Nickel Silver, German Silver and related alloys

Resources for the metalsmith and collector

What is nickel silver?

Nickel Silver is the generic name for any of a range of non-precious bright silvery-grey metal alloys, composed of copper, nickel and zinc. Despite its name it contains no real silver. It is also commonly called German Silver.

Nickel Silver gets its name because its colour matches that of silver reasonably, and because it was used as a low status substitute for silver in the 19th century. (There was then no effective trades desciption legislation to prevent confusion of this alloy with sterling silver). Nickel etymology.

Nickel Silver was (and still is) widely used for the commercial production of industrial components, housewares, flatware and cutlery, and as the metal substrate for silver-plated goods, hence the term EPNS = Electro-Plated Nickel Silver.

Nickel Silver was formerly widely used in costume jewellery and as the substrate for silver and gold plated jewellery. Due to the high propensity of nickel to induce dermatology problems and allergy, recent legislation in the EU has restricted the use of nickel in jewellery. The European Nickel Directive

There are many different formulations of alloys which fall within the general term of "Nickel Silver". All contain copper, nickel and zinc, while some formulations may additionally include antimony, tin, lead or cadmium. A representative formulation (Alloy No.752) is 65% copper, 18% nickel, 17% zinc.

The US 5 cent coin, known as the "nickel" (introduced in 1866) is minted from an alloy of 75 per cent copper and 25 per cent nickel.

History

The family of Nickel Silver alloys has been known since the early 18th century and were initially developed in the far east. European traders brought back metalware goods which were described using the Indian word **Tutenag** or the Chinese word **Paktong**. This new alloy with its properties of strength, relatively easy working and silvery colour began to be used for a range of consumer goods, but it was not until the 1840s that the alloy was developed in its modern formulation. By then firms such as Elkington in England and Berndorf in Austria were looking for a stable, cheap, silverish metal as a substrate for the new process of electroplating. Hence EPNS was born, and its German equivalent Alpacca. Argentum and Electrum were other tradenames for electroplate.

Nickel Silver Flatware and Cutlery

Equally importantly, Nickel Silver was used "raw" (unplated) in large quantities for the manufacture of cheaper flatware and cutlery. Nickel Silver will take a very bright polish initially, but dulls very quickly, becoming watermarked and stained (rather than tarnished like silver). There must have been many disappointed customers of Nickel Silver cutlery!

> The new spoons and forks were yellowy-white, and not so heavy as the old ones, and they never shone after the first day or two.
> Edith Nesbit *The Story of the Treasure Seekers*, 1899.

Many tradenames were developed when nickel silver was at the height of its popularity, and especially in the Sheffield and Birmingham manufactures there was a trend to develop tradenames which strongly implied a real silver content, or had "romantic" associations, often alluding to south American silver mines.

- Afghan Silver
- Austrian Silver
- Brazilian Silver
- Mexican Silver
- Nevada Silver
- Potosi Silver
- Silverite
- Sonora Silver
- Tyrol Silver

- Venetian Silver

Other names include "British Plate", "Albata", "Virginian Plate", "Argentan" and "Alpakka" or "Alpaka".

Nickel Silver tradenames

A partial listing of some 19th century manufacturers tradenames - research in progress.

- Alpacca or A.L.P or ALPACCA PRIMA N.S Trademark of Berndorf AG., Austria
- AMS -- Trademark of Silber and Fleming, large London wholesaler (AMS = co-founder Albert Marcius Silber)
- Argentium Argentine Plate
- Argentum
- Ascetic B. B. S. Ltd
- Ashberry
- Austrian Silver
- Brazilian Silver D&A Trademark of Daniel and Arter, Birmingham
- Buxbridge - Trademark name of JT&Co.
- Dixon = John Dixon & Sons Logo: Bugle
- Electrum
- Encore TT&Co Trademark of T. Turner
- Exquisite
- HH&S
- I.XL Geo. Wostenholm & Son, Sheffield-England
- Insignia Plate
- JB&S EP A1
- JD&S = John Dixon & Sons Logo: Bugle
- K & TL
- M&W Mappin and Webb
- N.S. New Silver
- Nevada Silver D&A Trademark of Daniel and Arter, Birmingham
- Norwegian Silver; Trademark of WG&S
- Pelican Silver JGNS
- Potosi Silver N&S WP
- RN&S EP Neill
- Silverite = Trademark of W P & Co
- Sonora Silver = Trademark of Walker and Hall, Sheffield

- Spur Silver = Trademark of E B & Co for Edwin Blyde & Co of Sheffield
- Stainless N. S.
- Stainless Nickel
- Stainless Nickel Silver
- Venetian Silver - Trademark of Deykin & Sons, Birmingham Logo: Gondola
- WF&SS EP

What is Alpacca ?

Alpacca is a tradename for nickel silver and for electro plated nickel silver. Originally a trademark of Berndorf AG., it is now used as a generic name for nickel silver, espcially in Germany and Scandinavian countries. Often mistakenly written *Alpaca*. Also called New Silver.

What is Tutenag?

Tutenag is an obsolete name for an Indian metal alloy in the Nickel Silver family. The word was also used to describe zinc commercially supplied from India.

What is Paktong

Paktong is an obsolete name for a Chinese metal alloy in the Nickel Silver family. Also called variously Packtong, Pakton, Packfong, Pakfong, Paitung, Paitun, Baitong, Baitun, Baitung.

What is "Goldoid" ?

Goldoid is a trademark name for flatware with a gilt plated finish.

What is "Virenium" ?

Virenium is a patented silver-coloured base metal alloy in the Nickel Silver family, often used for commemorative coins and medals. Composed largely of copper, with nickel, zinc and other constituents. Intended to have the look and stability of precious metal. Used in high denomination coinage since 1978. Trademark of Pobjoy Mint Ltd.

Notes

The word **nickel** is shortened from of the German word *Kupfernickel* meaning niccolite ore. The word literally means *copper demon*, and was so called by German miners because it was often confused with genuine and valuable copper bearing ore.

From Websters Revised Unabridged Dictionary (1913)—

> **German silver** *(Chem.)*, a silver-white alloy, hard and tough, but malleable and ductile, and quite permanent in the air. It contains nickel, copper, and zinc in varying proportions, and was originally made from old copper slag at Henneberg. A small amount of iron is sometimes added to make it whiter and harder. It is essentially identical with the Chinese alloy *packfong*. It was formerly much used for tableware, knife handles, frames, cases, bearings of machinery, etc., but is now largely superseded by other white alloys.

Nickle = variant spelling of nickel.

Bibliography: A.Bonnin *Tutenag and Paktong*, Oxford 1924.
W. D. John, *Paktong*, Newport, Mon. 1970.
Paktong Keith Pinn 1999, Antique Collectors' Club; ISBN: 1851493247

Other Metal Alloys

Current and historical names for some metal alloys not in the Nickel Silver family.

What is Monel?

Monel (or monel metal) is a trademarked name for a range of corrosion-resistant bright metal alloys containing typically 67 percent nickel, 30 percent copper, and trace proportions of iron, manganese, and other elements. It is not a synonym for Nickel Silver and should not be confused with it. Monel is more expensive than Nickel Silver because of the high proportion of nickel and its more specialist applications.

What is Gun Metal

An alloy in the bronze family, used especially where resistance to wear and corrosion is desired. Clasically, an alloy of Cu 88 %, Sn 10%, Zn 2%, traditionally used for making cannon and other industrial products. Also used loosely to describe other dark-grey cast metals such as found in toys, badges, buckles etc.

What is Pinchbeck?

Pinchbeck is a yellow metal alloy in the brass family. Invented by Christopher Pinchbeck in the 18th century, it was claimed to be a secret recipe, but is generally believed to be 83% copper and 17% zinc. This ratio optimises the gold matching colour of the alloy. Commonly known as "poor man's gold". It and similar alloys were widely used in costume jewellery, and as the metal substrate for fire gilding and (from 1840) gilt electroplating. Now included under the generic name "Gilding Metal".

What is Spelter?

Spelter is an alternative name for the metal zinc, especially when used in decorative arts manufacture and casting. Spelter castings were often patinated to imitate more valuable bronze.

What is Tutania?

Tutania is an alloy of copper, antimony, zinc and tin patented in 1770 by William Tutin whose Birmingham firm (Tutin and Haycroft) used it in commercial production of housewares.

What is Cupro-Nickel?

A silvery-coloured binary alloy of copper and nickel. Widely used for minting coinage. It is also called copper-nickel, especially in US usage. In the UK it has been used since 1947 for "silver" coins, usually in an alloy of Cu 75%, Ni 25%. The alloy in the current 20p coin of the UK is Cu 84%, Ni 16%.

What is Bronze?

Any of various alloys of copper with tin and often zinc. Widely used for minting coinage. In the UK bronze coinage (the copper-coloured coins of 1860-1992) the alloy was Cu 95.5%, Sn 3%, Zn 1.5%

What is Nickel Brass?

Any of various brass coloured alloys of copper with zinc and a small component of nickel. Widely used for minting coinage. In the UK's nickel brass coinage (the twelve-sided threepenny piece) the alloy was Cu 79%, Zn 20%, Ni 1%.

What is "Britannia Metal" ?

Britannia metal is another name for pewter in its modern lead-free formulation, usually 91% tin, 7.5% antimony, 1.5% copper.

Gar-Alloy and Eraydo are now-defunct trademark pewter-type alloys with high zinc content.

Version 2002-11-16
Mail to: leveridge@zoom.co.uk
Home page: http://pages.zoom.co.uk/leveridge/