

Nucleation and growth of ice in explosive wastewater

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The recovery of pure water from an explosive wastewater effluent has been investigated in a layer crystallization column. Crystallization was achieved by indirect cooling of the wastewater below the melting point of water. A further purification step was realized through induced temperature gradients that caused the diffusion of entrapped impurities. Growth rate were controlled by cooling rate from 0.3 to 1.0K/min. Final temperatures of 0, 1 and 2°C, were used to sweat the solid layers, The rate of purification was dependent on the sweating time and temperature. The degree of purification of the wastewater was mildly affected by the initial impurity concentration 2000mg/L to 10000mg/L COD. Water of COD 20mg/L was obtained by the crystallization combined with sweating process.