Realice crystal analysis

Johan Kronholm
Research Manager, Watreco AB

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Introduction

When water is treated with the Realice system, microscopic gas bubbles are removed. This process decreases viscosity and changes the way water freezes, producing an ice that is more homogenous and strong, and has a higher heat capacity leading to less energy usage in ice rinks. As can be seen in figure 1, the ice crystals are larger when seen in cross polarized light.

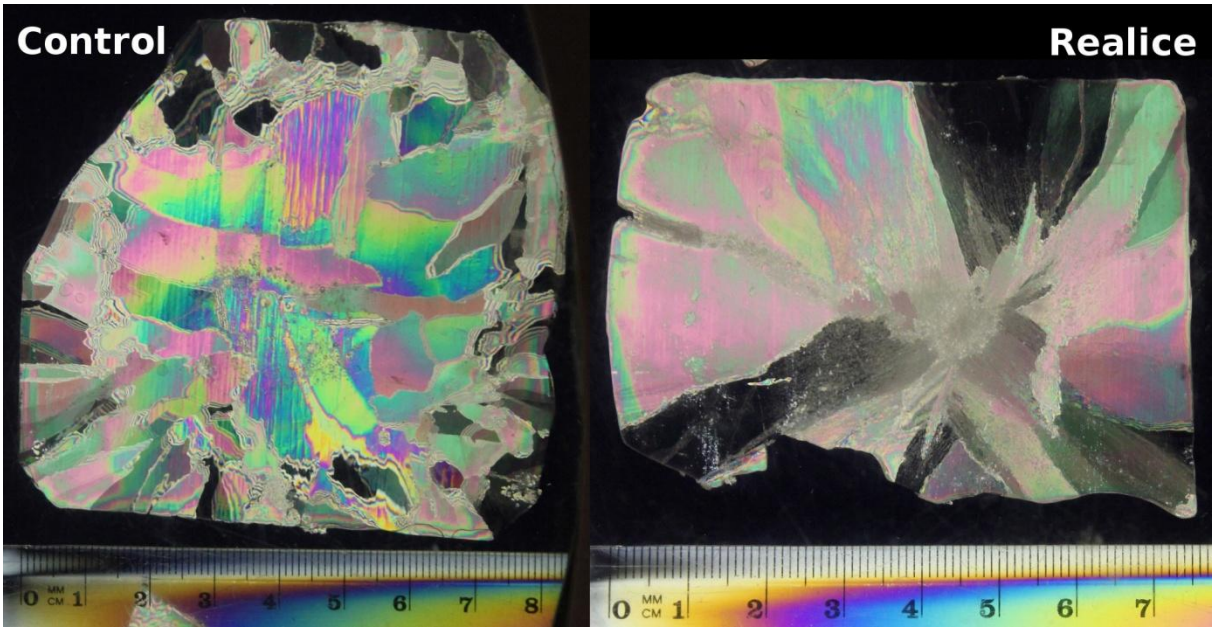

Figure 1: Ice crystals of normal ice (left) and Realice (right) as seen in cross-polarized light. The scale at the bottom is in cm.

Material and Methods

Investigations of ice crystal structure were made at Luleå Technical University, Sweden.

Water: Luleå municipal tap water
Pressure: 4 bar
Flow: around 1 m^3/h
Unit: ST

Treated and untreated water was filled into 500 ml containers and left to freeze at -10 °C. Thin slices were cut from the ice blocks and placed in cross-polarized light. Examples of the resulting images are shown in figure 1.

Results and conclusions

It can be clearly seen from figure 1 that the ice crystals are bigger and more even in the ice produced from Realice-treated water. This explains the improved ice quality and reduced energy usage in ice rinks where Realice has been installed.