

COINAGE



JARDEN
zinc products

Jarden.

Jarden Zinc Products has been producing high quality zinc coin blanks for over twenty years. In fact, we supply zinc coin blanks to the mints of the United States, Canada, and many other countries. Today, over 200 billion plated zinc coins are in circulation.

At Jarden, we understand that quality coinage is a matter of national pride. Whether of a high or low denomination, an attractive appearance is important for any coin. Our zinc coin blanks offer an attractive alternative to other coinage metals. The coin blanks are furnished with a bright high quality surface that is ready for striking. Available in a "red," "yellow" or "white" finish, zinc coin blanks provide superior coinability suitable for any design criteria.

Positive seigniorage is a matter of national economic importance. World Mints and Central Banks are concerned with the cost of producing circulation coinage. Zinc coin blanks are **the most cost effective** coinage material available today, providing the best opportunity for the creation or maintenance of positive seigniorage. Zinc has many economic advantages when compared to other coinage metals:

- Zinc requires less energy per kilogram to produce coins.
- Annealing processes are not required with Zinc, resulting in additional energy cost reductions.
- Zinc is a readily available material with a historically stable market price.
- Zinc possesses excellent ductility, providing superior die fill with minimum press tonnage, thus extending tool and die life.
- Zinc requires less plating than other plated coins.
- Zinc is 100% recyclable.



MANUFACTURING CAPABILITIES

Jarden has 32,500 square meters of manufacturing space and 200 technically trained employees, all dedicated to the production of zinc and zinc-based products. A significant portion of our facilities is devoted to fabricating, stamping and plating coin blanks. With more than 20 years

experience, we have the ability to meet the coin demands of any customer. Our quality control technicians continuously sample production, measuring dimensional and cosmetic aspects of coin blank specifications for customer quality assurance. Our processes are ISO 9001:2000 certified.



SEIGNIORAGE

Seigniorage is the cost to produce a coin in comparison to its face value. As a coin approaches or enters negative seigniorage (the cost to produce the coin is greater than its face value), many governing bodies are faced with the issue of elimination of a coin denomination or a change in the metal composition. Zinc coin blanks will create or maintain positive seigniorage across a broad spectrum of coinage denominations.

Zinc has a long history in the creation of positive seigniorage. In 1717 a restriction on copper exports into Southern Nguyen caused people to melt copper coins in order to manufacture cooking utensils. The government experienced substantial losses (negative seigniorage) on commercial coins. The Lord, Nguyen Phuc Khoat purchased Tutenag (zinc) from Dutch traders and produced the first zinc circulation coinage in Asia. Today, the zinc Thien Minh Thong Bao coin is highly collectable.

The United States and Canada have realized the impact of negative seigniorage in their coinage. With coin circulation declining and demand for coins increasing, both governments were being forced to produce their one-cent coin at a loss. Both, the United States and Canada turned to copper plated zinc coin blanks for their one-cent coins thus retaining the denomination and establishing positive seigniorage. Today, we have over 200 billion of our copper plated zinc coin blanks in circulation, with 10 billion produced annually in the United States alone. More and more countries are realizing the advantages of zinc coin blanks and are turning to zinc for their coinage needs.



COINABILITY

Zinc's inherent properties and its ready availability make it uniquely suited to coinage applications and the establishment of positive seigniorage. As a ductile metal, zinc exhibits excellent formability to achieve superior design detail. Minimum force with reasonable press tonnage is required to obtain excellent die fill; reducing wear on stamping equipment. Cost savings can also be realized through increased die life

and reduced tooling maintenance. Zinc is a non-ferrous metal requiring less plating thickness in order to obtain a bright, high quality finish on the coin's surface. Copper-plated steel typically measures 25 microns of copper at the center. Copper-plated zinc needs only 7.6 microns at the center to obtain equivalent circulation life. With a bright, high quality finish, it provides an attractive surface suitable for any design.

The electroplating process results in additional plating on the edge of the coin, approximately 2 times the plating thickness as measured in the center. The design criteria for the coin may require the rim area to have greater relief or a sharp edge. The additional plating will facilitate these design criteria without risk of impairing the copper surface of the coin. We can produce rims that are flat, rounded or chamfered, and we can accommodate coin edge designs that are reeded or plain.



Available Profiles



LIFESPAN

According to accelerated wear testing, the average lifespan of the copper-plated blank is 25 years. The rim of the coin is an area particularly subject to wear. The additional plating deposited on the rim through our electroplating process assists in extending the life of the coin by enhancing wear resistance on any rim profile.

ENVIRONMENTALLY FRIENDLY

Zinc is an environmentally friendly metal and an essential element for good health. We are able to recycle zinc used throughout our various processes. Web scrap or skeletons collected from our blanking operation are recycled in the melting furnace for recasting into strip, further reducing waste. This benefit is passed on to our customers in the form of cost savings. Zinc blanks do not contain nickel, which is a known allergen.



THE ECONOMIC ADVANTAGES OF ZINC

- Zinc is the most cost effective coinage material in the world.
- Zinc coinage requires less energy per kilogram to produce than any other coin blank material.
- Zinc does not require annealing, further reducing energy cost.
- Zinc is a readily available material with historically stable market prices.
- Zinc has excellent ductility that provides superior die fill with minimum press tonnage that greatly extends tool and die life.
- Zinc requires less plating than other plated coins.
- Zinc is 100% recyclable.



ALUMINUM-CLAD ZINC BLANKS

The aluminum-clad zinc coin blank was developed utilizing a roll bonding process where two outer layers of aluminum are roll bonded to a zinc core. The aluminum gives the coin a bright "white" surface finish while the zinc provides weight to the coin. The weight of the zinc reduces clogging of the press during stamping, increasing productivity. The web scrap can be collected from the blanking process and recycled to make zinc die casting alloys. Aluminum-clad zinc coins have the look and feel of real money.

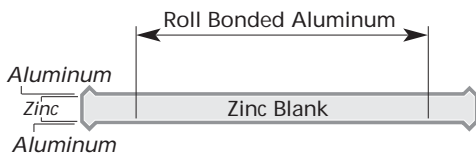
Description:

Substrate:

Jarden Alloy 190
(Cu 0.8% by weight, balance zinc)

Surface:

Bonded Aluminum
(Commercially pure)
Al-Clad Thickness
5-15%, per side



Since Jarden Zinc Products plates other substrates in addition to zinc, we have extensive annealing capabilities.

BRONZE-PLATED ZINC BLANKS

Our electroplating experience led to the development of the bronze plated zinc coin blank. This blank is produced utilizing our proprietary electroplating process. The zinc substrate is plated with a copper layer followed by a bronze layer that gives the coin blank a bright, high quality "golden" finish.

Description:

Substrate:

Jarden Alloy 190
(Cu 0.8% by weight, balance zinc)

Surface:

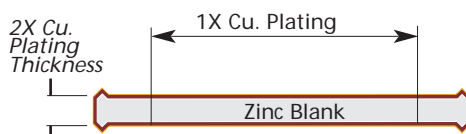
Plated Bronze
Composition Cu/Sn/Zn

Cu thickness:

7.5 μ -m, typical

Bronze thickness:

5.0 μ -m, typical



COPPER-PLATED ZINC BLANKS

The copper plated zinc coin blanks are manufactured utilizing our high speed electroplating process that produces a bright, high quality finished coin blank. The copper layer gives the coin blank a "red" finish. With more than 20 years of circulation history, the copper-plated zinc coin blank is a proven low cost alternative to other coinage metals.

Description:

Substrate:

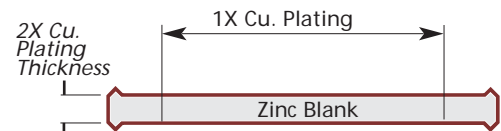
Jarden Alloy 190
(Cu 0.8% by weight, balance zinc)

Surface:

Electrolytic Grade >99.9% pure

Cu thickness:

7.5 - 9.0 μ -m, typical



JARDEN

zinc products

ABOUT THE COMPANY

Jarden Zinc Products is located in Greeneville, Tennessee in the southern region of the United States. We have over 350,000 square feet (32,500 square meters) of manufacturing space dedicated to the production of zinc strip and zinc-based products. Our zinc strip is utilized throughout the world in the production of coins, automotive fuses, leaf spring interliners, EMI/RFI shielding, building materials, rain-goods, plumbing hardware and cathodic protection products.

Jarden Zinc Products is a subsidiary of Jarden Corporation, with its principle offices in Rye, New York. Jarden Corporation is a leading provider of niche consumer products used in and around the home. Jarden operates in three primary business segments through a number of well recognized brands, including:

Branded Consumables: Ball®, Bee®, Bicycle®, Crawford®, Diamond®, Forster®, Hoyle®, Kerr®, Lehigh®, Leslie-Locke® and Loew-Cornell®;

Consumer Solutions: Bionaire®, Crock-Pot®, First Alert®, FoodSaver®, Harmony®, Health o meter®, Holmes®, Mr. Coffee®, Oster®, Patton®, Rival®, Seal-a-Meal®, Sunbeam®, VillaWare® and White Mountain™; and **Outdoor Solutions:** Campingaz® and Coleman®.

Jarden Corporation has over 16,000 employees worldwide.



FOR MORE INFORMATION

For more information about Solid Zinc Strip from Jarden Zinc Products, call (800) 251-7506 or (423) 639-8111.

P.O. Box 1890
Greeneville, Tennessee, USA 37744-1890

Fax (U.S.A.) 423-639-3125

Please visit our website at www.jardenzinc.com.
Our email address is sales@jardenzinc.com.

Authorized Distributor:



ROYAL
CANADIAN
MINT
MONNAIE
ROYALE
CANADIENNE

Royal Canadian Mint
Foreign Coinage Sales
Fax Inquiries: 613-954-0601
Phone Inquiries: Rosetta Chan - 613-990-1499

