

Exercise - Making Informed Decisions

SCENARIO: You have a Benchmark 1 chemical of concern that you need to replace, it is a polymer. You are considering three alternatives that are all Benchmark 2 chemicals.

OBJECTIVE: Determine the best substitute for the chemical of concern.

INSTRUCTIONS: Review the Hazard Summary Table below and answer the three questions on the next page.

		GreenScreen™ Hazard Ratings: possible alternatives for a Benchmark 1 polymer																			
Alternates	Benchmark Score	Group I Human					Group II and II* Human						Ecotox		Fate		Physical				
		Cancer	Mutagenicity	Reproductive	Developmental	Endocrine	Acute Toxicity	Systemic Toxicity		Neuro-toxicity		Skin Sensitization	Respiratory	Skin Irritation	Eye Irritation	Acute Aquatic	Chronic Aquatic	Persistence	Bioaccumulation	Reactivity	Flammability
								Single	Repeated	Single	Repeated										
Alternate #1 (CAS xxxx-xx-x)	2	L	L	DG	M	M	M	DG	M	DG	DG	L	DG	H	vH	vH	vH	H	L	L	L
Alternate #2 (CAS xxxx-xx-x)	2	L	M	L	M	DG	M	DG	H	M	L	L	DG	L	H	vH	M	M	L	L	L
Alternate #3 (CAS xxxx-xx-x)	2	M	L	L	L	DG	H	vH	H	DG	DG	L	DG	H	H	L	L	H	vL	L	M

L = low, M = moderate, H = high, vL = very low, vH = very high, DG = data gap

Systemic toxicity means it can affect the liver, kidneys, blood – basically effects that are not covered by the other endpoints.

- 1. Identify some of the trade-offs between the alternatives from the following 4 perspectives.** [Hint: Focus key routes of exposure that are most important to consider for polymers]
 - a. Consumers/Users

 - b. Workers

 - c. Environmental Fate and Transport

 - d. Data Confidence and Completeness

- 2. Which alternative would you select based on the information provided and why?**

- 3. What other factors would you consider (beyond human, environmental, and physical hazards already discussed) in order to make this choice**