How is the purity of gold determined?

Gold Purity · https://www.purejewels.com/faqs/gold-purity/how-is-the-purity-of-gold-determined/

When you buy gold, purity is the number that matters most; it tells you exactly how much real gold is in the piece you're paying for. Purity is measured in two ways, tested in a few, and, in the UK, guaranteed by an independent stamp. Here is how it is determined, and how you can check it on anything you are buying or already own.

Carats and fineness — the two ways purity is measured

Purity is expressed in two systems that describe the same thing. Carats measure gold out of 24 parts: 24ct is pure gold, 22ct is 22 parts gold to 2 parts other metals, and so on down. Fineness measures gold in parts per thousand: 22ct becomes 916, 18ct becomes 750, 9ct becomes 375. UK hallmarks use the fineness number, so the two sit side by side; 916 and 22ct mean the same thing. To convert, divide the fineness by 1,000 for the percentage (916 → 91.6% pure), or divide the carat by 24 (22 ÷ 24 = 91.6%).

How is gold purity actually tested?

Behind the number are real tests. Three are worth knowing:

- **Fire assay —** the traditional and most accurate method, used by assay offices. A tiny sample is melted and refined to separate out the pure gold, which is then weighed. It is destructive; a scraping is taken, but it is the benchmark every other test is measured against.
- **XRF (X-ray fluorescence) —** the modern, non-destructive test. An X-ray reads the metal composition in under a minute without cutting or scratching the piece. It is what we use at PureJewels when a customer brings gold in.
- **The touchstone (acid) test —** the traditional trade check: the gold is rubbed on a stone and graded acids are applied, with the reaction indicating the carat. Quick and low-cost, still used in the trade, but it reads the surface and is less precise than the other two.

How do you read a UK gold hallmark?

In the UK, you rarely need to test anything yourself, because an independent hallmark does it for you, and every piece of gold sold legally in the UK over 1 gram must carry one. The hallmark contains a fineness number, 375 (9ct), 585 (14ct), 750 (18ct), 916 (22ct) or 999 (24ct); an Assay Office mark, such as the London leopard's head; and a date letter for the year of testing. The fineness number is the one that tells you the purity. A 916 stamp alongside the London Assay Office mark means, with legal certainty, that the piece is 91.6% pure gold, no calculation, no guesswork. For a full walkthrough of the symbols and where to find them on a piece, see our guide to hallmarking.

What if there is no hallmark?

In the UK, it is illegal to sell an item over 1 gram as gold without a hallmark. If a piece carries none, it hasn't been independently tested. That doesn't automatically make it fake; older pieces, items made abroad, and very small items may not carry UK marks, but it does mean you are relying on the seller's word rather than an independent check. Every piece we sell at PureJewels is UK hallmarked.

Can I have my gold tested at PureJewels?

Yes. If you want a piece checked, whether you're thinking of selling it, received it as a gift, or simply want to confirm a purchase, bring it to our Green Street showroom. We use XRF for gold assessments: non-invasive, accurate, and done while you wait. It is the same method behind every piece we buy or part-exchange.

Everything we sell is 22ct or 18ct gold, hallmarked by the London Assay Office and certified for purity before it reaches you — browse our 22ct gold jewellery or our gold bars and coins. And if you'd like to check a piece for yourself first, our guide to testing whether gold is genuine walks through five simple checks you can do at home.

By Jayant Raniga, PureJewels Green Street

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