



Trainers Training Program on Waste Management in Textile & Garment Industry in BGD

Promotion of Sustainability in the Textile and Garment Industry in Asia - FABRIC



GIZ FABRIC -Training on Waste Management

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Presentation 3.1: Some waste management Practices

Areas where hazardous substances are used

Areas	Hazardous substances used
Fibre production	Cultivation of cotton requires hazardous pesticides, fertilizer, etc. Production of synthetic fibres (polyester, nylon) requires various hazardous spin finishes.
Spinning	Various hazardous finishing chemicals are used during yarn spinning.
Fabric Production	Various hazardous sizing agents are used during weaving to protect yarns from breaking. Hazardous knitting oils are used during knitting as a lubricant.
Pre-treatment	Hazardous chemicals such as peroxides are used during scouring and bleaching
Dyeing and Printing	Various hazardous dyes, pigments, and auxiliaries are used during yarn and fabric dyeing and printing.
Finishing	Various hazardous chemicals including PFAS substances
Garment Production	lubricants in sewing machine and threads, solid waste, cutting waste
Garment washing	Hazardous chemicals such as potassium permanganate, dyes, acid, enzyme etc.

Solid waste in Spinning



- Broken ends of sliver, lap, web,
- Strippings from draw frame, roving frame, ring spinning frame, and rotor spinning frame

Source: Tuba Bedez Ute, Pinar Celik and Memik Bunyamin Uzunmcu (2019)

Solid waste in Knitting



- Faulty cone.
- Knitting fly waste
- Yarn fault.

Solid waste in Weaving

Source: MM Haque and S. Majumder 2018



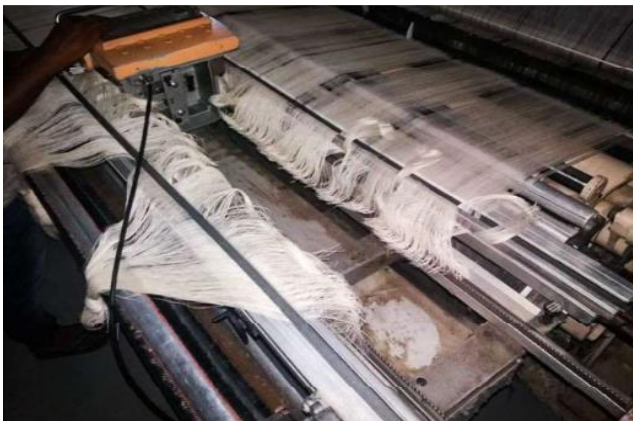
Residual yarn in the creel



Warp sheet wasted in sizing



Warp sheet wound in weavers beam



Knotting waste



Residual beam wastage



Wasted weft yarn cone

Categorisation of waste segregation in a factory

Colour code	Type of waste
Green	Biodegradable waste
Brown	Battery waste
Red	Plastic waste
Pink	Light/bulb waste
Yellow	Paper waste
Blue	Glass waste
Orange	Metal waste
Purple	Electrical waste

- সবুজ - জৈব বা বিয়োজনযোগ্য বর্জ্য
- খয়েরী - ব্যাটারী বর্জ্য
- লাল - প্লাষ্টিক বর্জ্য
- গোলাপী - লাইট বা বাল্ব বর্জ্য
- হলুদ - কাগজের বর্জ্য
- নীল - কাঁচ জাতীয় বর্জ্য
- কমলা - ধাতব বর্জ্য
- বেগুনী - ইলেক্ট্রিক বর্জ্য

Signposting of waste



HAZARDOUS WASTE

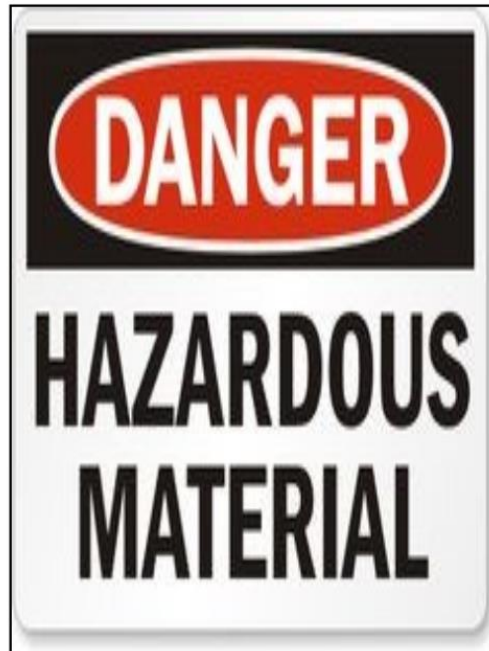
FEDERAL LAW PROHIBITS IMPROPER DISPOSAL.

IF FOUND, CONTACT THE NEAREST POLICE, PUBLIC SAFETY AUTHORITY OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERATOR INFORMATION:
NAME _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____
EPA _____ EPA _____
ID NO. _____ WASTE NO. _____
ACCUMULATION _____ MANIFEST _____
START DATE _____ DOCUMENT NO. _____

DO NOT PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX

HANDLE WITH CARE!



If waste is ignitable or reactive:

- Take special precautions
- “NO SMOKING”
- Avoid mixing
- Appropriate container
- Avoid heat-producing reactions

Waste Management Practices



solid wastes are placed randomly in the open space!



placed in the designated space and separated by the type of wastes

Waste Management Practices



Empty chemical drums are stored randomly in the open space!



Empty chemical drums should be stored in the designated closed space ensuring that no residue remains inside!

Container Management

- Good condition, no leaks
- Waste compatibility
- Keep containers closed!
- Handle with care
- Store ignitable or reactive wastes at least 5 meters from property line
- Inspect containers for leaks once per week

Waste Management Practices



Solid Chemical Boxes are ready for third party with Residues inside!

It is must to ensure that no residue remains while handing over to third parties.

Waste Management Practices

ETP Solid Sludge should be stored in the Separate closed space with Storing Dates on the bags!

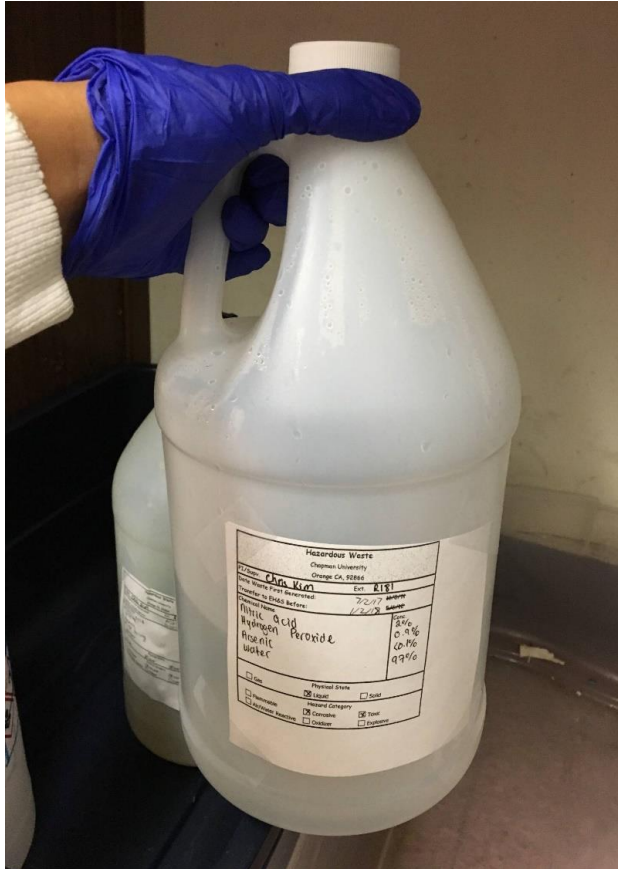


Waste Management Practices



Eye Washer and Fire Extinguisher are must for waste store area!

Waste Management Practices



- Waste in the hazardous waste storage areas must be marked with the date the waste began accumulating (the first drop) and labeled “Hazardous Waste” or must contain the contents of the waste
- Containers must be kept closed and secured except when adding or removing waste

Waste Management Practices

Waste Name	Waste Type	Baseline Quantity, Kg	Baseline Production, Kg	Baseline KPI, g/Kg production	
Carton	Non-Hazardous	29,861	1,539,383	19.40	
Jhut		119,277		77.48	
Yarn Cone		73,557		47.78	
Reject Hanger		1,133		0.74	
Reject Panel		30,341		19.71	
Total		254,169		165.11	
Iron Scrap	Hazardous	10,128		1,539,383	6.58
Plastic Drum		60			0.04
Poly		2,877			1.87
Old Battery		-			0.00
Electric Waste		-			0.00
Metal		266			0.17
Waste Mobil		-			0.00
ETP Sludge		330			0.21
Medical Waste					0.00
Total		13,661			8.87
Grand Total		267,830			173.99

Target Set, Measures and Action plan for minimization of Hazardous and Non-Hazardous waste

Name of the Waste	Type of Waste	Target in 2021	Target in 2022	Target in 2023	Measures	Action Plan	Responsible person
Electronic Waste	Hazardous	0.50%	2%	2.50%	Proper Handling & operations of electronic equipment's, Proper maintenance, Training etc.	Technical solution with administrative control	
Polyethylene	Hazardous	1-2%	3%	5%	Reuse polyethylene in packaging rather thrown out , use bio-degradable jute products & use it as much as possible	Further feasibility study in terms of use & cost savings	
Medical Waste	Hazardous	1-2%	3%	5.00%	Properly disposed wastages	Agreement with authorized person	
Waste Oil (Lube oil)	Hazardous	0.50%	2%	2.50%	Properly maintenance & training	Administrative control & motivation	
Fluorescent Light Bulb	Hazardous	1-2%	3%	5.00%	Use LED instead of CFL or other light source, Use LED that have maximum operating hours, Proper maintenance, Re-Lamping & light case use to be more efficient light use with less light, Day light used opportunities etc.	Technical solution with administrative control	
Batteries	Hazardous	0.50%	2%	2.50%	Rechargeable battery used to use much time rather than dry cell, Increase solar dependency on emergency backup light rather battery used, Training for awareness etc.	Technical solution with administrative control	

Hazardous Waste Management Example



Hazardous Waste Management Checklist – An Example

Hazardous Waste Management Checklist	Done
All hazardous waste streams generated have been identified and appropriately separated from regular wastes.	<input type="checkbox"/>
All applicable environmental permits relating to hazardous waste generation and disposal have been obtained.	<input type="checkbox"/>
Hazardous wastes are being collected by a fully licensed waste handler and records (i.e. waste manifests) disposal are fully maintained on-site.	<input type="checkbox"/>
Hazardous wastes are being stored in areas that have all required safety features and protections including: <ul style="list-style-type: none">▪ Impervious surfaces and secondary containment.▪ Proper signage and labels on all waste containers.▪ Protection measures from fire risks.▪ Area is well ventilated.▪ Wastes are protection from direct sunlight or other weather conditions.▪ Only authorized persons are able to access storage areas.▪ Spill clean-up equipment is readily available.	<input type="checkbox"/>
Workers required to handle hazardous wastes are wearing the appropriate PPE.	<input type="checkbox"/>
An emergency shower and/or eyewash station is located near the location hazardous wastes are being handled.	<input type="checkbox"/>

Challenges in Waste Management for Bangladesh

- Segregation of waste is still not organized; awareness and implementation are the key.
- Other than municipality, there is no certified vendors
- Most disposal facilities/options are still unknown, particularly for hazardous waste
- There is no traceability of collected waste by different collectors;
- insufficient data collection from the factories also challenge for right action;

**Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH**

Registered offices
Bonn and Eschborn

Friedrich-Ebert-Allee 32 + 36
53113 Bonn, Germany
T +49 228 44 60 - 0
F +49 228 44 60 - 17 66

Dag-Hammarskjöld-Weg 1 - 5
65760 Eschborn, Germany
T +49 61 96 79 - 0
F +49 61 96 79 - 11 15

E info@giz.de
I www.giz.de