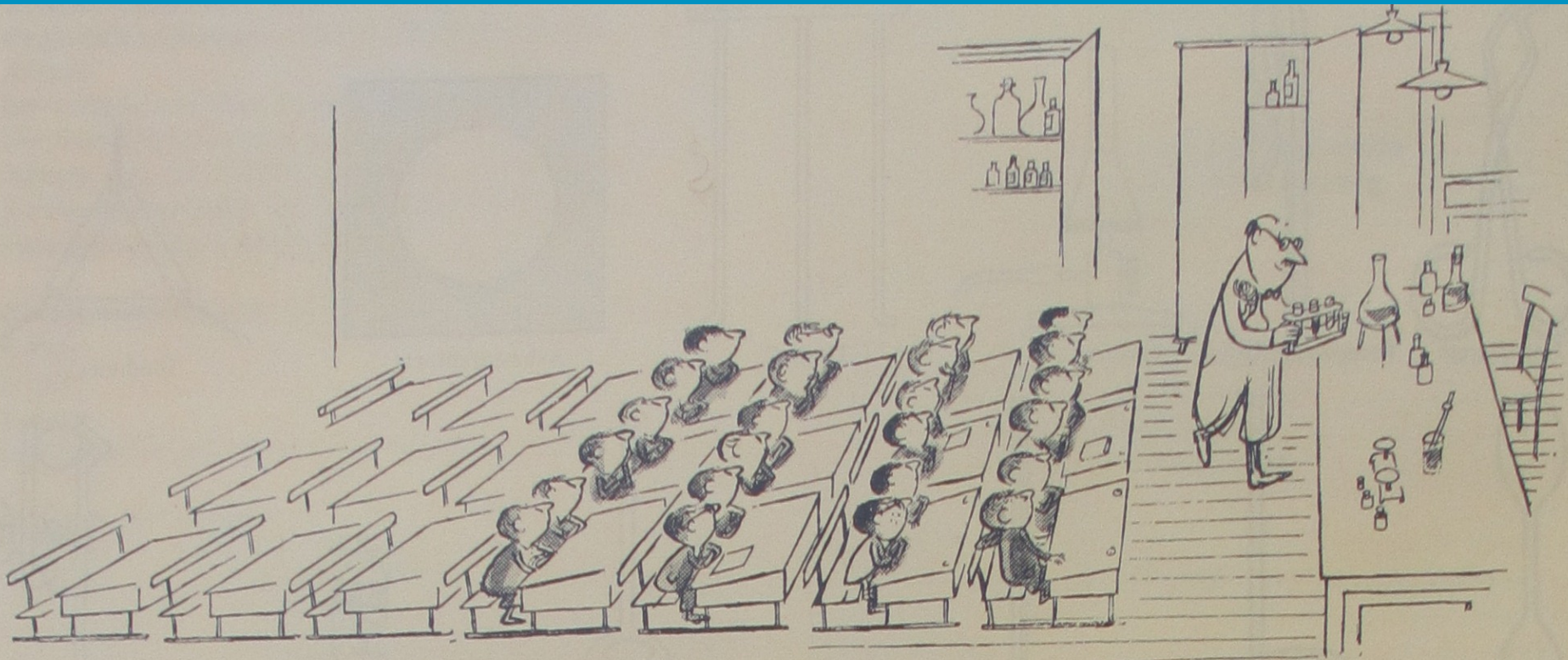


Chemical Management Plans & Integration into Factory Process and Management

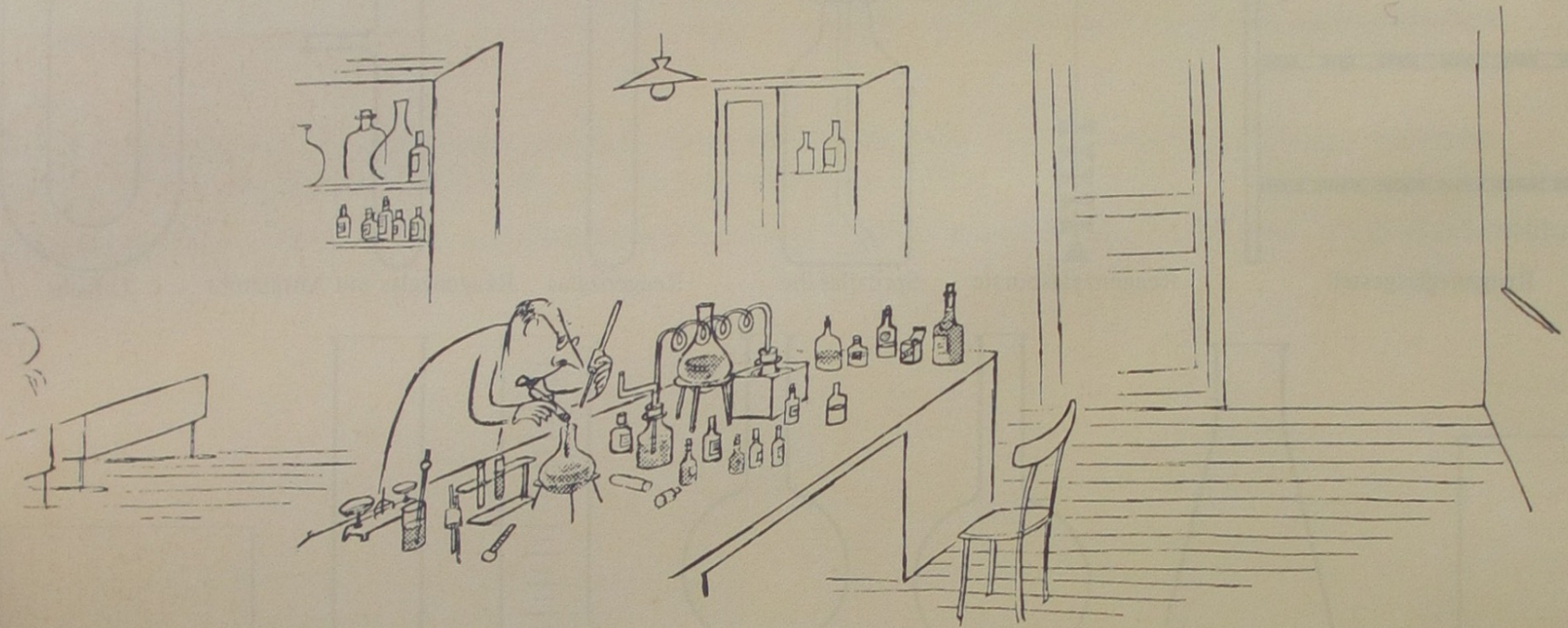
Dr. Oliver Muth, Chemical & REACH Compliance Manager | C&A Mode GmbH & Co.KG



Preface



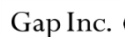
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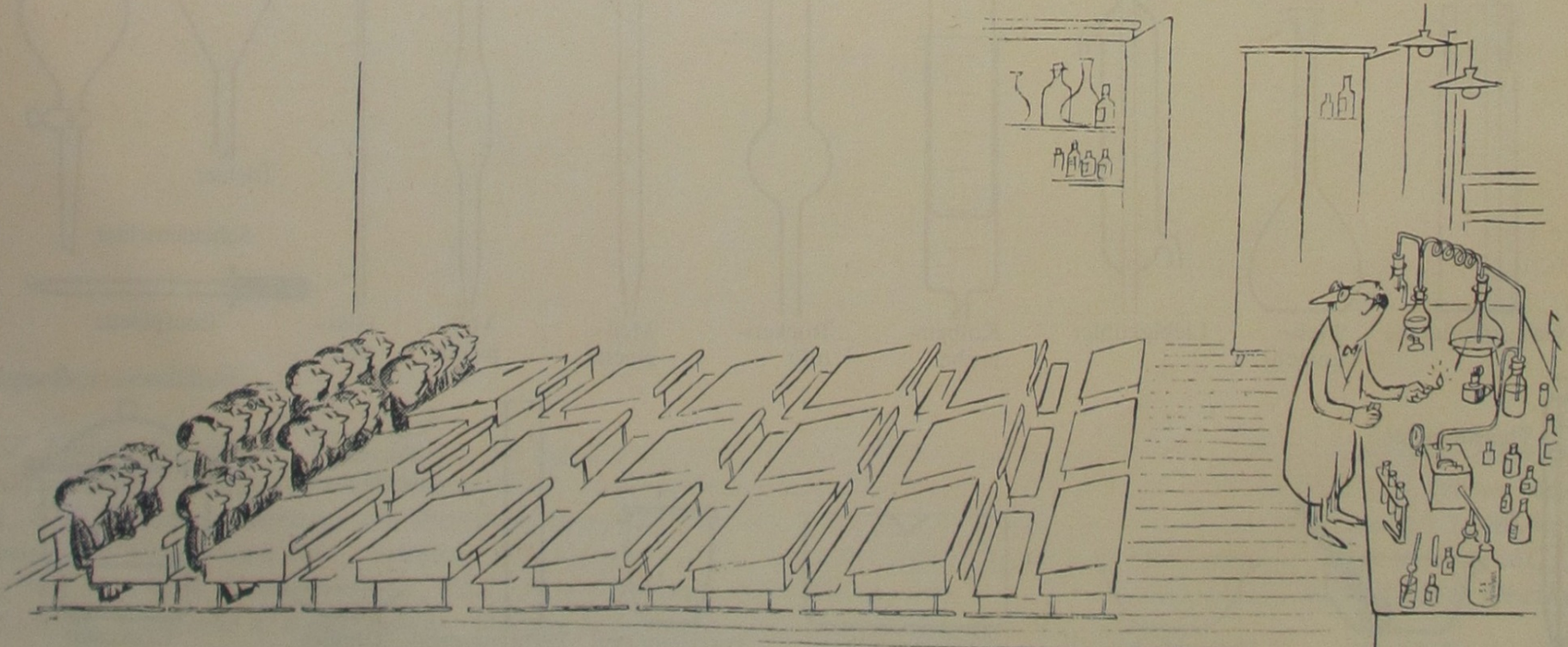
BESTSELLER



HUGO BOSS



Preface



BESTSELLER



THE CHILDREN'S PLACE

DECATHLON

ECCO

ESPRIT

Gap Inc. GYMBOREE GROUP



HUGO BOSS



Why is Chemical Management essential?



- Contractual Relationship
- Consequences of non-compliance
- Discontinuation/ stop of business
- Regulatory demand to comply with chemical regulations
 - Different Regulations, Directives, Legislations, Country Specific Laws in Global Market

Why is Chemical Management essential?



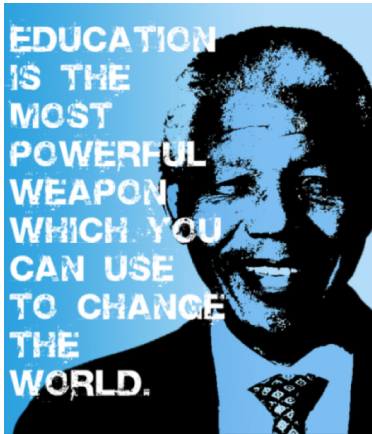
- Prevent any harm from using chemicals
 - Ensure workers health
 - Ensure not to pollute land, water and air
 - Produce safe products for the consumers

Specify Roles & Responsibilities



- Identify all staff involved in chemicals
 - RSL & Chemical Compliance Manager
 - Purchaser of chemicals
 - Chemical Inventory List Keeper
 - Chemical room / stock keeper
 - Developer of new chemical formula / recipes
 - All staff allowed to handle chemicals
 - Cleaning staff
- Assign missing roles and process

Education / Training / Communication



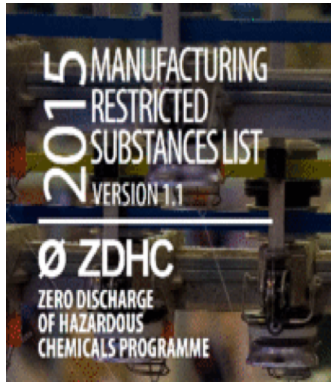
- Train all staff involved in chemicals
 - Purchaser of Materials / Chemicals
 - Production Manager
 - Workers
 - Chemical Room Manager / Stock Keeper
 - Cleaning Staff
- Ask your chemical suppliers and clients to support you in chemical training !

Realize Restricted Substances List (RSL)



- Read the RSL and Toolkit
 - Chemical Names
 - Hazardous Background
 - Restricted Limits
 - Required Test Method
- Ask your client, in case of any questions

Realize ZDHC Manufacturing RSL



- MRSL applies to chemical formulations
- Whereas RSL applies to materials, semi finished and finished products
- MRSL Threshold Limit Values on restricted substances apply to substances in commercially available chemical formulations
- Chemical formulations are highly concentrated before being diluted upon application to textiles and materials.

C&A is committed to ZDHC



- 2011 Greenpeace dirty laundry report
- DETOX Campaign Sport & Fashion Brands

Ø ZDHC

- Industry Response
- Zero Discharge of Hazardous Chemicals
- Today 24 brands & Retailers committed to ZDHC together with over 50 value chain affiliates and 15 associates



Identify Safer Chemicals

CLEANCHAIN  • Chemical management tracking system



- Search engine for formulations conforming to the ZDHC MRSL



- Level of conformance against ZDHC MRSL



Chemical & Wastewater Management



- Sustainable Chemicals Management (SCM) Audit
- Stepping stone to Higg Index 3.0



- Facility Environmental Module 3.0
- Assessment of facility environmental and chemical management performance accepted by all members of the Sustainable Apparel Coalition
- Implementation commenced in 2017/2018, SAC members are working on adoption in their supply chains
 - Planned C&A implementation 2019



Validate elimination of hazardous chemicals

Ø ZDHC

- Wastewater Guidelines



- Wastewater performance report



- C&A remains committed to public disclosure of wastewater test results



Hazardous Chemicals



- No production without chemicals
- Chemical auxiliaries:
 - Dyestuffs, colourants, printing inks, binders, fixing agents
 - Detergents, softeners, special finishings
 - Adhesives, solvents, anti-oxidation agents, anti-electrostatica,
- All chemicals are hazardous to some degree
- Proper Risk Assessment is key !

Chemical Risk Assessment



- SDS information
 - GHS hazard classification
 - Hazard / Precautionary (H/P) statements
- Contact chemical supplier
- All chemicals comply with RSL/MRSL?
- Chemical Inventory List

Chemical Inventory List



- Create comprehensive Chemical Inventory List
 - Use an electronic inventory list for tracking chemicals
 - Identify all chemicals in the factory
 - Record Chemical Name, Hazard Class, MSDS, etc.
- Perform regular inventory audits to identify chemicals that are not being used.
- Identify chemicals of concern – risk potential
 - Conduct risk assessment for each chemical

Chemical Inventory List Template

1. CHEMICAL INVENTORY

Version: 1.0

Company Name ABC Company Ltd.
 Contact Person John Smith
 Title Chemicals Manager
 Email john.smith@abc.com
 Date Completed March 16, 2017
 Reporting Period February 2017

- Chemical Name and CAS Identification Number
- Hazard Class
 - * Physical, Health and Environmental Hazards, Hazard statements (H phrases), Precautionary statements (P phrases)
- Work Instructions / Operation Instructions
 - * Personal Protective Equipment (PPE)
- Material Safety Data Sheets (MSDS)
- Container Size and location
- Dates on which chemicals are prepared or expired (disposal)

Chemical formulation (English)	Chemical formulator (English)	Chemical formulator type	ZDHC use category	Amount onsite	Amount onsite (unit)	Monthly usage	Monthly usage (unit)	Do you have an MSDS/SDS?	Compliant with latest version of ZDHC MRSL?	Support document for ZDHC MRSL finding	Certifications	Expiry dates of certifications	Hazard classes from MSDS/SDS	Chemical test results against MRSL requirements	Details on compliance with Brand RSLs or Brand specific requirements
		(use drop-down to select)	(use drop-down to select)	(enter number)		(enter number)		(use drop-down to select)	(use drop-down to select)			(mm. dd, yyyy)			
SERAGAL C-FTRH	DyStar Colours Distribution GmbH	Original manufacturer/formulator	1.2.a. Bleaching	2000	kg	150	kg	Yes, GHS compliant	Yes	GOTS certification	GOTS, OEKO-TEX	GOTS: Dec 31, 2017; OEKO-TEX: Jun 30, 2018	H317, R43	Pass	

Chemical Inventory - Ingredients

- List of chemical ingredients per formulation

Chemical formulation (English)	Chemical formulation (Local)	Chemical formulator (English)	Chemical formulator (Local)	Chemical ingredient name from MSDS/SDS	Chemical ingredient CAS# from MSDS/SDS	Chemical ingredient % from MSDS/SDS
NEVACRON 331-R	NEVACRON 331-R	DyStar Colours Distribution GmbH	DyStar Colours Distribution GmbH	Sodium hydroxide	1310-73-2	0.8
				Acetic acid	64-19-7	10-15%
				Polyoxyethylene (20) oleyl ether	9004-98-2	5-10%

- List of chemical supplier contacts

Chemical formulator (English)	Chemical formulator (Local)	Country	Website	Contact person	Telephone	Email	Comments
DyStar Colours Distribution GmbH	DyStar Colours Distribution GmbH	Germany	www.dystar.com	Joe Bloggs	+49 6142 4072 0	jbloggs@dystar.com	

Purchasing Chemicals



- You can decide, if hazardous or only safe chemicals pass the factory gate !
 - Send clients' RSL to your chemical suppliers
 - Ask chemical companies to provide detailed chemical information
 - Ask for and check Safety Data Sheet (SDS)
 - Demand for assurance letter of compliance
 - Ask clients to support you to identify hazardous chemicals and safe alternatives
 - If the chemical supplier doesn't know what he is selling, don't buy their chemicals!

Purchasing Chemicals



- Consider disposal cost at time of purchase
- Ask for handling and disposal requirements
- Reduce expired stock
- Use older stock first (first in first out policy)
- Do not accept donated chemicals without contesting

Chemical Purchasing Price



- Lower chemical purchase price is not always equivalent to cheaper production
- Calculate the price per garment considering dosage, water and energy consumption

Chemical	A	B
Price	50 USD / kg	150 USD / kg
Dosage per garment	25 grams	8 grams
Price per garment	1.25 USD	1.20 USD

Chemical Purchasing Price

- Buy concentrates and dilute during production, in case of long delivery distances, the transport costs play a significant role
- Chemical Companies are creating more and more Multifunctional Products, which has huge advantages, because of several properties in one product, you can save the usage of many different compounds
- Latest generation of dyes used in an intelligent design



Purchasing Raw Materials



- Buy only what you know
 - Type of material
 - Production background
 - Use AFIRM Risk Matrix to assess the risk to find hazard chemicals
- Source of raw materials
 - Reputable supplier
- Assurance/guarantee from supplier
 - Test reports (recent date, valid test method, same material)
 - Declaration / confirmation letter, eco labels

Root Cause Analysis & Corrective Action



- Establish process for dealing with potential non-compliance
 - Follow up action for non-compliance
 - Stop production
 - Identify the source for the non-compliant chemicals
 - Chemical Testing
 - * Chemical Formulations
 - * Raw materials
 - * Components
 - * Semi finished and final products

Root Cause Analysis & Corrective Action



- Root Causes
 - Contaminated tech. chemical products
 - Chemical containers not labeled or wrong labeled
 - Chemical containers not covered (no lid)
 - Production line and workspace not cleaned
 - Pair of scales out of calibration
- Corrective Action
 - Substitute chemical auxiliary
 - Exchange material
 - Destroy non-compliant materials

Verification of Compliance

- Verification Process
 - Documenting corrective and preventive action and verifying effectiveness of action taken



Thank you
for your attention !

