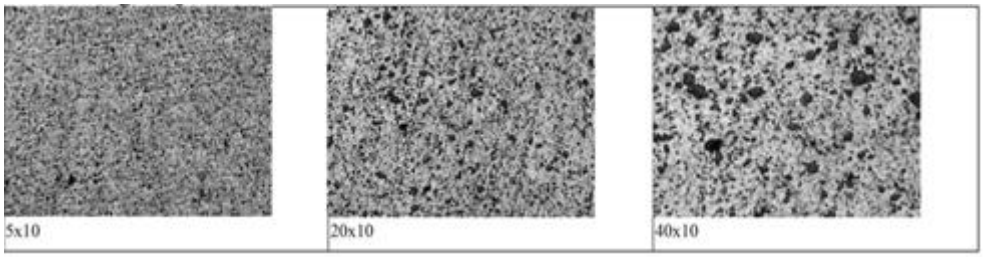
※Silver Metal Oxide ($AgSnO_2$, $AgSnO_2In_2O_3$, AgZnO, AgCuO) :

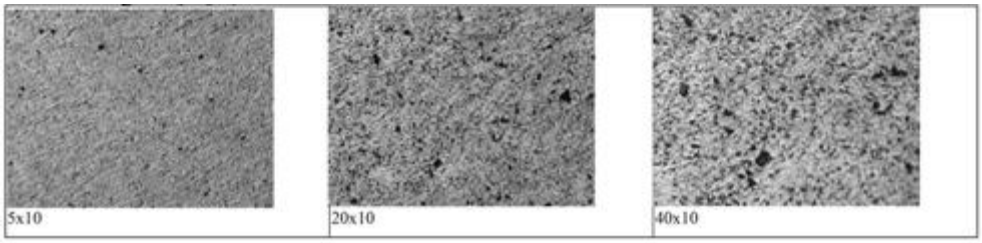
Silver-metal oxides are widely used in electrical contact due to its resistance against contact erosion, contact sticking, good electrical conductivity, high melting point, and hardness. There are several types of material such as $AgSnO_2$, $AgSnO_2$ In_2O_3, AgZnO, and AgCuO. The metal oxide particles harden the electric contacts without increasing the resistivity since they are not soluble in silver. As a result, by mixing such additives with silver, the quality and lifetime of the contacts can be improved significantly.

$AgSnO_2$ and $AgSnO_2In_2O_3$ series have good fusion-resistance which is suitable for high current applications. They are commonly used in low voltage electrical power equipment such as AC contactors, circuit breakers and AC switches. The additive of SnO_2 will melt itself on the surface to provide better protection against erosion and welding. However, the contact resistance and the cost of SnO_2 are higher than AgCdO. Due to environmental concerns of the European Union, this pollution free material still plays an important role in the field of electric contacts.

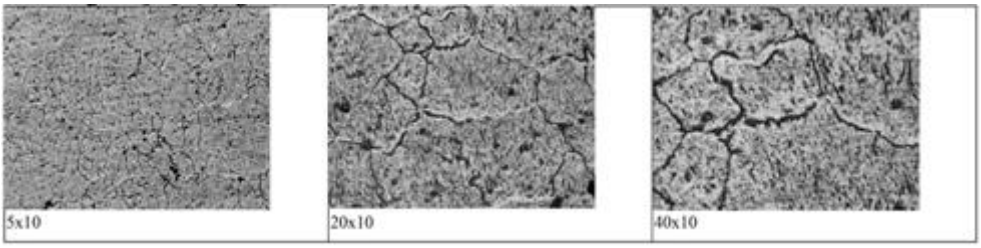
Ag90 · $SnO_2$10



Ag90 · $SnO_2In_2O_3$10



Ag87 · $SnO_2In_2O_3$13



AgCuO has better performance than other material for DC applications. Its high resistance to erosion and welding make it a good choice for medium-sized and large loads, switches and relays.

AgZnO has low contact resistance. It also exhibits good resistance against erosion and welding. Due to its low contact resistance, AgZnO is suitable for small/medium-sized circuit breaker, contactors and AC relays.