

EFFECTS OF NON-PROCESS ELEMENTS ON MILL EFFICIENCY

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Understand the Behaviour and Properties of Non-Process Elements and Compounds to Improve Mill Efficiency

The accumulation of non-process elements (NPEs) in Kraft mill process streams is becoming increasingly important as mills move toward effluent system closure. The effects of NPEs on Kraft mill operation include increased lime kiln fuel use, reduced lime mud settling rates, reduced mud filtration efficiency, and increased scaling of heat exchangers.

This course looks at the behavior and properties of NPEs and NPE compounds and how they can affect mill operation. This course is based on successful mill projects along with a review of the technical literature.

The following items are covered:

- Important non-process elements and their sources.
- NPE benchmarking.
- NPE purge points in the mill.
- Non-process element compounds that occur in the mill.
- Contribution of NPE compounds to low lime mud solids content.
- Green lime mud.
- NPE compounds that can affect pressure filter performance.
- Effect of sludge burning on NPE concentrations.
- NPE control strategies for efficient mill operation.

References:

MCGUFFIE, B., and TAYLOR, K., "Non-Process Element Mass Balance Improves Recaust and Lime Kiln Efficiency at Elk Falls Mill", Pulp & Paper Canada, 108(3), T49-55 (2007). 2006 John S. Bates Award for Best Branch Paper.

TAYLOR, K., and MCGUFFIE, B., "Investigation of Non-Process Element Chemistry at Elk Falls Mill – Green Liquor Clarifier and Lime Cycle", Pulp & Paper Canada, 108(2), T24-29 (February, 2007).

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