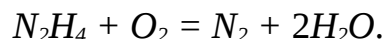


The method is accompanied by an increase in total salinity, which is not always desirable. The most common reagents are hydrazine hydrate and hydrazine sulfate ( $N_2H_4 \cdot H_2SO_4$ , which are strong reducing agents:



The disadvantage of hydrazine is its high toxicity.

#### ***Classification of water by the content of mineral salts***

The most common classification method is to assess the content of inorganic and partially dissolved organic substances in water. The total amount of substances dissolved in water (mineralization) is usually determined by the weight of the dry residue of the pre-filtered and evaporated sample after drying to a constant weight at a temperature of 105°C.

According to the magnitude of mineralization, natural waters are divided into eight types or classes. Quality drinking water should contain no more than 0.5 g / l of salts. Ultra fresh water has the ability to remove calcium compounds from the human body, so it is not quite suitable for use in drinking purposes.

#### ***Classification of natural waters by hardness***

The most important characteristic of water, which largely determines the possibility of its use, is its hardness. Hardness is determined by the content of calcium and magnesium ions in the water. It is measured in mol-eq / m<sup>3</sup> (mol / m<sup>3</sup>) or mmol-eq / l (mmol / l).

According to the value of the total hardness of natural waters, as a rule, are divided into a number of groups:

- *very soft water* (<1.5 mol / m<sup>3</sup>);
- *soft water* (1.5-3.0 mol / m<sup>3</sup>);
- *water of medium hardness* (3.0-5.4 mol / m<sup>3</sup>);
- *hard water* (5.4-10.7 mol / m<sup>3</sup>);
- *very hard water* (>10.7 mol / m<sup>3</sup>).

Among natural waters, the softest are rainwater, the hardness of which is approximately 0.070-0.1 mol / m<sup>3</sup>. The hardness of groundwater varies widely from 0.7 mol / m<sup>3</sup> to 18-20 mol / m<sup>3</sup> and depends on the composition of the rocks in contact with them.

In industrial production, there are *three types of wastewater*:

- production (production water contaminated with insoluble and soluble substances, sometimes heated);
- domestic (water from domestic premises located at enterprises);
- surface (sedimentary water).

*Industrial waters* are formed by direct evaporation of water in the technological and production process, during transportation of materials, during washing and water cooling of equipment. Water used for cooling, as a rule, acquires only thermal pollution, i.e. it has an increased temperature.

The wastewater quantity allotted per unit time from source (install, workshop, production), called *the flow of wastewater*, and is determined depending on the performance of the source according to the norms of sanitation. The norm is the average amount of wastewater per m<sup>3</sup> required to produce a unit of finished product or to process a unit of raw materials used.

Technological and enlarged water recovery rates are distinguished. *Waste water flow rate* is determined by formula:

$$Q_{day} = M \cdot N,$$

where  $M$  is the number of units of product or processed raw materials per day;

$N$  is the rate of water disposal per unit of production or processed raw materials (m<sup>3</sup> / unit of production)