SUBSTRATE COATED WITH A LUBRICANT COATING

Technological advantages

- Technology well suited for tests phase, storage phase and use.
- Lubricant properties preserved for vacuum and for atmospheric conditions.
- Simplified implementation compared to previous methods.
- Simplified manufacturing process.
- Good lubricant properties.
- Protects against wear.

Molybdenum metal

Invention synthesis

The invention deals with a substrate coated with a coating made of atoms of molybdenum, sulfur, tantalum and oxygen : $Mo_wS_xTa_yO_z$. The w,x,y,z coefficients are between 0 and 1,2,1,3 respectively. The coating possesses at least 5 % of oxygen atoms and presents a dense compact micro-structure. The oxygen/tantalum compound offers a protection against humidity. The manufacturing process for the substrate coated with the coating is based on a substrate feeding (heated between 20 and 350°C) and a codeposition with magnetron cathodic sputtering carried out with an atmosphere made of an inert gas and of oxygen (between 0.1 en 5%).

Potential applications

- Industrial applications in : space, aeronautics, biotechnological, medical and pharmaceutical.

Commercial benefits

- Enhanced lifespan : less wear, avoid premature breakage.
- Costs reduction during the assembly, integration and test phases (AIT).
- Avoids delays due to constraints linked with humidity sensitivity.
- Reduction in the required workforce.

Patented invention - under license.

For more information :

Valo-TT@cnes.fr