

## POSTER SUMMARY

**USE OF A MICROBICIDE TO MINIMISE  
MICROBIOLOGICAL CONTAMINATION AS PART  
OF A FOOD SAFETY PROGRAMME**

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**Abstract**

The South African industry in general and the sugar industry in particular, need to be internationally competitive. This means that it is essential for a sugar factory to be a low cost producer while consistently meeting the international standards demanded by customers. These standards ensure food safety and consistent food quality, and may also include benefits such as the reduction of waste and increased profits associated with good manufacturing practices for the supplier.

The work reported in this poster is based on the objective of using a microbicide programme to minimise microbiological contamination in the sugar process and to support a food safety programme. The work done and literature findings show the need for a sound microbiological treatment to control microbes that degrade sucrose and form dextrans. It was determined that under normal conditions a significant amount of microbes can be found at any point in the juice preparation process in sugar milling and in the refining of raw sugar when no sanitation aid is applied. These losses affect the overall performance and profitability of the sugar industry. The regular use of a broad spectrum biocide is important to improve sugar recovery at mill level. A Food and Drug Administration (FDA) approved biocide is recommended for use in mill juice and refinery syrup for microbial control. This poster is aimed at showing how possible microbiological problems can be prevented effectively to reduce sugar losses and final product contamination.

Mesophiles and thermophiles are responsible for the sucrose losses at medium (35-55°C) and high (55-105°C) temperatures. To reduce the impact of mesophiles and thermophiles in the breakdown of sucrose, microbicides are used. Thiocarbamate based chemicals are approved by the FDA for food industry sanitation. Thiocarbamate is active against microorganisms and the invertase enzyme. The results of not using a sanitation aid for a mill could be:

- loss in profit due to microbial inversion
- reduced mill efficiencies
- customer complaints of contaminated sugar.

Biocides can be used in sugar mills to reduce sucrose deterioration by reducing the invertase enzyme activity as well as inhibiting growth of *Leuconostoc mesenteroides* in sugarcane juice.

*Keywords:* microbicide, sanitation, food safety, food quality, food hygiene, sugar