

## Optical properties of thin films of $\text{WO}_3$ , $\text{MoO}_3$ and mixed oxides $\text{WO}_3/\text{MoO}_3$

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**Abstract.** Optical properties of thin films prepared by thermal evaporation of  $\text{WO}_3$ ,  $\text{MoO}_3$ , and mixed oxides  $\text{WO}_3/\text{MoO}_3$ , have been studied. Satisfactory derivation of the refractive and absorption indices from the measured normal incidence transmittance of the films was achieved for the films of  $\text{WO}_3$  and  $\text{MoO}_3$ . However, for films of the mixed oxides this was not possible, especially for the spectral region in which these films were absorbing. Rutherford backscattering spectrometry (RBS) measurements on the films revealed that the films of  $\text{WO}_3$  and  $\text{MoO}_3$  were fairly uniform but the films prepared from the mixed oxides were chemically inhomogeneous. In fact, we were able to fit the RBS data for the mixed-oxide films by assuming that the Mo content in the film decreased (while the W increased) along the direction of growth of the film (i.e. from the substrate side of the film to its surface).