

Gold and silver articles – little known information

Various uses of gold

- Jewellery
- Coinage
- Decorative – as on plate and cup edges
- Scientific purposes
- Dental purposes

Nature of Gold

Pure gold is soft and can resist wear. For different colour effects, it is alloyed (mixed) with other metals namely silver, copper, nickel, platinum and palladium. The proportion of gold in jewellery is measured on the **carat (karat)** scale. The word carat comes from the carob seed, which was originally used to balance scales in Oriental bazaars. Pure gold is designated 24 carat, which compares with the “*fineness*” by which bar gold is defined. The carat of an article of jewellery is determined as a percentage of the 24 carat. Therefore, 18 carat jewellery contains $(18/24)*100 = 75\%$ gold. The remaining content is the alloy metal chosen.

The table below describes the gold content for different karatage articles as well as the countries where it is popular.

Caratage	Fineness	% Gold	Country
24	1000	100	
22	916.7	91.67	Widely used in Middle East, India, South East Asia
18	750	75	Widely used in Europe; Trinidad & Tobago
14	583.3	58.3	Europe; United States; Trinidad & Tobago
10	416.7	41.67	United States; Trinidad & Tobago
9	375	37.5	Popular in Britain

Portugal has a designation of 19.2 carats, which equates to 80% gold. However, in China, Hong Kong and other parts of Asia, “chuk kam” or pure gold jewellery of 990 fineness (99% gold) is popular.

The Colours of Gold

Gold when alloyed with other metals produce coloured 'gold' jewellery. The resultant colour is dependent on the alloying metal(s) used, and the ratios of mixing/alloying. The following table shows the effect of different metals alloyed to gold.

Alloying Metal	Colour	Plating	Comments
Nickel	White	Rhodium electroplated coating	Some people tend to have an allergic reaction to the nickel present with symptoms of a red skin rash or irritation. The rhodium plating gives temporary protection (in addition to showing it whiter longer) but needs annual re-plating.
Palladium	White	Rhodium electroplated coating	More expensive than nickel-alloyed gold. Sometimes mixed with manganese to reduce cost. Rhodium provides white appearance longer.
Copper	Red	—	Lower karatage gold articles provide more flexibility in "colouring" of the metal.
Silver	Green	—	Lower karatage gold articles provide more flexibility in "colouring" of the metal.
Zinc	Bleaches	—	Lower karatage gold articles provide more flexibility in "colouring" of the metal.
Copper:Silver:Zinc	Yellow	—	Lower karatage gold articles provide more flexibility in "colouring" of the metal.
Copper:Nickel:Zinc	White	—	Lower karatage gold articles provide more flexibility in "colouring" of the metal.
Aluminium	Purple	—	This is a brittle combination and not easily worked. It breaks and tarnishes easily. It contains 79% gold.
Indium	Clear Blue	—	Contains 46% gold. This is also brittle.
Gallium	Bluish hue	—	Contains 58.5% gold and is also brittle.
Rhodium or Ruthenium	Grey-Black	Rhodium or Ruthenium plating	The amount of wear resistance reduces with the darker (more black) colour.
Carbon	Black	Amorphous carbon	Used for watches and has a Chinese lacquer appearance in either gloss or matte.
Cobalt or Gold or Chromium or Iron	Black	Oxidation of top layer	Brown, black or grey colours depending on alloyed metal content.
Various metals	Blue	Patina by oxidation treatments	Varying colours dependent on the alloying metals and their content.

Hallmarking

This guarantees quality. Internationally, it backdates some 700 years. A Hallmark must identify the manufacturer's name, trademark or other identifying mark as approved by the Trinidad and Tobago Bureau of Standards. The gold symbol and pure gold content either as fineness or cartage is also required by **TTS 463: 1995 – Specification for Composition and Marking for Gold Articles** compulsory local standard. If the article is in a setting alloy, the setting alloy symbol with the designation either "Pt" for platinum or "Pd" for palladium is also required on the article. Gold-filled articles require the words "gold filled" or the abbreviation "GF" indelibly engraved or stamped. If the article is too small for the information, a tag shall be attached to the article or on a suitable display module.

Definitions

Gold Filled – A layer of plating of 10-karat gold or better that is mechanically bonded to a base metal.

Gold Overlay – A layer of at least 10-karat gold permanently bonded by heat and pressure to one or more surfaces of a support metal, then rolled or drawn to a prescribed thickness.

Vermeil – This is gold that is at least 15 micro-inches thick boded to sterling silver by an electrolytic or mechanical process.

Gold Leaf – This is pure gold that is pounded into sheets and applied to other surfaces by hand. It is usually about 3 micro-inches thick.

Silver

There are two major classes for silver articles: **sterling silver** and **silver alloy**. Sterling silver contains 925 parts pure silver (92.5%) and 75 parts copper (7.5%) for every 1,000 parts (100%). Silver alloy contains not less than 800 parts pure silver (80%) for every 1,000 parts (100%). Silver jewellery will oxidize, with time, into silver oxide, which is black in colour. This happens with ozone, hydrogen sulphide or air containing sulphur. This is prevented by the plating of the article with rhodium to retain its original lustre.

Hallmarking

In accordance with **TTS 464: 1995 – Specification for Composition and Marking Requirements for Silver Articles**, silver articles shall be clearly and indelibly engraved or stamped with the manufacturer's name, trademark, or other identifying mark as approved by the Trinidad and Tobago Bureau of Standards and the pure

silver content as parts per 1,000. If it is a silver article, the word “**silver**” or the abbreviation “**S**” shall be used. However, if it is a sterling silver article, the words “**sterling silver**” or the abbreviation “**stg**” shall be used for the marking. If the article is silver filled, then either the words “**silver filled**” or the abbreviation “**SF**” shall be engraved. As with small, gold articles, a tag shall be used for small silver articles.

Cleaning and Care of Jewellery

Storage

Gold jewellery should be stored in the box it was purchased or a jewellery box separate from other articles. This prevents scratching of the articles especially by diamonds or other hard gemstones. Silver articles should be stored in soft cloth pouches.

Cleaning

It is best to use a soft cleaning cloth, chamois leather or synthetic chamois to clean your jewellery. When cleaning your jewellery, always use soft, non-abrasive material. A good cleaning liquid may be used for intricate jewellery with delicate links, which a cloth may not reach. Once in a while, gold ornaments should be cleaned by dropping them, one at a time, into boiling water in which a pinch of baking soda (sodium bicarbonate) has been added, for just half a minute. Wipe each immediately with a soft cloth upon removal from the solution. A mild soap and water solution used with a soft toothbrush is effective for most home jewellery care needs. Do not use soap and water with amber, coral, emerald, jade, kunzite, lapis lazuli, opal or turquoise gems/materials. Additionally, remember to visit your jeweller annually for an examination and professional cleaning of your jewellery.

Care

Do not expose your jewellery to harsh household cleaning products such as laundry detergents and chlorine bleaches. Additionally, remove jewellery before entering pools and hot tubs. These chemicals deteriorate the article faster, especially at links.