

ENHANCED OXYGEN NON-STOICHIOMETRY

COMPENSATION FOR THIN FILMS

Abstract Of The Disclosure

A method of manufacturing a magnetic recording medium, including the step of reactively or non-reactively sputtering at least a first data storing thin film layer over a substrate from a sputter target. The sputter target is comprised of cobalt (Co), platinum (Pt), a first metal oxide further comprised of a first metal and oxygen (O) and, when non-reactively sputtering, a second metal oxide. The first data storing thin film layer is comprised of cobalt (Co), platinum (Pt), and a stoichiometric third metal oxide comprising the first metal and oxygen (O). During sputtering, any non-stoichiometry of the third metal oxide in the first data storing thin film layer is compensated for using oxygen (O) from the second metal oxide in the sputter target, or using oxygen (O) from the oxygen-rich gas atmosphere. The first metal is selected from boron (B), silicon (Si), aluminum (Al), tantalum (Ta), niobium (Nb), hafnium (Hf), zirconium (Zr), titanium (Ti), tin (Sn), lanthanum (La), tungsten (W), cobalt (Co), yttrium (Y), chromium (Cr), cerium (Ce), europium (Eu), gadolinium (Gd), vanadium (V), samarium (Sm), praseodymium (Pr), manganese (Mn), iridium (Ir), rhenium (Re), nickel (Ni), and zinc (Zn). The sputter target is further comprised of chromium (Cr) and/or boron (B).