

SUGAR MANUFACTURING

Sugar production involves two distinct operations; (a) processing sugar cane or sugar beets into raw sugar, and (b) processing the raw sugar into refined sugar.

How to make a decision: The analytic hierarchy process. The exhaust steam from the turbine is passed through the multiple effect evaporator station and used to heat vacuum pans in the crystallization stage as well as for other heating purposes in the sugar mill. When the beets are delivered at the refinery, they are first washed and then cut into strips. Seed grain is formed by adding 56 ounces [1, grams] of white sugar into the bowl of a slurry machine and mixing with 3. The run-off from the C-centrifugals is called molasses. The dry sugar crystals are then sorted by size through vibrating screens and placed into storage bins. Each possible pair was compared and qualified by applying a continuous hierarchical scale of 17 relative importance factors Figure 4. Journal of Cleaner Production Vol 17, No. Milling trains typically have four, five or six mills in the tandem. Most granulated sugars comply with standards established by the National Food Processors Association and the pharmaceutical industry U. Increasingly large amounts of bagasse are being made into paper, insulating board, and hardboard, as well as furfural, a chemical intermediate for the synthesis of furan and tetrahydrofuran. Next, the sugar is separated from the cut stalks by dissolving it in hot water or hot juice. The by-products containing lime and organic residues are commonly re-used in agriculture, as a soil amendment rich in organic matter. Sugar Background Before the birth of Jesus of Nazareth, sugarcane from which sugar is made was harvested on the shores of the Bay of Bengal; it spread to the surrounding territories of Malaysia, Indonesia, Indochina, and southern China. Byproducts The bagasse produced after extracting the juice from sugar cane is used as fuel to generate steam in factories. The reed accumulates sugar to about 15 percent of its weight. Juices of sugarcane *Saccharum officinarum* and sugar beet *Beta vulgaris* are rich in pure sucrose, although beet sugar is generally much less sweet than cane sugar. In , Portuguese navigator Vasco da Gama returned from India bringing the sweet flavoring to Portugal. The major producers are Brazil Other sugar crops include sweet sorghum, sugar maple, honey, and corn sugar. Wastage is used for heat generation in the sugar mills. The syrup is evaporated until saturated with sugar. Mendes Souza, M. The transformation into a digital sugar mill requires the introduction of a new level of digital intensity including connectivity, big data, analytics and artificial intelligence. Once there, they are cleaned, washed, milled to extract juice, filtered, and purified. Sugar industry opportunities. This dilute juice is then collected in a compartment under the bed of cane and is pumped to a point a little closer to the feed end of the diffuser and this dilute juice is allowed to percolate through the bed of cane. Each factor's relative importance was evaluated by building a multicriteria AHP pairwise comparison matrix and then using such matrix for assigning a different value weighting to individual factors or constraints. At this point the concentration of sucrose in the cane is higher than the concentration of sucrose in the dilute juice just mentioned and so sucrose diffuses from the cane to the juice, this now slightly richer juice is pumped back up the diffuser and the process is repeated, typically, 12 to 15 times compared with the four to six times for the milling process Juice clarification[edit] Sugar cane juice has a pH of about 4. Sugar rolling mills also first appeared in the Indian subcontinent, using the principle of rollers as well as worm gearing , by the 17th century. The sugar beet sucrose solution, at this point, is also nearly colorless, and it likewise undergoes multiple-effect vacuum evaporation.