

Material Product Data Sheet

Tungsten & Titanium Carbide – Iron-Based Amorphous Wire

Thermal Spray Cored Wire Products: Metco 8297

1 Introduction

Metco™ 8297 is filled (cored) wire designed for electric arc wire spray. The chemistry of this wire consists of a tungsten carbide and titanium carbide in an iron-based amorphous alloy matrix. The carbide constituents enhance abrasive wear resistance of coatings produced using Metco 8297 while the amorphous alloy matrix enhances corrosion resistance.

Coatings of Metco 8297 can be ground and lapped to produce a high, chrome-like finish if desired for the application.

1.1 Typical Uses and Applications

Metco 8297 are typically used for applications such as:

- High wear industrial applications that include:
 - Metal-to-earth sliding surfaces
 - Metal-to-metal sliding surfaces
- Industrial fan blades
- Boiler tubes

Quick Facts

Classification	Wire, Fe-based
Chemical formula	Fe 26WC 13Cr 6TiC 6Ni 2B 1Si
Manufacture	Drawn wire
Morphology	Cored
Service Temperature	≤ 538 °C (1000 °F)
Purpose	Corrosion/wear resistance
Process	Electric Arc Wire Spray



2 Material Information

2.1 Chemical Composition

Product	Weight Percent (nominal)						
	Fe	WC	Cr	TiC	Ni	B	Si
Metco 8297	Bal.	26	13	6	6	2	1

2.2 Morphology and Available Wire Sizes

Product	Morphology	Recommended Spray Process	Available Wire Diameters
Metco 8297	Composite	Electric Arc Wire Spray	1.6 mm (14 ga)

2.3 Key Selection Criteria

- Choose Metco 8297 when an electric arc wire sprayed coating should exhibit:
 - High wear resistance, particularly abrasive wear
 - High corrosion resistance

2.4 Related Products

- For applications operating at higher temperatures, Metco 8295 is recommended. Coatings of Metco 8295 have an amorphous structure between 30 to 40 % that improves corrosion resistance, particularly in chloride environments in addition to very high abrasion resistance.
- If the HVOF spray process can be used, Diamalloy 1008 is recommended for hardfacing, corrosive wear applications

below 650 °C (1200 °F). It is a synergistic blend of two atomized powders that produces coatings with corrosion resistance better than martensitic or ferritic steels.

- Metco 42C, which can be applied using atmospheric plasma or combustion powder spray, produces coatings that exhibit martensitic phases, resulting in high hardness and wear resistance. Metco 42C can be used for wear, abrasion and fretting resistant applications below 538 °C (1000 °F).

3 Coating Information

3.1 Coating Parameters

Please contact your Oerlikon Metco Account Representative for parameter availability. For specific coating application requirements, the services of Oerlikon Metco's Coating Solution Centers are available.

Recommended Electric Arc Wire Spray Guns

SmartArc PPG

4 Commercial Information

4.1 Ordering Information and Availability

Product	Order No.	Wire Diameter	Package Size	Package Type	Availability	Distribution
Metco 8297	1058789	1.6 mm (14 ga)	25 lb (approx. 11.3 kg)	Dorn Spool	Stock	Global

4.2 Handling Recommendations

Store in the original container in a dry location.

4.3 Safety Recommendations

See SDS 50-1161 (Safety Data Sheet) for the localized for 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).

Information is subject to change without prior notice.