

Preface

The problem of contact materials subject to relative movement is becoming increasingly important for lifetime of the equipment, pollution and cost in energy. One of the aims of tribology is to understand how friction occurs and wear in dynamical contacts. This can vary considerably depending on the choice of the pair of materials and the experimental device. Few milligrams of material lost in a mechanism is sufficient to make it unusable and cause replacement with significant costs.

There is still no specific and general formalism to solve the problem of tribology, that is to say, friction, tearing, wear and lubrication of solid and liquid. Friction behavior or wear depends on complex conditions of stress, environment and physicochemical properties of surfaces, themselves dependent on tribological mechanisms. The intrinsic mechanical properties of materials are complementary and play a direct role in the tribological process.

The work presented at the ACMA'14 conferences are multidisciplinary, by interacting mechanics, physical chemistry and materials science on a different scale ranging, the goal is to explain, even if the reactions of the contact surfaces are very complex, the basics of tribology, the process of friction and wear, to apply the test methods on the materials in contact and get material coatings on other surfaces by different methods and processes mechanical, physical and chemical. This special issue of the journal "KEM: Key Engineering Materials" consists of a collection of studies both in the fields of experimental simulation of tribology than the science of surfaces in contact by relative movements in relation to the mechanical properties materials.

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