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Soya Grain and Technology of Its Production

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The summary: Cleared and calibrated soya seeds; heat treatment by noria. The defatted soya flour and grain is made from the white petals received by a method of degreasing of soya petals by solvent which select from the ground, crushed and cleared, soya seeds which have passed heat treatment.

Keywords: Soya grain, calibration, the unit, the fan, a drum-dehumidifier, air stream, separators, humidity, temperature, pneumatic transport, bunker-collector, a mill, seed crusher.

Cleared and calibrated soya seeds by noria direct on the heat treatment unit. At first seeds steam 6-8 minutes at temperature 98-100^{0}C to the maintenance of humidity of 13-15 %, then arrive on a rotary drum for drying where usually within 10 minutes by means of stream of room air forced by the fan delete drop humidity. From a drying drum soya seeds arrive on a rotary roasting drum for roasting steam directed to a trumpet lattice under pressure to temperature 108-115 ^{0}C (9 % of the maintenance of humidity).

The roasted seeds direct on a rotary drum for cooling by an opposite stream of room air to 70-75^{0}C. The cooled roasted seeds of a soya arrive on the debranning mill where there is a branch of a peel and division of seeds into cotyledons. Received by the debranning mill grain and a peel divide on a separator. The peel, suitable for application in combined feed, through aspiration system arrives in the bunker-collector, and grain by pneumatic transport go to the bunker-collector for corresponding storage within 24 hours. After a croup with the help vibrating conveyor goes on pin crusher for preliminary crushing and fractioning. If necessary the product can be directed on a vortical mill for thin crushing (28 microns). The soya grain received by this way is applied to preparation of a mix of grain for porridge on

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the basis of rice, buckwheat, pearl barley or millet.

Defatted soya grain.

Roasted soya grain.

In a number of the countries for preparation high-protein products and drinks use extruded fat soya flour received by means of various extruders. In some boiling extruders the whole seeds of a soya are crushed and warmed up, in other cases seeds at first crush on corrugated rollers, by drying and air-conditioning pass sifting and aspiration, and then as a result humidify (to 20 %) and extrude the product [6,p13]

The fat-free soya flour and grain is made from the white petals received by a method of degreasing of soya petals by solvent which select from the ground, crushed and cleared, soya seeds which have passed heat treatment. The fat-free soya flour can contain to 49-54 % (on dry weight) fibers, nearby 1 % of fats, about 38 % of the general carbohydrates, including 15 % dissolved mono- and disaccharides and 23 % polysaccharides which should be removed in manufacture of high-concentrated products of soya fiber. White petals, a soya flour and grain differ with granulometric structure. For grain reception white petals are usually crushed on vortical mills, hammer crushing mill and classification mills. Thus by technological process it is provided the control of the size of grain by means of air classification or sieves [1,p154; 4,p153; 7]

The half-defatted soya flour and the grain containing 4-6 % of oil, is made by crushing of the soya oil cake received at mechanical pressing of cleared and thermally processed seeds of a soya. Lecithined soya flour and grain with the restored

maintenance of oils receive by addition in a fat-free soya flour of 1-15 % of lecithin or the refined, deodorized oil. This flour is more stable at storage, and shows the best indicators of stability in comparison with the fat soya flour containing lipoxygenase and lipase – the enzymes causing unpleasant were begun to smell also by taste of bitterness. The specified soya flour with additives because of emulsifying properties of lecithin it is applied in manufacture of the bakery and confectionery products, cooling drinks, improves dispersive ability of the flour and other components, and also gives to a flour property of flowability [2,p33; 3,p35; 6,p13]

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