

A Study of Effect of Temperature on Life-time of Magnetic Storage Tape

Yong-Il Kim*, Soo-Young Park, Kwon-Sang Ryu

Korea Research Institute of Standards and Science, P.O. Box 102, Yuseong, Daejeon, 305-600, Republic of Korea

Various kinds of magnetic media have been used to record and store numeric and textual information, sound, motion, and images. The special long-term storage needs based on magnetic tape has been increased due to the reason that information recorded on a tape can be lost because of environmental degradation of the tape. Among many environmental variables, we are only focused on the effect of temperature on the life-time of magnetic tape. The intrinsic magnetic parameters of magnetic layer in the recording magnetic tape were measured a vibrating sample magnetometer (VSM). The life-time expectancy of the magnetic tape was based on the diffusion of H₂O and/or O₂ into magnetic particles. The diffusion constant which is closely related to the rate of oxidation was different from each vendor. The Arrhenius equation was applied to determine the relation of the rate of oxidation to temperature.