

Solder

- ◆ Bridgit® Nickel-Bearing Solder
- ◆ Bridgit Water-Soluble Paste Flux
- ◆ Stay-Brite Silver Bearing Solders
- ◆ Tin/Lead 50/50, 40/60, 60/40
- ◆ Tin/Antimony 95/5
- ◆ Alsolder 500
- ◆ Stay-Clean Aluminum Flux
- ◆ Al-Braze 1070
- ◆ Al-Braze 1070 Flux



Harris offers a wide range of soldering alloys for both HVACR and plumbing applications. Every Harris solder meets the highest standards for consistent performance and purity. Harris silver-bearing, nickel-bearing, tin/lead and aluminum solders conform to various Federal, NSF and/or ASTM specifications.

Bridgit® Nickel-Bearing Solder

Two years in advance of Federal Law (USA) 99-339 banning the use of solders containing over .2% lead in potable water systems, J.W. Harris metallurgists conducted research, developed and ultimately patented Bridgit, a non-toxic solder alloy that exceeds the physical advantages of lead-tin solders. The addition of nickel to Bridgit was responsible for a patent being granted. Nickel is used to strengthen and toughen stainless steel, tool steels and various coppers. Nickel is also used to greatly enhance impact strength in silver brazing alloys when joining tungsten carbide cutting tips to tool ends. Nickel is the key element in Bridgit's unique high strength.

Bridgit caps like no other lead-free solder, and its wide plastic range of 170°F allows the operator to fill both tight and loose, non-concentric connections with ease. The strength of a Bridgit joint far exceeds the pressure point at which copper tubing will burst.

Solder packaging - Standard packaging is 1/8" dia., 1 lb spools. Other diameters and spool sizes are available on request.



Bridgit Water-Soluble Paste Flux

New formula, water-soluble Bridgit flux flushes away easily after soldering. Bridgit flux meets all state and federal regulations for fluxes used in potable water systems. This water-flushable flux is unexcelled for use in soldering copper, brass, bronze, galvanized and other plumbing fittings. Works equally well with Bridgit solder and other solders.

Flux packaging - Available in 4 oz. brush cap containers, packed 24 per carton; and 1 lb containers, packed 12 per carton

Stay-Brite Silver Bearing Solders

Versatile Stay-Brite silver-bearing solders are used throughout industry as a better-than-brazing method in many instances.

The important advantage of Stay-Brite solders is the greater strength of the overall component after joining. Their lower working temperatures eliminate the weakening of the base metals caused by annealment from high brazing heat.

Stay-Brite silver-bearing solders have the same excellent affinity as Stay-Silv and Safety-Silv to bond with all the ferrous and non-ferrous alloys (including stainless steel, nickel, copper, brass, etc.). Stay-Brite joints exhibit considerably higher-than-necessary elongation for sound dissimilar metal joints and vibration applications. Stay-Brite alloys range in temperature from 430°F to 535°F.

Stay-Brite offers these important advantages over silver brazing:

1. Lower material cost - up to 3 times
2. Lower temperature - up to 3 times
3. Faster production - up to 4 times
4. Faster post cleaning, little metal discoloration.
5. Elimination of base metal distortion.
6. Elimination of base metal annealment
7. Elimination of oxide scale formed by heat.
8. Cadmium-free - non-toxic.
9. Lead free
10. Acceptance by The National Sanitation Foundation



Stay-Brite has been used for over thirty years to join refrigeration/air conditioning tubing. This alloy has been used to fabricate millions of strong, leakproof joints. Stay-Brite connections are excellent for many HVAC applications.

Stay-Brite® Silver-Bearing Solder

Properties	
Composition	Tin & Silver
Solidus (melting point)	430°F
Liquidus (completely fluid)	430°F
Joint Strength Copper sleeve joint (in tension)	14,000 PSI
Shear strength	11,000 PSI
Electrical Conductivity	17.1
Color	Bright Silver, non-oxidizing

Stay-Brite® 8 Silver Bearing Solder

Properties	
Composition	Tin & Silver
Solidus (melting point)	430° F
Liquidus (completely fluid)	535° F
Plastic range	105° F
Joint strength: copper Sleeve joint (in tension)	15,000 PSI
Shear strength	11,000 PSI
Electrical conductivity	17.1
Color	Bright silver, non-oxidizing

Stay-Brite 8 has a higher silver content than regular Stay-Brite, effecting a plastic range of 105°F. Just above the melting point of 430° F, this alloy becomes somewhat fluid, but has a high surface tension useful in filling loosely-fitted couplings.

Flux: Use Stay-Clean soldering flux for all metals other than aluminum. Use Stay-Clean aluminum soldering flux for aluminum

Forms: 3/64", 1/16", 3/32", 1/8" wire diameters. Solid wire, rosin core, solder paste w/flux, and preform rings.

Packaging: 1, 5, and 20 lb. spools, 1/2 oz. with flux (kit).

Common Wire Solders

Properties					
Composition					
Solder	Tin	Lead	Antimony	Solidus	Liquidus
*40/60	40	60	-	360° F	460° F
*60/40	60	40	-	360° F	375° F
*50/50	50	50	-	360° F	420° F
95/5	95	-	5	452° F	464° F
*40/60, 60/40, 50/50 solders are available with rosin or acid core					

Tin/Lead 50/50, 40/60, 60/40

With some exceptions, the tin/lead solders can be used to solder copper and most copper alloys, lead, nickel alloys and steel.

Tin-lead solders are not recommended in high stress or vibration joints in the cooling industry due to lack of sufficient elongation properties. It is illegal to use lead alloys in connection with potable water systems. (See Bridgit lead free solder information).

Heat source includes soldering guns, irons and torch applications.

Tin/Antimony 95/5

The 95/5 tin/antimonial lead-free solder is useful for applications where moderately elevated temperature is a factor. With a higher electrical conductivity and high fluidity, 95/5 is recommended for lead-free installation of small-diameter, tight-fitting connections. The tin/antimony solders are not recommended for use on brass.

Forms: 1/16", 3/32", 1/8" wire diameters. 1lb. , 5 lb., 25 lb.spools, 1 lb. bars, 1/4 lb. meter bars.

Flux: For tin/lead and tin/antimony solders, Stay-Clean soldering flux is recommended except on electrical or electronic applications which require the use of a non-corrosive flux.

Alsolder 500

Composed of tin and zinc. Alsolder 500 forms excellent corrosion-resistant joints on the tough-to-solder aluminum alloys. Joins all solderable aluminum alloys to each other and to dissimilar metals, both ferrous and non-ferrous. Also beneficial as a high-temperature solder on most other metals.

Flux: Use with Stay-Clean aluminum soldering flux for aluminum, regular Stay-Clean flux for other metals.

Properties	
Composition	85% sn, 15% zinc
Solidus (melting point)	391° F
Liquidus (completely fluid)	482° F

Kits: Packed 12 per display carton. Each kit contains 1 oz. 1/16" diameter aluminum solder wire, 1 oz. aluminum flux, plus instructions.

Other forms: 1/16", 3/32", and 1/8" wire diameters, coil and preform rings.

Stay-Clean Aluminum Flux

Use with Stay-Brite solders or Alsolder 500 to join aluminum to aluminum and most other metals.

Case Packaging: (24) 4 oz. brush-cap dispensers.

Al-Braze 1070

Al-braze is a superior brazing alloy for the joining of aluminum to aluminum. Not recommended for brazing aluminum directly to non-aluminum alloys, as the joint may be brittle. Al-Braze is free flowing with unequaled capillary attraction, ductility and penetration. Excellent corrosion resistance.

Properties	
Composition	Proprietary
Solidus	1070° F
Liquidus	1080° F
Tensile Strength	35,000 PSI

Flux: Powdered flux in kit may be mixed with water to form a paste. Flux may also be applied by heating wire and dipping into dry flux.

Kits: Each kit contains 3/4 oz. 1/16" diameter aluminum solder wire, 1/3 oz. aluminum flux, plus instructions.
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Al-Braze 1070 Flux

A powdered flux for torch brazing aluminum. Use with Harris 1070 aluminum brazing alloy.

Case Packaging: (24) 1/4 lb., (12) 1/2 lb.

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Fluxes

Brazing Fluxes

- ◆ Stay-Silv® Brazing Flux (white)
- ◆ Stay-Silv® Brazing Flux (black)



Stay-Silv® Brazing Flux (white)

For use with silver brazing alloys on all metals other than aluminum, magnesium or titanium. Effective to 1600°F. Meets Fed Spec. OF499, Type B; AWS FB3A, AMS 3410.

Case packaging: (24) 1/4 lb., (24) 1/2 lb. , (24) 7 oz. brush-cap, (12) 1 lb. , (6) 5 lb., 25 lb., 60 lb. pails.

Stay-Silv® Brazing Flux (black)

Use with silver or other brazing alloys liquidus below 1800°F. Recommended for stainless, heavy parts, and whenever heating cycle is prolonged. For all metals other than aluminum, magnesium, titanium. Meets AMS 3411, AWS 5.31, Class FB3C; Fed Spec. O-F-499D, Type B

Case packaging: (24) 1/2 lb., (12) 1 lb., (6) 5 lb., 30 lb., 60 lb. pails.



Soldering Fluxes

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- ◆ Stay-Clean® Soldering Flux
- ◆ Stay-Clean Paste Soldering Flux
- ◆ Stay-Clean Aluminum Flux
- ◆ Al-Braze 1070 Flux

Bridgit Water-Soluble Paste Flux

New BRIDGIT FLUX was developed as a water-flushable substitute for petroleum-based plumbing fluxes, which have been popular for almost a century. BRIDGIT FLUX is a water-based flux which begins cleaning metals at room temperature and promotes excellent solderability with lead-free solders. This creamy, white paste form holds its shape and will not slump until being heated above 122°F. BRIDGIT FLUX is specifically designed for use in plumbing applications where copper and copper-alloy tubes are being soldered. It is also an excellent choice for pipes used in heating, air-conditioning, mechanical, and fire sprinklers.

Flux packaging: Available in 4 oz. brush cap containers, packed 24 per carton; and 1 lb. containers, packed 12 per carton.

Stay-Clean® Soldering Flux

For virtually all metals other than aluminum, magnesium or titanium. Use with Stay-Brite solders or practically any other solder with a liquidus below 700° F. Not recommended for electrical or electronic applications. Meets Commercial Spec. A-A-51145C.

Case packaging: (48) dispensers (4 oz. spout cap), (24) pints (16 oz.), (12) quarts(32oz.), (4) gallon jugs (128 oz.).

Stay-Clean Paste Soldering Flux

Excellent flux for joining copper to copper and copper to brass. Not recommended for electrical or electronic applications. Meets Commercial Spec. A-A-51145C.

Case Packaging: (24) 4 oz. brush cap, (12) 1 lb. cans

Stay-Clean Aluminum Flux

Use with Stay-Brite solders or Alsolder 500 to join aluminum to aluminum and most other metals.

Case Packaging: (24) 4 oz. brush-cap dispensers.

Al-Braze 1070 Flux

A powdered flux for torch brazing aluminum. Use with Harris 1070 aluminum brazing alloy.

Case Packaging: (12) 1/2 lb.



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