

## **GOOD HOUSEKEEPING PRACTICES: POLLUTION PREVENTION APPROACH FOR WET PROCESSING OF TEXTILES**

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### **ABSTRACT**

Textile wet processes causes severe pollution and health problems. It is important for the industry to adopt pollution prevention approach. Good house keeping may include proper vigilance and maintenance of equipment maintaining a checklist and setting priorities for repair, depending on the severity of the fault. Turning off water when machines are not operating likeduring breaks and periods when production is low, and also at the end of the day. This will save both water and energy.

**KEYWORDS:** Housekeeping, Pollution, Wet Processing

### **INTRODUCTION**

Good Housekeeping' practices relate to measures dealing with preventing the loss of materials, minimising waste, conserving saving energy, and improving operational and organisational procedures. The implementation of these practices is relatively easy and the costis usually low. These practices can provide a real economic asset and advantage for a company in terms of minimising waste, as well as the use of raw materials and energy. Further more, by adopting 'Good Housekeeping' practices, companies can reduce the amount of pollution created in the community, there by improving the image of the enterprise and its products with customers, suppliers, neighbours, and regulatory authorities (SBA, 1998).

### **METHODOLOGY**

Research was conducted in and around Delhi (Delhi/NCR). In total 51 units were studied for the present research which included 27 cotton processing units (processing only cotton) and 24 cotton & manmade (processing both). An interview Schedule was prepared to study house keeping techniques beingused as pollution prevention measures by the textile processing units. Housekeeping practices were studied under the following heads:

- **Water Consumption-** Water consumption in a textile factory can bereduced by implementing various changes ranging from simple procedures such as fixing leaks, to more complex options such as optimising water use and reducing the number of process steps (Barclay et al., 2000).
- **Chemical Use-** The majority of chemical sapplied to the fabric are washed off and sent to drain. Therefore, reducing chemical consumption can lead to a reduction in effluent strength and therefore lower treatment costs, as well as overall savings in chemical costs (Barclay et al., 2000).
- **EnergyUse-**Reductions in energy use can result in substantial avings (Barclay et al., 2000).

## RESULTS AND DISCUSSION

- Water Consumption**-Three fourth(74.51%) of the units had reported that they do regular maintenance of machines, valves, leaks etc. as proper vigilance and maintenance of equipment will save both water and energy. Ninety-four percent unitshadreportedthattheydid not run water when machines were not in operation (Table 1). Asturning off running taps and hoses can result in substantial savings. Turning off water, when machines are not operating like during breaks and periods when production is low, and also at the end of the day. This will save both water and energy (EPA, 1997).
- Chemical Use**– Analysis of the data indicated that ninety six percent, cotton processing units and (91.67%) cotton & manmade processing were mixing the recipes manually. Further, (98.04%) units had reported that suppliers do not take back expired dyes and chemicals and only (1.96%) of the total unit sreported that suppliers accepted the return of chemical & dye containers (Table 1). Textile processing units can work with vendors to ensure that packages canbe returned without beingcleaned on site. Offsite cleaning transfer schemical wastes back to production facility, which may be better able to handle wastes. Chemical sspecialties should be purchased in returable, resueable containers. Purchase of chemicals in bulk containers eliminates waste packing materials, and reduces spillage, handling costs, and worker exposure to chemicals (EPA, 1997).
- Energy use** - Maximum units (90.20%) hadreportedthattheyturned off the machines when not in use. It wasamazing to know that (29.41%) of the total unitsunnecessarilykept office lights on. Majority of the units (82.35%) hadproperprocedures to start up and shut down the machines (Table 1).

Textile processing units should establish safety procedures for recieving, storing, and mixing chemicals, and implement work training programs. These programs should inform workers of the environmental impacts of chemicals and identify those most harmful to the environment. Workers should be trained in proper procedures for handling these chemicals. Training should also include the correct procedures, storage and mixing should be established (EPA, 1997). In the present investigations, most of the units(67%) had trained staff for the production of ecofriendly products. It is also very important for textile units that their management should closely monitor their workforce, whether they are producing products as per their specification or not. Data revealed that majority of the units in the present study were monitoring their workforce(Figure 1 & 2).

**Table 1: Good House Keeping Techniques**

S.NO	House Keeping Characteritics	Cotton Units (C)N = 27	Cotton & ManmadeUnits (Cm)N = 24	Total UnitsN = 51
<b>WATER CONSUMPTION</b>				
1.	<b><u>Maintenance of machines, valves, leaksetc</u></b>			
	Yes	19 (70.37)	19 (79.17)	38 (74.51)
	No	8 (29.63)	5 (20.83)	13 (25.49)
2.	<b><u>TapsLeft running when not in use</u></b>			
	Yes	2 (7.41)	4 (16.67)	6 (11.76)
	No	25 (92.59)	20 (83.33)	45 (88.24)
3.	<b><u>Water running when machines are not in Operation</u></b>			
	Yes	1 (3.70)	2 (8.33)	3 (5.88)
	No	26 (96.30)	22 (91.67)	48 (94.12)
<b>CHEMICAL USE</b>				

S.NO	House Keeping Characteristics	Cotton Units (C)N = 27	Cotton & ManmadeUnits (Cm)N = 24	Total UnitsN = 51
<b>WATER CONSUMPTION</b>				
4.	<b>MixingRecipesManually/Automatically</b>			
	Manually	26 (96.30)	22 (91.67)	48 (94.12)
5.	<b>Reviewing the recipes&amp;ProcessRegularly</b>			
	Yes	15 (55.56)	18 (75.00)	33 (64.71)
	No	12 (44.44)	6 (25.00)	18 (35.29)
6.	<b>Supplierstaking back expiredgoods</b>			
	Yes	0 (0.00)	1 (4.17)	1 (1.96)
	No	27 (100.00)	23 (95.83)	50 (98.04)
<b>ENERGRY USE</b>				
1.	<b>Turning off machines when not in use</b>			
	Yes	25 (92.59)	21 (87.50)	46 (90.20)
	No	2 (7.41)	3 (12.50)	5 (9.80)
2.	<b>Leaving office light on unnecessarily</b>			
	Yes	7 (25.93)	8 (33.33)	15 (29.41)
	No	20 (74.07)	16 (66.67)	36 (71.59)
7.	<b>Properprocedures to start up/shutting down the machines</b>			
	Yes	22 (81.48)	20 (83.33)	42 (82.35)
	No	5 (18.52)	4 (16.67)	9 (17.65)

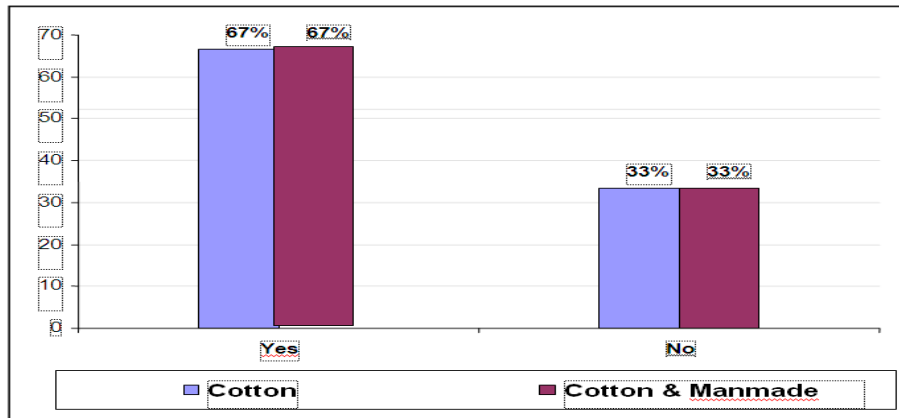


Figure 1: Trained Staff / Workers

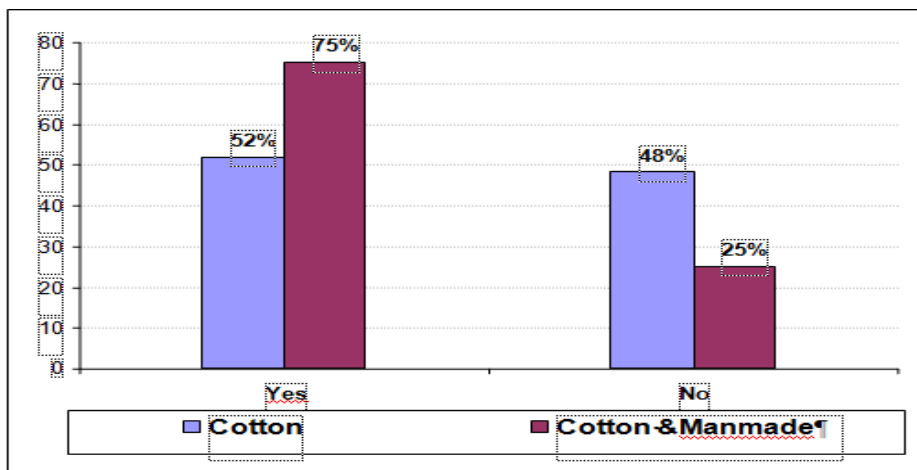


Figure 2 : Monitoring of the Products by the Managers

Though the results showed that majority of the units were found following good house keeping practices but in some of the units a different picture was observed when researcher made personal visits of the processing units. Filthy conditions were observed that included poor working conditions, shoddy machines, and spillage of water/chemical on the floor (Plate 1 to 6).



**Plate 1 : Poor House Keeping in the Textile Wet Processing Units**



**Plate 2 : Poor Working Conditions in the Unit**



**Plate 3 : Shoddy Machines in the Textile Processing Units**



**Plate 4: Unhygienic Working Conditions**



**Plate 5 : Spillage on the Floor**



**Plate 6: Filthy Conditions in the Processing Units**

## CONCLUSIONS

Above discussion highlighted that implementaing good house keeping practices can improve process efficiency, productivity, control pollution and conserve energy, water and other resources. They can be implemented in an area of the plant, including production, maintenance, operations and rawmaterials and productstorage.

## REFERENCES

1. Barclay, S. and Buckley, C., 2000, Waste Minimisation Guide for the Textile Industry, A Step Towards Cleaner Production, Volume I, The Pollution Research Group, University of Natal, South Africa.
2. Environmental Protection Agency (EPA), 1997, Compliance sector notebook project: Profile of the Textile Industry.
3. Sustainable Business Associates (SBA), 1998, Good Housekeeping Guide for Small & Medium-Sized Enterprises, Pilot Programme for the Promotion of Environmental Management of the Private Sector in Developing Countries, P3U.