

M E T A K E M

Stability of alkalineAu(I)- and ammoniumAu(I)sulfite

Ammonium- and alkaline sulfites are strong reductant media. They decompose halide gold complexes to metallic gold. But sulfite builds strong gold complexes, too.

Free sulfite can be oxidised by oxygen. Thus free sulfite containing solutions must be preserved against the access of air.

A surplus of free sulfite is added to solutions of goldsulfite to avoid their disintegration. Thus the solutions are to be stored in sealed bottles.

The stability of the goldsulfite complex decreases with an increasing halide-content of the solutions. Especially under daylight chloride impured solutions decompose or need a higher excess of free sulfite. The UV of the daylight reacts on the gold complex, causing sulfite temporarily exchanged by chloride. Thus partly chloride impured goldsulfite is decomposed if surplus of free sulfite is too low.

The solution starts to become violet-blue and after a while brown gold powder and later shining gold is precipitated at the walls of the bottles. While operating the electroplating bath the gold is unobserved gathered inside the filterelement cleaning the bath permanently.

The conclusion

Impure sulfite gold causes gold losses and increases the costs of the compound.

Partly unknown on the market

Metakem's solution of alkaline- or ammoniumAu(I)sulfite contains nearly nil chloride, with less than **2 mg Cl⁻ / 100 g Au**. A solution of goldsulfite with this Cl⁻-level can be stored even under daylight for years.

Metakem's solution contains only traces of sulfate instead of 0,5m SO₄⁻/100 g Au for usual products on the market. Thus Metakem's product avoids a further disadvantage.