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INVESTIGATION IN THE FIELD OF INTENSIFICATION OF MASS TRANSFER PROCESSES IN VACUUM PANS

On the basis of investigations in the field of hydrodynamics and heat exchange during boiling of massecuite in tubes a new hydrodynamic methods of intensified mass exchange while crystallisation by the way of blowing gas, steam or their mixture into boiling tubes of vacuum pans have been developed.

Tests in commercial vacuum pans with a device for blowing steam have been conducted here.

During thorough boiling of massecuite of the 2nd and 3d products we have got the increase of the efficiency of the pans (in the way of cutting the boiling time) by 25-40% for the 3rd and 20-25% for the 2nd product in comparison with those data for ordinary commercial vacuum pans.

Data as to the change of mass contents of crystals ana the rete of crystallizatioin during the process of boiling are given.

Usage of this method of intensification in the field of hydrodynamics gives the possibility to improve indices of quality of. massecuite, to raise the contents of crystals in it, to cut the time of jointing of massecuite.

A new method of intensification of the process of thorough boiling of mssesuite by the localisation of boiling of it in a layer of small thickness with its gravitational flow down the plane inclined heating surface has been investigated.

We have the increase of mass crystallization rate compared with the circulating pans by 15-20% at the beginning of the process and more than 100% at the final stages of boiling along inclined heating plane surface to the horison 1-3° and the rate of massecuite 0,5-0,2 m/sec.