



Argo-braze™ 49LM Tri-foil – Silver Brazing Filler Metal

Johnson Matthey's Argo-braze™ 49 LM Tri-foil is a specialised brazing foil developed principally for the brazing of tungsten carbide tips or segments to steel substrates. The product is a triple layered material consisting of a central copper core on either side of which is bonded a layer of the Argo-braze™ 49LM filler metal. The thickness of the individual layers within the standard product is controlled in a ratio of 1:2:1.

The central copper core present within the product, which does not melt during the brazing process, provides a soft ductile layer that can deform to accommodate the stresses that develop on cooling due to the widely differing expansion coefficients of tungsten carbide and steel. The larger the tungsten carbide tip the larger the cooling stresses that arise. Consequently Argo-braze™ 49 LM Tri-foil is particularly recommended for use in applications that involve brazing larger pieces of tungsten carbide for example with a single dimension greater than 20 mm.

Joints made with a Tri-foil are considered to be better able to withstand percussive stress in service than joints not incorporating a Tri-foil product. As a result Argo-braze™ 49 LM Tri-foil has become widely used in the manufacture of a wide range of tungsten carbide tipped tools and saw blades.

The brazing alloy Argo-braze™ 49LM is cadmium free and contains additions of nickel and manganese, elements that have been found to aid wetting and bonding to tungsten carbide. These additions are particularly of use when brazing difficult to wet carbides, carbides low in cobalt or that contain small additions of titanium and or tantalum carbide.

The manganese in this product makes its flow sluggish and can give a brown coloured joint appearance. In some cases Argo-braze™ 502 Tri-foil is sometimes preferred by brazing operators because it more free flowing and does not contain manganese making it easier to use.

Composition:	49%Ag, 27.5%Cu, 20.5%Zn, 2.5% Mn, 0.5%Ni
Conforms to:	Johnson Matthey specification
Melting range:	670-710°C

Uses for This Product

Most commonly it is used for brazing of tungsten carbide tips to steel components. In particular it has been used in the manufacture of a wide range of tungsten carbide tipped tools and saw blades. This product has proven itself in the most arduous applications and tri-foil of this composition has become by far the most widely used product for joining tungsten carbide to steel across the globe.

Conditions for Use

A standard flux such as Easy-flo™ Flux Powder or Mattiflux™ 100 Flux Paste is suitable for use in conjunction with Argo-braze™ 49LM Tri-foil. For improved wetting on difficult to wet grades of carbide special boron modified 'brown' flux such as Tenacity™ No. 6 Powder or Paste is recommended.

Product Availability

Foil Widths from 2mm to 100mm, 0.08mm to 0.5mm thick

Product can be supplied on coils or in the case of narrow widths on plastic reels suitable for use on automatic brazing equipment.

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