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CONTINUOUS MAKING OF ICE CONTAINING OZONE MICRO BUBBLES DUE TO CYCLE REVERSAL OF BELT MOVING (INVESTIGATION ON OZONE MICRO－BUBBLES CONCENTRATION FIXED IN ICE)

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Abstract

An ozone has the both effects of a strong sterilization and deodorization, and it becomes harmless in a short time. Thus, a cold storage of fresh foods using ozone gas has been noticed. However, the decomposition rate of the ozone gas is very fast. So, ice containing ozone micro-bubbles (MBs) with several tens of micrometers was formed by one of the authors. And it was clarified that concentration of ozone MBs fixed in ice formed by the batch apparatus was enough to sterilize bacteria causing food poisoning, even if it was hold for 7 days. However, continuous ice formation cannot be realized by this batch apparatus. So, the authors developed a system to continuously form an ice containing ozone MBs. Then, the ice was formed by moving a metal belt with constant velocity to a fixed direction, and the formed ice's features were clarified. And, any further increases in a bubble content in the ice and a mass of the ice were realized by alternately moving the belt to the forward and the reverse directions under a constant cycle. In this paper, using this method, it was clarified that the maximum bubble content in the ice and the maximum mass of the ice. Furthermore, the ozone concentration fixed in the formed ice for each holding time could be obtained.

■理工学研究所との関連

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