

DEVELOPMENT OF NEXT GENERATION SOLID LUBRICANTS

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ABSTRACT

Present generation precision thin-film solid lubricants include heritage products of MoS₂ and Lead (Pb) applied via physical vapour deposition (PVD). Whilst well established, there is a desire to further improve the tribological properties of these coatings and anticipate any potential future legislative restrictions on the availability of Pb-based lubricants.

Considering these technical and commercial requirements, ESTL has developed a family of next generation Mo-based solid lubricants, utilising a variety of dopants, interlayers, and production process updates. Tribological tests show significant improvements in vacuum life, and component (angular contact bearing) test campaigns demonstrate success and compatibility with appropriate self-lubricating cage materials.

Link to full paper will be become available during ESMATS 2025....