

[Reference: FTC guideline - Title 16, commercial practices part 23 for gold plating over sterling silver Jewellery](#)

Dear Sir,

My concern is on low K gold plating (10/14/18) over sterling silver. As per me, gold plating on silver Jewellery should be done only with > 23K.

Following are the reasons to support my recommendation:

REASONS TO AVOID LOW K GOLD PLATING

- In low karat gold micron electroplating, we have to use either Au/Cu or Au/Ag chemistry. Au/Cu chemistry plating color for 14K is too pink (5N) & Au/Ag chemistry plating color is too green. We have to give top coat of 0.1 micron of high karat gold (>23K) to achieve Hamilton color (1N/2N) over low karat gold plating.
- Doing low karat gold plating & cover it with nominal high karat gold for color, deficit the purpose of gold plated Jewellery. If the top flash gold will wear out then actual gold alloy color (pink/green) will expose (pink/green) which will tarnish too fast.
- Achieving exact K (10/14/18) in low K electroplating is practically not possible.
- We cannot identify gold purity of plating thickness on sterling silver by XRF because there are common elements present in plating thickness & base (e.g. Ag,Cu..).
- Gold alloy (10/14/18) thickness testing is not possible by XRF because standards available for thickness calibration are in 24K. It is impossible to make 10/14/18 K standards as per plating compositions (Au/Cu & Au/Ag) because it cannot be fabricated. Thickness measurement of low K on XRF is manipulated method, where instrument detects pure gold ions throughout the plating layer & then by density calculation it will be converted into low K plating thickness(e.g.- 14 K density is 13 g/cc & pure gold is 19.3 g/cc. so 0.7 micron of 24K is equal to 1 micron of 14K).
- Only method to check exact thickness is SEM/EDS where Jewellery piece is set in resin & cut in cross section to check plating layer pattern & physical thickness. This method is expensive, time consuming & destructive.
- Low K electroplating concept is mistaken from bonded products. Bonded products are manufactured by casting 10/14/18 K gold alloy in strip form then convert into thin sheet by rolling & then fuse thin gold sheet on silver article by brazing or cladding method. Top gold alloy sheet color & tarnish resistance come from its alloy composition. Low K gold plating doesn't allow choice of alloy composition like casting. Its top color will be either copperish or greenish & highly tarnish prone which is process bottleneck.

REASONS TO RECOMMEND >23 GOLD PLATING

- Gold plating composition & color will be same throughout the plating layer. Customer can use 1 micron plated article till it wears out completely & exposes silver base.
- Tarnish resistance will be as good as pure gold.
- Authentic thickness & purity measurement is possible by simple XRF nondestructive test.
- Article can be plated up to 5 micron which will last for minimum 1 year with rough use (with cautious use, it can last for years).
- It will give authentic gold plated product in market which will grow customer confidence in plated articles & help declining Jewellery market because of stiff gold price rise.

Sudhir Jadhav