

# MOSTOROD maize starch factory commissioned in Cairo, Egypt

**BMA** | STARCOSA



*BMA gluten dryer*

*Product feed end*

In 1976, the Egyptian Starch and Glucose Manufacturing Co. placed an order with BMA/STARCOSA for two new maize starch factories in Cairo. Both factories were successfully put into operation at the time and were later extended from a milling rate of 160 t/d maize to 250 t/d.

Almost 30 years later, on 3 June 2005, another contract was signed for a new modern maize starch factory. The decisive factor in the renewal of the order with BMA/STARCOSA was not only the technological competence of BMA/STARCOSA, but also the fact that an excellent customer relationship had been maintained all these years.

The new factory is designed for a maize milling rate of 500 t/d. In 2008 it successfully started production. These 500 tons of maize yield approx. 335 tons of maize starch, about 50% of which is sold as commercial starch for the food industry, and about 50% as glucose for the confectionary industry.

The maize that is to be processed in the factory is pumped together with water from the maize silo to the factory building. As a first step, the maize

has to undergo a 48-hour swelling process in the steeping plant, which consists of eight tanks holding 350 cubic metres each.

After steeping, the maize can gradually be separated into its natural constituents. A maize kernel contains:

- approx. 66% starch
- approx. 6 – 8% maize germs
- approx. 18 – 20% maize husks
- approx. 5 – 7% maize gluten

In a two-stage milling train, the maize is pre-milled to such an extent that the maize germs, which steeping has made more elastic, are exposed but not destroyed.

As a next step, the maize germs, which contain about 50% maize germ oil, are separated in two series-connected hydrocyclone systems. After that, the maize germs are washed on arc screens, freed from water in screw presses and dried to a dry substance content of 97% in a tube bundle dryer. These dried maize germs are the starting material for the production of maize germ oil.

## *BMA gluten dryer*

### *Deflection hood*

The degerminated, pre-milled maize is subjected to a third milling process. The starch that is separated from the maize husks in this way can then be extracted in a countercurrent process in a six-stage arc screen plant.

The washed maize husks pass a dewatering screw press and are then dried to a dry substance content of 90% in three tube bundle dryers. The dried maize husks are sold as animal feed.

Once the maize germs and the maize husks have been separated, the remaining «raw milk» is passed into a nozzle separator to separate the maize gluten. Maize gluten leaves the nozzle separator as light phase and the starch milk as heavy phase.

The maize gluten is then concentrated in another nozzle separator, dewatered in decanters and dried to a dry substance content of 90% in a BMA flash dryer.

The refined starch milk produced in this way is concentrated in a 12-stage multi-cyclone plant to 21°Bé. As described above, this starch milk is now either used as raw material for the production of glucose syrup or sold to the food industry after having been dewatered in a peeler centrifugal and dried to 12% residual moisture in a BMA flash dryer.

The electric energy, steam and water consumption figures achieved for the starch and by-product output, and the substantial reduction in the pollutant content of the effluent waters means that the requirements of the financing banks are fully complied with.

*Bernhard Schmidt*



*Top operator platform*

*in the maize steeping plant*



*View from outside*

*with maize silos*

