CRYSTALLIZATION OF THICK JUICE AND OF RAW CANE SUGAR BLENDS

Vadim Kochergin[1]* and Frank Van Noord[2]
[1]Audubon Sugar Institute, 3485 Higway 75, St.Gabriel, LA, USA and
[2]Suiker Unie, Postbus 1004750 AC Oud Gastel, Noordzeedijk 1134671 TL
Dinteloord, Netherlands

Co-processing of cane raw sugar in the beet sugar factories has been practiced with various levels of success in several locations worldwide. It typically results in lower sugar quality. It had been proven that relatively small (10-15 %) ratios of VHP (very high pol) sugar can be co-processed with thick juice with good results using existing infrastructure of a beet sugar factory. However, proper integration and optimization of raw sugar processing into beet sugar production requires additional knowledge of color transfer and quality of sugar that could be obtained by crystallization of blended raw cane sugar and beet syrup mixtures. Various blends of raw sugar, beet thick juice and partially purified refinery syrups have been boiled at controlled conditions at the Audubon Sugar Institute. Several seeding procedures and supersaturation control formulae were evaluated. Affinated and non-affinated samples of raw sugar were analyzed using standard ICUMSA procedures. Crystal size distribution during boiling was monitored by laser diffraction crystal size analyzer. Significant differences were observed during pan boiling at higher concentrations of cane syrup in the blend, where it was more difficult to achieve the required crystal size. Different supersaturation levels may be required to successfully boil sugar of the desired size. In general, higher color transfer is expected for larger proportions of cane sugar in the blends.