincidental Manufacture as a Waste Byproduct

A small amount of formaldehyde is manufactured as a reaction byproduct during the production of phthalic anhydride. The formaldehyde is separated from the phthalic anhydride as a waste gas and burned, leaving no formaldehyde in the phthalic anhydride. The amount of formaldehyde produced and removed as waste must be included in threshold determinations and release and other waste management calculations even if the formaldehyde is present below the de minimis level in the process stream where it was manufactured or in the wastestream which it was separated.

The de minimis exemption also does not apply to situations where the manufactured chemical is released or transferred to wastestreams and thereby diluted to below the de minimis level.

Section 2.3: De Minimis Levels Impact Supplier Notification Requirements

If the toxic chemical in a mixture or trade name product is present below the de minimis level for that toxic chemical, supplier notification is not required for that chemical regardless of whether or not it is a PBT chemical.

Section 3: Examples

Example 5: De Minimis Applications to Process and Otherwise Use Scenarios for Non-PBT Chemicals

Example 5: De Minimis Applications to Process and Otherwise Use Scenarios for Non-PBT Chemicals

There are many cases in which the *de minimis* "limit" is crossed or re-crossed by non-PBT chemicals within a process or otherwise use scenario. The following examples are meant to illustrate these complex reporting scenarios.

Increasing Concentration to or Above *De Minimis* Levels During Processing for Non-PBT Chemicals

A manufacturing facility receives toluene that contains chlorobenzene at a concentration below its *de minimis* limit. Through distillation, the chlorobenzene content in process streams is increased over the *de minimis* concentration of 1 percent. From the point at which the chlorobenzene concentration equals 1 percent in process streams, the amount present must be factored into threshold determinations and release and other waste management estimates. The facility does not need to consider the amount of chlorobenzene in the raw material when below *de minimis* levels, i.e., prior to distillation to 1 percent, when making threshold determinations. The facility does not have to report emissions of chlorobenzene from storage tanks or any other equipment associated with that specific process where the chlorobenzene content is less than 1 percent.

Fluctuating Concentration During Processing for Non-PBT Chemicals

A manufacturer produces an ink product that contains toluene, an EPCRA Section 313 chemical, below the de minimis level. The process used causes the percentage of toluene in the mixture to fluctuate: it rises above the *de minimis* level for a time but drops below the level as the process winds down. The facility must consider the chemical toward threshold determinations from the point at which it first equals the *de minimis* limit. Once the de minimis limit has been met the exemption cannot be taken.

Example 6: Concentration Ranges Straddling the De Minimis Value

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Scenario 1: A facility processes 8,000,000 pounds of a mixture containing 0.25 to 1.25 percent manganese. Manganese is eligible for the *de minimis* exemption at concentrations up to 1 percent. The amount of mixture subject to reporting is the quantity containing manganese at or above the *de minimis* concentration:

[(8,000,000) × (1.25% - 0.99%)] ÷ (1.25% - 0.25%)

The average concentration of manganese that is not exempt (above the *de minimis*) is:

(1.25% + 1.00%) ÷ (2)

Therefore, the amount of manganese that is subject to threshold determination and release and other waste management estimates is:

$$\left[\frac{(8{,}000{,}000)\times(1.25\%-0.99\%)}{(1.25\%-0.25\%)}\right]\times\left[\frac{(1.25\%+1.00\%)}{(2)}\right]=23{,}400\,pounds$$

= 23,400 pounds manganese (which is below the processing threshold for manganese)

In this scenario, because the facility's information pertaining to manganese was available to two decimal places, 0.99 was used to determine the amount below the *de minimis* concentrations. If the information was available to one decimal place, 0.9 should be used, as in the scenario below.

Scenario 2: As in the previous example, manganese is present in a mixture, of which 8,000,000 pounds is processed. The SDS states the mixture contains 0.2 percent to 1.2 percent manganese. The amount of mixture subject to reporting (at or above *de minimis* limit) is:

[(8,000,000) × (1.2% - 0.9%)] ÷ (1.2% - 0.2%)

The average concentration of manganese that is not exempt (at or above *de minimis* limit) is:

(1.2% + 1.0%) ÷ (2)

Therefore, the amount of manganese that is subject to threshold determinations and release and other waste management estimates is:

$$\left[\frac{(8{,}000{,}000)\times(1.2\%-0.9\%)}{(1.2\%-0.2\%)}\right]\times\left[\frac{(1.2\%+1.0\%)}{(2)}\right]=26{,}400\,pounds$$

= 26,400 pounds manganese (which is above the processing threshold for manganese)

Example 6: Concentration Ranges Straddling the De Minimis Value

Example 7: De Minimis Application in the Manufacture of a Toxic Chemical in a Mixture

Manufacture as a Product Impurity

Toluene 2,4 diisocyanate reacts with trace amounts of water to form trace quantities of 2,4-diaminotoluene. The resulting product contains 99 percent toluene 2,4-diisocyanate and 0.05 percent 2,4-diaminotoluene. The 2,4 diaminotoluene would not be subject to EPCRA Section 313 reporting nor would supplier notification be required because the concentration of 2,4- diaminotoluene is below its *de minimis* limit of 0.1 percent in the product.

Manufacture as a Commercial Byproduct and Impurity

Chloroform is a reaction byproduct in the production of carbon tetrachloride. It is removed by distillation to a concentration of less than 150 ppm (0.0150 percent) remaining in the carbon tetrachloride. The separated chloroform at 90 percent concentration is sold as a byproduct. Chloroform is subject to a 0.1 percent (1000 ppm) *de minimis* limit. Any amount of chloroform manufactured and separated as byproduct must be included in threshold determinations because EPA does not interpret the *de minimis* exemption to apply to the manufacture of a chemical as a byproduct. Releases of chloroform prior to and during purification of the carbon tetrachloride must be reported. The *de minimis* exemption can, however, be applied to the chloroform remaining in the carbon tetrachloride as an impurity. Because the concentration of chloroform remaining in the carbon tetrachloride is below the *de minimis* limit, this quantity of chloroform is exempt from threshold determinations, release and other waste management reporting, and supplier notification.

Manufacture as a Waste Byproduct

A small amount of formaldehyde is manufactured as a reaction byproduct during the production of phthalic anhydride. The formaldehyde is separated from the phthalic anhydride as a waste gas and burned, leaving no formaldehyde in the phthalic anhydride. The amount of formaldehyde produced and removed must be included in threshold determinations and release and other waste management estimates even if the formaldehyde were present below the *de minimis* level in the process stream where it was manufactured or in the waste stream to which it was separated because EPA does not interpret mixtures and trade name products to includes wastes.

Section 4: Questions and Answers

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When *de minimis* may Apply (Q&A #)	When *de minimis* does not Apply (Q&A #)
• Question Number 246: Impurity; Process • Question Number 265: De minimis Exemption; Solvent Recovery • Question Number 299: Otherwise Use • Question Number 410: De minimis Exemption; Mixture; Trade Name • Question Number 413: De minimis Exemption; Release Reporting • Question Number 430: Ash; De minimis Exemption; Otherwise Use • Question Number 433: De minimis Exemption; Waste • Question Number 434: Ash; De minimis • Question Number 593: Release Reporting; Releases; Storage	• Question Number 248: Activity Threshold; Coincidental Manufacturing • Question Number 265: De minimis Exemption; Solvent Recovery • Question Number 410: De minimis Exemption; Mixture; Trade Name • Question Number 412: Coincidental Manufacturing; De minimis Exemption; Impurity • Question Number 423: De minimis Exemption; Manufacture; Threshold Determination; Wastewater Treatment • Question Number 425: Ammonia; De minimis Exemption • Question Number 427: De minimis Exemption • Question Number 429: De minimis Exemption; Otherwise Use; Waste Stream • Question Number 435: De minimis Exemption; Waste • Question Number 492: Air Releases; De minimis Exemption; Storage Tanks • Question Number 594: Otherwise Use

No Previous Section | Table of Contents | Guidance Document List | No Next Section