

Understanding the Delay and How to Comply with TSCA Chemical Data Reporting



October 2011

URS

What is TSCA Chemical Data Reporting?

- TSCA – Toxic Substance Control Act
 - Purpose – To ensure that chemicals used in commerce are safe and do not endanger public health and welfare, or the environment
- There are many changes – even the name has changed!
 - *From Inventory Update Reporting to Chemical Data Reporting (from IUR to CDR)*
- Chemical Plants, Refineries, and other types of facilities must report
- Next submittal period: **February 1, 2012 – June 30, 2012**

Outline

- **Overview of TSCA**
- **Overview of CDR Requirements**
- **Understanding the Delay**
 - **Which proposed changes were controversial**
 - **Which changes have been finalized**
- **Exemptions/Exclusions**

Outline

- **Reportable Chemical Substances**
 - **Examples for three industry types**
- **Preparing the Reports**
- **Importance of Starting the Reporting Process Now (in 2011)**



Overview of TSCA



Toxic Substances Control Act



- EPA uses TSCA to:
 - Ensure that chemicals used commercially are safe and do not endanger public health and welfare, or the environment
 - Establish basic data on chemicals produced in or imported into the United States (usage, volume, type of exposure)
- TSCA gives the EPA the authority to:
 - Require testing of chemicals
 - Regulate the production, use, and disposal of new and existing chemicals

Toxic Substances Control Act



- **Regulates all organic and inorganic chemical substances and mixtures not covered by other legislation**
- **Does not regulate:**
 - **Food products or additives, drugs, or cosmetics (Federal Food, Drug, and Cosmetic Act)**
 - **Pesticides (Federal Insecticide, Fungicide, and Rodenticide Act)**
 - **Nuclear materials (Atomic Energy Act)**
 - **Tobacco or tobacco products (The Bureau of Alcohol, Tobacco, Firearms and Explosives)**

Overview of CDR Requirements



What is TSCA Chemical Data Reporting?

- EPA collects data per Section 8(a) using CDR
- Regulations now found in 40 CFR 711
- Formerly Inventory Update Reporting (IUR)
 - Reports were to be due by September 30, 2011
- Reports are now to be submitted between **February 1, 2012 and June 30, 2012**
 - Primary reporting year is 2011
 - 2010 production data is also required

Who Must Submit?

Manufacturers/Importers of Chemical Substances, including:

- **Chemical manufacturers, petroleum refineries, and other types of facilities**
- **Chemical users and processors who manufacture a byproduct chemical substance with commercial value, such as:**
 - ***Pulp and Paper Mills***
 - ***Utilities***
 - ***Semi-conductor Manufacturers***

Which Chemicals are Reported?

- **Chemical Substances on the TSCA Inventory – TSCA Section 8(b)**

<http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/index.html>

- **Reporting is required for chemical substances that were manufactured or imported:**
 - For a “commercial purpose”
 - At a single plant site in quantities at or above the threshold quantity during 2011
 - 2010 production data will also be required!
- **Reporting threshold is 25,000 pounds/yr**

Which Chemicals are Reported?

- Reporting includes substances manufactured as intermediates for use by the manufacturer
 - This is referred to as “site-limited” production*
 - Does not include “non-isolated intermediates” (compounds generated and consumed within the process and not isolated or stored)

**to be reported as “used on-site” on the 2011 form*

What Information is Reported?

- **Manufacturing/Importing Information**
- **Industrial Processing and Use of the Chemical Substance***
- **Commercial and Consumer (end-use) of the Chemical Substance***

**Required if production/importation \geq 100,000 lbs/yr*

**for refineries, most process streams qualify for a partial exemption from reporting*

Understanding the Delay in Reporting and Key New Requirements



Proposed Changes to IUR Requirements – August 2010

- Prior Inventory Update Reports addressed just a single calendar year
 - *The last reports were for calendar year 2005*
- EPA proposed that the next reporting cycle would address chemicals manufactured (or imported) during calendar year 2010
 - *And production information also be reported for the years 2006, 2007, 2008, and 2009!*



Proposed Changes to IUR Requirements – August 2010

- Lower reporting thresholds
- Change the reporting standard for the processing and use section of the report from the “readily obtainable” standard to the “known to or reasonably ascertainable” standard
 - *The preamble stated that in the last set of reports, many submitters utilized the “NRO” option*
- Clarify the reporting requirements for byproducts sent for recycling

Final CDR Requirements – August 2011

- Regulations moved from 40 CFR 710 to 40 CFR 711
- Reporting of Production Data for Multiple Years – *being phased in*
 - This reporting cycle – 2010 and 2011
 - **Next reporting cycle – four years of data with threshold determinations conducted for each year**
- Lowering of Reporting Thresholds – *the proposed changes are being phased in*

Final CDR Requirements – August 2011

- More stringent standard for reporting processing and use information
 - WAS “readily obtainable” standard
 - NOW “known to or reasonably ascertainable” standard
- Reporting of byproducts sent for recycling
 - See May 2011 Guidance Document at www.epa.gov/cdr/tools

Summary – Notable Changes from 2006

- Electronic reporting is required using e-CDR web to complete and CDX to submit
- Reporting cycle shortened from 5 years to 4 years
- Modification of definitions for *manufacture, site, commercial use, consumer use*, among others
- Expanded data reporting and revised lists/codes
- Full exemption for water
- Threshold for reporting processing and use information (Part III) reduced to 100,000 lbs (formerly 300,000 lbs)
- “Readily obtainable” option is now “known to or reasonably ascertainable by”
- Inclusion of prior years’ data in the current report
- Rules moved to new location – 40 CFR 711

Exemptions/Exclusions



Summary of Exemptions/Exclusions

(Refer to the criteria listed in the regulations!)



Exemptions/Exclusions for Categories of Chemical Substances (711.6, 711.10):

- Polymers, water, certain forms of natural gas, microorganisms, naturally occurring substances
 - For naturally occurring substances, the exclusion depends on the specific activities performed
- Substance is manufactured as an impurity, non-isolated intermediate, or byproduct without separate commercial intent, or is manufactured for R&D purposes only
- Imported articles are not reportable

Small Manufacturers (711.9) are not subject.

Be Careful!



- If the chemical substance is on the EPA list of chemicals subject to a TSCA Special Action (rules, orders, civil actions, consent agreements):
 - A FULL REPORT IS REQUIRED!
 - Even if the criteria for an exemption or exclusion is met
- Appendix B of the 2012 Reporting Instructions includes a list of the chemicals currently subject to TSCA special actions

Reportable Chemical Substances

Examples for Three Industry Types

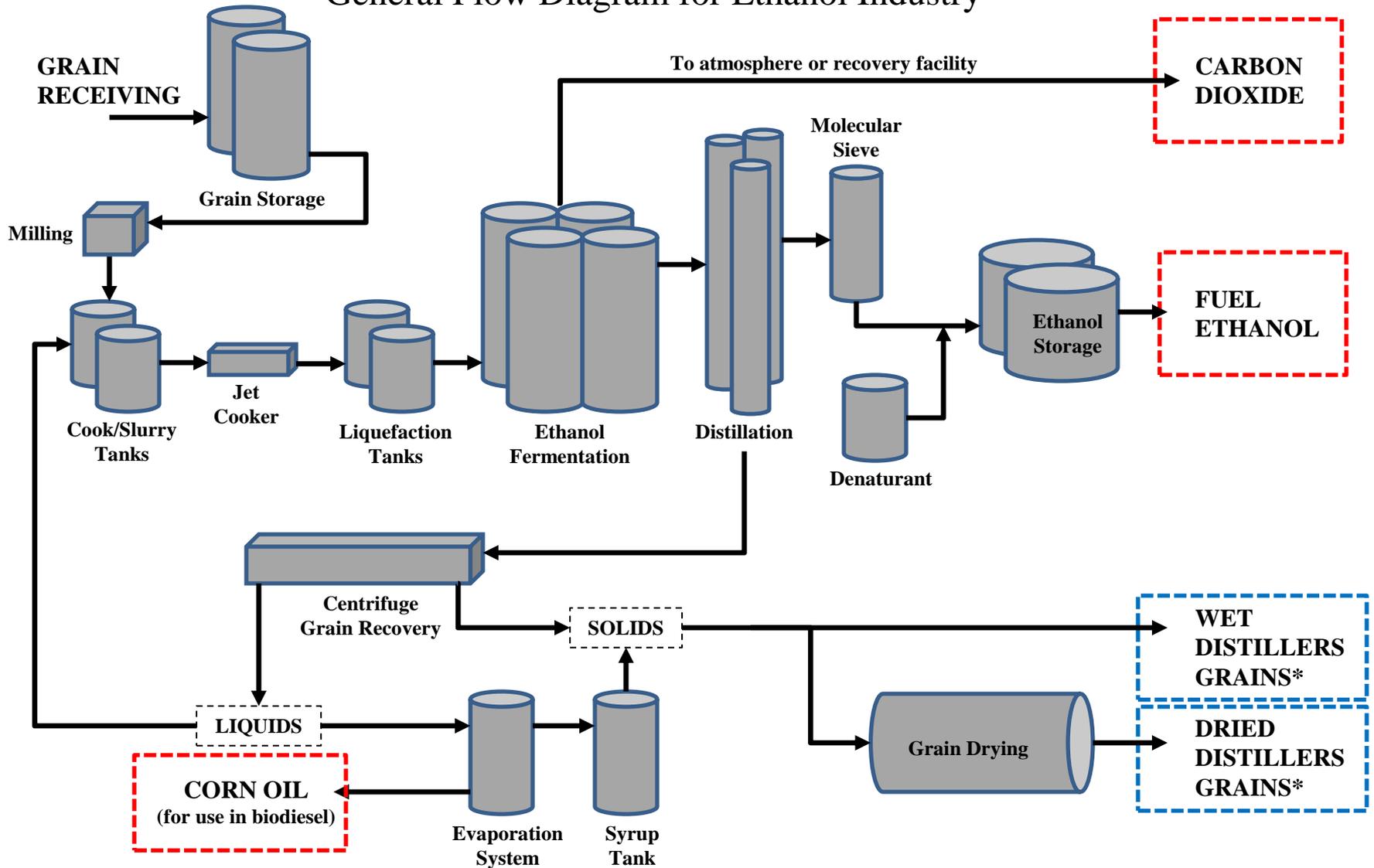


What does an Ethanol Production Facility Report?



- Ethanol
 - *if sold for a TSCA-regulated purpose*
- Any imported chemical substances
- And examine each intermediate stream and examine every product/byproduct stream leaving the facility
 - *Document that the criteria are met for exemptions/exclusions from reporting*

General Flow Diagram for Ethanol Industry



Any Imported Chemical Substances

Consider Intermediate Streams

Anything Else that Leaves the Facility

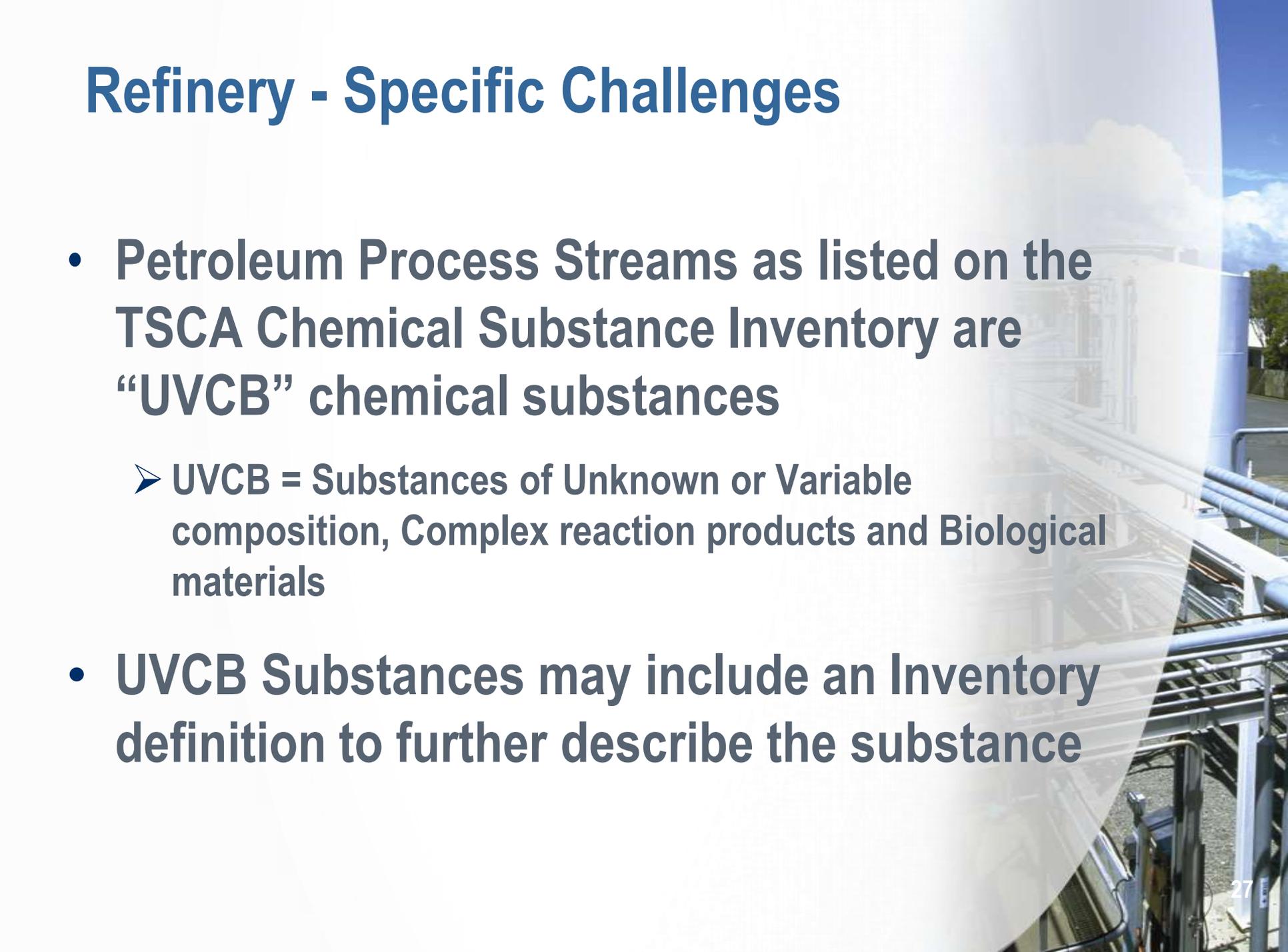
*Exempt if sold for animal feeds

What does a Refinery Report?

- **Butane, Propane and other gas product streams**
- **Petroleum Process Streams (40 CFR 711.6)**
 - Includes spent caustic and petroleum coke
- **Sulfur (if sold) and certain components of spent catalyst sent for metals reclamation**



Refinery - Specific Challenges



- **Petroleum Process Streams as listed on the TSCA Chemical Substance Inventory are “UVCB” chemical substances**
 - **UVCB = Substances of Unknown or Variable composition, Complex reaction products and Biological materials**
- **UVCB Substances may include an Inventory definition to further describe the substance**

Refinery - Specific Challenges

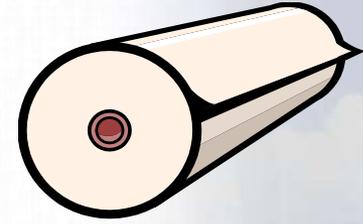
- Descriptions of the refinery streams can be found using EPA's Substance Registry Services at www.epa.gov/srs
- Match refinery petroleum streams to the list in the regulations at 40 CFR 711.6 by:
 - Carbon number range
 - Other physical characteristics (boiling point range, viscosity)
 - The process unit that generates the stream
- Consult with other professionals at refinery/within company and be consistent within company

What does a Refinery Not Report?

- **Crude Oil** – not reportable when meets the criteria for the “naturally occurring” exemption (711.6)
 - Imported syncrude must be reported
- **Blended Gasoline Products** – not listed on the Inventory (produced by blending the process streams)
- **Fuel gas** – not reportable if combusted
 - Do not report byproducts disposed as waste or combusted as fuel [711.10, which refers to 720.30(g)]

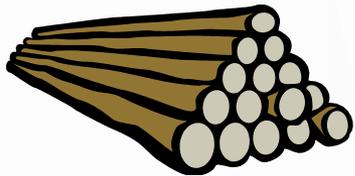


What does a Pulp Mill Report?



- Organic by-products (tall oil, turpentine, etc.)
- Substances generated during the pulping cycle and the causticizing cycle, such as:

- Black liquor (or spent pulping liquors) (CAS RN: 66071-92-9)
- Green liquor (or smelt) (CAS RN: 68131-30-6)
- White liquor (CAS RN: 68131-33-9)
- Calcium carbonate (CAS RN: 471-34-1)
- Calcium oxide (CAS RN: 1305-78-8)



- Ashes, such as fly ash (if sold)

Preparing the Reports



Chemical Data Reporting

There are 3 General Sections to the Report Form:

- **Part I - Company and Site Identification Information**
- **Part II - Manufacturing Information**
- **Part III - Processing and Use Information**



Chemical Data Reporting

Part II	Part III
<p>Complete for all reportable substances manufactured (including imported) in quantities of 25,000 pounds or more.</p>	<p>Complete if you produce 100,000 pounds or more per year except for the following “partially exempt” chemicals:</p> <ol style="list-style-type: none">1) Petroleum process streams listed in 40 CFR 711.6(b)(1)2) Specific chemical substances listed in 40 CFR 711.6(b)(2). <p><i>Inorganic Chemicals are no longer partially exempt!</i></p>

Part II of the Reporting Form:

- **Chemical Information**
 - CAS Registry Number or TSCA Accession Number
 - Chemical Name
- **Manufacturing Information**
 - Quantity Manufactured/Imported (for 2011 and for 2010)
 - Number of Potentially Exposed Workers
 - Maximum Concentration
 - Physical Form(s) of the Substance
 - **Quantity Exported**
 - **Quantity Used on Site**
 - **Whether the chemical is being recycled, remanufactured, reprocessed, reused, or otherwise used**

Number of Potentially Exposed Workers

- You report an estimate of the total number of workers “reasonably likely to be exposed” (40 CFR 711.3) to a chemical substance.
 - Include exposures through any route of entry – inhalation, ingestion, skin contact.
 - Do not exclude workers wearing personal protective equipment.
- Reasonably likely to be exposed – Exposure to a chemical substance under foreseeable conditions of manufacture, processing, distribution in commerce, or use of the substance.

Number of Potentially Exposed Workers

- Include workers who, as part of their daily activities, may potentially be exposed to the chemical substance.
- Include any temporary, seasonal, or contract workers if they may potentially be exposed.
- Report individual workers, not full-time equivalents.
- Report using the range codes listed in 40 CFR 711.15.



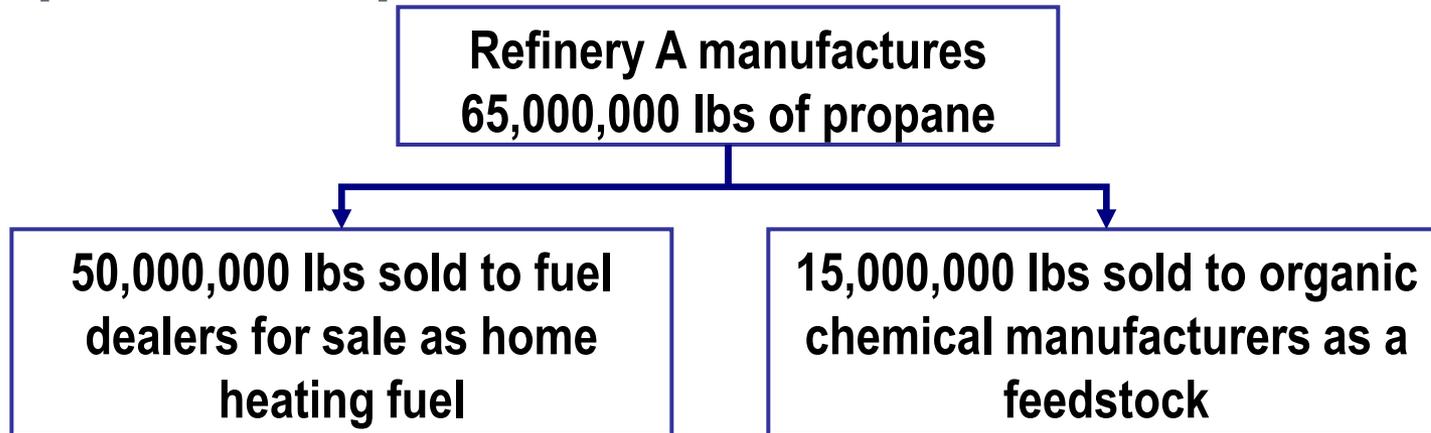
Part III of the Reporting Form:



- Processing and Use Information
 - 1) Industrial Processing and Use
 - Within the facility (on-site) and at other facilities to which the chemical was sold (off-site processing) and associated worker exposure
 - Processing Information reported for domestic uses only
 - 2) Consumer and Commercial Use (end-use)
- Petroleum process streams qualify as “partially exempt”. For refineries, this information is required for gas products and inorganic products/byproducts, and potentially for imported chemicals.

Example – Part III, Section A (Industrial Processing and Use)

What unique combinations of codes should Refinery A Report for Propane?



PK: Processing - repackaging
IS46: Wholesale and Retail Trade
U012: Fuels and Fuel Additives

PC: Processing as a reactant
IS21: Other Basic Organic
Chemical Manufacturing
U015: Intermediates

Also report % of production associated with each use, number of industrial sites, and estimated number of potentially exposed workers.

Part III – When is reporting complete?

- Reporting of “Processing or Use” information in Part III of the Reporting Form is complete when either:
 - The chemical is reacted or converted to form another chemical substance; or,
 - The final processing and use of the chemical substance is reported.
- In the propane example, information regarding the propane sold as home heating fuel would need to be reported in Part III, Section B (Consumer and Commercial Use).

Importance of Starting Now



Starting the Reporting Process –

- Most of the required information is already available
- At this point in 2011, it should be fairly clear which chemicals will exceed reporting thresholds
- Tracking spreadsheets for production and sales data should be created/implemented
 - Maintain spreadsheet on an ongoing basis for future reporting needs (2016 CDR will require 4 years of data)!

How to Start –

- **Review the 2006 Reports/Documentation**
 - **Which chemical substances were reported?**
- **Look at an overall process flow diagram for the facility - identify products and byproducts**
 - **For refineries, compare process streams with the TSCA Inventory definitions for the streams**
- **Were any new production units brought on-line since 2005?**
- **Identify any imported chemicals**

How to Start –

- During review of the 2006 reports, remember:
 - For the last reporting cycle, inorganic chemicals were “partially exempt.”
 - For the 2011 reports, inorganic chemicals are no longer partially exempt.
 - More information will be required!
- Document any exemptions/exclusions being utilized

Instructions/Guidance

- The EPA CDR Website (www.epa.gov/cdr)
 - 2012 Reporting Instructions
 - Q&A Documents and other guidance
- TSCA Hotline: (202) 554-1404 or TSCA-Hotline@epa.gov
- EPA Webinars
- NCASI Webinar
- NCASI Technical Bulletin No. 0979
 - *Summary of 2006 Inventory Update Rule Submissions by U.S. Pulp and Paper Mills*

Conclusions



Conclusions

- **This is going to be challenging!**
- **Don't wait until 2012, start now!**
 - **Identify reportable chemical substances**
 - **Summarize 2010 manufactured/imported quantities**
 - **Set up systems to track 2011 quantities**
 - **Summarize processing and use information**
 - **Document exemptions/exclusions from reporting**

Questions

Are there any questions?

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BACK-UP SLIDES

(additional information - not part of the presentation)

Articles

(40 CFR 704.3)

A manufactured item: (1) which is formed to a specific shape or design during manufacture, (2) which has end use function(s) dependent in whole or in part upon its shape or design during end use, and (3) which has either no change of chemical composition during its end use or only those changes of composition which have no commercial purpose separate from that of the article, and that result from a chemical reaction that occurs upon end use of other chemical substances, mixtures, or articles; except that fluids and particles are not considered articles regardless of shape or design.

Naturally Occurring Substances

[40 CFR 711.6(a)(3)]

A naturally occurring substance [as defined in 40 CFR 710.4(b)] is any chemical substance which is naturally occurring and:

(1) Which is:

(i) unprocessed or,

(ii) processed only by manual, mechanical, or gravitational means; by dissolution in water; by flotation; or by heating solely to remove water; or,

(2) Which is extracted from air by any means.

Examples of such substances are: raw agricultural commodities; water, air, natural gas, and crude oil; and rocks, ores, and minerals.

Non-isolated Intermediate Exemption

“Non-isolated intermediate means any intermediate that is not intentionally removed from the equipment in which it is manufactured, including the reaction vessel in which it is manufactured, equipment which is ancillary to the reaction vessel, and any equipment through which the substance passes during a continuous flow process, but not including tanks or other vessels in which the substance is stored after its manufacture. Mechanical or gravity transfer through a closed system is not considered to be intentional removal, but storage or transfer to shipping containers “isolates” the substance by removing it from process equipment in which it is manufactured.” (40 CFR 704.3)

- ❖ Any storage, even storage within the reaction vessel, negates the non-isolated status of the intermediate.

Natural Gas

[40 CFR 711.6(a)(4)]

Certain forms of natural gas are exempt from CDR reporting:

Form of Natural Gas	CAS Number
Natural gas (petroleum), raw liquid mix	64741-48-6
Natural gas condensates	68919-39-1
Gasoline natural	8006-61-9
Gasoline (natural gas), natural	68425-31-0
Natural gas	8006-14-2
Natural gas, dried	68410-63-9

Example - Byproduct

An energy company operates a sulfur recovery plant which serves as a pollution control device to minimize sulfur oxide emissions. In the reporting year, this sulfur plant generated 120,000 pounds of elemental sulfur; 70,000 pounds of the sulfur was sent to a landfill, while 50,000 pounds of sulfur was sold to customers.

- **Does this site need to report for sulfur?**
- **Answer – Yes. The 50,000 pounds of sulfur must be reported on the TSCA CDR report, as it was used for a commercial purpose.**

Should a Refinery Report....

- Slop oil?
 - Reported as “wastes, petroleum”, CAS RN 68477-26-9
 - Does not qualify as a non-isolated intermediate
- Spent Catalyst returned for metals reclamation?
 - May 2011 reporting guidance indicates “yes”, if...
 - *If the reclaimer has to convert the metal into a different form during the extraction of the metal from the spent catalyst*
 - Refinery reports certain components of the spent catalyst and the reclaimer reports the extracted metal

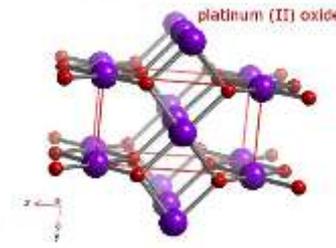
Reporting Spent Catalyst sent for Metals Reclamation

- Under TSCA, catalysts are considered to be “mixtures” of inorganic substances.
- In general, mixtures are not subject to Inventory Update Reporting
 - Instead, the chemical substances comprising the mixture must be reported.



Reporting Spent Catalyst sent for Metals Reclamation

- Must consider the components of the catalyst(s), which may include:
 - Metal oxide(s) such as copper oxide, aluminum oxide
 - Aluminate silicate
- Then consider which components were actually manufactured during use of the catalyst at the refinery, examples could include:
 - Platinum Oxide
 - Nickel Oxide



Reporting Spent Catalyst sent for Metals Reclamation

- Sum the individual components for multiple shipments and compare versus thresholds
- Report for any components exceeding 25,000 pound threshold
- Complete full report (Part III) for any components exceeding the 100,000 pound threshold

Byproducts and Impurities

Chemical substances may be generated as byproducts from chemical reactions.

- Byproducts that have commercial purpose must be reported.
- Do not report byproducts that are not manufactured for distribution in commerce and have no commercial purpose separate from the substance, mixture or article of which they are a part.
- Do not report byproducts disposed as waste or combusted as fuel.

Do not report impurities

- An impurity is a chemical substance which is unintentionally present with another chemical substance. (40 CFR 704.3)

Other Mixtures

In general, mixtures are not subject to CDR reporting. However, the chemical substances comprising the mixture must be reported.

- **If a mixture is imported, a reporting evaluation must be performed for all chemical substances in the mixture.**
- **If a mixture is manufactured on-site, report any components of the mixture that are actually generated on-site.**
- **If a mixture is produced on-site by combining existing substances that the company does not manufacture (has purchased from other domestic companies) and no chemical reaction occurs (i.e., only blending and formulating), do not report those substances.**

Top 12 Refinery Products by Production Quantity

2006 Reports: from the EPA Data Summary

