

# Effects of preparation conditions and thermocoloration on the optical properties of thin films of molybdenum oxide

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## Abstract

Thin films of molybdenum oxide were prepared by thermal evaporation. The effects of the preparation conditions (substrate temperature and oxygen partial pressure) on the optical constants ( $n$  and  $k$ ) were studied. It was found that the optical constants increased with increasing substrate temperature and they decreased with the introduction of oxygen into the deposition chamber. Thermocoloration of the films was carried out by annealing them in vacuum. The annealing of the films produced significant changes in the transmittance of the films, and thus, in their optical constants. These changes resulted from the observed changes in film thickness and atomic oxygen-to-molybdenum ratio in the films. © 2002 Elsevier Science B.V. All rights reserved.

*Keywords:* Molybdenum oxide; Optical properties

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