

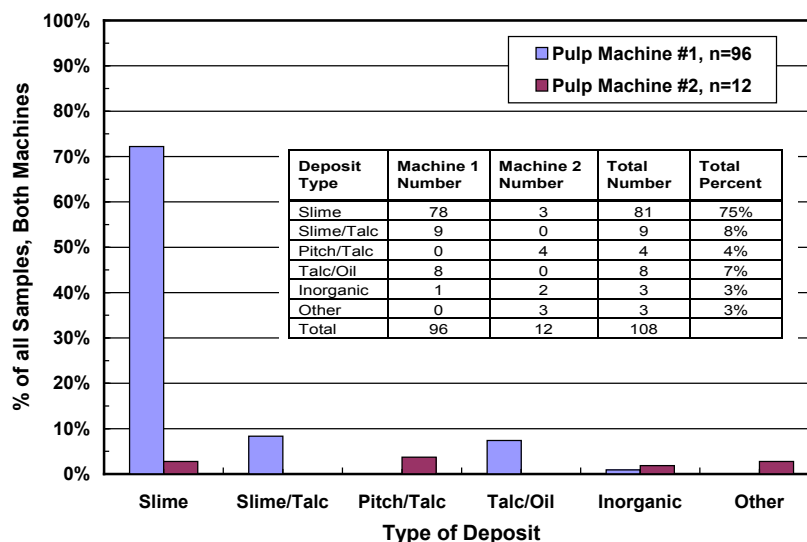
IDENTIFICATION OF CONTAMINANTS IN OFF-GRADE PULP AND PAPER

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Summary of Off-Grade Pulp Deposits from a BC Mill, One Month of Sampling.

The Figure shows a one month sampling of 108 deposits in off-grade pulp from an interior BC Kraft mill. Each sample was characterized using preliminary chemical testing followed by more detailed analytical methods for confirmation of results. This work was able to positively identify slime/biofilm as the cause of off-grade in more than 80% of the samples examined. Prior to this work, it was not possible to clearly distinguish between slime and pitch during pulp grading at the mill, and off-grade from slime was frequently classified as pitch. Positive identification of the problem is critical to developing a cost-effective solution at this mill. During this work, new analytical methods were identified and implemented for use on individual dirt specks in the off-grade pulp. Off-grade pulp at this mill has been significantly reduced.

BENEFITS

- Positively identify the type of contaminant causing the off-grade pulp.
- May be able to identify origin of the contaminant from chemical testing.
- Leads to the most cost-effective way to reduce off-grade pulp.

TECHNIQUES USED

- Chemical spot tests using a microscope for preliminary identification.
- Scanning electron microscope/energy dispersive X-ray spectroscopy (SEM/EDS).
- FTIR-microscope.
- Glycoside composition analysis (sugar composition of polysaccharides).
- X-ray diffraction (XRD) analysis.
- Carbohydrate content, soluble and insoluble.
- Nitrogen isotope analysis.