

Abstract:

In this paper a concept for energy saving for refrigerated container transport is presented. The concept is based on model-predictive control of the set points of the cooling unit. These models predict energy consumption of the cooling unit, climatic conditions inside the cargo space, and the change in product quality. The objective of the control is to minimize energy consumption while retaining a certain level of product quality. After presenting the concept of the model-predictive control the predictive power of the models used are shown. These models show that we are able to predict energy consumption, temperature, humidity and gas conditions quite accurately. Furthermore, an indication is given for the quality change model to be employed. The impact of the novel control is shown by simulation of a transport of apples.