

# Material Product Data Sheet

## Amdry 775 High Temperature Braze Filler Metal

### Products: Amdry 775

#### 1 Introduction

Amdry™ 775 is an inert gas-atomized braze filler metal containing boron and chromium. The chrome serves to improve joint strength, while the boron acts as the temperature suppressant, allowing Amdry 775 to melt below 1055 °C (1930 °F). As boron is the only melt suppressant, Amdry 775 readily diffuses, producing a more ductile joint.

Brazed deposits of Amdry 775 will polish to a bright, shiny surface. This makes Amdry 775 a good choice for applications where the cosmetic appearance of the parts is important.

Amdry 775 is also a good choice for applications requiring a high hardness in the joint. The hardness of deposits made with Amdry 775 are HK25 150 – 500.

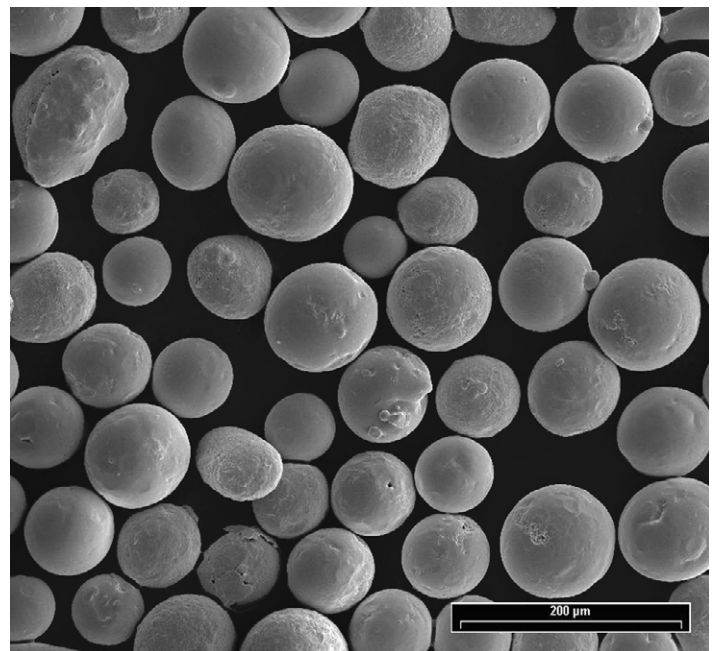
#### 1.1 Typical Use and Applications

Usually used as a brazing filler metal for:

- Brazing steels, stainless steels and nickel-based superalloy components
- Joints that require ductility in service
- Brazing applications where silicon cannot be tolerated
- Applications requiring high joint hardness
- Applications where joint or deposit cosmetics are important.

#### Quick Facts

Classification	Nickel-based braze alloy
Chemical formula	Ni 15Cr 3.5B
Manufacture	Gas Atomization
Morphology	Spheroidal
Density	7.65 g/cm <sup>3</sup>
Melting point	1052 °C (1925 °F)
Purpose	Joining and repair
Process	Brazing
Gap size	0.012 – 0.1 mm (0.0005 – 0.004 in)
Viscosity	Medium
Joint strength	Excellent
Ductility	Excellent



SEM of typical gas atomized braze filler metal powder particles

## 2 Material Information

### 2.1 Chemical Composition

Product	Weight Percent		
	Ni	Cr	B
Amdry 775	Balance	13.0 – 17.0	3.0 – 4.0

### 2.2 Particle Size Distribution

Product	Nominal Range	Mesh (ASTM)	AWS Grade
	micrometers (µm)		
Amdry 775	-106 +45 µm	-140 +325 mesh	140C

Other particle size distributions may be available on request. Please contact your Oerlikon Metco Account Manager.

### 2.3 Key Selection Criteria

Amdry 775 is available as a powder. Paste, tape or preforms to aid in application of 775 are available as a special order .

### 2.4 Related Products

- Before considering an alternative product, customers should also review product compliance with required specifications.
- Amdry 770 melts at a slightly lower temperature for

applications where it is important to keep the braze temperature lower.

- Amdry 105 brazes in the same temperature range as Amdry 775, but is more free-flowing for tighter or deeper joints and is an excellent choice for heat exchanger applications.
- Amdry DF-4B, which is also silicon-free, can be used as an alternative to Amdry 775 in applications where a more sluggish braze is desirable and for applications requiring very high joint strength and solution hardening.

### 2.5 Customer Specifications

Amdry 775	GE B50TF207, Class A Honeywell EMS 54752, Type VIII MTU MTS 1295 Pratt & Whitney PWA 36962 Rolls-Royce Ltd. MSRR 9500/719 Tulsa Airfoil Repair MS 1090
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## 3 Braze Processing and Joint Information

### 3.1 Key Processing Information

Substrate preparation	Clean and dry, free of oxides and organic contaminants. Nickel flash substrates rich in titanium or aluminum to improve flow through the joint.		
Flux requirements	None		
Recommended atmospheres	Vacuum		
Other atmospheres	Type	Ar or pure dry H <sub>2</sub>	
	Dew point	≤ -52 °C	≤ -60 °F
Melting range	Solidus	1021 °C	1870 °F
	Liquidus	1052 °C	1925 °F
Braze range	1066 °C – 1204 °C		1950 °F – 2200 °F
Viscosity	Medium		
Recommended gap size	0.012 – 0.1 mm		0.0005 – 0.004 in

### 3.2 Key Braze Joint Information

Joint strength	Excellent
Joint ductility	Excellent
Corrosion resistance	Excellent
Oxidation resistance	Excellent

### 3.3 Rebrazing

During the braze cycle, the braze filler metal interacts metallogically 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

Product	Form	Order No.	Package Size	Availability	Distribution
Amdry 775	Powder	1001423	5 lb (approx. 2.25 kg)	Stock	Global

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 powder in the original, closed container in a dry location. Tumble contents prior to use to prevent segregation. Paste should be stored tip down in the original packing container. See Materials Data Sheet DSMB-0001 (paste) for additional information.

Store tape in sealed bags to minimize drying of the tape. Refer to Materials Data Sheet DSMB-0002 (tape and preforms) for additional information.

### 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](http://www.oerlikon.com/metco) (Resources – Safety Data Sheets).

Product	Product Form	SDS No.
Amdry 775	Powder	50-1036
	Paste, CNT	50-1096
	Paste, CNG	50-1105
	Tape	50-1118