sliding surfaces. Yamamoto et al. mention her MoO_2 and MoO_3 as products of the post-oxidation of the Mo-N layers.

This post-oxidation effect however has the following disadvantages:

- On the one hand, it must be observed that the post-oxidation occurs in an uncontrolled manner, which causes both MoO_3 as well as MoO_2 to be generated. As already mentioned above, MoO_2 has abrasive properties that are very disadvantageous in connection with good sliding properties that might for example be required.

- During applications of Mo-N layers with high mechanical loading, on the other hand, both the reaction (post-oxidation of Mo-N) as well as the sliding properties of Mo-N in combination with the expected lubrication properties of MoO_3 are not stable, because the oxide compounds produced during the application, in particular MoO_3 particles continually break loose from the Mo-N layer. This quickly leads to a further oxidation of the Mo-N layer surface and, as the process progresses, to a degradation of the Mo-N layer.

Task of the invention

The present invention has the task of proposing an improved layer and a method for producing same, which in addition to other good tribological properties and/or electrical properties in particular also has good and stable lubrication properties and/or an improved smoothness and which preferably additionally also attenuates at least partially the above-mentioned disadvantages of the layers known so far.

Summary

In one aspect of the invention, there is provided a coating comprising at least one layer containing molybdenum with molybdenum oxide, characterized in that the molybdenum oxide is essentially molybdenum monoxide and further characterized in that the coating comprises at least one molybdenum nitride layer.

In another aspect of the invention, there is provided a PVD process or combined PVD/CVD process for the production of a coating as disclosed herein, characterized in that the molybdenum monoxide is deposited in the layer containing molybdenum monoxide by means of spark evaporation.

In another aspect of the invention, there is provided a PVD process for the production of a coating as disclosed herein, characterized in that the molybdenum-containing layers are produced by means of spark evaporation of at least one target containing molybdenum in a reactive atmosphere.

In another aspect of the invention, there is provided a component with a coating, characterized in that the coating is a coating as disclosed herein.

In another aspect of the invention, there is provided the use of a tool coated as disclosed herein for the production of components of metal or metal alloys, characterized in that the coating makes it possible to reduce or preferably completely prevent smearings of the machined metals or metal alloys on the coated surface of the tool.

Inventive solution to the task

According to the invention, the task is solved by the production of a hard material layer comprising a stabile oxide of molybdenum.

In particular, the task is solved according to the invention by the production of a nitride oxide layer of molybdenum Mo-(N-O) comprising a stable oxide of molybdenum.