

ABSTRACT

A single heat transfer fluid was concluded as ideal for the Cooper Cooler out of four possible candidates. After careful analysis and a series of experimental tests, a magnesium chloride solution was selected as the unsurpassed option for use as a cooling fluid going forward. The original four choices of solute were as follows: calcium chloride, magnesium chloride, sodium nitrate, and sodium nitrite. These were originally selected by Nicholas Rendina after numerous design investigations. Before narrowing down these options, each solution's fluid characteristics were defined, and various experiments were performed in order to establish each fluid's compatibility with the Cooper Cooler, overall effectiveness, and consumer appeal. These tests verified that magnesium chloride was most adaptable to the Cooper Cooler in that it did not corrode the machinery, it cooled beverages at a sufficiently fast rate, and its taste received the highest recommendation among consumers.