

Center for Sustainable Business

The Business Case for Sustainable Apparel

Strategy for Reducing Chemical Impact

Phase 1: December 2020

Phase 2: April 2021



Reducing Chemical Impact

Product Development/ Raw Materials Manufacturing **Procurement Reduce Chemicals** in Manufacturing **Invest in R&D to Develop Sustainable Manufacturing Processes Process Reduce Toxic** Chemicals in Substitute Bio-based alternatives for chemicals in dyes Materials, Dyes, and and materials **Processing Expand product offering to** use more bio-based alternatives for chemicals and dyes in materials **Invest in Circular Manufacturing Processes to reduce Reduce Chemical** and reuse chemicals Waste

Reduce Chemical Impact

Overview of Sustainability Strategy and Relevant Impact Categories

In the following slides, we will be focusing on benefits from the *Reduce Chemical Impact* sustainability strategy, which are categorized based on the relevant impact categories highlighted below

Sustainability Strategy Definition

Reduce Chemical Impact

Company reduces the impact of chemicals in its supply chain

Relevant Impact Categories

Operational Efficiency (OE)

Innovation (IN)

Customer Loyalty (CL)

Risk Management (RM)

Sales & Marketing (SM)

Stakeholder Engagement (SE)

Supplier Relations (SR)

Benefits that...

Optimize corporate and supply chain efficiencies to lower cost and increase profits

Create new revenue streams using sustainable business models

Attract an increasing community of conscious buyers & consumers, while reducing retention costs

Encourage resilience within the supply base by decreasing supplier dependency

Increase volume of sales through brand and marketing policies

Improve goodwill amongst the broader stakeholder community (i.e. NGOs)

Improve upon the relationships between the company and its suppliers

Reducing Chemical Impact Overview of Benefits and Monetization Methods (1/3)

Practice	Sub-Practice	Proposed Benefits	Impact Categories	Proposed Monetization Methods	Financial Impact Priority
Reduce Chemicals in Manufacturing Process	Invest in R&D to Develop Sustainable Manufacturing Processes *In partnership with suppliers or third-party and should include certifications such as Oeko-Tex and Bluesign	Reduced operating costs for chemical management based on development of sustainable manufacturing processes *Focus on reduction of chemical use with chemical waste as a bi-product	OE SR	Calculate differential of waste management costs before and after reduction in chemical usage (minus associated costs such as expenditure for R&D and implementation of more sustainable processes) to achieve avoided cost savings *Long-term investment approach with pass-through savings in FOB	√
		Increased opportunities and potential partnerships in sustainable manufacturing processes *Company invests in research to develop new innovative manufacturing processes that use fewer resource and chemical inputs (ex: DyeCoo, waterless dyeing).	SE	Calculate annual profit from business opportunities associated with investing in reduced chemical usage	
		Reduced reputational risk by investing in R&D of sustainable manufacturing processes to reduce chemical usage	RM	Calculate estimated reduction in # of lost sales and opportunities before and after R&D investment in sustainable manufacturing processes multiplied by cost per loss (or loss of sales per opportunity) and use NPV to determine future cost savings	
		Reduced risk by preempting future chemical regulations	RM	Calculate cost differential of before and after investing in development of sustainable manufacturing processes and use NPV to determine future cost savings on increased chemical costs and taxation	



= If implemented, this benefit can realize substantial financial impact



Reducing Chemical Impact Overview of Benefits and Monetization Methods (2/3)

Practice	Sub-Practice	Proposed Benefits	Impact Categories	Proposed Monetization Methods	Financial Impact Priority
Reduce Toxic Chemicals in Materials and Dyes, and Processing	Substitute bio-based alternatives for chemicals in dyes and materials *In Partnership with suppliers and should include certifications such as Bluesign – avoiding banned substances like formaldehyde, heavy metals, fragmented solvents, PVC, nickel, chrome as identified by the Higg Index *Examples include remove offering of durable chemicals applied to deliver specific technical performance such as water repellency, non-iron, wrinkle-free	Reduced operating costs for chemical management *Focus on reduction of chemical waste as a bi-product of substituting out toxic chemicals with bio-based alternatives Reduced reputational damage by substituting bio-based alternatives for harmful chemicals	OE SR	Calculate differential of waste management costs before and after reduction in toxic chemical usage (minus associated costs for usage of bio-based alternatives) to achieve avoided cost savings *Company should achieve pass-through savings in FOB *Reduced operating costs based on reduction of hazardous wastewater to manage but will incur costs for alternatives such as waterless, heat transfer, and laser finishing. DyeCoo. Printing / Sublimation vs. traditional dye washing Calculate estimated reduction in # of lost sales and opportunities before and after implementation of the use of bio-based alternatives in place of chemicals multiplied by cost per loss (or loss of sales per opportunity) and use NPV to determine future cost savings	
		Reduced risk by preempting future chemical regulations	RM	Calculate cost differential of before and after investing in development of sustainable manufacturing processes and use NPV to determine future cost savings on increased chemical costs and taxation	

Reducing Chemical Impact Overview of Benefits and Monetization Methods (2/3 Cont.)

Practice	Sub-Practice	Proposed Benefits	Impact Categories		Proposed Monetization Methods	Financial Impact Priority
Reduce Toxic Chemicals in Materials and Dyes, and Processing	Expand product offering to use more bio-based alternatives for chemical and dyes in materials	Increased sales, given higher customer satisfaction and loyalty	CL	SM	Calculate incremental profit attributed to increased product offering of bio-based alternatives to chemicals (profit differential before and after) % increase of product offered within assortment, incremental as bio-based alternatives are substituted	√
		Reduced operating costs for chemical management *Focus on reduction of chemical waste as a biproduct of bio-based expanded product offering (an alternative to toxic chemicals)	OE	SR	Calculate differential of waste management costs before and after reduction in toxic chemical usage (minus associated costs for usage of bio-based alternatives) to achieve avoided cost savings *Company should achieve pass-through savings in FOB – increase in savings dependent on increase of product offered within assortment *Reduced operating costs based on reduction of hazardous wastewater to manage but will incur costs for alternatives such as waterless, heat transfer, and laser finishing. DyeCoo. Printing / Sublimation vs. traditional dye washing	√
		Reduced reputational damage by substituting bio-based alternatives for harmful chemicals (with expanded offering)	RM		Calculate estimated reduction in # of lost sales and opportunities before and after implementation of the use of bio-based alternatives in place of chemicals multiplied by cost per loss (or loss of sales per opportunity) and use NPV to determine future cost savings	
		Reduced risk by preempting future chemical regulations	F	RM	Calculate cost differential of before and after investing in development of sustainable manufacturing processes and use NPV to determine future cost savings on increased chemical costs and taxation	

Reducing Chemical Impact Overview of Benefits and Monetization Methods (3/3)

Practice	Sub-Practice	Proposed Benefits	Impact Categories	Proposed Monetization Methods	Financial Impact Priority
Reduce Chemical Waste	Invest in circular manufacturing Processes to reduce and reuse chemicals *In partnership with suppliers	Reduced material costs from reuse of chemicals	OE SR	Calculate the cost differential between purchased raw chemicals and recycled chemicals for the same quantity to achieve avoided cost savings; when looking at a scenario with recycled costs, it needs to incorporate % used for purchased and recycled materials *Company should achieve pass-through savings in FOB *Reducing chemicals can also reduce water and energy usage for additional cost savings	√
		Reduced operating costs for waste management based on reduction of chemicals through a circular manufacturing process *Focus on reduction of chemical use with chemical waste as a bi-product	OE SR	Calculate differential of waste management costs before and after reduction in chemical usage to achieve avoided cost savings *Company should achieve pass-through savings in FOB	√
		Reduced supply chain disruption, given decreased dependency on raw chemicals purchased	RM	Calculate estimated reduction in # of supply chain disruptions before and after implementation of the chemical recycling process multiplied by cost per disruption (or loss of sales per disruption) to achieve avoided cost savings	
		Reduced risk by preempting future chemical regulations	RM	Calculate cost differential of before and after investing in circular manufacturing processes and use NPV to determine future cost savings on increased chemical costs and taxation	
		Revenue from selling recycled chemicals as a bi-product	INN	Calculate annual profit from selling recycled chemicals: annual revenue from program minus costs associated with chemical recycling (i.e. processing)	