



# Driving innovations in the textile industry through sustainable chemistry

## The ZDHC Roadmap to Zero Programme

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 **ZDHC**



# The need for sustainable chemistry



70 Tons of dead fish washed up on Vietnam's shores due to release of toxic chemicals into the sea by a steel plant in Taiwan.....



Explosions at a chemical warehouse in Tianjin port, China in Aug 2015, containing 700 tons of sodium cyanide, calcium carbide and ammonium nitrate.....

## The need for sustainable chemistry



Exposure to Potassium Permanganate fumes over a long term can lead to PULMONARY EDEMA or water logging in the lungs of workers.....

Buck Bailey, whose mother worked at the DuPont plant in Parkersburg, USA manufacturing C-8 Teflon was born with just one nostril and other facial deformities.




# The impact of chemicals

## Human Toxicity

- 
1. Carcinogenicity
  2. Mutagenicity
  3. Genotoxicity
  4. Reproductive Toxicity
  5. Development Toxicity
  6. Endocrine Disruption
  7. Acute toxicity (Oral/Dermal)
  8. Systemic Organ Toxicity (single and repeated dose)
  9. Neurotoxicity
  10. Skin sensitization
  11. Respiratory sensitization
  12. Skin/Eye irritation

## Ecotoxicity and Fate

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13. Persistence
  14. Bioaccumulation
  15. Aquatic Toxicity (Chronic and Acute) on daphnia, algae and fish
  16. Reactivity
  17. Flammability
  18. Oxidisers

# Chemicals used in textiles can be hazardous...!





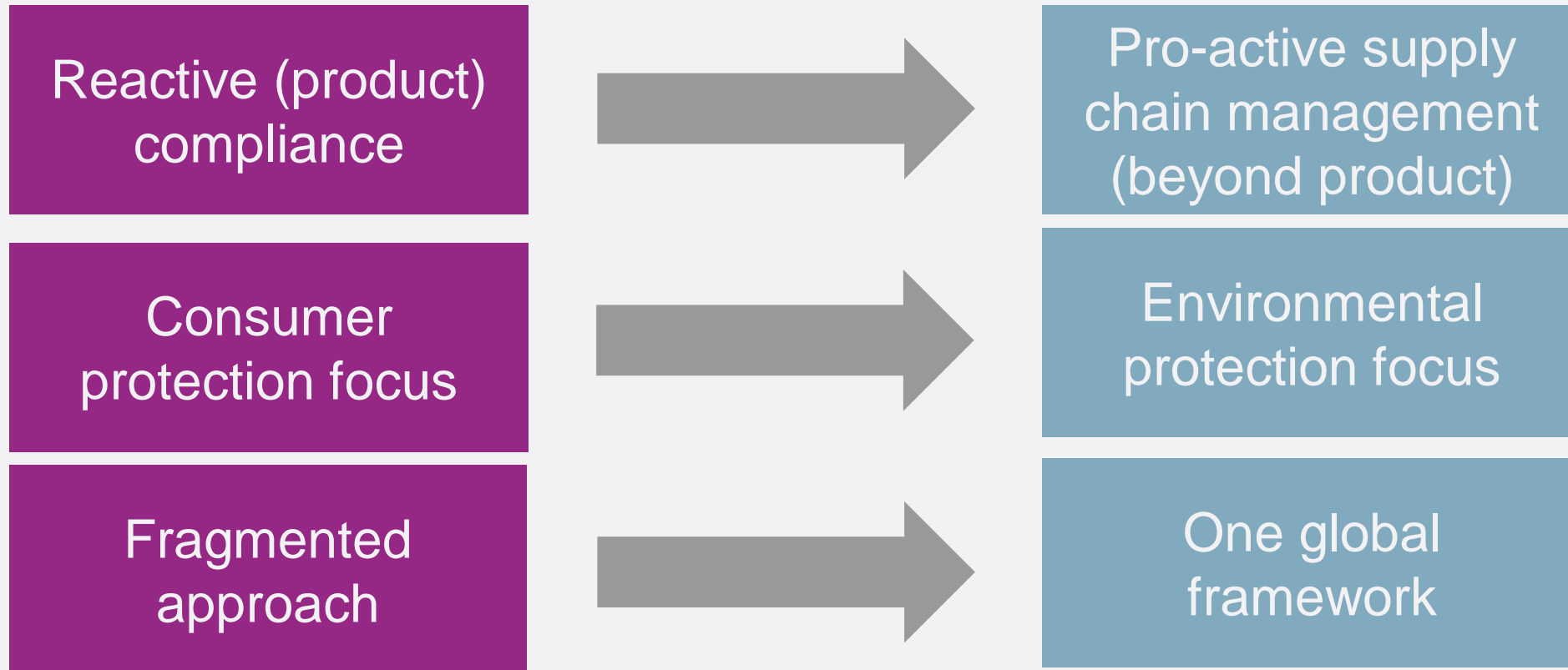
# A hard look at what is behind the product

Transforming an industry requires

- Collaboration
- Transparency
- Commitment

# Shift in paradigms

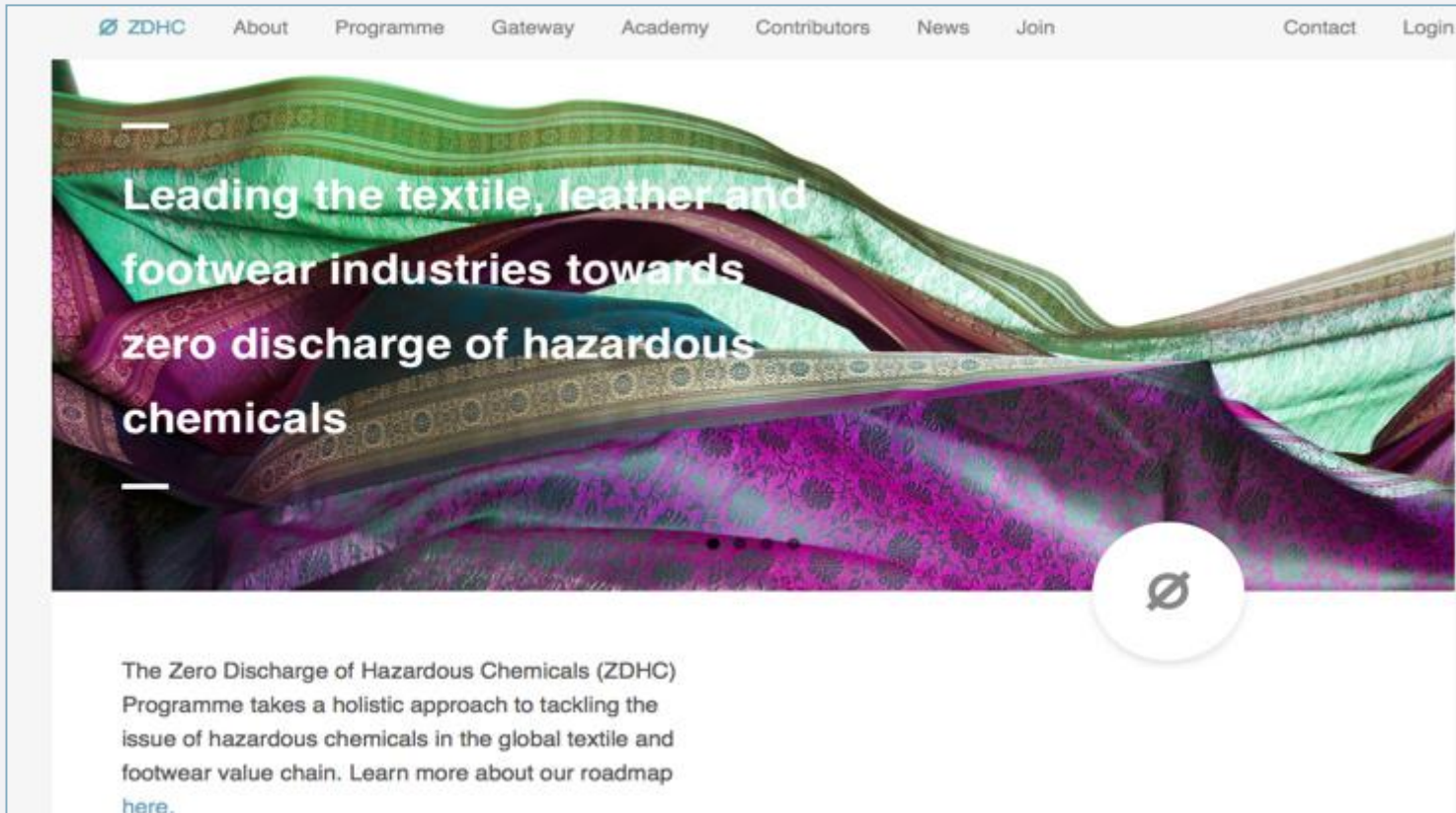
## A re-look at an industry challenge





# Responsible manufacturing through sustainable chemical management

## The ZDHC Programme



[www.roadmaptozero.com](http://www.roadmaptozero.com)

**Ø ZDHC**

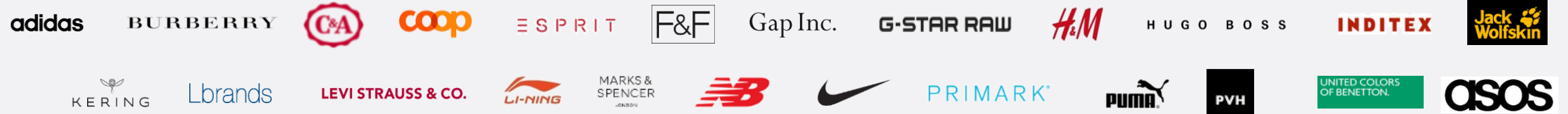
**Widespread implementation of sustainable chemistry and environmental best practices in the textile, apparel, leather and footwear supply chain through:**

- 1. Collaborative engagement with all stakeholders**
- 2. Standard Setting & development of Tools**
- 3. Capacity building & Implementation**
- 4. Innovation projects**





## Signatory Brands - Open to brands and retailers



## Value Chain Affiliates - textile/footwear and chemical industries



## Associates – industry associations, NGOs and academia



# Sustainable Chemical Management requires The ZDHC holistic approach



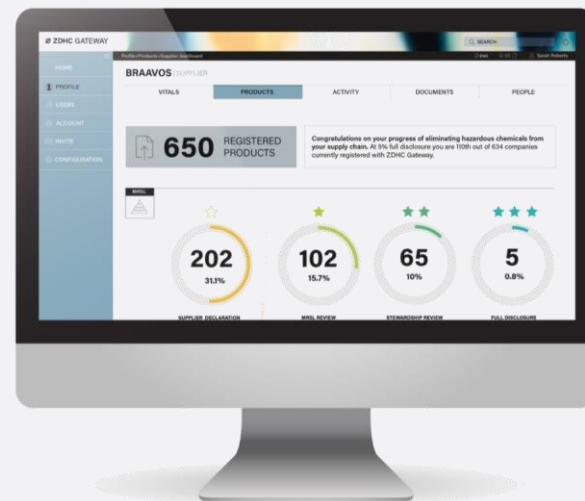
*In each Focus Area, ZDHC establishes Standards to be adopted by the industry and Tools for implementation of these Standards*



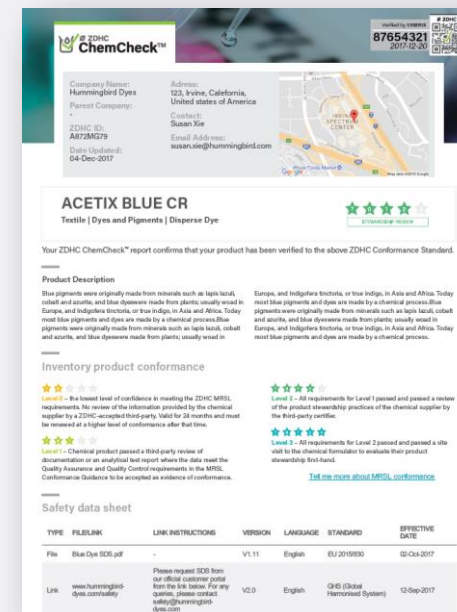
# A holistic approach INPUT management



ZDHC MRSL  
Version 1.1



ZDHC Gateway -  
Chemical Module



ZDHC  
ChemCheck™



ZDHC  
InCheck™



# A holistic approach PROCESS management



”How to ZDHC”  
Chemical Management  
System Guidance



Harmonisation with relevant  
parts of assessment /  
audit schemes

Leather  
Working  
Group



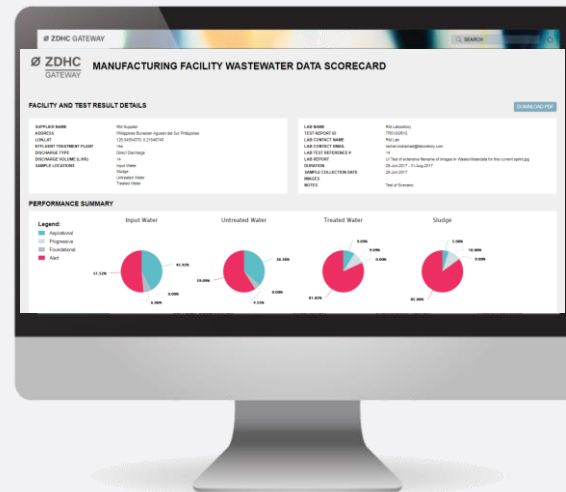
The ZDHC Leader  
Programme



# A holistic approach OUTPUT management



Wastewater  
Guidelines



ZDHC Gateway –  
Wastewater Module



Wastewater treatment  
technologies

# The ZDHC Programme will drive the industry towards innovation

- DMF- free Polyurethane mfg.
- PFC- free water repellent finish
- Formaldehyde- free resins
- Dyes from organic waste
- Phthalate –free plastisol inks
- APEO- free detergents
- The list goes on.....







**THANK YOU!**

**Contact us at  
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**Learn more at  
[www.roadmaptozero.com](http://www.roadmaptozero.com)**