

Material Product Data Sheet

Amdry 8249 Diffusion Braze Alloy Blend

Products:

Amdry 8249 (Powder, Paste and Tape)

1 Introduction

The Amdry™ 8249 is a spheroidal, inert gas-atomized diffusion brazing alloy blend. The powder is manufactured to meet Pratt & Whitney proprietary specification PWA 36117, as a blend of PWA 36117-1 and PWA 36117-2 in specified ratios.

Amdry 8249 is a controlled product that is only available to customers who have been qualified and approved to purchase this product by Pratt & Whitney.

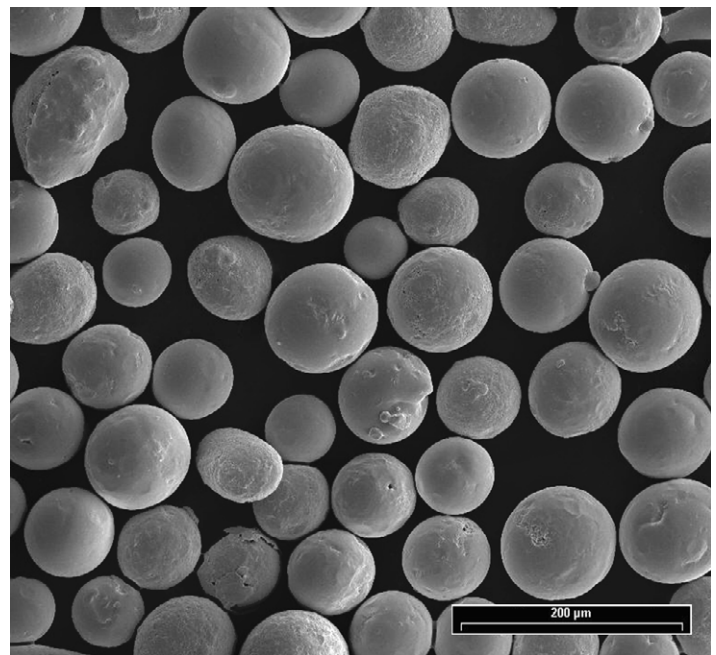
Amdry 8249 contains boron as a readily diffusible melt suppressant. The diffusion of the boron works to raise the remelt temperature of the braze deposit, which allows for the higher service temperatures that make Amdry 8249 a good choice for repairs on turbine components.

1.1 Typical Use and Applications

- Base metals such as Haynes 282, MM247, Rene N4 and CMSX6 can be brazed with Amdry 8249.
- Amdry 8249 is used to repair cracks, repair worn or damaged areas, restore detail areas and repair mis-machined turbine components.
- Cracks (gaps) from 0.38 – 1.5 mm (0.015 – 0.060 in) are repairable using Amdry 8249.

Quick Facts

Classification	Nickel-based alloy
Chemical formula	Proprietary blend
Manufacture	Gas Atomization
Morphology	Spheroidal
Purpose	Repair and restoration
Process	Diffusion brazing
Viscosity	Sluggish



SEM of typical gas atomized braze filler metal powder particles

2 Material Information

2.1 Chemical Composition

Product	Blend Composition by Weight Percent (per PWA 36117)	
	Amdry 482 (PWA 36117-1)	Amdry 8670 (PWA 36117-2)
Amdry 8249	30 – 50	50 – 70

Note: The exact ratio of Amdry 482 to Amdry 8670 is defined by the blend chosen from the PWA 36117 specification, e.g., Blend 1, 2 or 3.

2.2 Particle Size Distribution

Product	Nominal Range
Amdry 8249	Proprietary

2.3 Key Selection Criteria

- Choose the ratio and product form that meets the specification, drawing and/or purchase order requirements of Pratt & Whitney.
- Amdry 8249 is available in powder, paste, tape or pre-forms. Please see the Commercial Section of this document and Materials Product Datasheets DSMB-0001 (paste) or DSMB-0002 (tape and preforms) for additional information.
- Amdry 482 and Amdry 8670 are also sold as separate products, to be used in specialized blends or as deemed appropriate by Pratt & Whitney to meet specific requirements.
- Amdry 8626 is a pre-blended, nickel-based product of Amdry 482 and Amdry 8625 that meets the Pratt & Whitney PWA 36119 specification.
- Amdry 485/509 is a pre-blended, cobalt-based product of Amdry 485 and Amdry 8249 that meets the Pratt & Whitney PWA 1185 specification.

2.4 Related Products

- Before considering an alternative product, review product compliance with any required specifications and drawings.

2.5 Customer Specifications

Amdry 8249	Pratt Whitney PWA 36117 Blend 2
------------	---------------------------------

Other blend ratios are available on request.

3 Braze Processing and Joint Information

3.1 Key Processing Information

Substrate preparation	Clean and dry, free of oxides and organic contaminants.	
Flux requirements	None	None
Recommended atmospheres	Vacuum	Vacuum
Other atmospheres	None	
Melting range	Refer to PWA processing requirements	
Braze range	Refer to PWA processing requirements	
Viscosity	Sluggish	
Recommended gap size	0.38 – 1.5 mm	0.015 – 0.060 in

3.2 Key Braze Joint Information

Joint strength	Excellent
Joint ductility	Very Good
Corrosion resistance	Excellent
Oxidation resistance	Excellent

3.3 Rebrazing

During the braze cycle, the braze filler metal interacts metallurgically with the substrate to alter the braze alloy's chemical

composition, resulting in an increased remelt temperature. The new melting temperature cannot be accurately predicted; therefore, each particular application must be investigated for variation. If a rebraze operation is designed as part of the original manufacturing process, or as a repair operation, it is important to determine the rebraze temperature. To ensure minimal effects on the original braze joint, it is best to braze at the upper limit of the braze range for the maximum time the part can withstand. It is then recommended that subsequent cycles be performed below the original braze temperature.

4 Commercial Information

4.1 Ordering Information and Availability

Amdry 8249 is only available to customers approved by Pratt & Whitney.

Product	Form	Order No.	Package Size	Availability	Distribution
Amdry 8249 ^a	Paste	1030142	8 oz (approx. 227 g) cartridge	Special Order	Global
	Tape	1071593 ^b	Roll	Special Order	Global

^a Blend 2. Other blend ratios (blend 1, 3, 4, 5 or 6) are available on request

^b Specify Amdry 8249 as well as the blend ratio, tape width, thickness and length

Other product forms and packaging combinations are available on a special order basis. Braze paste, customized braze tape and preforms are available to meet specific customer requirements. Please contact your local Oerlikon Metco sales office or account representative for additional information.

4.2 Handling Recommendations

- Store in the original, closed container in a dry location.
- Tumble contents prior to use to prevent segregation.

4.3 Safety Recommendations

See the SDS (Safety Data Sheet) for the product form and in the localized version applicable to the country where the material will be used. SDS are available from the Oerlikon web site at www.oerlikon.com/metco (Resources – Safety Data Sheets).

Product	SDS No.
Amdry 8249 CNT Paste	50-985
Amdry 8249 Tape	50-1395