

### OTHERS :

Deposit control

Biocide

Deinking  
Chemical

Defoamer

Formation Aids

WWT Polymers

When wet paper web passes the Press section of a paper Machines, 20 to 25 % of total water in it is removed through its nip by felt absorption. The wet felt then passes a vacuum to be dewatered and return to the nip to absorb more water again and again. Over-time the felt can accumulate contaminants; both organic and inorganic. The deposition can cause plugging on felt to imbibe porosity. The porosity of the felt diminishes to a point it can no long absorb moisture effectively. For the felt to be functionally working, it is critical that it is maintained Clean, Dry and Porous. Dirt collected on the paper depresses the selling price to sub-grade standards. Wet felts can give rise to paper crushing thus affecting machine runability. Impervious felt will pass the load of drying to the dryers and contribute to higher energy bills. To achieve optimal performance of felt press, one has to use both Physical and Chemical means. Physical means are Vacuum, High Pressure shower. In this chapter we are more concern about the chemical aspect of Felt Cleaning or Conditioning. Chemical cleaning of felt can be briefly classified into 4 types. They are : i) Off-machine in a Washer, ii) On-machine during shut-down, iii) On-machine Intermittent and iv) On-machine Continuous. Each of these types are self-explanatory and improve press performance in ascending order. Off-machine washing of felt is not recommended as it creates costly down-time for put-on and put-off for press felt.

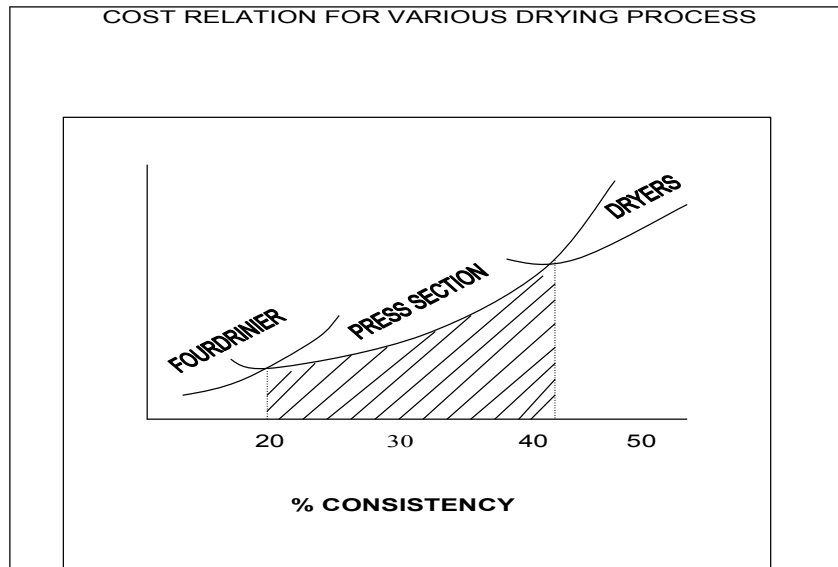
On-machine cleaning is more frequently done during scheduled or unscheduled shut-downs. Intermittent cleaning is more prevailing on small to medium paper machines, while continuous felt cleaning is tangibly compulsory for large machines.

Before a particular felt conditioner is recommended to a customer, a paper chemist has to run felt analysis to ascertain the type of contaminants on the felt. It is done by IR, AAS and sometimes MS for more precision works. Typical felt conditioners are surfactants, solvent and chelants mixtures which are blended for Inorganic or Organic deposits on Acid or Alkaline paper machines. Surfactant cleaners range from ionic to non-ionic and amphoteric. Solvent cleaners are novelty chemical which sprayed intermittently. They pose fire and environmental hazards. Solvent cleaners are rare nowadays. In situations where inorganic plugging on felt is rampant, chelant incorporated surfactants are more commonly used. All cleaners are shower spray onto the felt after dilutions with clean water. Sometimes heated water is added and spray-on to improve cleaning efficiency of the conditioners. It can be independent fan or cone showers or added to the HP shower. Modern felt conditioning program also expects a chemical passivating agent to keep the felt clean with a chemical coating that can repel stickies adhesions.

After the cleaning process, it is important to determine whether the cleaning is effective and thorough.



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This monitoring can be carried out with the help of a porosity meter. Most modern paper machines have on-line digital porosity meter to measure felt permeability.

#### WIRE CONDITIONING

The concept of wire conditioning differs from Felt conditioning. The former uses a chemical to coat the polymeric wire while the latter is a mere cleaning process. A wire will lose its ability to drain off water from the paper web if it is plugged. When a wire is running, large quantity of water and colloidal particles trespass the wire fabric. Some of the suspension tend to adhere on the fabric and begin to build-

up. The cumulative debris collected can impede the flow of water, if it reaches a certain size to clog the fabric inter-twine. The dryness of web leaving the wire is then compromised which can affect drainage. The spray-on coating applied onto the wire is a LMW aqueous polymer that can attach itself onto the wire and at the same time resist debris anchorage. For this to happen, the polymer and the fabric must have similar chemistry. Concurrently it must also have the antagonistic chemistry with the hydrophobic debris. A well-passivated wire can run many times longer before its next cleaning.

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