

Influence of Process Parameters on Transient Performance of MR J-T Used in Cryochamber

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Mixed-refrigerant Joule-Thomson (MR JT) cryocoolers were recently introduced as a cooling technology for whole-body cryotherapy (WBC) due to the distinguishing dynamics and cool-down temperatures. Critical issues for users of the electric cryochambers are cooldown-time and stability during transient high peak heat loads. These characteristics are influenced by many factors like ambient conditions, system pressures, mixture filling amount and composition. The influence of these factors was experimentally investigated on a commercial fully-electric cryochamber manufactured by Cryo-Science. Based on the experiments, optimal process parameters which take into account electric consumption, cooldown time, minimal temperature, and stability during high peak heat loads were established.