## 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 let 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.

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:

Record ID:			CAS No.		
Chemical Structure			MW:		
			MF:		
			Physical Form:	Physical Form:	
			Submitter:		
			Trade Name:		
Is this a representative structure?			Use:		
			Production Volume:		
SMILES:					
Name:					
Synonyms:					
SUSTAINABLE F	UTURES SUMM	ARY:			
Concern Level	HIGH	N	IODERATE	LOW	
Persistence					
Bioconcentration					
Cancer Health Hazard					
Non-Cancer Health Hazard					
Aquatic Toxicity Hazard					
Is the chemical predicted to be a PBT by PBT Profiler?					
Overall Hazard Concern	Human Health Hazard: Aquatic Hazard:				
Overall Risk	Human Health Risk: Aquatic Risk:				

CAS No.	Submitter:			
PHYSICAL/CHEM	IICAL PROPERTIES:			
Melting Point (deg C)				
Boiling Point (deg C)				
Boiling Point Pressure (mm Hg)				
Vapor Pressure (mm Hg)				
Water Solubility at 25 deg C (g/L)				
Log K <sub>ow</sub>				
ENVIRONMENTAL 1	TRANSPORT AND FATE:			
Tra	insport			
Henry's Law Constant – HLC (atm-m <sup>3</sup> /mol)				
Soil Adsorption Coefficient – log K <sub>oc</sub>				
Log Bioconcentration Factor – BCF				
Persistence				
Probability of Rapid Biodegradation				
Ultimate Biodeg Model				
Primary Biodeg Model				
Ready Biodegradability (MITI Model)				
Atmospheric Half-life				
Hydrolysis Half-life				
Volatilization Half-life for Model River				
Volatilization Half-life for Model Lake				
Removal in STP (EPA Draft Method)				
Experimental Data				
Вур	roducts			
Degradation Products				
Metabolites				

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

		1				
CAS No.		Submitter:				
EXPOSURE		MODE	ELS:			
INDUSTRIAL RELEASE AND EXPOSURE VALUES: CHEMSTEER						
Process		Num	ber of Release Days			
SIC Code / NPDES #		Num	ber of Facilities	1		
Occupational Exposure Values						
	Cancer LADD		Chronic ADD	Acute APDR		
Dermal						
Inhalation						
	Environmental H	Release	Values			
Release to Water [Equipment	cleaning]					
Release to Air (Fugitive) [Equ	ipment cleaning]					
Release to Air (Fugitive) [lo	ading liquid product into					
drums]						
Release to Landfill						
<b>Release from Incineration</b>						
<b>Other Release Activities</b>						
GE	NERAL POPULATION EX	POSU	RE VALUES: E-FAST			
	Aquatic Ex	posur	e:			
Lowest Acute COC – Aquatic	Exposure					
Lowest Chronic COC – Aquat	tic Exposure					
Predicted Environmental Con	centration (PEC)					
PEC Exceeds Chronic COC (d	lays / year)					
	Human Ex	posure	e:			
	Cancer LADDpot		Chronic ADDpot	Acute ADRpot		
Drinking Water						
Fish Ingestion						
Fugitive Emissions						
[drumming]						
<b>Fugitive Emissions [reactor</b>						
cleaning]						
Incineration Emissions						
Landfill Leaching						
Dermal – Consumer Use						
Inhalation – Consumer Use						
	RISK ASSESSMENT	CALC	ULATIONS:			
MOE – Acute Occupational	Exposure					
MOE – Chronic Occupation	al Exposure					
MOE – Acute General Popu	lation Exposure					
MOE – Chronic General Po	pulation Exposure					

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:				
<i>General Population Risk:</i> 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:				
<i>Aquatic Risk:</i> Acute Risk to the Aquatic Environment: Chronic Risk to the Aquatic Environment:				
WRITE-UF	SECTIONS:			
<b>Physical/Chemical Properties</b>				
<u>Environmental Fate</u>				

CAS No.	Submitter:
Aquatic Hazard	
Human Health Cancer Hazard	
Human Health Non-Cancer Hazard	

CAS No.	Submitter:
Environmental (Aquatic) Exposure	
Occupational Exposure	
<u>General Population Exposure</u>	
<u>Consumer Exposure</u>	
<u>Environmental (Aquatic) Risk Assessment</u>	

CAS No.	Submitter:
Human Health Risk Assessment	

**Abbreviations Used** 

CAS No. Submitter:							
Table I - Selected Analogs							
Analog	Structure	Concern Identified	<b>Basis of Concern</b>	Concern Level			
		<u>References</u>					

#### **Appendix 1: Determination of Aquatic Risk**

### Chemical Identifier: CAS Number:

Release Activity 1:	Site Information:
---------------------	-------------------

	Endpoint	Effect Level (ppb)	Assessment Factor	Acute COC (ppb)	PEC (ppb)	Potential for Risk?
A auto Duofilo						
Acute Profile						
	Endpoint	Effect Level (ppb)	Assessment Factor	Chronic COC (ppb)	Days/Year PEC Exceeds COC	Potential for Risk?
Chronic Profile						
1 i onne						

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

Chemical Identifier: CAS Number:

Exposure Activity 1: Site Information:

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

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

Chemical Identifier: CAS Number:

**Exposure Activity 1:** Site Information:

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

Sustainable Futures participants are asked to include with their PMN submission information showing (1) whether alternatives were evaluated (if any), (2) models used, (3) whether model results did, or did not, influence product development decisions, and (4) concerns driving the decisions. The following can be used for this purpose, although other methods are acceptable as well.

#### SF Participant Name:

#### Please do not include CBI!

#### Sustainable Futures Chemical Hazard / Risk Screening 1-Page Information

Alternatives: Was there only one material under development, or, did you have more than one product or process alternative under consideration prior to submission of the PMN? O Considered only one alternative O Considered more than one alternative

If you considered more than one alternative, how many materials or processes were under consideration during R&D/product development? Number of Alternatives Considered

Models Used:Which P2 Framework models were used to evaluate/screen the PMN material and/or alternatives:<br/>O EPI Suite<sup>™</sup> O ECOSAR<sup>™</sup> O PBT Profiler O OncoLogic<sup>™</sup> O NonCancer Screen O E-FAST O ChemSTEER

If models not listed here were used, please list the models / methods.

Did hazard / risk screening results inform your decision-making regarding product, process, or location alternatives under consideration? O Yes O No

Concerns: Which concern(s) influenced, or contributed to, your decisions in the development of the PMN substance(s) submitted. Do not include CBI such as actual chemical names or CAS RNs.

	Concerns									
Alternatives Evaluated	Environ- mental Fate	Aquatic Hazard / Toxicity	Aquatic Risk	Human NonCancer Hazard / Toxicity	Human Cancer Hazard Potential	Human Exposure	Human Risk Concerns	PBT Issues	Other (Please list)	
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Concerning the material or process that was the subject of your PMN, did chemical hazard / risk screening influence your decision regarding any of the following (Please check only the applicable responses.)

- A. Mfg / Processing Locations
  - O Yes O No O No
- D. Shipping / Distribution

O Yes O No

- B. Manufacturing Controls O Yes O Yes O No
- C. Processing

E. Environmental Release

F. Waste Management

O Yes O No O Yes O No

**Additional Comments:** 

Intentionally Left Blank