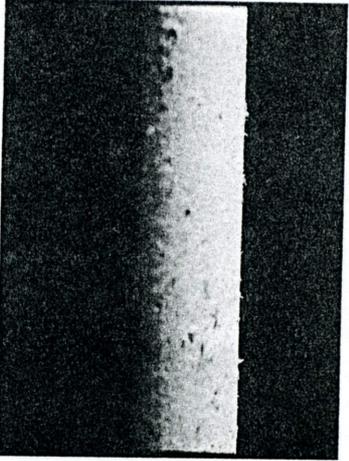


range is from 5.0 to 6.0. For paper coatings, the higher the pH the better, provided the coating is satisfactory in all other ways.

Lint, Paper Dust, Powder

Linting occurs mainly on uncoated papers. It is caused by surface fibers that are only partly bonded to the sheets. It differs from picking in that the sheet may have adequate pick resistance, but here and there an individual fiber is loosely bonded and is picked up by the offset blanket. Each sheet may carry only a few of these fibers. But, after running a few hundred or thousand sheets the blanket, plate, and ink system become so contaminated with fibers that the press has to be stopped and washed up. Linting, except on offset news, if it occurs, is usually worse on the wire side than on the felt side of the paper. Sometimes linting occurs on the second, third or fourth units of a multicolor press while there is no sign of it on the first unit. When this happens it is because the surface fibers were not well bonded by hydration. The starch surface size holds them in place during one or more impressions. But by then it has become so softened by moisture that the surface fibers are released and picked up by the tacky ink.

Figure 30:
Photomicrograph
of a liny paper



Powdering can occur with either uncoated or coated papers. Some uncoated papers are heavily loaded with mineral filler to give them opacity. If such papers are insufficiently bonded or surface-sized, their surface will release some filler pigment. This transfers to the non-image areas of the blanket and, since it is abrasive, it can wear the printing plate and cause scumming. In coated papers, powdering occurs when there is not enough coating adhesive, or when too much coating adhesive is absorbed into the base stock. Pigment from the surface of the coating transfers to the blanket and wears the plate.

Dusting refers to the presence of loose particles of paper or coating lying between the sheets. Such dust can be caused by dull slitter wheels (slitter dust), a dull chopping blade on the cutter (cutter dust), or a dull knife in trimming the sheets to size (trimmer dust). Failure to "back-trim" may also contribute to this problem. In any case, some of the particles get between the sheets, are picked up by the offset blanket, and cause spots in the printed work.

Good offset paper should be free from lint, powder and dust. Otherwise, much time will be lost in printing due to press stops for washing up.

Methods of detecting lint, powder and dust in paper are discussed in Chapter 9, pages 162 to 163.

Piling Tendency

Piling is a trouble that occurs mostly with coated papers. With uncoated papers, it takes place when unbonded mineral filler is picked up from the paper surface by the offset blanket, forming an abrasive layer on it. This wears the desensitizing film off the non-image areas of the printing plate and may eventually cause scumming.

In the case of coated papers, piling occurs when the coating adhesive is too water-soluble. Starch-coated letterpress papers are most likely to cause piling in lithography. To be free from piling tendency, litho and offset coated papers must have enough moisture resistance to prevent separation of any pigment from their coatings during printing, even in four-color press work.

Piling can take place on either the printing or the non-printing areas of the blanket. The causes of trouble in each case are discussed in Chapter 8, page 84 and also in Chapter 9, page 164 in connection with methods of detecting piling tendency in coated papers.

Offset Lithography — Web-fed

Papers used in web offset come in a wide variety of types and finishes. Their basis weights generally range from 20 lb. to 80 lb. Heavier weights can be run but do not handle well in folders and must be cut off and delivered in sheets. Heavier-weight coated papers are also more prone to blistering. Recent reports indicate that nearly 60 percent of web offset paper is coated.

Web offset papers have the same physical and chemical properties as papers for sheet-fed presses. They have grain or machine direction, two-sidedness and hygroscopic properties.