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НАЦІОНАЛЬНА АСОЦІАЦІЯ ВИРОБНИКІВ ДИТЯЧОГО ХАРЧУВАННЯ, МОЛОЧНОКОНСЕРВНОЇ ТА СОКОВОЇ ПРОДУКЦІЇ "УКРКОНСЕРВМОЛОКО"

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BOOK OF ABSTRACTS

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THE INFLUENCE ON CAPILLARY DIAMETER SOLUBILITY OF CARBON DIOXIDE IN WATER

Movement gas-liquid mixture is slug, and the fluid in the liquid projectile rapidly circulates through the Taylor`s vortices. As a consequence, the contact surface phases are quickly updating and the driving force of the process increases.

Intensive reduction the solubility of carbon dioxide in the water takes place by increasing the diameter of the capillary from d_c = 10 mm to d_c = 12 mm. Further increase in capillary diameter from d_c = 15 mm to d_c = 20 mm has no effect on the solubility of carbon dioxide in the water.

With the increase in diameter of the perforated capillary also increases the gas film, through which carbon dioxide is introduced. Based on this, liquid layer through which the gas is bubbling also grows.

Pressure and water temperature change the solubility of carbon dioxide in the water. The capillary diameter dc = 10 mm, system pressure P = 0.6 MPa and increment of water temperature from t = 4 °C to t = 12 °C degree reduce carbon dioxide percentage in water from x_L = 0,73 to x_L = 0,49% mass, which represents a reduction of 33 %.

Affection of the porous capillary diameter and system pressure which depends on satiation of water by carbon dioxide is a linear dimension. Reduction of pressure in the process, having a constant temperature for water t = 8 °C, reduces the degree of satiation xL, the equilibrium concentration of CO2 in the liquid phase and the driving force of the process.

Increasing the diameter of a porous capillary from d_k = 10 mm to d_k = 20 mm, the system pressure P = 0.5 MPa and water temperature t = 8 °C, decrease the solubility of carbon dioxide in water from x_L = 0,61 to x_L = 0,518% mass, which is 15.1 %.

***KEY WORDS**: carbon dioxide, capillary, porous capillary, solubility*