Questions and Answers for Reporting for the 2006 Partial Updating of the TSCA Chemical Inventory Database: Inorganic Chemicals Addendum

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PREFACE

EPA intends this document and the answers provided to be used for guidance only. This guidance is not a substitute for the Toxic Substances Control Act (TSCA) Chemical Inventory Regulations, also known as the Inventory Update Reporting (IUR) rule. You should carefully review the IUR regulations located at 40 CFR part 710, subpart C for specific information on how to comply with IUR requirements.

This document addresses specific questions related to reporting inorganic chemicals under the IUR and is an addendum to the *Questions and Answers for Reporting for the 2006 Partial Updating of the TSCA Chemical Inventory Database* (*Questions and Answers Document*). The *Questions and Answers Document* provides general information related to the 2006 IUR submission period. Information on the mechanics of IUR reporting is found in *Instructions for Reporting for the 2006 Partial Updating of the TSCA Chemical Inventory Database* (*Instructions for Reporting*). The purpose of these documents is to assist the regulated community comply with the requirements of the IUR regulation. These documents are available on the internet at www.epa.gov/oppt/iur.

The questions and answers in this document are organized in sections as listed in the table of contents.

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General Inorganic Questions

1. What is the definition of an "inorganic chemical substance" for purposes of IUR?

For the purposes of IUR, an inorganic chemical substance is any chemical substance which does not contain carbon or contains carbon only in the form of carbonato [=CO_3], cyano [–CN], cyanato [–OCN], isocyano [–NC], or isocyanato [–NCO] groups or the chalcogen analogues of such groups. (40 CFR 710.46(b)(3)) For purposes of the IUR regulation, the following substances (with their associated Chemical Abstracts Service Registration Numbers or CAS numbers) are also considered to be inorganic, even though they do not meet the section 710.46(b)(3) definition of an inorganic substance: Carbon black, 1333-86-4; Carbon, 7440-44-0; Diamond, 7782-40-3; Graphite, 7782-42-5; and, Charcoal, 16291-96-6.

2. How do I complete Part III of Form U for an inorganic chemical substance?

Information pertaining to industrial processing and use of chemical substances and to commercial and consumer use of these substances is reported on Part III of Form U, the form used in IUR. For the 2006 reporting cycle, most manufacturers (including importers) of inorganic substances are not required to report the information requested in Part III of Form U for those substances. Manufacturers of inorganic chemical substances would mark the "N/A" Boxes in the upper right corner of Part III, Section A and Section B on Form U. Note that these manufacturers are required to complete Part III of Form U for the 2006 reporting cycle if their chemical substance is the subject of a rule proposed or promulgated under section 4, 5(a)(2), 5(b)(4), or 6 of TSCA; an order issued under TSCA section 5(e) or 5(f); or relief that has been granted under a civil action under TSCA section 5 or 7 at the beginning of the 2006 submission period (40 CFR 710.46). Examples of inorganic chemical substances that fall into these groups are hydrochloric acid (CASRN 7647-01-0) and hydrofluoric acid (CAS No. 7664-39-3) because they are the subject of a proposed rule under section 4 of TSCA. Information regarding the chemical substances that fall into these groups is provided in Appendix C of the Instructions for Reporting.

Naturally Occurring Substances

3. What is the definition of a "naturally occurring substance" for purposes of IUR?

A naturally occurring substance is any chemical substance that is naturally occurring and which is: (1) unprocessed; (2) processed only by manual, mechanical, or gravitational means; by dissolution in water; by flotation; or by heating solely to remove water; or (3) extracted from air by any means (40 CFR 710.4(b). Naturally occurring substances need not be reported under the IUR regulation (40 CFR 710.46(a)(3)).

Examples of substances that typically are naturally occurring materials are raw agricultural commodities, water, air, unprocessed gases extracted from subterranean formations, crude oil, rocks, ores, and minerals. The naturally occurring substance

exemption is a process-specific exemption rather than a chemical-specific one; therefore, persons who produce a substance in a manner other than as described in 40 CFR 710.4(b) are required to report unless otherwise excluded. For this reason, water, minerals, and certain agricultural products are sometimes not considered to be naturally occurring because of the manner in which they are produced or processed. Additional examples of naturally occurring substances are presented in Section 2.1.2.4 of the *Instructions for Reporting*.

4. For purposes of IUR, are minerals considered to be naturally occurring substances?

Naturally occurring substances are described in 40 CFR 710.4(b) and are exempt from IUR reporting requirements. The naturally occurring substance exclusion is process-specific. If you produce a substance in a manner other than as described in 710.4(b), you are required to report unless you are otherwise excluded from reporting. Minerals typically are naturally occurring substances when mined but the naturally occurring status may be lost during the production of a commercial product.

Article Exemption

5. What is the definition of an "article" for purposes of IUR?

An article is any manufactured item that: (1) is formed to a specific shape or design during manufacture, (2) has end-use function(s) dependent in whole or in part upon its shape or design during end use, and (3) has either no change of chemical composition during its end use or only those changes of composition that have no commercial purpose separate from that of the article and that may occur as described in 40 CFR 710.4(d)(5); except that fluids and particles are not considered articles regardless of shape or design. (40 CFR 710.3(d))

6. My company *imports* metal ingots that are melted and reshaped into finished products in the U.S. Am I required to submit a Form U for the ingots that I import?

Probably, yes. Although chemical substances imported as part of an article are exempt from IUR reporting (40 CFR 710.50(b)), ingots typically do not qualify for this exemption. If an item is manufactured or imported in a particular shape for convenience and the shape of the item has no function in the end use, it would not be considered an article. A metal ingot is typically intended to be melted and extruded; the shape or design of the end use application is independent of the shape of the ingot. Consequently, the importation of chemicals that are present in ingots is generally reportable under IUR.

7. My company purchases metal ingots from a *domestic supplier* that are subsequently melted and reshaped into finished products. Am I required to submit a Form U for the ingots that I purchase from a domestic supplier?

No. Even though the ingots do not qualify for the article exemption, you are not manufacturing (or importing) the metal ingots but are only processing them. The IUR rule applies only to manufacturers (including importers) of chemical substances.

8. A metal alloy disk containing iron, nickel, cobalt, and other metals is imported and subsequently machined to design specifications and assembled into the final product. The shape of the imported disk is commonly referred to as "near-net-shape," in that its overall shape and dimensions are largely preserved following the machining process. Does EPA consider the metal alloy disk an article for IUR reporting purposes?

An article is an item manufactured in a specific shape or design that has end use functions dependent upon its shape or design (40 CFR 710.3(d)). In addition, an article has either no change of chemical composition during its end use or only those changes of composition that have no commercial purpose separate from that of the article (40 CFR 710.3(d)). In this fact pattern, the disk is imported in near-net-shape which is maintained as the part is machined from the disk, the use of the disk depends on the near-net shape of the disk, and the chemical composition of the article does not change during machining or use except for non-beneficial corrosion. Accordingly, the disk comports with the definition of an article in 40 CFR 710.3(d) and the chemical substances comprising the disk would not need to be reported under IUR.

Byproducts

9. What is the definition of "byproduct" for purposes of IUR?

A byproduct is a chemical substance produced without a separate commercial intent during the manufacture or processing of another chemical substance or mixture (40 CFR 710.3(d)).

10. Am I required to report byproducts which I manufacture?

For purposes of IUR, byproducts that are not used for a commercial purpose are exempt from IUR requirements. (See 710.50(c) and 720.30(h)(2)) On the other hand, if a byproduct is used for a commercial purpose, it is subject to IUR requirements with the exception of a few specific uses. A byproduct need not be reported under the IUR rule if its only commercial purpose is for use by public or private organizations that (1) burn it as a fuel, (2) dispose of it as a waste, including in a landfill or for enriching soil, or (3) extract component chemical substances from it for commercial purposes (this exclusion only applies to the byproduct; it does not apply to the component substances extracted from the byproduct) (40 CFR 710.50(c), which references 40 CFR 720.30(g)).

11. My site consists of a petroleum refinery and a chemical plant. The refinery chemically removes sulfur from crude oil. The sulfur is then used as an intermediate by our chemical plant to produce other chemical substances. Do I need to report the sulfur under the IUR rule? What if the chemical plant does not use the sulfur, but it is instead removed from the crude oil and disposed of as a waste in a landfill?

The use of sulfur as an intermediate is reportable under the IUR rule. If you dispose of the sulfur as waste, you do not need to report it. If your site disposes of a portion of the sulfur and uses the remainder to manufacture other chemicals, you should report only the amount of sulfur used to manufacture other chemicals. (See 40 CFR 710.50(c) and 40 CFR 720.30(h)(2))

12. At a site, an ore (e.g., bauxite) is refined to create a product (e.g., alumina). The ore contains a metal substance which is reduced to the elemental state, removed from the product during processing, and disposed as waste. Should the elemental form of this metal be reported under the IUR rule?

No. Reporting is not required if the metal is disposed of as a waste (40 CFR 710.50(c) which references 40 CFR 720.30(g)).

13. If the trace metal mentioned in the previous question is separated and sold in its elemental form, is it subject to IUR reporting requirements?

Yes. When separated from the primary product and sold, the trace metal is considered to be produced with a separate commercial intent and is, therefore, subject to the IUR rule. Because the elemental trace metal has a commercial purpose, you would evaluate the IUR reporting requirements for this substance (e.g., was the amount of the elemental trace metal produced at a single site during the reporting year 25,000 lbs. or more?)

Mixtures and Alloys

14. How is "mixture" defined for purposes of IUR?

A mixture is defined (see 40 CFR 710.4(d)) as any combination of two or more chemical substances if the combination does not occur in nature and is not the result of a chemical reaction, except that "mixture" does include:

1) Any combination that occurs as a result of a chemical reaction if the combination could have been manufactured for commercial purposes without a chemical reaction at the time the chemical substances comprising the combination were combined and if, after the effective date of the premanufacture notification requirements, none of the chemical substances comprising the combination is a new chemical substance; and

2) Hydrated forms of a chemical substance or hydrated ions formed by association of a chemical substance with water.

15. Are the chemical components of mixtures subject to the IUR regulations?

Mixtures are not subject to the IUR regulations; however, if you manufacture chemical substances included in the mixture you may be subject to the IUR regulations. If you manufacture (including import) chemical substances in mixtures, you would evaluate the IUR reporting requirements for each substance in the mixture. For example, you need to identify each substance in an imported mixture to determine if the amount of any individual chemical substance in the mixture when combined with the amount(s) of the same substance otherwise manufactured (including imported) at the same site meets the IUR reporting threshold. Note, however, that if you process chemical substances to form a mixture by combining domestically purchased chemical substances without a chemical reaction and you do not manufacture any of the component chemicals, you are not a manufacturer of those substances and are not required to report those substances under the IUR regulation.

16. I import 200,000 pounds of Alloy 123 (see table below). How do I report for Alloy 123 under the IUR regulation?

Constituents of Alloy 123

Component	% in Alloy 123
Nickel	52%
Iron	35%
Cadmium	5%
Molybdenum	3%
Chromium	2%
Titanium	0.9%
Copper	0.9%
Carbon	0.6%
Aluminum	0.4%
Silicon	0.2%

You must consider each component of Alloy 123 independently and determine if it meets the IUR reporting criteria. For example you would report the importation of 70,000 pounds of iron (CAS No. 7439-89-6; 200,000 pounds of alloy x 35% concentration). However, you may not need to report for molybdenum because the amount of molybdenum you imported in these ingots is less than 25,000 pounds.

17. Must hydrates of chemical substances be reported under the IUR rule?

For purposes of IUR, a hydrated form of a chemical substance is considered a mixture of the corresponding anhydrous form of the substance and water. The definition of mixture (40 CFR 710.3(d)) includes hydrates of a chemical substance or hydrated ions formed by association of a chemical substance with water. However, the anhydrous form of a chemical substance is subject to reporting. You would adjust the reported production volume to exclude water and report the amount of the anhydrous chemical substance manufactured (including imported).

18. My site manufactures many different compounds containing the metal magnesium, for example $MgSO_4$, MgO, and $MgCl_2$. Is each compound a reportable chemical substance or are they mixtures of magnesium? Should I aggregate the amount of magnesium in each substance and report the total amount of magnesium?

The magnesium compounds are unique chemical substances. Therefore, you need to evaluate the IUR requirements for each magnesium compound and report separately for $MgSO_4$, MgO, and $MgCl_2$, if necessary. Because these substances are not mixtures, the amount of magnesium in these chemical substances should not be aggregated.

Magnesium metal would not be reported unless this chemical was also manufactured by the reporting entity in amounts of 25,000 pounds or more during a reporting year..

Catalysts

19. How are catalysts reported under the IUR?

IUR reporting for catalytic chemical substances follows the same rules as reporting for other chemical substances. Note that some catalytic substances supported on an inert substrate are considered under TSCA to be a mixture of the catalyst and substrate. If you manufacture the catalyst and the substrate and process these chemicals to form a mixture, you would report your manufacture of the catalyst and the substrate separately.

20. When metal catalysts supported on fixed, inert substrates are regenerated, the catalyst is subjected to high temperatures which convert the metal to its oxide. This is followed by a reduction step which converts the metal back to the base metal. Is this activity subject to IUR requirements?

The metal catalyst supported on an inert substrate is considered to be a mixture under TSCA. Because the inert substrate does not undergo a chemical reaction in this scenario, there is no change in the chemical identity of the inert substrate that triggers IUR reporting requirements. However, conversion of the metal catalyst to an oxide and subsequent reduction to the base metal are both manufacturing of different chemical substances for commercial purposes. If the regeneration is conducted in-situ, the oxide may satisfy the definition of a non-isolated intermediate for purposes of IUR and be exempt from reporting for that reason. The metal oxide and elemental metal would otherwise be subject to IUR requirements. Note, however, that only the amount of the converted metal and metal oxide must be reported; in many instances, these amounts will be less than the IUR threshold of 25,000 pounds.