

Sugar Department

BEET SUGAR

In beet sugar production plants, the chemical-physical analyses carried out by the automatic analyzers are aimed at automatic regulation of continuous processes.

We have installed various automatic analyzers that concern different points of the production process of the sugar industry sector.

A beet sugar production plant can be represented as shown in the figure below.

PROCESSES INVOLVED:

Extraction

The **UR20** refractometer is mounted in recirculation on the extractor to measure the sugar and salt content in the raw juice extracted from the beet slices; the measurement is done in **BRIX** degrees.

Purification

In the clarification of raw juice to convert it to pale colored juice in the three clarification phases, **Saturation (1st and 2nd) and filtration**, the multiparametric titrator **AT-02** is used for measuring the **pH, alkalinity, and the hardness**. The data obtained are used for regulating the addition of CaO and CO₂. After the filtration, the UT-02 turbidimeter is installed for measuring the turbidity of the pale colored juice.

Concentration

For automatic regulation of the **pre-evaporation and evaporation phases** the **UR20** refractometer is used, mounted at the outlet of each new block of evaporators.

Crystallization

In the formation of crystals, for controlling the **super-saturation** phases; here too, the **UR20** refractometer is used, fitted directly on the cooking bowl.

Refining

To **check the refining**, the **UR20** refractometer is used, fitted directly on the covering bowls. Generally speaking, as these are continuous processes where management of energy recovery and production yields is absolutely fundamental for the budget, there are many secondary points in which instruments for the automatic measurement and control of the concentrations find application.

