



UNITED AMERICAN METALS

DIVISION OF RE MET CORP.

2246 W. Hubbard St., Chicago, IL 60612

PH (312) 733-6700 Fax (312) 733-6710

A.B.C.'S OF BABBITT BEARING METALS

There is much confusion among customers about Babbitt Metals. We know, because of the numerous phone inquiries we receive from people like yourself, who are trying to help the customer get the right material for the job. Please don't misunderstand us, we are ready, willing and able to answer your questions cheerfully, but we thought it might be even more helpful if we wrote out some of the basic information in a format that you could keep for reference in your office. Should you want more copies, please don't hesitate to ask.

The A.B.C.'s of Babbitt Metals are as follows:

- A. Babbitt Bearing Metals are basically divided into two families - Tin base and Lead base. Our most popular Tin base Babbitt Metal is Syracuse Government Genuine Babbitt (ASTM B23 Grade 2). Our most popular Lead base Babbitt Metal is Syracuse Stonewall Babbitt (ASTM B23 Grade 7).
- B. Tin base Babbitts are best for high speed applications. Also, best for hard to lubricate applications, such as Marine shaft bearings. They are more expensive because of the high cost of Tin. Lead base Babbitt is best for low speed, heavy load or very dusty applications such as Sugar or Cement grinding mills. They are less costly.
- C. It is much more important to buy the best available material for the job because on average the material is only 10% of the total job cost. Using cheaper, or more inferior materials, can be false economy, if the bearing fails sooner than necessary. We do not recommend using a Tin base Babbitt Metal made from secondary metals. Only primary metals should be used in alloying a Tin base Babbitt.
- D. There are three commonly used standards used to specify the correct Babbitt. They are:
 1. ASTM (American Society for Testing and Materials)
 2. SAE (Society of Automotive Engineers)
 3. U.S. Government Federal Specifications QQT-390

UNITED AMERICAN METALS
CHICAGO, ILLINOIS

E. United American Metals over the past 80 years has developed trade names for all of our Babbitt Metals. The following index shows first, United American Metals "Syracuse" brand name, then to the right, the equivalent standards, where applicable, for ASTM, SAE and Federal specifications.

F. TIN BASE ALLOYS:

Syracuse Government Genuine Babbitt

89% Tin	Equivalent to:
7½% Antimony	ASTM B23 Grade 2
3½% Copper	SAE 12
	Federal Spec. QQT390 Grade 2

Specifications Babbitt:

84% Tin	Equivalent to:
8% Antimony	ASTM B23 Grade 3
8% Copper	No SAE equivalent
	Federal Spec. QQT390 Grade 3

G. LEAD BASE ALLOYS:

Syracuse Stonewall Babbitt

10% Tin	Equivalent to:
14 3/4% Antimony	ASTM B23 Grade 7
1/4% Copper	SAE 14
1/2% Arsenic	Federal Spec. QQT390 Grade 7
Balance Lead	

Syracuse Manganese Anti-friction Babbitt

5% Tin	Equivalent to:
14 3/4% Antimony	ASTM B23 Grade 8
Balance Lead	Federal Spec. QQT390 Grade 6

H. Your cost for the Tin and Lead base alloys depends on the quantity ordered, and in the case of Tin base Babbitt, the Tin market price for the day of the quote. Quantity price "breaks" are at under 55 lbs., 55 lbs., 110 lbs. 550 lbs. and 1100 lbs. Standard package is 55 lbs. per carton.

BABBITTING ADVICE

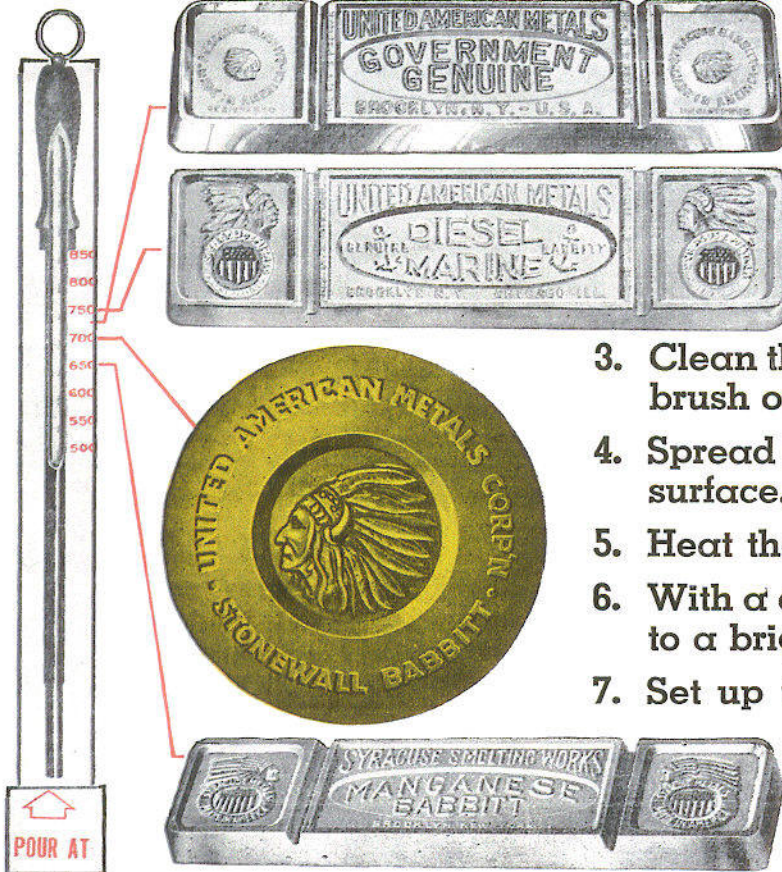
by *The* **United American Metals**

2246 W. Hubbard Street — Chicago, Illinois 60612

Telephone (AC 312) 733-6700

HEED THESE DIRECTIONS

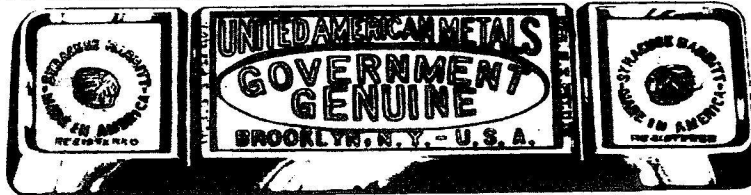
1. Smoke the mandrel with an acetylene torch or coat it with lamp-black.
2. Burn all oil from the shell.
3. Clean the surface to be tinned, by scratch-brush or grinding.
4. Spread Tintite evenly over the cleaned surface.
5. Heat the shell to approximately 650° F.
6. With a clean rag, wipe the tinned surface to a bright finish.
7. Set up the shell and do not let the heat drop below 450° F.
8. Heat the mandrel to the pouring temperature of the babbitt.



9. Seal all seams with United American Damtite.
10. By this time the babbitt in the pot should have reached pouring temperature as indicated on this chart. (If the pouring of the bearing is not close to the pot, increase the heat of the babbitt by 50° F. to compensate for the drop in temperature between melting-pot and bearing).
11. Stir the metal with a skimmer employing a horizontal figure 8 movement.
12. Reduce the dross with Stanogen Dross Reducer and skim the dross from the surface of the metal.
13. With a heated ladle or dipper, preferably of a capacity to make the complete cast in one pour, pour the molten babbitt in a steady stream against the mandrel so as not to spatter. As the metal approaches the riser, slow down the flow but keep pouring until the metal overflows.
14. Immediately after pouring, cool the bearing by a fine spray of water, starting at the bottom and moving upwards. As a precautionary measure, have on hand wet rags to slap against leaks from unforeseen open seams or where the Damtite had not been firmly packed.

Names "Government", "Diesel Marine", "Stonewall", "Manganese", "Tintite" Registered U.S. Patent Office. Design of bars: "Government Genuine", "Diesel Marine", "Manganese babbitt", Registered U.S. Patent Office. Trade-Mark of Indian head Registered U.S. Patent Office. Reverse side of Government Genuine bar showing Visual Proof of "Uniform Crystallization", Patented U.S. Patent Office. Manganese babbitt and Stonewall babbitt process patented.

SYRACUSE BABBITTS • MADE IN AMERICA • USED THE WORLD OVER



GOVERNMENT
GENUINE
of the famous family of
SYRACUSE BABBITTS

Alloyed by the Stanley Process
Name and design of ingot registered U.S. Patent Office
Heat at which to pour, 700° F - 375° C

Government Genuine is the highest grade of tin-base babbitt. This babbitt will not break under the heaviest shock, it will not creep under the heaviest pressure, it will not fail under the highest speed. No other babbitt has been known to show such a record of bearing performance as Government Genuine.

It is folly to believe that babbitt which is to line an important bearing can be bought at a price based solely on the cost of the tin, copper and antimony in the metal. Babbitt for such bearings is a specialized product requiring not only the purest grades of tin, antimony and copper, but a thorough knowledge of the metallurgy required for scientifically alloying a babbitt metal.

In cents per pound, Government Genuine Babbitt is probably the highest priced babbitt metal made. In quality, by which we mean its ability to give long wear under gruelling operating conditions, it is the most economical babbitt made. In its ability to withstand abuse, Government Genuine Babbitt has no equal.

Also available in wire form, 1/8" thick - 25lb. coils.

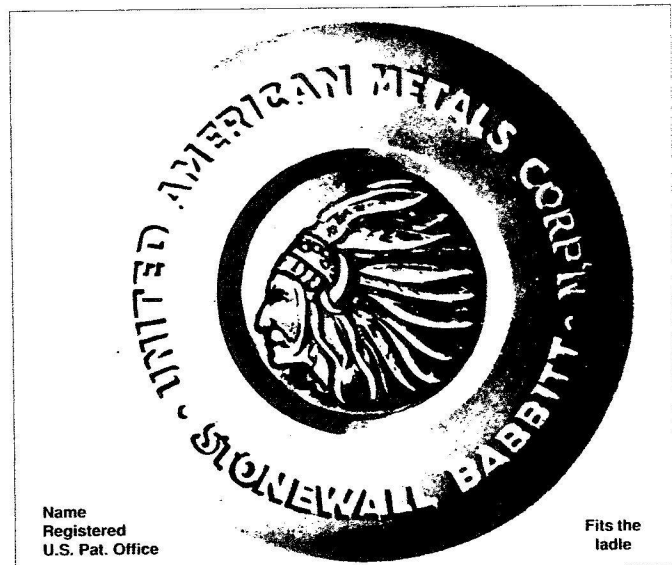
**STONEWALL
THE COPPERED
BABBITT**
of the famous family of
SYRACUSE BABBITTS
ALLOYED BY THE STANLEY PROCESS

Stonewall is not a brittle babbitt, yet hard enough to carry a heavy load without squeezing from the box. It does not shrink appreciably and can be used for large or small bearings. Because of its plasticity, it conforms at once to the shaft. For the same reason, where the shaft is scored, Stonewall is especially adaptable.

As indicated by its compressive and tensile strength, Stonewall coppered babbitt affords an ample margin of safety for almost every bearing service where a high tin-base babbitt was believed to be essential. When it is considered that upon an applied load of 13,150 lbs., the nominal stress per square inch of Stonewall coppered babbitt is 21,900 lbs., that its maximum actual stress is 16,380 lbs. per square inch and at this stress the babbitt does not fracture, and that its yield point is at 8720 lbs. per square inch, it becomes evident that this is an extraordinary babbitt for bearings which are subjected to heavy load and pressure.

Strength without elasticity is of no avail in a babbitt. As evidence of the elasticity of Stonewall coppered babbitt, its breaking point in tensile stress versus strain is at 10,800 lbs. per square inch. It is because of its tensility combined with its compressive strength that this babbitt can stand up so well under shock, load, pound, pressure and vibration.

Stonewall has a low coefficient of friction and, therefore, requires less lubricating attention than any other babbitt of equal strength. This property is of the utmost importance to a bearing operating under heavy duty and high speed.



Name
Registered
U.S. Pat. Office

Fits the
ladle

"Bond it with TINTITE"

To bind a bearing to the back, a tinning operation is essential. Tintite bonds the babbitt firmly to the back, whether the shell is bronze, steel or iron.

The process is simple: Apply a thin coat of Tintite to the cold shell. If the shell is steel or cast iron, clean the surface thoroughly by sand blasting or by filing or with emery paper or grinding wheel. The brighter the surface, the better tinning job. Heat the shell until the Tintite melts, as will be evident when a brown area covers the surface. Wipe off the surface with a rag using a clean section for each pass.

Supplied in 1 lb. and 4 lb. cans.

Stonewall Babbitt is recommended for the following machinery bearings and for all other bearings which operate under similar load, shock, speed, etc.

Abrasive machinery
 Agitators
 Allis Chalmers crushers
 Aluminum Rolling mills
 Ammonia compressors
 Arbors (in saw mills)
 Autocar trucks
 Automotive trucks
 Axles
 Bacon slicers (large)
 Bag pilers
 Bagasse carriers
 Ball mills
 Band saws
 Barrell washing machines
 Beaters
 Beef Chippers (large)
 Bending machinery
 Blast furnace (blowing engine)
 Blooming mill engines (cross head shoes)
 Blooming mill engines (main crank pins)
 Blowers
 Bleaching machines (textile)
 Booms
 Box car loaders
 Braiding machines (textile)
 Brick machinery
 Briquette presses
 Broaching machines
 Brockway auto trucks
 Buffing machines
 Calendars (paper-mills)
 Card machinery
 Carpet looms (textile)
 Caterpillar tractors
 Cement mills
 Centrifugals
 Ceramic machinery
 Champion crusher
 Chippers
 Chip wringers (reclaiming cutting oils)
 Clay machinery
 Cleaning equipment
 Cold roll strip mills
 Coining presses
 Colloid mills
 Compressors
 Concentrators
 Concrete machinery
 Concrete mixers
 Connecting rods
 Conveyors
 Cookers (rotary)
 Cooper Bessemer engines
 Corliss engines
 Cotton gins
 Cranes
 Crank pins
 Crossheads
 Crushers
 Crystalizer drives
 Cutters
 Cutting machines
 Cut-off machines
 Diamond T auto trucks
 Degreasing machinery
 Diesel engines (main bearings)
 Dipper dredges
 Drawing presses
 Dredging pumps
 Drop hammers
 Dryers
 Dyeing machinery (textile)
 Dynamos

Eccentrics
 Edgers
 Electric motors
 Elevators
 Embossing machines (general)
 Excelsior machines
 Extruding machines
 Farrell Jaw crushers
 Federal motor trucks
 Filing machines
 Flaking rolls
 Flax mills (beaters)
 Fleshing machines (tanning)
 Flour mills
 Foil mills
 Ford motor trucks
 Forging machines
 Fourdriners
 Gas engines (main bearings)
 General Motor trucks
 Generators
 Gravel crushers
 Great Lake Boats
 Grinders
 Gruendler crushers
 Gyrotary crushers
 Hacksaws (power)
 Hamilton Corliss engines (main bearings)
 Hammermill crushers
 Hemp mills (beaters)
 Hog bearings
 Hoisting engines
 Hot slab mill
 Hudson auto trucks
 Ice crushers
 International trucks
 Jaw crushers
 Jeffrey crushers
 Jordans (shredders)
 Kennedy Van Saun crushers
 Knitting machines (textile)
 Kominuter (cement mills)

Laboratory presses
 La France auto trucks
 Lathes
 Leather presses (tanning)
 Line shafts (main bearings)
 Logging engines
 Looms (textile)
 Lorimer Diesel engines
 Lumber gangs
 Machine tools (general)
 Mack trucks
 Marine engines (main bearings)
 Meat slicers (large)
 Mechanical presses
 Metal spinning machines
 Mill gearings
 Mining (crushers)
 Mixing mills
 Molding machines
 Moore turbines
 Ocean liners (line shafts)
 Oil engines (main bearings)
 Oil wells
 Ore feeders
 Oshkosh auto trucks
 Pennsylvania crushers
 Piercing presses
 Pillow blocks
 Planers
 Polishers
 Powder presses
 Power presses
 Power shovels
 Pressure blowers
 Press rolls (paper mills)
 Printing presses
 Propeller shafts
 Pulp grinders
 Pulverizing mills
 Pumps (centrifugal)
 Punching machines
 Punch presses
 Quarries (crushers)

Rag Rotaries
 Railroad cars
 Reduction gear drives
 Reo motor trucks
 Resaws
 River boats
 Rock crushers
 Rolling Mills
 Roll necks
 Roll neck bearings (in steel mills)
 Rotary cookers
 Rotary saws (granite)
 Sand dries (rotary type)
 Sanding machines
 Sand pumps
 Saws (band saws)
 Saws (circular)
 Saws (hot and cold in steel mills)
 Saws (gang)
 Screw lifts (granite)
 Separators (tanneries)
 Shaker screens
 Shavers (tanneries)
 Shearing machines
 Sifters (flour mills)
 Slashers
 Slide valves
 Speed reducers
 Spindle bearings (in steel mills)
 Spinning machines (textile)
 Spooling machines (wire)
 Staking machines (tanneries)
 Steam engines (main bearings)
 Steam pumps
 Steam shovels
 Sterling auto trucks
 Stokers
 Stretching presses
 Studebaker auto trucks
 Sturtevant crushers
 Swing jaw crushers
 Swing saws
 Symons Cone crushers
 Tanning machinery
 Telsmith crushers
 Throw eccentrics
 Tractors
 Traylor crushers
 Trimmers
 Trimming presses
 Trolley cars
 Trunions
 Tube mills
 Tumbler mills (tanneries)
 Turbines
 Turbo compressors
 Unhairing machines (tanneries)
 Universal crushers
 Vacuum pumps
 Valve guides
 Veneer mills (lathes)
 Warming mills
 Waukesha motors
 Water pumps
 Water turbines
 Water wheels
 Wheat grinders
 White auto trucks
 Williams crushers
 Wire cutting machines
 Wire drawing machines
 Wire forming machines
 Wire straightening machines
 Worthington pumps
 Yachts



Stonewall Jackson

UNITED AMERICAN METALS CORP'N
 AND AFFILIATED CORPORATIONS
BABBITT and BEARING SPECIALISTS

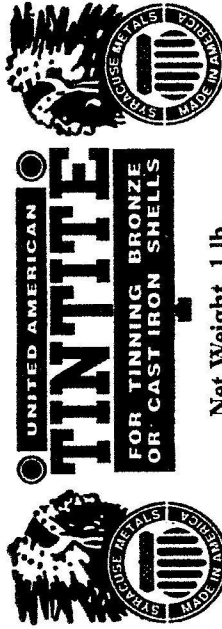
HOW TO GET A PERFECT BOND

1. Burn out all oil from the shell.
2. Clean the surface of the shell by filing or with emery cloth, sand-blasting or by grinding wheel or scratch brush. The cleaner the surface the better the job.
3. Apply a thin coat of Tintite uniformly with a brush while the shell is at room temperature.
4. Heat the shell to approximately 650°F.
5. Wipe the tinned surface to a bright finish with a clean rag until the entire surface shows complete coverage.
6. Pour the babbitt immediately after wiping. The shell should not be below 450°F.

When babbitting steel or iron shells, the pouring temperature of the babbitt should be increased by about 200°F.

DANGER! Avoid contact with skin and eyes. In case of contact with skin or eyes, flush with water for at least 15 minutes. For eyes, get medical attention immediately. If swallowed, give plenty of water or milk or take person to hospital immediately. Avoid breathing fumes produced by soldering. Use adequate ventilation. See Z49.1, "Safety in Welding and Cutting" published by the American Welding Society. **KEEP AWAY FROM CHILDREN**

STIR WELL BEFORE APPLYING **IMPORTANT:--TO PREVENT HARDENING KEEP THE JAR OF TINTITE COVERED WHEN NOT IN USE AND STORE IN A COOL PLACE.**



UNITED AMERICAN

TINTITE

FOR TINNING BRONZE
OR CAST IRON SHELLS

Net Weight, 1 lb.

UNITED AMERICAN METALS CORPORATION
2246 W. Hubbard Street, Chicago, Ill. 60612

DANGER!

Contains Zinc Chloride
CAUSES SEVERE BURNS
MAY BE FATAL IF SWALLOWED
Read caution on side panel carefully

"BABBITRITE"

A DAMMING, MOLDING, POSITIONING COMPOUND

- Resistant to Heat, Cold, Weather - Free from Moisture
- Holds tight, remains plastic and retains molten babbitt and low melting point materials
- Is easily packed in place and is reusable

SOME OTHER USES

- ✓ CASTING LOW MELTING POINT ALLOYS and LEAD: *BABBITRITE*® receives the impression from a casting and is used in positioning delicate parts. It is also used as a dam when pouring gates and vents to hold the molten alloy in position until it hardens. *BABBITRITE*® helps produce chuck jaws and dimensional samples.
- ✓ STOP-OFF COMPOUND: For containing lead alloy in the fabrication of lead punches and dies; and to prevent low melting point alloys from contacting locating surfaces on shuttle bases.
- ✓ AIR CONDITIONING and REFRIGERATION: For sealing openings, joints and electrical leads around coolers and air conditioning units. *BABBITRITE*® remains flexible and in place when firmly applied.
- ✓ ZINC CRUSHERS: In replacing mantles and bowl liners, *BABBITRITE*® is used to dam all openings while molten zinc is poured for backing up the mantles and bowl liners.
- ✓ BUILDING INSTALLATIONS: For sealing ventilating fan frames, air ducts, and openings through walls.
- ✓ MACHINERY INSTALLATIONS: Used as a retainer when pouring 190°F asphaltum in machine settings.
- ✓ SOLDERING: Holds solder while soldering wires on generators.
- ✓ SPLASH SHIELDING: Used as a shielding dam to protect operator and material from cutting compounds.
- ✓ WELDING and BRAZING: Protects motors and machine parts and aids in positioning.
- ✓ LEADED PIPE JOINTS: Retainer and funnel material for molten lead for ball and spigot pipes.
- ✓ CHOCKER SOCKETS: Used as a mold material in fastening wire ropes.
- ✓ HEAT TREATING: For coating machined surfaces to prevent scaling while in furnace. It is easily and quickly removed with minimal labor costs.