Claims

1. 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.

2. Coating according to claim 1, characterized in that the coating comprises at least one molybdenum oxide layer that essentially includes molybdenum monoxide and in that the XRD spectrum of the molybdenum monoxide layer essentially exhibits neither MoO_2 peaks nor MoO_3 peaks.

~~3. Coating according to one of the preceding claims, characterized in that the coating comprises at least one molybdenum nitride layer.~~

~~4.~~3. Coating according to one of the preceding claims, characterized in that the coating comprises at least one Mo-N-O layer including molybdenum-nitrogen compounds and molybdenum-oxide compounds, wherein essentially the molybdenum atoms form a compound with maximum one oxygen atom and in that molybdenum monoxide is preferably contained in the coating.

~~5.~~4. Coating according to claim 43, characterized in that the Mo-N-O layer lies between a molybdenum nitride layer and a molybdenum monoxide layer.

~~6.~~5. Coating according to claim 43 or ~~5~~4, characterized in that the atomic concentration ratio in the Mo-N-O layer is described by the following formula: formula: $Mo_z(N_dO_e)$, wherein:

e: is the atomic oxygen concentration in the Mo-N-O layer

d: is the atomic nitrogen concentration in the Mo-N-O layer

z: is the atomic molybdenum concentration in the Mo-N-O layer and $z \geq y$.

~~7.~~6. Coating according to claim 43, ~~5~~4 or ~~6~~5, characterized in that the Mo-N-O layer is a graded layer, wherein the nitrogen concentration decreases from the boundary surface close to the substrate towards the boundary surface close to the surface of the Mo-N-O layer whilst the oxygen concentration increases.

~~8.~~7. Coating according to claim 4~~3~~, 5~~4~~ or 6~~5~~, characterized in that the Mo-N-O layer is a graded layer, wherein the oxygen concentration decreases from the boundary surface close to the substrate towards the boundary surface close to the surface of the Mo-N-O layer whilst the nitrogen concentration increases.

~~9.~~8. Coating according to claim 4~~3~~, 5~~4~~ or 6~~5~~, characterized in that the coating comprises at least one coating according to claim ~~7~~6 and at least one coating according to claim ~~8~~7.

~~10.~~9. Coating according to one of the preceding claims, characterized in that the coating has a cover layer with MoO_3.

~~11.~~10. Coating according to one of the preceding claims, characterized in that at least one bonding layer and/or at least one functional layer is deposited between the base body and the layer containing Mo.

~~12.~~11. Coating according to one of the preceding claims, characterized in that at least one layer containing Mo has in particular very high mechanical stability and contains $(Mo_{1-x}, Me_x)\ A_aB_bC_c$, wherein $0 \leq x \leq 0.99$, preferably $0 \leq x \leq 0.5$ and Me is a metal from the group of W, Ti, Al, Cr, Si, Zr, Ta, Nb, Ag, Cu and V or the combination of two or more metals of this group and

A is nitrogen (N) with $0.5 \leq a \leq 1$

B is carbon (C) with $0 \leq b \leq 0.5$

C is oxygen (O) with $0 \leq c \leq 0.5$

and wherein a, b and c indicate in at% between the elements N, C and O with a+b+c=1 and additional further elements can be provided but are preferably not provided, and $x \geq c$.

~~13.~~12. Coating according to one of the preceding claims, characterized in that at least one layer containing Mo has in particular very good lubricating properties and sliding characteristics and contains $(Mo_{1-y}, Me_y)\ A_uB_vC_w$, wherein $0 \leq y \leq 0.99$, preferably $0 \leq y \leq 0.5$ and Me is a metal from the group of W, Ti, Al, Cr, Si, Zr, Ta, Nb, Ag, Cu and V or the combination of two or more metals of this group and

A is nitrogen (N) with $0.5 \leq u \leq 1$

B is carbon (C) with $0 \leq v \leq 0.5$

C is oxygen (O) with $0.5 \leq w \leq 1$

and wherein u, v and w indicate in at% between the elements N, C and O with u+v+w=1 and additional further elements can be provided but are preferably not provided, and $y \geq w$.

~~14.~~13. Coating according to one of the preceding claims, characterized in that the coating comprises at least one first layer according to claim ~~12~~11 and a second layer according to claim ~~13~~12.

~~15.~~14. PVD process or combined PVD/CVD process for the production of a coating according to one of the preceding claims, characterized in that the molybdenum monoxide is deposited in the layer containing molybdenum monoxide by means of spark evaporation.

~~16.~~15. PVD process for the production of a coating according to one of the preceding claims, 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.

~~17.~~16. Component with a coating, characterized in that the coating is a coating according to one of the preceding claims 1 to ~~14~~13.

~~18.~~17. Use of a tool coated according to claim ~~17~~16 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.