

Cleaner production in Textile Industry

By: Dr.Mohammad Taghy
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What is CP?

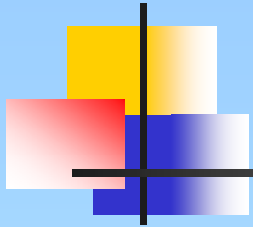
Cleaner production (CP) addresses the problem of industrial pollution by reducing wastes during the production process



CP Techniques

The techniques and technologies for cleaner production go beyond the technologies for pollution abatement and waste disposal. These focus on in-house changes, in management–approach, process operations equipment and even the products.

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On-site recovery and reuse:

On-site recovery and reuse is defined as “reuse of wasted materials in the same process or for another useful application within the company”.

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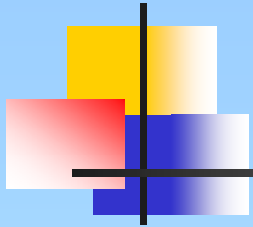


Waste Minimization Options for the Textile Industry

Reducing Water Consumption

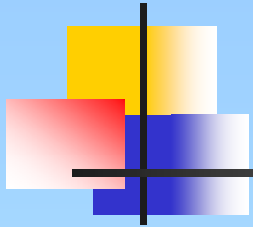
Water consumption in a textile factory can be reduced by implementing various changes ranging from **simple** procedures such as **fixing leaks**, to more **complex** options such as optimising water use and **reducing the number of process steps**.

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Repair Leaks, Faulty Valves, etc.

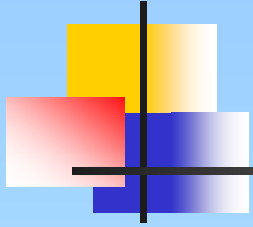
A simple method of determining if **leaks** exist is to take incoming water meter readings **before and after a shut-down period** when no water is being used. A **difference** in the readings could indicate a leak.



Turn off Running Taps and Hoses

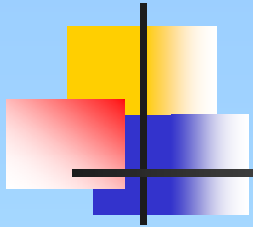
Encourage workers to turn off taps and hoses when water is not required.

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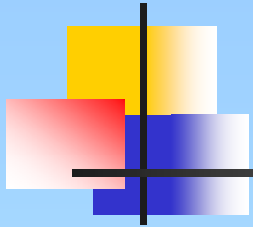
Turn off Water when Machines are not Running.

Encourage workers to turn off machines and water during breaks and at the end of the day. Avoid circulating cooling water when machines are not in use.



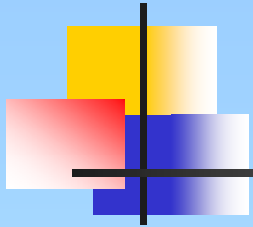
Reduce the Number of Process Steps.

This involves a study of all the processes and determining where changes can be made. For example, **fewer rinsing** steps may be required if a **dye with high exhaustion** is used.



Optimise Process Water Use.

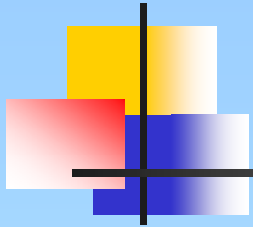
Examples include using **batch** or **stepwise** rinsing rather than **counter-current** washing in continuous ranges, and installing **automatic** shut-off **valves**.



Recycle Cooling Water

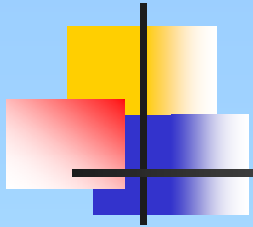
Cooling water is relatively **uncontaminated** and can be reused as **make-up** or **rinse water**. This will also save energy as this water will not require as much heating.

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Re-use Process Water

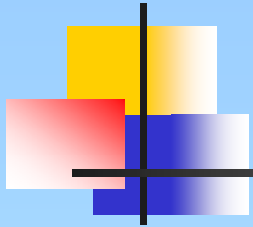
This requires a study of the various processes and determining where **water of lower quality** can be used. For example, **final rinse** water from one process can be used for the **first rinse** of another process.



Using Water Efficient Processes and Equipment

Although replacing outdated equipment with modern machines which operate at lower liquor ratios

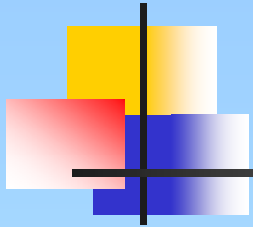
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Sweeping Floors

Instead of **washing** the floors of the dyehouse and kitchens, rather **sweep** up any spillages and wash down only when essential. Not only will this reduce water use, but also the concentration of contaminants to drain as the waste is disposed of as solids.

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Reusing Water from Auxiliary Processes

The water used in the rinsing of ion-exchange columns and sand filters can be reused elsewhere in the factory.

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راهکارهای کاهش مصرف آب در صنعت

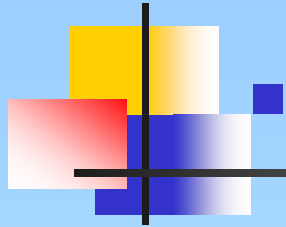
- اجرای ممیزی آب در صنایع **Water Auditing**
شناسایی دقیق کمیت و کیفیت آب مورد نیاز در صنعت
- استفاده از تکنولوژی **Water Pinch**
ارائه راه حل مهندسی در راستای بهینه سازی مصرف آب از طریق بهینه سازی و اصلاح فرایند موجود و حذف تجهیزات غیر ضروری
- استقرار سیستم استاندارد **ISO14000**
- بهره وری سبز (**Green Productivity**) و تولید پاکتر (**Cleaner Production**)
در این روش تمرکز بر روی استفاده بهینه از تجهیزات و منابع در راستای یافتن راهکارهای عملی جهت کاهش مصرف آب و سایر منابع است.



Reducing Chemical Consumption

- **Recipe Optimisation**
- **Dosing Control**
- **Pre-screen Chemicals and Raw Materials**

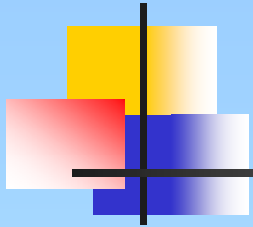
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Chemical Substitution

- Use dyes that have high exhaustion rates and require less salt.**
- replace metal-containing dyes.**
- use bi-reactive dyes in place of mono-reactive**
- avoid the use of Non biodegradable detergents and replace with more biodegradable alternatives**

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- **Correct Storage and Handling**
- **Chemical Recovery and Reuse**
- **Process Changes**

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