Delamination in Sheet-fed Offset Printing

TIPS AND TRICKS

THE DEVIL IS IN THE DETAILS, AS THEY SAY // This is the case for delamination as well – an error referring to the separation of layers in the printing stock, both with paper as well as cardboards.

Possible Causes

Often, printing paper has to be cut to the right size in the print shop. One or multiple cuts are necessary. When the stack to be cut is inserted into the guillotine cutter, the bottommost sheet can get stuck on an incorrectly positioned cutter bar. This leads to a separation of layers and rolled-up strips during further processing.

When inserting the sheets into the printing press, the front or back can be damaged from contact between cut edges. This problem occurs particularly frequently with thick layers. The layers get partially separated on the edges and roll up on the damaged spot from pushing the layer onto the stack.

Delamination can sometimes be caused by inserted wedges used to level the height of the pile, or the insertion of sword probes to measure humidity.

During paper manufacture, the paper reel is unrolled when cutting it to size. Sometimes the layers are partially stuck to one another. As a result, when unrolling the paper, the layers separate, tearing the surface and causing it to roll up.

Possible Remedies

The aforementioned problems can almost always be prevented by being particularly attentive and working carefully. It's decisive for the bottommost sheet on the guillotine cutter to always be thrown out. This significantly reduces the risk of rolled-up strips of paper being run through the printing press. In addition, wedges or indicator probes should be inserted with utmost precaution. It is also highly advisable to have an air blast at the guillotine cutter table. Furthermore, it's absolutely necessary to make sure that a newly installed cutter bar doesn't protrude out anywhere from the table.

A Practical Example

In one print shop, the delivered sheets had to be cut to the desired size. The bottommost sheet of the pile to be cut was always damaged on one edge that was in contact with a falsely positioned cutter bar. The result was small rips and injuries which formed into multiple rolled-up strips during further processing.

The Fogra Graphic Technology Research Association was brought in for an expert assessment and was able to identify the cutter bar as the clear cause for the delamination. Multiple sheets were affected. They all exhibited damage to the edge at the exact same spot. That was also precisely the point where the printing stock was delaminated and rolled up.

Once the damage has been caused, the issue of liability comes up. For the processing of complaints, it's particularly helpful when the problem sheet can be secured. Using this sheet, conclusions can often be drawn as to the origin of the rolled-up strips. If the rolled-up strips are at the edge of the sheet and increase in width during processing, for example, the cause can be traced back to cutting or de-piling. If the delamination begins in the middle of the sheet, things point to origination in the paper mill. Fogra's processing of such complaints shows, however, that nine out of ten are caused by faulty procedures in the print shop. ■

Layers can roll up in the pile up to 15 times during various motional processes. This leads to rolled-up strips on the printing stock. If these are run through the printing press, the printing blankets inevitably get damaged and in extreme cases, other units can also be damaged.

Further Information

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