

Cold Storage Experiments of Rare Earth HTS Magnet

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One of the advantages of high temperature superconductor (HTS) is its operational temperature. Due to its high operational temperature, specific heat of HTS material is several hundred times higher than that of the LTS. Therefore, continuous cooling is inessential for the HTS magnet. We investigate the possibility of a novel HTS magnet, which is operable without cooling system for a limited time. The most important factors of such a concept are thermal insulation and cold storage characteristics. Several experiments revealed that gas conduction became dominant heat leak source. We tested activated carbon to reduce gas conduction, and water ice was also used to increase heat capacity.