

RAPADURA





Sugar Processing Toolkit



RAPADURA

1.- Rapadura - General information

Rapadura is the solid product obtained from the hot concentration of the sugarcane juice, when reaching a final point value between 88°Brix - 91°Brix.

This product should be fabricated with unfermented raw materials, that are free from earthy matter, parasites and both animal and vegetal remains. The addition of essences, natural or artificial colorants, conservatives and sweeteners are proscribed.

Their aspects are: hard mass, brown color (varying from clear to dark), own smell and flavor, sweet taste, and is usually shown in bars.

2.- Rapadura Processing Details

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2.1.-Final Reference Point

At the end of concentration, when the reference point is approaching, the syrup (sugarcane concentrated juice) turns into a thickened sugarcane syrup and the ebullition takes the bubbling aspect. The point concentration for the rapadura is around (80 – 85)°Brix.

The verification of the reference point for rapadura consists of:

removing some small samples from the thickened sugarcane syrup with a tablespoon;

following, these samples are placed in a vessel with cold water. An attempt to form a ball with the fingers is then performed. This sampling is repeated until getting the formation of the "ball" that represents the reference point.

For the smoother rapadura, the ball is softer, the yield is higher and the rapadura has shorter validity period.

2.2.-Beating and Cooling

After the reference point of the rapadura is recognized, the mass is unloaded into the beaters or stainless steel- recovered wooden coolers, where it is constantly manual or mechanically beaten until the temperature reaches 70°C - 80°C. This container cannot be made of metal only, because the product would become cool very fast, therefore no formation of the crystals would occur.

The agitation is accomplished with the following objectives:

- Cooling of the mass;
- The linkage formation - the mass is a mixture of sugars (sucrose, glucose, fructose), besides mineral salts and acids and others that are agglutinated by stirring, therefore assuring a rapadura with thinner and more homogeneous structure (smaller crystals). If stirring is incomplete, the rapadura shows differently colored spots and becomes rougher (undesirable), when it is split in the mouth.
- To clear the product – when stirring, the air is incorporated into the mass, therefore making its coloration a clearer one.

2.3.-Modeling and Moulding

The molding point is on, when the mass is brighter, thicker and clearer. These molds are usually made of insertable wood rulers, as forming rectangular compartments of 25g, 50 g, 250 g, 300 g, 500g or up to 1 000 grams, with variable capacity according to the market type to be supplied. The molds are prepared on even, flat, and leveled granite surface, as well as completed (fulfilled) with the cooked mass and later separated. To facilitate the removal of the rapadura, a moist cloth is placed on top of the bench and the moulds are moistened. The product stays in the moulds during a necessary time for hardening, that ranges from 20 to 60 minutes or more depending on the reference point given to the sugarcane syrup. After removing the molds and before the product is taken to packaging, it is recommended to let the rapadura to stay in airy and dry place for 24 hours, in order to complete the hardening and cooling processes.

2.4.-Packaging

The rapadura should be individually packed in plastic PVC (Polyvinyl Chloride) or LDP (Low Density Polyethylene). Never use newspaper or reuse another paper type. This product should not be packed under hot conditions, since it tends to deteriorate due to the internal moisture that appears on the internal surface of the packaging.

2.5.-Storage

The rapadura must be stored in dry and ventilated environment, where the air relative humidity is below 65%. The rapaduras should be away from the warehouse walls and should not be stored in compact blocks.

3.- Rapadura Defects

a) sticky or waxy/waxen - problems concerning to the sugarcane, maturation stage (unripe sugarcane - because this has high reducing sugars content that do not crystallize), soil that has high organic matter content or where a recent felling occurred (because it produces a

sugarcane juice with higher acidity, consequently favoring the inversion of sucrose that impairs the elaboration of the rapadura);

b) excessive saline flavor - sugarcane proceeding from a soil that is highly rich in organic matter;

c) very dark mass - excessive caramelizing, burning during concentration (nonuniform fire in the large boiler) or deficient cleaning of either sugarcane during the cut and the syrup after milling and during concentration or old sugarcane - long wait after cutting;

d) the presence of whole insects or their fragments or other strange materials in the mass - the presence of these dirtiness in the products may be avoided by the application of systematic practices for cleaning the sugarcane and juice during their preparation and concentration, besides appropriate isolation of all installation. In the case of an opened installation, it should be screened to prevent the entrance of insects. Another important aspect is the maintenance of the cleaning in the areas nearby the factory;

e) presence of earth/sand - cleaning of the sugarcane and settling of the juice - maintenance of the furnace or table of the impermeable large boiler;

f) sticking - insufficient concentration of the syrup (very soft reference point - inadequate), excessive moisture in the molding (shape and cloth), excessive air humidity in the storage environment, milling of the green sugarcane at great proportion, old sugarcane after cutting, syrup with excessive acidity without correction (high inversion rate)

g) mildew / fungus growth - problems concerning to the lack of hygiene mainly in the laborers, as well as the lack of both hygiene and cleaning in the facilities, equipments and utensils – the contamination might come through materials deposited in the surroundings of the plant /sugar mill, besides the water used in several production stages - the water must be potable. The lack of hygiene and cleaning during the packaging operation, transport, and the storage environment may contribute to mildew growth.

