**Записать слова в тетрадь.**

**Выполнить задания ниже, по тексту.**

accomplish – выполнять, осуществлять

assemble – собирать, монтировать

axis – ось

batch mixer – мешалка периодического действия

blend – смесь

bottom – дно, основание

can – консервировать в герметичной таре

consumption – потребление

continuos mixer – мешалка непрерывного действия

cylinder – цилиндр, валок, барабан

dairy product – молочный продукт

drum mixer – мешалка барабанного типа

homogeneous – однородный

immisible – несмешиваемый, несмешивающийся

margarine – маргарин

mayonnaise – майонез

miscible – смешиваемый

mixer – мешалка, смеситель, миксер

mixed feeds – смешанные корма

pipeline – трубопровод

power consumption – потребление энергии

rotating mixer – мешалка с вращающимся барабаном

sampling – взятие проб

scrape – скоблить, скрести

shallow – мелкий

stationary – неподвижный, стационарный

sweet – конфета

whipped cream – взбитые сливки

whirl – завихрение

MIXING OF MATERIALS

Mixing is stated to be the combination of different materials and their distribution until a certain degree of homogeneity is achieved. Mixing proves to bе a very frequently used operation.

There are many different problems associated with mixing. Solids mау be mixed with solids (most mixed feeds, blends of tea and coffee, dried soup etc.) or liquids (many canned goods, several dairy products, drinks and also chocolate and sweets), liquids may be mixed with liquids (emulsions like mayonnaise, butter and margarine) or gases (ice cream, whipped cream,

some sweets and baked goods).

Mixtures may be homogeneous, for example, solutions of solids and liquids, mixtures of miscible liquids and gas mixtures or heterogeneous, for example, liquid/liquid, liquid/gas, solid/gas, etc.

The following properties are found to be important in mixing: the proportions of the materials to be mixed; the particle size of the materials i.e. mixing becomes more difficult, the more the particle sizes differ; density of the materials, i.e. a large difference in density makes mixing more difficult; shape of the particles.

Mixing is accomplished in mixers, which may work batch-wise or continuously. In all mixers the particles are moved and displaced in more than one direction. The simplest mixers working batch-wise are drum mixers, or rotating mixers. These mixers consist of a cylinder, the rotation axis of which is normal to the axis of symmetry; a small cylindrical tube from which half of the cylinder wall is removed, is mounted on each of the two flat walls of the mixer.

Furthermore it is possible to install stationary or rotating stirring arms. In the latter case the drum is usually rotated in the direction opposite to the stirring arms (Fig.1). Drum mixers with stirring arms are less suitable for materials that can be damaged.

Another mixer consists in principle of a shallow cylindrical slowly rotating vessel in which stirring arms rotate in the opposite direction and scrape the bottom.

There are mixers in which air is the mixing agent. Air is blown through a vessel containing the components to bе mixed. The materials whirl around and fast mixing results.

Continuous mixing of solids is not often used. The simplest method of continuous mixing is to join together several pipelines in which the materials are transported pneumatically. Another possibility is a continuous mixer assembled from a large number of twin mixers.

It is very difficult to compare and evaluate the efficiency of different mixers. The required mixing time ranges from a few seconds up to 20–30 minutes, depending on the difficulty of the mixing process. Very little can bе said about the power consumption. It is obvious that the smaller and heavier the particles to bе mixed, the higher the power consumption.

Control of mixing can take place bу sampling and analysis, sampling itself being a difficult problem.

**Задания:**

**I. Translate into Russian:**

several dairy products, rotating stirring arm, shallow cylindrical slowly rotating vessel, carefully dosed quantities, circulation current, small droplets formation, batch drum mixer, whipped cream, immiscible liquids.

**II. Translate into English:**

часто используемая операция, размер частиц, ось вращения, непрерывное смешивание твердых веществ, потребление энергии, мешалка периодического действия, пневматическая транспортировка твердых веществ по трубопроводу, смешивание жидкостей, шоколадные конфеты.

**III. Mind the forms and functions of the INFINITIVE. Translate the following sentences:**

1. The components to be mixed are to be placed in the cylinder of a mixer.

2. The simplest method of continuous mixing is to join together several twin mixers.

3. To improve mixing stationary or rotating stirring arms should bе installed.

4. To mix materials means to combine different materials until a certain degree of homogeneity is achieved.

5. Carrying out this experiment the scientists hoped to obtain a new combination of materials

with better properties.

6. Mixing was necessary to establish a close contact between a liquid and a gas.