EPA Reinterpretation and Virtual Revocation of the Byproduct Exemptions under TSCA, with a Focus on IUR

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Introduction

- IPC members manufacture printed circuit boards, not chemicals
  - TSCA Inventory Update Reporting (IUR) reporting obligations were a total surprise
- EPA's Perspective
  - Most chemical byproducts subject to IUR
  - Interpretation applicable to any manufacturing process that uses chemicals
- Industry Position
  - Effects every Manufacturing Sector that recycles byproducts
  - Byproducts should not be treated as new chemicals

Agenda

- Byproducts Exemption
  - Manufactured for commercial purposes
  - Extract component chemical substances
- Special Properties of Metals
- EPA Interpretations
- Industry Concerns

Activities for which Reporting is not Required

40 CFR § 720.30(h)

The chemical substances described below: (Although they are manufactured for commercial purposes under the Act, they are not **manufactured for distribution in commerce as chemical substances per se** and have no commercial purpose separate from the substance, mixture, or article of which they are a part.)…(2) Any **byproduct** which is not used for commercial purposes…

(Emphasis Added)

Byproduct Definition

40 CFR § 710.3 Definitions

Byproduct means a chemical substance produced without separate commercial intent during the manufacture or processing of another chemical substance(s) or mixture(s).

One Example of EPA Interpretations Gone Amiss

- Wastewater treatment sludge
  - Formed when wastewater is treated to comply with CWA requirements for metals removal
  - Metal hydroxides are precipitated from the wastewater and coagulated to form sludge
  - Listed Hazardous Waste (F006)
- According to EPA, if the sludge is recycled for metals recovery it must be added to the TSCA Inventory and reported under IUR
  - Sludge is used for commercial practices (recycling into a new product)
  - Sludge is not eligible for exemption
  - Sludge must be reported as a new chemical

Activities for which Reporting is not Required

40 CFR § 720.30 (g)

Any byproduct 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.)

(Emphasis Added)

EPA Position

Component chemical substance

- "The Agency considers an elemental metal to be a different chemical substance than a metal salt or a metal compound. Each of these *chemical* "forms" (elemental metal, metal salt, and metal compound) has a different molecular structure and is, therefore, a different chemical substance for Inventory purposes.

Metals as Component Chemical Substances

- Metals have different physical and chemical properties than organics
  - Unlike organics, metals are neither created nor destroyed by chemical processes
  - Inorganic reactions involve the gain/loss of electrons (oxidation-reduction reaction)
  - **The interpretations used for organics may not be appropriate for metals**
- IUR now requires reporting of inorganics such as metals
- **The application of organics guidance to inorganics has exponentially increased the number of affected byproducts and industries**

Metals as Component Chemical Substances

- Metals exist as ions in a solution mixture
- Must be reduced for extraction to occur
- Reduction requires the acquisition of electrons from other substances by chemical reaction
- The resulting extracted metal is the same **component chemical substance** that is in the byproduct
- Is the intention to exclude all metals extraction from the byproducts exemption?

Industry Concerns

- EPA has informed several industry sectors that the exemption applies to extractions that involve no chemical reactions
  - Extraction of metals would never qualify for the byproducts exclusion because metals generally cannot be extracted without changes in their oxidation-reduction state through chemical reactions
  - This type of distinction is problematic for EPA and industry as it requires detailed knowledge and analysis of industrial processes and physical chemistry
- Whether a byproduct is reportable may depend on information about the use of the byproduct after it leaves the generating facility, which may be unknown

Inconsistencies in EPA Positions

"EPA believes that the Agency's current interpretation of the byproduct exemption, specifically the portion associated with the idea of extracting component chemical substances from the byproduct for commercial purposes, is consistent with past Agency interpretations, **heat or chemical reactions can be used to extract a component chemical substance**, but the substance extracted must be a component substance."

-Jim Willis, EPA to John Festa, AFPA December 2006

"There is no requirement that a specific process, whether it be a chemical or physical process, be used to extract the component substances. Note that, *were* **the aluminum chemically changed during the extraction process,** the dross byproduct would be considered a feedstock and both the dross and the resulting aluminum would be reportable."

-Susan Sharkey, EPA to Robert Streiter Aluminum Association, October 24, 2006

Inconsistencies in EPA Positions

EPA believes that the Agency's current interpretation of the byproduct exemption, specifically the portion associated with the idea of extracting component chemical substances from the byproduct for commercial purposes, is consistent with past Agency interpretations, **heat or chemical reactions can be used to extract a component chemical substance, but the substance** extracted must be a component substance. *Jim Willis, EPA to John Festa, AFPA 2006*

"Note that **extraction for purposes of IUR reporting means physical separation only.**"

- EPA 2005 responses to questions from Neil King

Inconsistencies in EPA Positions

"Waste water treatment. The circuit board manufacturer uses sodium hydroxide, or a sulfate or carbamate solution, to treat the waste water. The resulting sludge contains metal hydroxides, which are sent to a metal recycler. This process is similar to the copper stripping process, and the sludge is expected to be IUR reportable."

-Susan Sharkey, US EPA to Lee Wilmot, TTM March 5, 2007

Hydroxide metal sludge is created through the treatment of printed circuit board electroplating through the reactions exempted in 720.30(g)(7):

"Any chemical substance which results from a chemical reaction that occurs when (i) a stabilizer, colorant, odorant, antioxidant, filler, solvent, carrier, surfactant, plasticizer, corrosion inhibitor, antifoamer or defoamer, dispersant, precipitation inhibitor, binder, emulsifier, deemulsifier, dewatering agent, agglomerating agent, adhesion promoter, flow modifier, pH neutralizer, sequesterant, coagulant, flocculant, fire retardant, lubricant, chelating agent, or quality control reagent functions as intented..."

EPA Actions

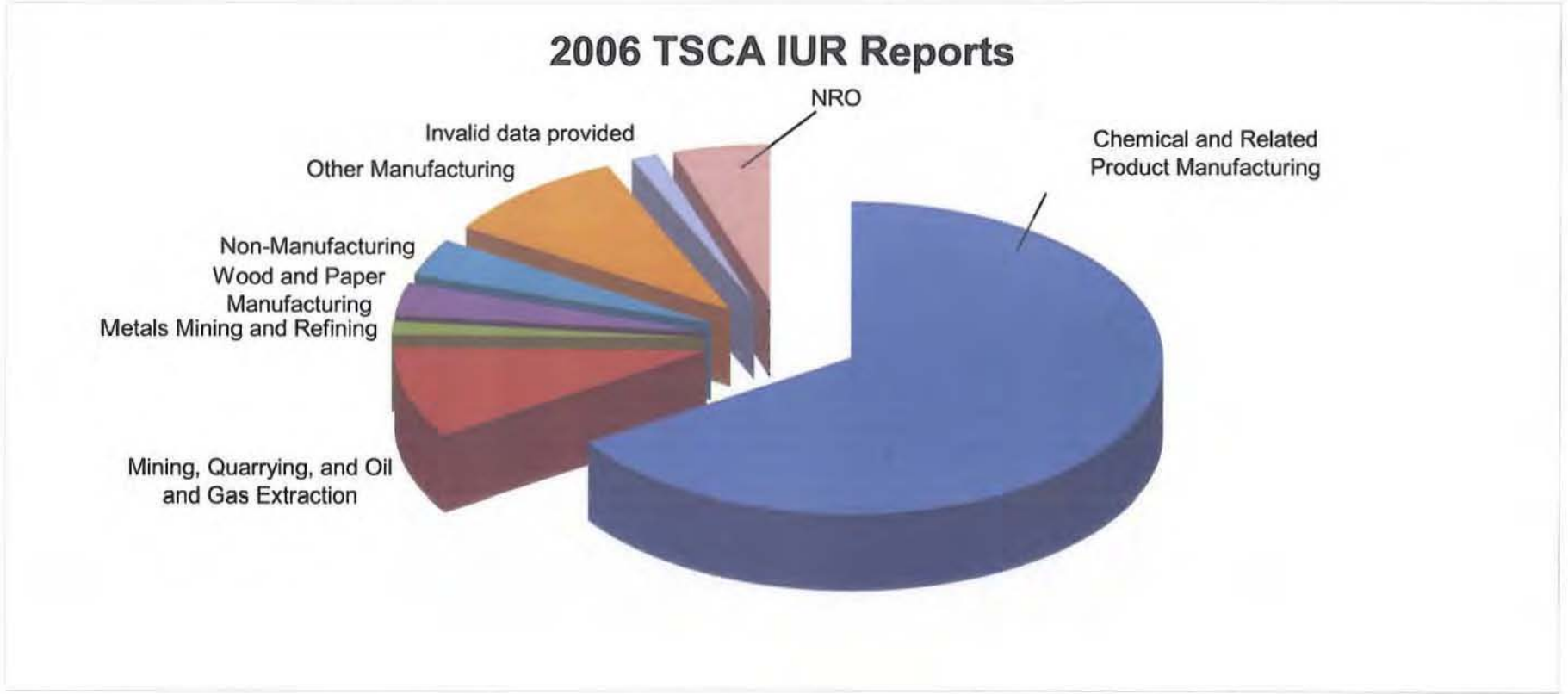
- Providing similar "interpretations" on a case-by-case basis to industries that contact the EPA TSCA office
  - To date, interpretation has required reporting for EVERY byproduct discussed
- Interpretations by letter
  - Not posted on EPA website or made publically available
  - No public information or notice of reinterpretation

Industry Concerns

- There is a significant amount of confusion and uncertainty regarding reporting obligations for byproducts under TSCA IUR reporting
- EPA has failed to provide clear and consistent guidance to affected industries
- Recent changes in EPA's interpretation of byproduct reporting requirements and exemptions significantly alter the universe of facilities subject to TSCA IUR reporting from the original regulations
- It would appear that EPA views nearly every chemical manufacturing waste to be a byproduct manufactured for commercial purposes and therefore subject to TSCA IUR reporting

Industry Concerns

- Most current reporters are in the chemical or petroleum sectors
- Few industries outside of the chemical manufacturing sector are aware that their wastes, if beneficially reused instead of being disposed, may be considered byproducts under TSCA and subject to IUR reporting
  - Over 75% of 2006 reports were filed by the chemical and chemical-related manufacturing sectors and the mining, oil and gas sectors


2006 TSCA IUR Reports
NRO
Invalid data provided
Other Manufacturing
Chemical and Related Product Manufacturing
Non-Manufacturing
Wood and Paper Manufacturing
Metals Mining and Refining
Mining, Quarrying, and Oil and Gas Extraction

Industry Believes

- Reporting requirements should be understandable, logical, and aimed at achieving statutory objectives
- Reporting rules should not discourage recycling of byproducts
- Whether a facility is required to report should depend on that facility's intent and knowledge as to the substance/byproduct

Industry Believes

- A byproduct producer should not have to report the byproduct or chemicals in the byproduct where the byproduct is used as a source of chemicals that are extracted by heat, physical means, or by a chemical reaction
- In the case of inorganic compounds, the extracted chemicals may be in a different form than is actually present in the byproduct

Industry Believes

- The person who extracts chemical substances from a byproduct would have to report for the chemical substances extracted
- If the extracted chemicals are reused in the process, however, then the byproduct producer need not report the extracted chemicals

Final Thoughts

- Byproducts exemption ever applicable?
- By EPA's interpretation, any product manufacturer that uses chemicals is subject to IUR reporting
- Byproducts that are not landfilled are subject to IUR, even if they are considered waste under RCRA
- Reporting rules should not discourage recycling of byproducts
- **The beneficial act of recycling wastes should not invalidate byproducts exemptions under TSCA**

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