**Crystallization of SugarCane:**

Crystallization of the sugar starts in the vacuum pans, whose function is to produce sugar crystals from the syrup. In the pan boiling process, the syrup is evaporated until it reaches the supersaturation stage. At this point, the crystallization process is initiated by “seeding” or “shocking” the solution. When the volume of the mixture of liquor and crystals, known as massecuite, reaches the capacity of the pan, the evaporation is allowed to proceed until the final massecuite is formed. At this point, the contents of the vacuum pans (called “strike”) are discharged to the crystallizer, whose function is to maximize the sugar crystal removal from the massecuite. Some mills seed the vacuum pans with isopropyl alcohol and ground sugar (or other similar seeding agent) rather than with crystals from the process. From the crystallizer, the massecuite (A massecuite) is transferred to high-speed centrifugal machines (centrifugals), in which the mother liquor (termed “molasses”) is centrifuged to the outer shell and the crystals remain in the inner centrifugal basket. The crystals are washed with water and the wash water centrifuged from the crystals.

The liquor (A molasses) from the first centrifugal is returned to a vacuum pan and reboiled to yield a second massecuite (B massecuite), that in turn yields a second batch of crystals. The B massecuite is transferred to the crystallizer and then to the centrifugal, and the raw sugar is separated from the molasses. This raw sugar is combined with the first crop of crystals. The molasses from the second boiling (B molasses) is of much lower purity than the first molasses. It is reboiled to form a low grade massecuite (C massecuite), which goes to a crystallizer and then to a centrifugal. This low-grade cane sugar is mingled with syrup and is sometimes used in the vacuum pans as a “seeding” solution. The final molasses from the third stage (blackstrap molasses) is a heavy, viscous material used primarily as a supplement in cattle feed. The cane sugar from the combined A and B massecuites is dried in fluidized bed or spouted bed driers and cooled. After cooling, the cane sugar is transferred to packing bins and then sent to bulk storage. Cane sugar is then generally bulk loaded to trucks, railcars, or barges.