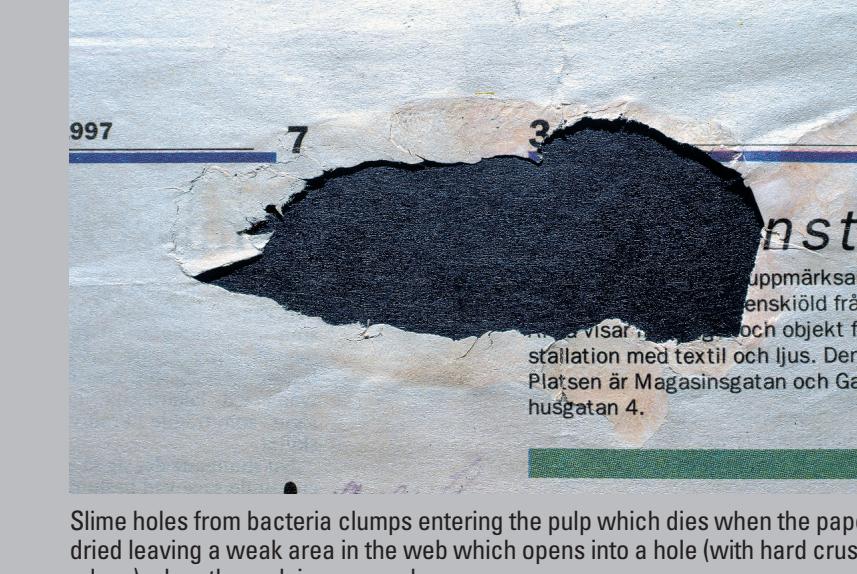


Paper and roll defect classifications

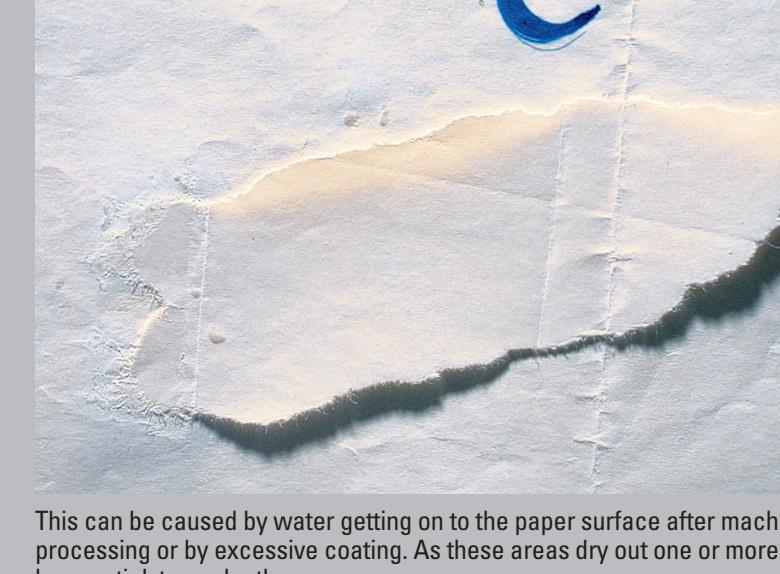
SHEET DEFECTS

Holes in the web



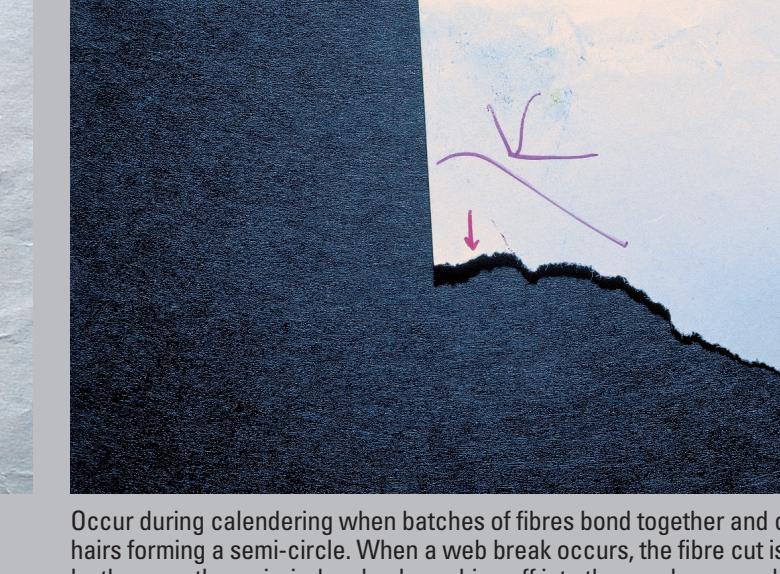
Slime holes from bacteria clumps entering the pulp which dies when the paper is dried leaving a weak area in the web which opens into a hole (with hard crust) when the web is unwind.

Stuck Web



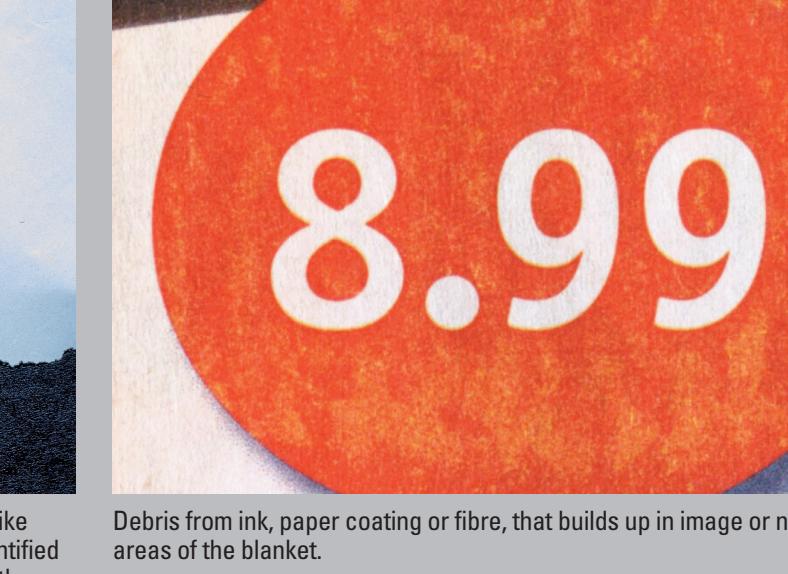
This can be caused by water getting on to the paper surface after machine processing or by excessive coating. As these areas dry out one or more layers stick to each other.

Fibre cuts/shives



Occur during calendering when batches of fibres bond together and curl like hairs forming a semi-circle. When a web break occurs, the fibre cut is identified by the smooth semi-circle edge branching off into the rough areas where the paper tears. Fibre cuts are generally ~10 mm (0.4") long. They are very similar and often confused with hair cuts (which can be much longer).

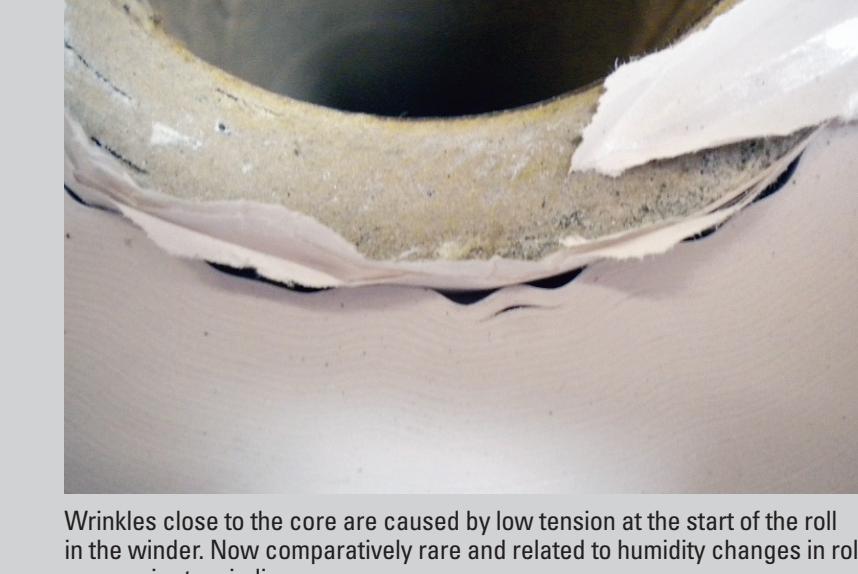
Piling



Debris from ink, paper coating or fibre, that builds up in image or non-image areas of the blanket.

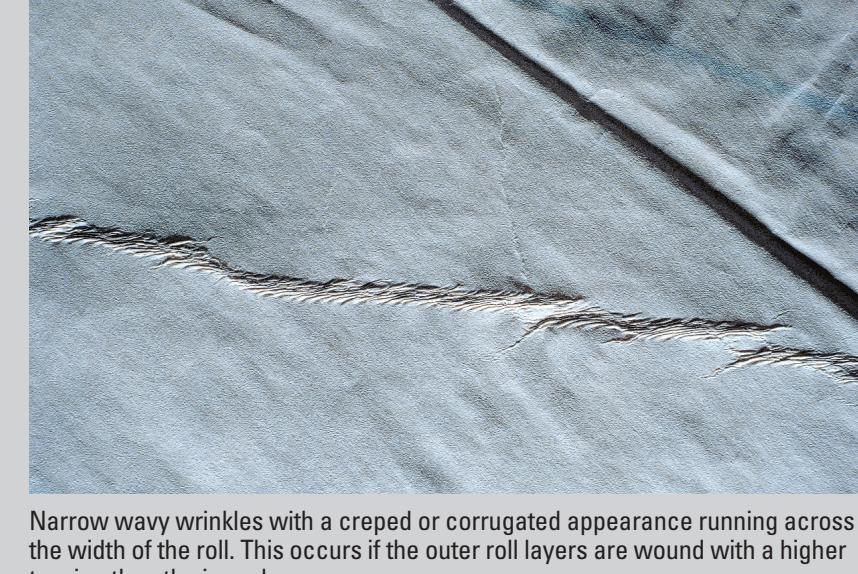
WINDING DEFECTS

Loose winding/Slack start



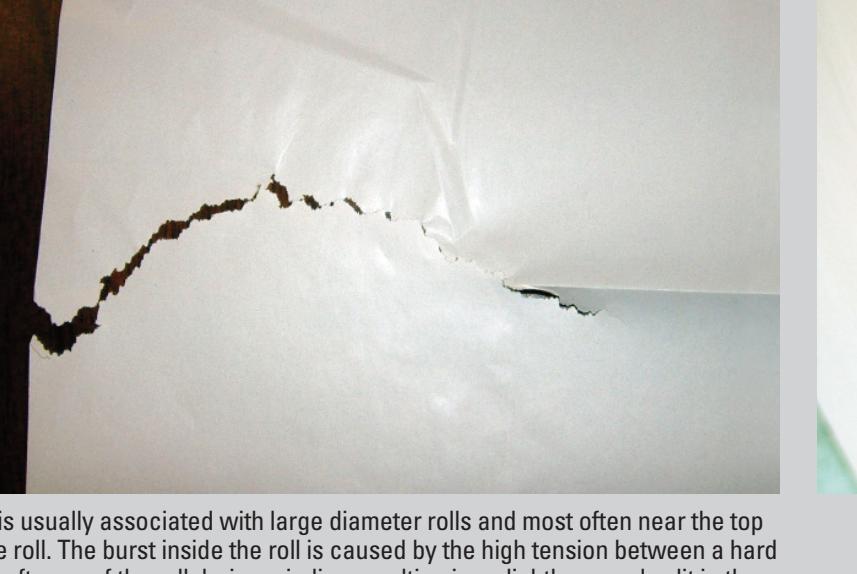
Wrinkles close to the core are caused by low tension at the start of the roll in the winder. Now comparatively rare and related to humidity changes in roll cores prior to winding.

Winder wrinkle (or drum puckers or crepe wrinkles)



Narrow wavy wrinkles with a creped or corrugated appearance running across the width of the roll. This occurs if the outer roll layers are wound with a higher tension than the inner layers.

Burst



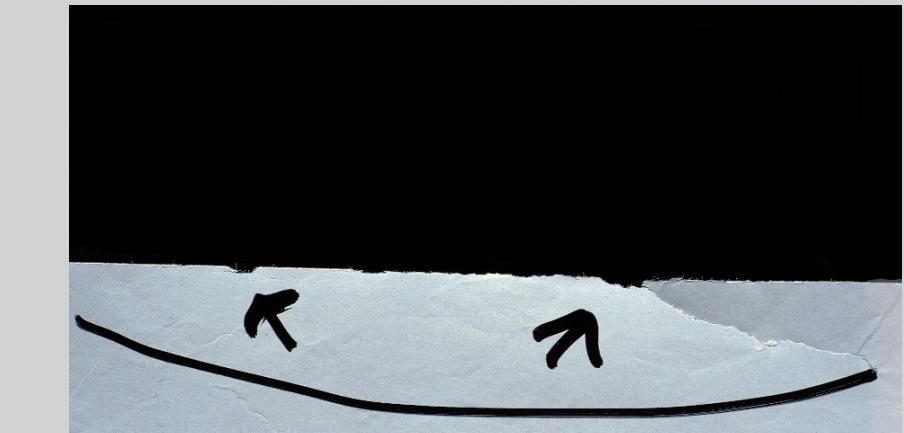
This is usually associated with large diameter rolls and most often near the top of the roll. The burst inside the roll is caused by the high tension between a hard and soft area of the roll during winding resulting in a slightly curved split in the paper at right angles to the machine direction.

Core not centred on roll



SLITTER & MILL JOIN DEFECTS

Poor slitter edge/Edge tears



Usually caused by a dull or badly set slitter knife giving the roll edge a wavy or shaggy appearance. A defective slitter edge may be caused by the wrong cutter, a dull or rough edge to the paper. Edge tears may also occur if the roll is bumped or damaged on the end. Slitter dust is sometimes present which can build up on the outer edges of the blanket causing print deterioration and/or scoring of the blanket.

Arrow for mill splice



Arrow points to position of mill splice.

Mill join defects



Poor mill joint: The splice tape is incorrectly positioned and sticks to the paper underneath. Protruding mill joint: Webs are not line-up with each other and the paper protrudes at the edge of the roll. Stuck mill joint: The splice tape is not covered by the paper and sticks to the paper layer causing a break.

Stuck edges (glue on end)



Caused by either a fault in the wrapping process allowing glue to come in contact with the roll end; or by localised water penetration of the wrapper resulting in small patches where the paper layers are stuck together.

NON-UNIFORM ROLLS

Profiles/slack edges



Non-uniform thickness and moisture across the web, and over-stretching of the higher thickness areas during winding.

Soft end



Variations in sheet thickness across the web (or both) creates a "long edge" which cannot be tensioned in the winder. An area of paper across the width of the web appears slack or baggy and can result in creasing; loss of register, and web wander (especially over air toner bars).

Slack Edge (Baggy Web)



Poor moisture or caliper profile across the web (or both) creates a "long edge" which cannot be tensioned in the winder. An area of paper across the width of the web appears slack or baggy and can result in creasing; loss of register, and web wander (especially over air toner bars).

Rope / Chain marking



These occur when areas with different caliper cause the web to stretch under high tension during winding and/or unwinding. They are bands of relative variation which extend around the roll, parallel to the machine direction, and possibly all the way through the roll. Between these bands are diagonal markings that resemble a rope or have a tyre-like pattern.

WRAPPING/TRANSIT/HANDLING/STORAGE DAMAGE

Crushed core



Results if roll has been dropped at some point in the transport chain.

Out-of-round



Caused by hard impact during transit; prolonged horizontal storage; excessive clamp truck pressure.

Delaminated core



Delaminated core can be caused by poor pressure on the expanding chucks or the roll have been put in or out several times in the press or poor/wrong core quality.

Body damage



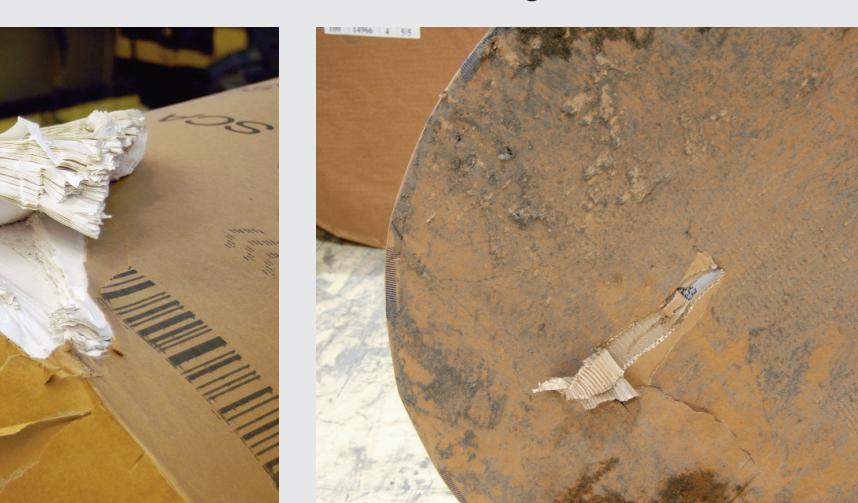
Perforation of body wrapping and paper by poor handling (scuffing, impact against a sharp object, incorrect clamp truck procedures).

Edge damage



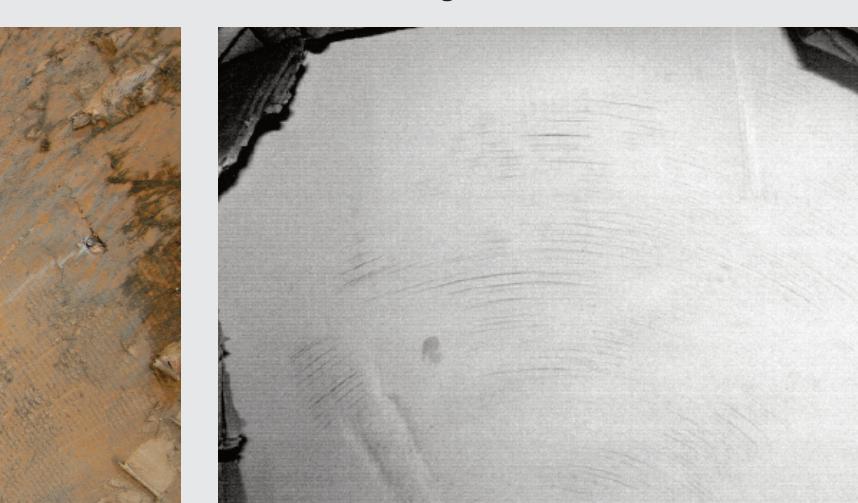
The roll has been standing or pushed onto stones, or other foreign material, during transit; or lowered to ground in tilted position.

Head damage



Tears or indentations of roll ends caused when stored on end on rough or dirty surface; or by rough handling over an uneven surface.

Water damage/Stuck



When saturated areas dry out, or one or more web layers stick to each other. This defect is not always visible on the wrapper but can be seen as gaps in the roll windings (be careful not to confuse this with glue on roll ends).

Moisture wrinkle



Wrinkles running around the roll in the machine direction, as a result of absorbing moisture from the atmosphere. These wrinkles are caused by an imbalance between the moisture in the paper and the moisture in the surrounding atmosphere.

Damage by foreign material on floor



Indent to the edge of the roll. Usually fixed by grinding off damage.