



Practical tips for moving your PMN to a satisfactory conclusion with EPA

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Purpose

- This presentation will focus on tips* for a successful new chemical notice submission and cover the following topics:
 - Engineering (Environmental Releases and Occupational Exposure)
 - Environmental Fate and Transport
 - Environmental Exposure (Non-Occupational)
 - Environmental Hazard and Risk Assessment
 - Human Health Hazard and Risk Assessment

*Note: This presentation is primarily extracted from EPA's Points to Consider document: https://www.epa.gov/sites/production/files/2018-06/documents/points_to_consider_document_2018-06-19_resp_to_omb.pdf



Information Manufacturers *Must* Submit in their Premanufacture Notice (PMN)

- Chemical Identity
- By-products and impurities
- Estimated production/import volume
- Proposed uses and amounts for each use
- Human exposure information
- Disposal methods and estimates of releases to the environment
- Existing test data in notifier's possession or control (or otherwise reasonably ascertainable) concerning human health and environmental effects



Tips for More Detailed Information on *Worker Exposure*

- Provide information on the full life cycle of the new chemical from manufacturing to handling and disposal, including detailed descriptions of the manufacturing, processing and use operations for the intended use(s) and activities that may result in worker exposure.
 - Open or closed system?
 - Conducted at ambient or elevated temperatures?
 - Batch or continuous?
 - Spray or non-spray?
 - What is the frequency and duration of each worker activity?
 - How (dermal and/or inhalation) and during which activities is worker exposure expected?
 - If worker exposure is not expected (e.g., process automation), provide specific explanation and rationale
 - How many workers are exposed during these activities?



Tips for More Detailed Information on *Worker Exposure (continued)*

- Describe any engineering controls that affect worker exposure (e.g., process enclosure, local exhaust ventilation [LEV], glove box, scrubbers, fume hood, Absorption Unit, closed system [processing under inert gas blanket])
- Describe the specific type of personal protective equipment (PPE) that will be used at the manufacturing site and, to the extent known, at processing and use sites.
 - What kind of gloves (e.g., material composition, name/model number)?
 - What kind of protective clothing and goggles (e.g., name/model number)?
 - What kind of respirator (e.g., name/model number, cartridge type, assigned protection factor (APF))?



Tips for More Detailed Information on *Worker Exposure* (continued)

- If the new chemical substance is manufactured, processed, or used as a solid or powder, indicate whether the manufacture, processing, and/or use of the new chemical substance is expected to result in suspended particles (also referred to as dust) in air.
 - Include supporting measured data on particle size distribution (PSD) and/or type of solid material (e.g., powder, wet cake with 30% moisture content, paste, or slurry).
 - Describe methodology and steps taken to produce PSD data. Examples include use of actual field transport tests, sieving, efforts made to ensure representative sample collection (grab v. composite sampling, sampling instrument, sample metadata, etc.)
 - Higher quality, more detailed PSD studies are generally given more weight during EPA's review
- Include any Safety Data Sheet (SDS)



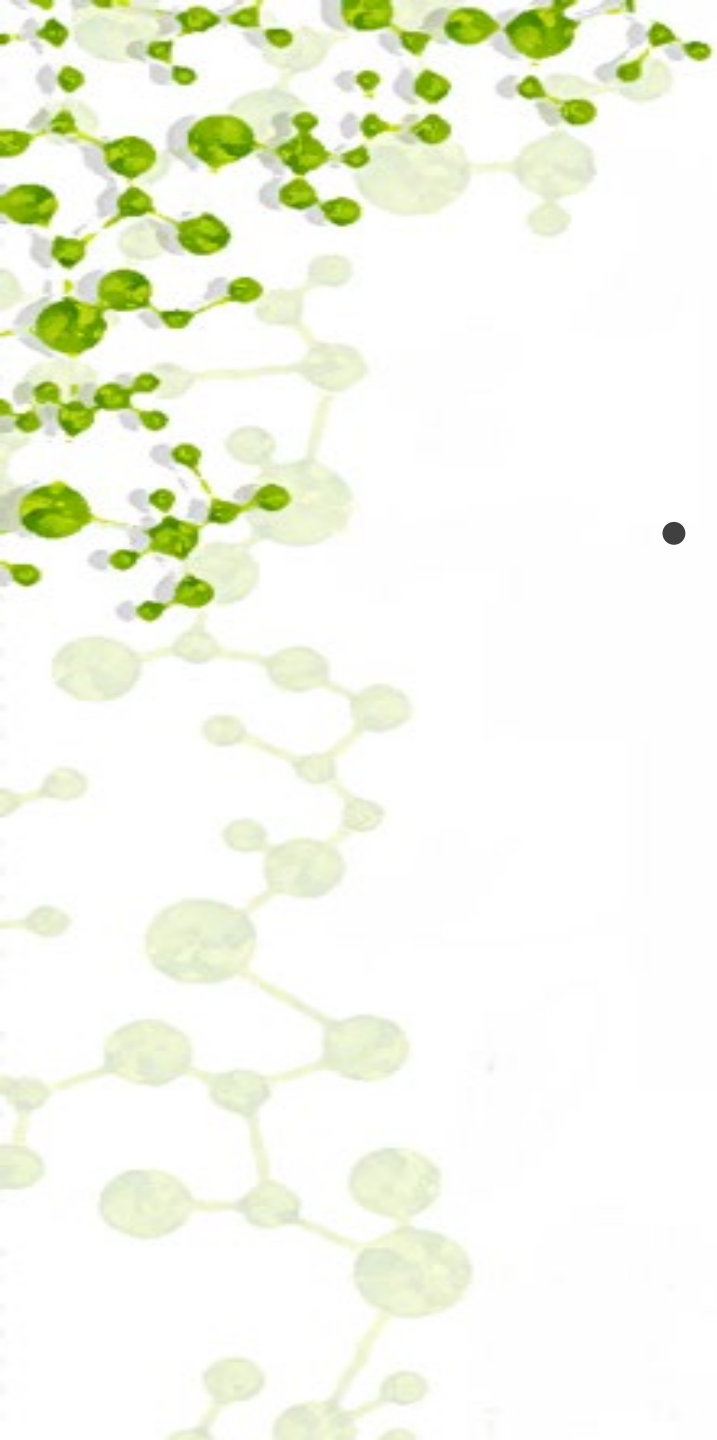
Tips for More Detailed Information on *Environmental Releases from Manufacturing, Processing and Use Sites*

- How often is the equipment cleaned (e.g., every day, after every batch, once a year)?
- What is used to clean the equipment (e.g., water, solvent, steam)?
- For all releases, you are required to provide estimates of the amount and the frequency of releases. Be sure to include detailed information on the basis for each estimate.
- How is waste (including cleaning and process waste) disposed (e.g., on-site waste-water treatment, POTW, venting, incineration, landfill, etc.)



Tips for More Detailed Information on *Transport and Disposal*

- Describe the transport container type, capacity and container cleaning procedure and frequency including, for example, the following information:
 - Five 5,000-gallon trucks used to store/transport the chemical substance are dedicated and rinsed once every 20 deliveries.
 - The rinsate that contains the chemical substance is put down the drain, incinerated, etc.
 - The cleaning and disposal of the transport containers are performed by the submitter on site.
- If the containers are cleaned or disposed of off-site, provide available information including the cleaning methods, frequency of cleaning, and estimated amount of new chemical substance released per cleaning.



Tips for More Detailed Information on *Environmental Releases from Manufacturing, Processing and Use Sites*

- Details of on-site treatment operations
 - Specify the type of wastewater treatment technologies used at the facility(ies).
 - Provide any removal/destruction efficiency information for on-site treatment unit operations, including WWT and incineration.
 - Indicate whether the information is estimated or measured (was performance testing done?)



Tips for More Detailed Information on *Exposure*

- Exposure information to provide includes:
 - Site-specific information (e.g., National Pollution Discharge Elimination System (NPDES)) to improve assessment of water releases
 - In the absence of site-specific information, EPA makes conservative assumptions
 - Water releases: flows for representative industry sector
 - Incinerator/air releases: protective default for Integrated Indoor-Outdoor Air Calculator (IIOAC)
 - Release details
 - PSD (when applicable) for the different processes
 - Release patterns (cyclical vs. consecutive)
 - Release duration
 - Details of off-site incineration
 - Information on consumer use
 - Citation for information source or a well-documented rationale
 - Physical chemical properties used for modeling
 - State (solid, liquid, gas)
 - Use frequency and duration
 - Use setting (where exposure to consumer takes place)
 - Amount used
 - Weight fraction (% in product)
 - Type of container
 - Matrix of product (plastic, textile, paint, etc.)



Using Read-Across for Fate, Ecotoxicity, Human Health

- Analogues
 - Specify analogue identity (Name, CASRN) and structure
 - Describe appropriateness of analogue for addressing endpoint of concern (e.g., structural similarity, physical-chemical properties, use)
 - Analogues with test data are preferred
 - Provide full studies if available
 - If no analogue is most similar, EPA uses a conservative read-across approach
- Preference: Chemical-specific test data >> Analogue data > Predictive data (ECOSAR, EPISuite™)
 - EPA may also use a weight of evidence approach



Tips on More Detailed Information on *Environmental Fate Assessments*

- Remember: TSCA requires new chemical manufacturers to submit studies or data in their possession or control or otherwise reasonably ascertainable
- Submitter should consider:
 - Measured physicochemical data (e.g., log K_{ow})
 - Degradation testing
 - Hydrolysis, photolysis and/or biodegradation data
 - Water, soil and/or sediment studies depending on partitioning behavior
 - Bioaccumulation information
 - Consider in-vitro metabolism study for fish - OECD 319
 - Consider dietary exposure for high Log K_{ow} substances (e.g., OECD 305)
 - Small-scale WWTP simulation laboratory data (e.g., OECD 303)



Tips for More Detailed *Ecotoxicity Information*

- Clearly identify what chemical is being tested (e.g., structure, CAS number, purity) when providing test data with a chemical submission
- Submitting high quality log K_{ow} and water solubility data developed using accepted, standardized methods provides EPA with necessary information to refine assessments
 - In their absence, EPA will use estimated values from EPISuite™ (<https://www.epa.gov/tsca-screening-tools/epi-suitetm-estimation-program-interface>)
 - May be more conservative than chemical-specific test data
- Chemical-specific test data >> Analogue data > Predictive data (ECOSAR)



Tips for More Detailed *Human Health Information*

- Consider whether the new chemical substance has been submitted to/reviewed by another international agency, as this information can be helpful in *aiding* in EPA determinations.
- Providing an explanation or rationale for why any toxicity information is not relevant for the intended use of the chemical substance could inform and expedite EPA's evaluation.
- Consider whether the structure of the new chemical substance has any structural alerts.
- To determine if the new chemical substance could be inhaled (i.e., respirable), provide information on particle/droplet size and include details on methodology used for the measurements.



Tips for More Detailed *Human Health* Information (continued)

- Whether *in silico*, *in vitro*, or other non-vertebrate test information are available for evaluating their chemical substance including a full description of the methods and results so EPA can determine:
 - If they can be used for regulatory purposes; *and*
 - What they mean for hazard/risk analysis
- Providing rationale for consideration of the analogue for the endpoint(s) identified.
- Providing chemical name and CAS numbers of all analogues.
- Providing clear structural representation of the analogue substance(s).
- Providing full studies on the analogues, if available, to better ensure efficient consideration by EPA.

The background of the slide features a complex molecular structure. It consists of numerous interconnected spheres representing atoms, with some spheres in a vibrant green color and others in a pale yellow. The spheres are connected by thin, light-colored lines representing chemical bonds. The overall appearance is that of a 3D ball-and-stick model of a large, branched organic molecule, possibly a polymer or a complex hydrocarbon, set against a white background.

Thank You

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