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## Dryer fabric cleaning

### Scope

This Technical Information Paper lists and briefly describes various methods for cleaning dryer fabrics. Dryer fabric contamination.

Contamination of dryer fabrics leads to loss of air permeability and can reduce the effectiveness of pocket ventilating systems, reducing drying capacity. Fabric filling is rarely uniform, and may contribute to paper moisture variations and non-uniformity. On some machines, a change in fabric permeability can cause problems with sheet runnability. Operation of transfer boxes, blow boxes, and ventilation ducts is affected by the openness of the fabric. Dryer fabric contamination may lead to sheet quality problems such as fiber picking and holes in the sheet. The type and frequency of fabric cleaning can have a significant effect on machine efficiency and life of the dryer fabrics.

### Safety precautions

Use eye protection and protective clothing when using chemical cleaners and using hot water solutions. During cleanups avoid spraying water on hot dryer cans to prevent thermal shock.

### Background

Dryer fabrics in a paper machine serve several purposes, namely to convey the web in a stable manner through the dryer section, provide effective and uniform contact between the web and dryers to enhance drying performance, restrain the web so as to minimize shrinkage-induced defects in the paper.

Fabric tension presses the paper against dryer surfaces to improve thermal contact and increase drying rate. Fabric tension also serves to restrain the paper web during drying, reducing the amount of web shrinkage and the resulting variation in web physical properties across the width of the web.

Fabric permeability influences the effectiveness of pocket ventilating devices such as ventilating rolls and blow boxes and has a significant effect on drying performance. Fabric permeability also determines the amount of air entrained in the boundary layer adjacent to the fabric affecting web stability. In single fabric runs fabric permeability is critical to the correct operation of stabilizing blow boxes and vacuum rolls.

Dryer fabric contamination reduces permeability and consequently the effectiveness of pocket ventilating and sheet stabilizing devices, degrading drying performance and runnability. Sheet side contamination can lead to quality defects since surface contaminants can pick fibers out of the paper or cause holes and web breaks. The warm-up zone of dryer sections tends to be where cleaning considerations are most important. As the sheet heats up, contaminants are either deposited onto the fabric or rolls, or are set into the sheet.

In order to remain effective, fabrics must be routinely cleaned and conditioned, permeability level and uniformity must be maintained and surface contaminants and fabric moisture must be removed.

Proper washing is very important, especially in the pin seam area. Dryer fabrics should be rinsed until the run-off pH is equal to mill water pH. Cleaning showers are generally mounted above the fabric and special collection pans are placed below the fabric. Recommended temperatures for chemical washes vary from 50-80°C (120-180°F). Care must be taken in considering the flash point of chemical cleaners; some solvent containing cleaners may have flash points from 65-85°C (150-180°F).

Most suppliers of fabric cleaning chemicals have tested fabrics to ensure that their chemicals can be used safely. A cleaner should not be used unless it is specifically recommended by the chemical supplier for that application.

*Traversing needle jets.* Traversing needle jets are located on a cross-machine structure, either inside or outside the fabric loop, although since contaminants accumulate on the surface of denser monofilament fabrics and since these showers act continuously, they are usually on the face side of the fabric. The jet is normally a high pressure water jet at pressures of 7 – 140 Bar (100 –2000 psi) followed by a high-pressure air jet. The jets scan across the fabric on a programmed path to clean the entire fabric surface. Traversing needle jets are more effective at cleaning a dirty fabric than the other methods

*Low pressure hot water shower.* Low pressure hot water can be used during shut downs to effectively clean starch and other water soluble contaminants from the fabrics. Large quantities of water can be used since the machine is shut down. The water is typically heated to 80 - 85°C.

Water from showers located in the top fabrics will wash down through the bottom fabric, thereby cleaning both. Caution should be exercised that sufficient quantities of water are used to insure that bottom fabrics are cleaned. Many times the addition of a cleaning solution will aid in the removal of contaminants from the fabric.

### Keywords

Dryer felts, Felts, Dryers, Impurities, Cleaning

### Additional information

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### References

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