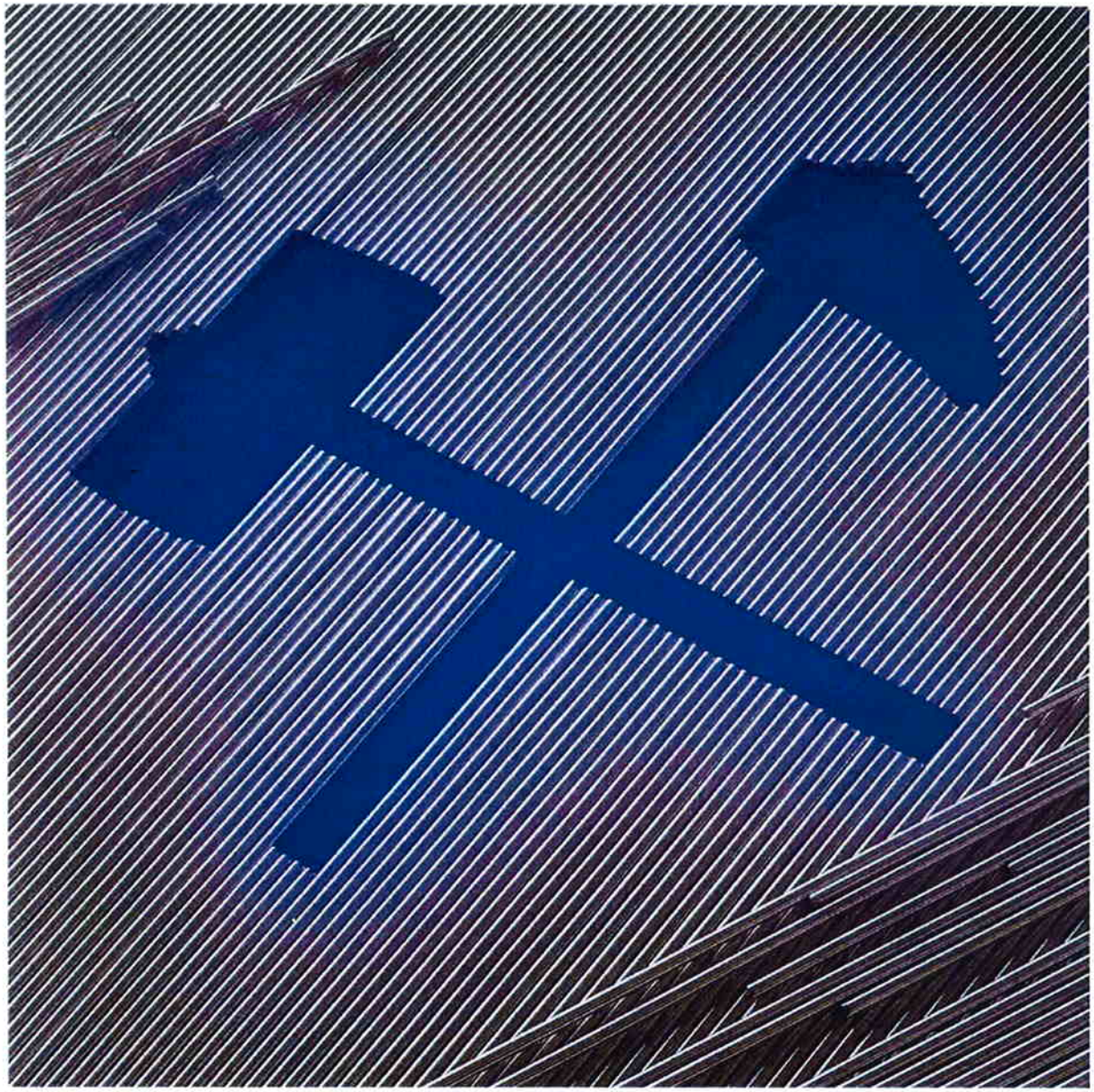

Brazing Alloys & Flux.

Johnson Matthey

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CADMIUM-FREE GENERAL PURPOSE SILVER BRAZING ALLOYS

DESCRIPTION	NOMINAL COMPOSITION	MELTING RANGE °C	AS 1167	COLOUR
Silverflo 55	55% Ag Cu Zn Sn	630 - 660		Light Pink
Silverflo 39	39% Ag Cu Zn Sn	635 - 730	A15	Dark Brown
Silverflo 34	34% Ag Cu Zn Sn	630 - 730		Emerald Green
Silverflo 302	30% Ag Cu Zn Sn	665 - 755	A16	Lilac
Silverflo 25	25% Ag Cu Zn Sn	705 - 800		Black

REMARKS

Unlike the cadmium bearing range, this group contains low silver content alloys such as Silverflo 34 and Silverflo 25 with relatively short, high melting-points which make them ideal for step brazing.

Silverflo 55. This is the lowest melting point alloy in the group and has been widely adopted as a substitute for Easyflo 42.

Silverflo 302 & 39. These are general purpose alloys suitable for use on most common engineering materials.

CADMIUM-BEARING GENERAL PURPOSE SILVER BRAZING ALLOYS

DESCRIPTION	NOMINAL COMPOSITION	MELTING RANGE °C	AS 1167	COLOUR
Easyflo 50	50% Ag Cu Cd Zn	620 - 640	A4	Palm Green
Easyflo 45	45% Ag Cu Cd Zn	607 - 620	A6	Oriental Blue
Easyflo 42	42% Ag Cu Cd Zn	610 - 620	A7	Black
Easyflo 35	35% Ag Cu Cd Zn	607 - 702	A10	Royal Blue
Mattibraze 34	34% Ag Cu Cd Zn	610 - 670	A17	Salmon Pink
Argoswift 30	30% Ag Cu Cd Zn	607 - 685	A12	Golden Yellow

REMARKS

Cadmium-brearing alloys generally offer the best combination of melting range, flow characteristics and mechanical properties. Thus, where the presence of cadmium is acceptable they would normally be recommended as the most economical alloys.

Alloys with 30-40% silver are normally considered as general-purpose alloys. They still offer good flow characteristics and melting ranges and are suitable for mechanised brazing operations.

Easyflo 50, 45 & 42. These are the lowest melting point alloys available. All three have excellent flow characteristics. The highest joint strengths are obtained with Easyflo 50.

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SPECIALISED SILVER BRAZING ALLOYS

DESCRIPTION	NOMINAL COMPOSITION	MELTING RANGE °C	AS 1167	COLOUR
Silverflo 60	60% Ag Cu Zn	695 - 730		
Argobraze 56	56% Ag Cu In Ni	600 - 711		
Mattibraze 56	56% Ag Cu Zn Sn	618 - 650	A2	White
Mattibraze 502	50% Ag Cu Zn Sn	660 - 750		
Silver-Copper Eutectic	72% Ag Cu	778 - 778	A1	Orange
50/50	50% Ag Cu Zn	688 - 774	A3	Dusty Pink
15% Manganese silver	85% Ag Mn	951 - 960		

REMARKS

Silverflo 60. Principally used for brazing assemblies which will be exposed to sea water. Easyflo 50, Easyflo 503 and Silverflo 55 are also suitable for marine service.

Argobraze 56. Specifically developed to prevent crevice corrosion which may result in rapid failure of joints in stainless steel when exposed to water.

Mattibraze 56 & 502. These cadmium free alloys are recommended for applications in the food and beverage industry. Good colour for stainless steel but should not be used where crevice corrosion is a likely hazard in service.

Silver-Copper Eutectic. Ideal for fluxless furnace brazing of copper, nickel and metallised ceramics.

50/50. Excellent corrosion resistance, its high melting temperature makes it ideal for 2 stage brazing when used with an alloy such as Easyflo 42.

15% Manganese Silver. A copper free alloy for brazing assemblies which will be in contact with ammonia.

FLUXCOATED BRAZING ALLOYS

DESCRIPTION	NOMINAL COMPOSITION	MELTING RANGE °C
Easyflo 45	45% Ag* Cu Cd Zn	607 - 620
Easyflo 35	35% Ag* Cu Cd Zn	607 - 702
Argoswift 30	30% Ag* Cu Cd Zn	607 - 685
Argobraze 40	40% Ag* Cu Zn Ni	670 - 780
Mattibraze 56	56% Ag* Cu Zn Sn	618 - 650

REMARKS

The flux coated range of silver brazing alloys is widely used in general engineering applications. They exhibit the same working properties of the bare wire alloys with the added convenience of permanent flux presence.

*Represents the nominal alloy composition of the metal content only.

PHOSPHOROUS BEARING GENERAL PURPOSE SILVER BRAZING ALLOYS

DESCRIPTION	NOMINAL COMPOSITION	MELTING RANGE °C	AS 1167	COLOUR
Silfos 18	18% Ag Cu P	640 - 680	B5	Powder Blue
Silfos 15	15% Ag Cu P	644 - 700*	B4	Tan
Silfos 5	5% Ag Cu P	650 - 710*	B3	Silver
Amfos 2	2% Ag Cu P	644 - 740*	B2	Canary Yellow
Silbralloy 2	2% Ag Cu P	645 - 740*	B2	Canary Yellow
Tecfos	7% P Cu	714 - 800*	B1	Signal Red

REMARKS

These alloys are recommended for fluxless brazing of copper. They may also be used on brass and bronze with the application of Easyflo Flux, Sifflux 2 or Tenacity 4A Flux. They should not be used on ferrous, nickel base materials or nickel bearing alloys.
The silver bearing alloys are more ductile than Tecfos and are recommended where joints will be subjected to significant stress levels.
Silbralloy 2. This alloy is specifically suited to brazing of copper water heating units.

*The true melting point is higher, however the alloy will flow freely and make strong joints at the indicated temperature.

SILVER & COPPER BASED BRAZING ALLOYS FOR TUNGSTEN CARBIDE

DESCRIPTION	NOMINAL COMPOSITION	MELTING RANGE °C	AS 1167	COLOUR
Easyflo 503	50% Ag Cu Cd Zn Ni	645 - 685	A5	Grey
Argobraze 49	49% Ag Cu Zn Ni Mn	680 - 705		Midway Blue
Argobraze 40	40% Ag Cu Zn Ni	670 - 780	A8	Gold
Easyflo 503 Trifoil	Easyflo 503 bonded to both sides of a copper shim	645 - 685		
Argobraze 40 Trifoil	Argobraze 40 bonded to both sides of a copper shim	670 - 780		
F Bronze	58% Cu Mn Co	890 - 930		

REMARKS

Easyflo 503. General purpose cadmium containing alloy with excellent mechanical properties.
Argobraze 49. A cadmium free alternative to Easyflo 503. The addition of manganese enhances wetting on difficult carbides.
Argobraze 40. Economical alloy with good wetting characteristics. Application restricted by high melting points.
Easyflo 503 Trifoil. For brazing large pieces of cemented carbide. The copper ensures that a thick, stress absorbing joint is achieved.
Argobraze 40 Trifoil. A cadmium free alternative to Easyflo 503 Trifoil.
F Bronze. Developed for brazing rock drills where heat treatment of the steel shank is critical with respect to temperature and where a high strength joint is required.

JM

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BRAZING FLUX

DESCRIPTION	WORKING RANGE °C	AVAILABILITY
Easyflo Flux	550 - 880	Paste
Silflux 2	600 - 800	Paste
Tenacity Flux 4A	600 - 850	Paste
Tenacity Flux 5	600 - 900	Powder
Tenacity Flux 6	560 - 800	Paste
Tenacity Flux 125	700 - 1200	Powder

REMARKS

Easyflo Flux. A general purpose flux with good fluxing activity and long life at temperature.

Silflux 2. Similar to Easyflo Flux but with a a higher degree of durability for use with difficult brazing positions.

Tenacity Flux 4A. A general purpose flux with good resistance to overheating, used with higher melting temperature silver brazing alloys.

Tenacity Flux 5. Recommended for stainless steel assemblies where flux exhaustion is likely to occur due to prolonged heating.

Tenacity Flux 6. Recommended for tungsten carbide refractory metals and stainless steel. This flux is unsuitable for use on stainless steel where crevice corrosion is likely to be a hazard in service.

Tenacity Flux 125. General high temperature flux for use with F Bronze.

RESIDUE REMOVAL

Easyflo Flux & Silflux 2. Residues are generally soluble in hot water. Where difficulty is encountered immersion in 10% caustic soda is suggested.

Tenacity Flux 4A & 5. When finished components are heavily oxidised, cleaning and flux removal may be accomplished by the use of 10% sulphuric acid.

Tenacity Flux 6 & 125. Residues are virtually insoluble in water. Immersion in 10% caustic soda or mechanical removal is recommended.

This is Johnson Matthey Quality

In 1992, Johnson Matthey became the first company in Australia to receive accreditation for brazing products under AS1167.1 1984.

All of our alloys are analysed in our NATA registered laboratory prior to sale, ensuring conformance to these standards.

Your guarantee of this quality is the Australian StandardsMark, displayed on all accredited Johnson Matthey brazing materials.

Our standard pack sizes for phosphorus bearing alloy rod are 5kg for alloys with less than 2% silver, and 2.5kg for others.

All other alloys are generally supplied in 2.5kg packs with some specialised and high silver content alloys available in 1kg packs.

Rod is stocked in the most popular round and flat strip sizes in standard lengths of 750mm. Other configurations are available - please consult your Johnson Matthey sales office for more information.

Wire and continuous flat strip can be supplied in coils or on spools to your specifications.

The majority of alloys can be supplied in a wide range of preforms ranging from simple rings to intricate pressings suitable for use where high production rates are required.

Australian Standard
AS 1167.1 1993 Lic 1158
ISO 9002 1987 Lic 350

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