

Casablanca sugar refinery – successful collaboration continued



On the BMA premises, from left to right: A. El Abbadi, M. Lazaar, Dr. M. Lahlou, A. Bennani, Dr. M. Makina, A. El Hamoumi

In order to optimise and extend the Cosumar sugar refinery in Casablanca, Morocco, BMA was commissioned to deliver various pieces of equipment and to provide engineering services and assign BMA staff.

Major items in this order are:

- 1 plant for sugar drying and cooling
- 1 VKT for refined sugar massecuite
- 7 batch vacuum pans
- 10 centrifugals of type B1750
- Various massecuite receivers, distribution mixers, massecuite pumps
- 1 sugar melting system
- Equipment for slurry preparation
- Condensation equipment
- Engineering services, such as the preparation of mass, heat and water balances; preparation of preliminary layout plans and PIDs
- Provision of staff for supervision of plant assembly/installation and commissioning
- Specifications and workshop drawings for equipment to be provided by Cosumar

With the Casablanca project, Cosumar and BMA are continuing long years of successful cooperation which has already led to various other beet sugar and refined sugar projects.

The sugar refinery in Casablanca has been in operation for some 80 years for the production

of refined sugar from raw cane sugar. Until very recently, about 2,300 t/d raw sugar have been processed into sugar loaves (about 55% of the total production) and into refined sugar (about 45%). Sugar loaves are very popular among private consumers in Morocco. They have so far been produced directly from massecuite.

Several years ago, Cosumar set itself a number of targets for optimising the Casablanca sugar refinery. These include improving sugar yield, steam consumption and water consumption. Replacing the massecuite-based process of sugar loaf production which typically involves a lot of manual intervention as well as technological losses with a highly automated white-sugar-based process will substantially increase plant efficiency. At the same time, the refinery capacity is to be extended to approx. 3,000 t/d and the refinery is to produce different sugar qualities to meet the increasing demands of the Moroccan market. Together, all these measures will help further reduce operating costs and strengthen Cosumar's position in the market.

Cosumar and BMA have met frequently during recent months and years to discuss various options. As a first step, BMA prepared mass, heat and water balances and created a concept which defined the measures to be implemented for the key process of sugar refining.

During their meetings, Cosumar and BMA sub-

Refinery extension

under construction



jected these balances and measures to a process of constant development to arrive at technological parameters at the highest possible level, to keep capital expenditure within acceptable limits and to be sure that the specific requirements of the Moroccan market will be met.

Flexibility in the production process was another aim Cosumar had defined for the development of the concept, as only in this way can constant sugar qualities be guaranteed should the quality of the delivered raw cane sugar vary. This aim can be achieved if certain plant sections are bypassed either in part or completely, as long as the quality of the raw sugar supplied is high enough.

In the next step of the basic engineering phase, the previously determined measures were defined in more detail. This included general specifications for the required equipment without referring to any supplier in particular, preliminary layout plans and flowsheets, as well as characteristic budget figures. Cosumar also had to organise conversion of the sugar refinery, which was to take place in several steps without interrupting the production process. To account for this, the mass, heat and water balances were drawn up for all the steps. Cosumar also compiled the tender documents on the basis of the details developed together with BMA and sent out enquiries for the required equipment.

BMA received an order for delivery of the main pieces of equipment for the new crystallisation and centrifugation refinery stations and for the new sugar drying plant.

To enable work on the project while the refinery continues to operate, most of this new equipment was installed in a newly erected process building. Cosumar and BMA together carefully defined the interfaces between the existing plant sections and the new process building. On this basis, Cosumar was able to install the piping connections with flanges and blanks during their regular annual shut-down period. After the new plant is completed, connections with existing sections can therefore be provided very easily and in a very short time.

With the integration of the VKT into the new concept, part of the refined sugar massecuite can be produced with a very low heating-steam pressure (700 mbar abs). This means that vapour from the first product evaporator can be used instead of steam from the steam transformer. At the same time, this will help to dramatically reduce the refinery's steam consumption.

The Casablanca sugar refinery continued to produce sugar while plant conversion was taking place. The first phase was put into operation in the spring of 2009.

With the extension and modernisation of the Casablanca refinery, Cosumar and BMA were able to build on and continue their very fruitful cooperation of earlier years.

Steffen Kaufmann

Benefits

- Specific needs of the Moroccan market taken into consideration
- Customised concept
- Technological values at the highest possible level, therefore optimised operating costs
- High process flexibility