The "Wet Streak Story" – with a happy ending

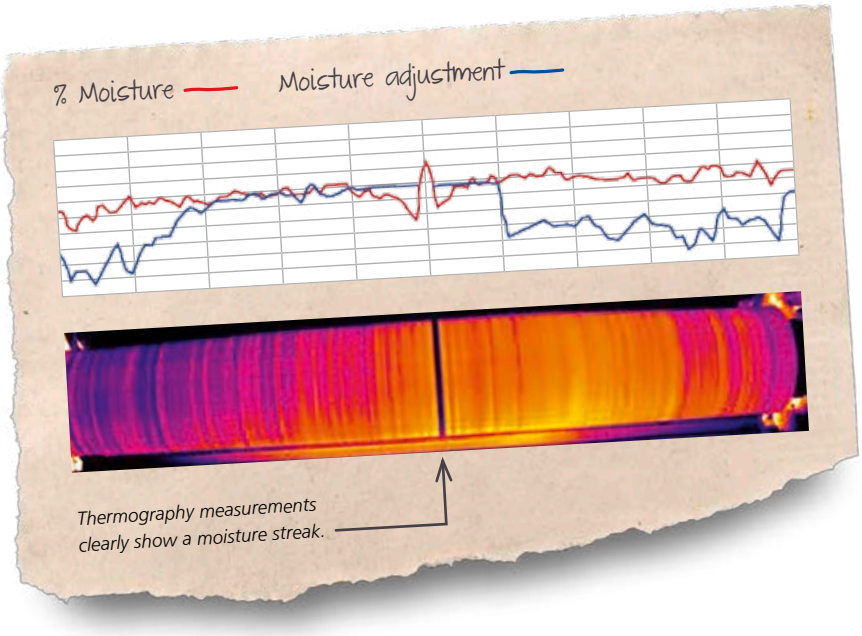
What can be done to prevent wet streaks? A true story in four chapters

Wet streaks in the sheet are not normally the subject of a success story. Nevertheless read here how the "Wet Streak Story" reached its happy ending. Starring: Paper Pete and the Heimbach TASK Group, with thermography as a method and an infrared camera including suitable software as a means.

In the previous issue of *impressive* I gave you some advice regarding felt wear. Today – using thermography – I am looking at **the phenomenon of "Wet Streaks"**. The emergence of wet streaks in the sheet is highly problematic, because it leads to losses in production and a decline in paper quality. What the most common **causes** of "Wet Streaks" are, and how to track them down using **thermographic measurements**, is described in our "Wet Streak Story" in four chapters.

1. Chapter one: Fabric wear

A wet streak in the middle of the sheet led to loss of quality on a **newsprint machine** (1,500 m/min, 10.3 m fabric width). The machine speed had to be reduced, meaning a significant loss of production. Together with my colleagues from Heimbach TASK I took a closer look **with our infrared camera**. The image recorded a cold (and thus usually moist) streak – measurable on the sheet from the reel up to behind cylinder no. 13. The dryer fabric was checked during a sheet break and a streak was noticed in the middle of the fabric – **a clear indication of the cause of the problem**. After stopping the machine it was confirmed: The fabric was worn locally due to machine conditions and was not able to press the sheet onto the cylinder. **The causes were remedied and the fabric changed.** End of the first chapter!



Thermography measurements clearly show a moisture streak.

My tip: It is often possible to locate a fault during operation using thermographic imagery; this means long downtimes can be avoided.

2.

Chapter two: Holes in the syphon

The next challenge: A wet streak on the reel and in front of the size press disrupted production on a fine paper machine (764 m/min, fabric width 7.15 m). The thermal imaging camera was once again used. In this case, we found that the streak was first visible downstream of dryer cylinder 1. **To more clearly ascertain where the problem lay**, the surface temperatures on several drying cylinders were measured with a **contact thermometer**. These measurements showed that the temperature at the edge of cylinder 1 was significantly lower than with the other cylinders. **And so the culprit was found:** At the next shutdown the customer opened cylinder 1 and found holes in the syphon – the cause of the wet streak was found and could be eliminated promptly! Turn the page and on to the third chapter.

My tip: Heimbach's specialists are well trained in handling infrared cameras and using analysis software. If used, you can save yourself a tedious "trial and error" search for the fault.

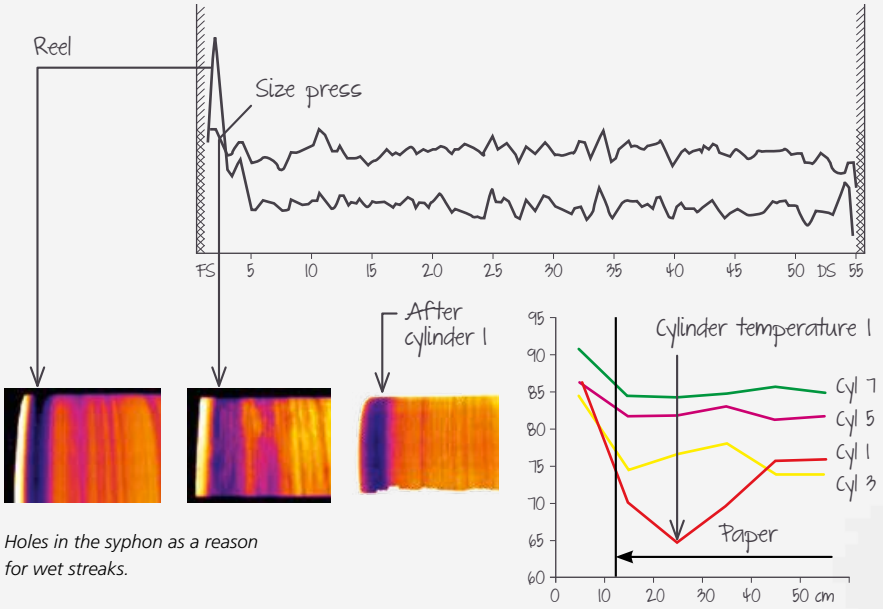
3.

Chapter Three: Oil contamination

The customer discovered a wet streak on the front side of **a newsprint machine**. The machine had to be run at a lower speed. **The TASK Team traced the path** from the reel and looked for the cause using thermography. Where did the unwanted streak appear for the first time? **We struck it rich at the fourth bottom fabric.** To confirm, we measured the cylinder temperature. As expected the temperature on the edge was higher, due to the sheet absorbing less energy as a result of poor contact.

An inspection was carried out at shutdown and it was discovered that the edge was contaminated with oil. This resulted in a low fabric tension and flapping fabric edges. After **changing the fabric** and rectifying the oil leak the problem was solved.

My Tip: Great costs can be saved by an early expert analysis using infrared and thermal imaging! Shown clearly in the example below.

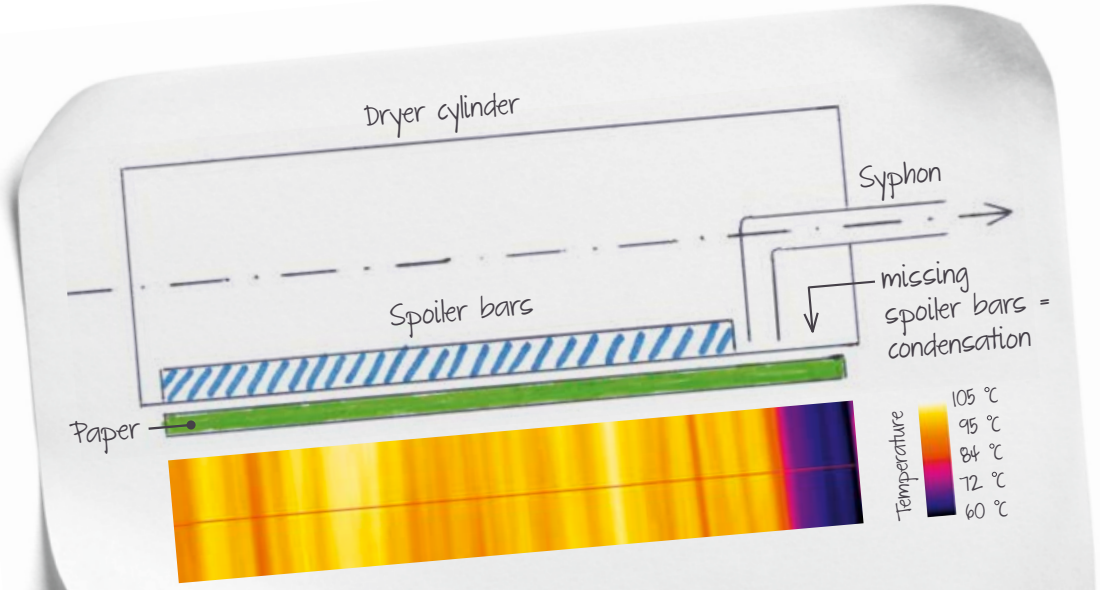


Holes in the syphon as a reason for wet streaks.

INFOBOX

Planned duration:	18 months
Change after:	10 months
Runtime loss:	**8 months**
Speed reduction:	50 m/min
Production loss:	642 tons/months
Paper price:	500 EUR/t
Loss of production:	**321,300 EUR/month**

Corresponds to approx. EUR 2,570,000



Missing spoiler bars on the back side lead to poor heat transfer.

4.

Chapter four: Missing spoiler bars

Last but not least an especially tricky and more persistent case, **where we were able to contribute to the solution** – thanks to thermographic measurement and many years of experience. The drive side of a machine producing copy paper (950 m/min, fabric width 4.0 m) was wet **for years**. Urgent help was required and my TASK colleagues reported for duty. The first measurement in 2010 showed: Something was not right in the fifth group! The recommendation from the Heimbach experts was **"check cylinders 25-32"**, this however was not done.

The second measurement in 2015 produced exactly the same results.

And this time the corresponding cylinders were checked! This resulted in the discovery that there were no spoiler bars installed on the drive side of cylinders 26-29, which maintains the condensate in a turbulent state providing **a better heat transfer**. When there are no spoiler bars a closed ring of condensate is formed (see Figure above), this reduces the heat transfer to the paper.

All's well that ends well!

I have shown you four examples here, however the show goes on: When wet streaks appear, thermographic measurements can help to reduce the extent of the problem. As, **cutting-edge technology helps Heimbach specialists to discover what the eyes cannot**. Your advantage: better run, higher efficiency, less loss of quality and less shutdowns.

And now: Close the book and till next time

Your Paper Pete

MY TIP:
Call the Heimbach TASK as soon as possible. While we measure, your staff can be employed elsewhere. Save money twice!