

## Appendix H. Sustainable Futures Summary Assessment Worksheet

During the Sustainable Futures hands-on training sessions participants learn how to use the models in step-wise process that follows the same sequence used when conducting a risk assessment (physical/chemical properties, fate properties, hazard or toxicity, exposure, and a final calculation of risk).

The Sustainable Futures Summary Assessment Worksheet and a single-page worksheet were been developed so that Sustainable Futures participants can record model results and combine the results into a complete assessment of risk. Both documents are included in this Appendix. All the training materials, including the Sustainable Futures Summary Assessment Worksheet in MSWord format, can be downloaded from the Sustainable Futures web site at <http://www.epa.gov/oppt/sf/meetings/train.htm#materials>.

### ***Sustainable Futures Summary Assessment Worksheet***

The Sustainable Futures Summary Assessment Worksheet was developed for use during the hands-on training sessions as a way to walk participants through doing a chemical risk assessment using the Sustainable Futures methods. The worksheet is bound into a training manual and designed so that, when it is opened the page on the left provides instructions on what information to include on the following page, which is on the right.

# **Sustainable Futures**

## **Summary Assessment**

### **Using**

## **P2 Framework Models**

This document was developed to help compile estimation results from U.S. EPA OPPT's P2 Framework Models and is used by OPPT during Sustainable Futures (SF) training described at [www.epa.gov/oppt/sf](http://www.epa.gov/oppt/sf).

Participants in the voluntary SF Initiative are asked to submit the information contained in this assessment along with their SF PMNs in their choice of format.

**Use of this specific format is not mandatory.**

**Chemical Assessed:**

**CAS Registry Number:**

**Participant Name:**

**Date of Assessment:**

<b>Record ID:</b>	<b>CAS No.</b>		
<b>Chemical Structure</b>      <b>Is this a representative structure?</b>	<b>MW:</b>		
	<b>MF:</b>		
	<b>Physical Form:</b>		
	<b>Submitter:</b>		
	<b>Trade Name:</b>		
	<b>Use:</b>		
	<b>Production Volume:</b>		
<b>SMILES:</b>			
<b>Name:</b>			
<b>Synonyms:</b>			
<b>SUSTAINABLE FUTURES SUMMARY:</b>			
<b>Concern Level</b>	<b>HIGH</b>	<b>MODERATE</b>	<b>LOW</b>
<b>Persistence</b>			
<b>Bioconcentration</b>			
<b>Cancer Health Hazard</b>			
<b>Non-Cancer Health Hazard</b>			
<b>Aquatic Toxicity Hazard</b>			
<b>Is the chemical predicted to be a PBT by PBT Profiler?</b>			
<b>Overall Hazard Concern</b>	<b>Human Health Hazard: Aquatic Hazard:</b>		
<b>Overall Risk</b>	<b>Human Health Risk: Aquatic Risk:</b>		

<b>CAS No.</b>	<b>Submitter:</b>
<b>PHYSICAL/CHEMICAL PROPERTIES:</b>	
<b>Melting Point (deg C)</b>	
<b>Boiling Point (deg C)</b>	
<b>Boiling Point Pressure (mm Hg)</b>	
<b>Vapor Pressure (mm Hg)</b>	
<b>Water Solubility at 25 deg C (g/L)</b>	
<b>Log K<sub>ow</sub></b>	
<b>ENVIRONMENTAL TRANSPORT AND FATE:</b>	
<b>Transport</b>	
<b>Henry's Law Constant – HLC (atm·m<sup>3</sup>/mol)</b>	
<b>Soil Adsorption Coefficient – log K<sub>oc</sub></b>	
<b>Log Bioconcentration Factor – BCF</b>	
<b>Persistence</b>	
<b>Probability of Rapid Biodegradation</b>	
<b>Ultimate Biodeg Model</b>	
<b>Primary Biodeg Model</b>	
<b>Ready Biodegradability (MITI Model)</b>	
<b>Atmospheric Half-life</b>	
<b>Hydrolysis Half-life</b>	
<b>Volatilization Half-life for Model River</b>	
<b>Volatilization Half-life for Model Lake</b>	
<b>Removal in STP (EPA Draft Method)</b>	
<b>Experimental Data</b>	
<b>Byproducts</b>	
<b>Degradation Products</b>	
<b>Metabolites</b>	

<b>CAS No.</b>	<b>Submitter:</b>
<b>ECOTOXICITY:</b>	
<b>ECOSAR Class</b>	
<b>Acute Toxicity</b>	
<b>Fish LC50</b>	
<b>Daphnid LC50</b>	
<b>Green Algae EC50</b>	
<b>Chronic Toxicity</b>	
<b>Fish ChV</b>	
<b>Daphnid ChV</b>	
<b>Green Algae ChV</b>	
<b>Hazard Concern for Aquatic Toxicity</b>	
<b>Concern Concentration</b>	
<b>CANCER HEALTH EFFECTS:</b>	
<b>Experimental data</b>	
<b>OncoLogic Results</b>	
<b>Overall Hazard Concern for Carcinogenicity</b>	
<b>NON-CANCER HEALTH EFFECTS:</b>	
<b>Acute Toxicity</b>	
<b>Irritation</b>	
<b>Skin Sensitizer</b>	
<b>Reproductive Effects</b>	
<b>Developmental Effects</b>	
<b>Immune System Effects</b>	
<b>Neurotoxicity</b>	
<b>Genotoxicity</b>	
<b>Mutagenicity</b>	
<b>Systemic Effects</b>	
<b>Overall Hazard Concern for Non-Cancer Health Effects</b>	

<b>CAS No.</b>		<b>Submitter:</b>	
<b>EXPOSURE MODELS:</b>			
<b>INDUSTRIAL RELEASE AND EXPOSURE VALUES: CHEMSTEER</b>			
<b>Process</b>		<b>Number of Release Days</b>	
<b>SIC Code / NPDES #</b>		<b>Number of Facilities</b>	1
<b>Occupational Exposure Values</b>			
	<b>Cancer LADD</b>	<b>Chronic ADD</b>	<b>Acute APDR</b>
<b>Dermal</b>			
<b>Inhalation</b>			
<b>Environmental Release Values</b>			
<b>Release to Water [Equipment cleaning]</b>			
<b>Release to Air (Fugitive) [Equipment cleaning]</b>			
<b>Release to Air (Fugitive) [loading liquid product into drums]</b>			
<b>Release to Landfill</b>			
<b>Release from Incineration</b>			
<b>Other Release Activities</b>			
<b>GENERAL POPULATION EXPOSURE VALUES: E-FAST</b>			
<b>Aquatic Exposure:</b>			
<b>Lowest Acute COC – Aquatic Exposure</b>			
<b>Lowest Chronic COC – Aquatic Exposure</b>			
<b>Predicted Environmental Concentration (PEC)</b>			
<b>PEC Exceeds Chronic COC (days / year)</b>			
<b>Human Exposure:</b>			
	<b>Cancer LADDpot</b>	<b>Chronic ADDpot</b>	<b>Acute ADRpot</b>
<b>Drinking Water</b>			
<b>Fish Ingestion</b>			
<b>Fugitive Emissions [drumming]</b>			
<b>Fugitive Emissions [reactor cleaning]</b>			
<b>Incineration Emissions</b>			
<b>Landfill Leaching</b>			
<b>Dermal – Consumer Use</b>			
<b>Inhalation – Consumer Use</b>			
<b>RISK ASSESSMENT CALCULATIONS:</b>			
<b>MOE – Acute Occupational Exposure</b>			
<b>MOE – Chronic Occupational Exposure</b>			
<b>MOE – Acute General Population Exposure</b>			
<b>MOE – Chronic General Population Exposure</b>			

CAS No.

Submitter:

**SUMMARY CONCLUSIONS:**

*Occupational Risk:*

**Risk of Non-Cancer Acute Effects from Occupational Exposure:**

**Risk of Non-Cancer Chronic Effects from Occupational Exposure:**

**Risk of Cancer Effects from Occupational Exposure:**

*General Population Risk:*

**Risk of Non-Cancer Acute Effects to General Population:**

**Risk of Non-Cancer Chronic Effects to General Population:**

**Risk of Cancer Effects to General Population:**

*Consumer Risk:*

**Risk of Non-Cancer Acute Effects to General Population:**

**Risk of Non-Cancer Chronic Effects to General Population:**

**Risk of Cancer Effects to General Population:**

*Aquatic Risk:*

**Acute Risk to the Aquatic Environment:**

**Chronic Risk to the Aquatic Environment:**

**WRITE-UP SECTIONS:**

**Physical/Chemical Properties**

**Environmental Fate**

CAS No.

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**Aquatic Hazard**

**Human Health Cancer Hazard**

**Human Health Non-Cancer Hazard**



CAS No.

Submitter:

**Environmental (Aquatic) Exposure**

**Occupational Exposure**

**General Population Exposure**

**Consumer Exposure**

**Environmental (Aquatic) Risk Assessment**

CAS No.

Submitter:

**Human Health Risk Assessment**

**Abbreviations Used**

CAS No.

Submitter:

**Table I - Selected Analogs**

Analog	Structure	Concern Identified	Basis of Concern	Concern Level

**References**

**Appendix 1: Determination of Aquatic Risk**

**Chemical Identifier:**                      **CAS Number:**

**Release Activity 1:**    **Site Information:**

	<b>Endpoint</b>	<b>Effect Level (ppb)</b>	<b>Assessment Factor</b>	<b>Acute COC (ppb)</b>	<b>PEC (ppb)</b>	<b>Potential for Risk?</b>
<b>Acute Profile</b>						
	<b>Endpoint</b>	<b>Effect Level (ppb)</b>	<b>Assessment Factor</b>	<b>Chronic COC (ppb)</b>	<b>Days/Year PEC Exceeds COC</b>	<b>Potential for Risk?</b>
<b>Chronic Profile</b>						

**Appendix 2: Determination of Human Health Risk from Occupational Exposure**

**Chemical Identifier:**

**CAS Number:**

**Exposure Activity 1:**

**Site Information:**

	<b>Endpoint (Concern Effect)</b>	<b>NOAEL (mg/kg-d)</b>	<b>LOAEL (mg/kg-d)</b>	<b>Exposure Dose and Source (mg/kg-d)</b>	<b>MOE*</b>	<b>Potential for Risk?</b>
<b>Occupational Exposure</b>						

**Appendix 3: Determination of Human Health Risk to the General Population and Consumers**

**Chemical Identifier:**                      **CAS Number:**

**Exposure Activity 1:**                      **Site Information:**

	<b>Endpoint (Concern Effect)</b>	<b>NOAEL (mg/kg-d)</b>	<b>LOAEL (mg/kg-d)</b>	<b>Exposure Dose and Source (mg/kg-d)</b>	<b>MOE*</b>	<b>Potential for Risk?</b>
<b>General Population Exposure</b>						
<b>Consumer Exposure</b>						



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