

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.
- For applications where better abrasion resistance is needed, Metco 8222 is recommended. Coatings of

Metco 8222 are very hard and appropriate for hardfacing applications.

- 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.