

Material Product Data Sheet

Iron Molybdenum Thermal Spray Wire

Thermal Spray Solid Wire Products: Metco 8223

1 Introduction

Metco™ 8223 is a high carbon, iron-moly composite cored wire specially designed for electric arc spray. The material produces coatings that are hard, dense, and wear resistant that can be used for hard bearing surfaces with a low coefficient of friction.

Molybdenum in the core of the wire provides good scuff resistance as a result of the formation of molybdenum oxide in the coating.

Metco 8223 is recommended for applications requiring low coefficient of friction, abrasive resistance or a hard coating at low service temperatures. It can be also used for build up and salvage of grindable carbon steel components. Metco 8223 is very useful as a coating material for automotive applications.

1.1 Typical Uses and Applications

Metco 8223 are typically used to produce coatings that exhibit:

- High wear resistance
- Good Scuff resistance
- Good bond strength
- Low coefficient of friction

Typical applications include:

- Automotive applications such as piston rings, synchronizer rings, repairs on the I.D. of transmission gear rings
- Coatings that provide compatibility between mating surfaces, particularly for iron-based alloys

Quick Facts

Classification	Wire, Fe-based
Chemical formula	Fe 21Mo 2C 1B
Manufacture	Drawn wire, composite
Melting Point	1450 °C (2250 °F)
Service Temperature	340 °C (650 °F)
Purpose	Wear / scuff resistance with low friction
Process	Electric Arc Wire Spray



2 Material Information

2.1 Chemical Composition

Product	Nominal Chemistry	Weight Percent (nominal)					
		Fe	Mo	C _{TOTAL}	B	Organic Solids	Other
Metco 8223	Fe 21Mo 2C 1B	Bal.	18.0 – 25.0	1.2 – 1.9	0.5 – 1.2	1.5 (max)	0.8 (max)

2.2 Morphology and Available Wire Sizes

Product	Morphology	Recommended Spray Process	Available Wire Diameters
Metco 8223	Composite	Electric Arc Wire Spray	1.6 mm (14 ga)

2.3 Key Selection Criteria

- Choose Metco 8223 when an electric arc wire sprayed coating should exhibit:
 - Low coefficient of friction
 - Scuff resistance
 - A hard and wear resistant surface at low service temperatures

2.4 Related Products

- Metco 350NS is an iron-based product that can be used to provide similar coating characteristics wherever feed-stock in powder form is required or preferred for application using atmospheric plasma spray or combustion powder Thermospray™.

- Amdry 1371 and Metco 7837 are molybdenum-based powders applied using atmospheric plasma spray, that can be used up to 350 °C (660 °F) to produce a surface with a low coefficient of friction with good scuff resistance.
- Amdry 6200, Amdry 6204, Metco 101SF, Metco 101NS and Metco 6203 are alumina-titania materials, applied using atmospheric plasma spray, that can be used on textile production components for guiding and handling of threads.
- Metco 143 is ceramic powder that produces coatings with good scuff and erosion resistance, and resistant to high temperature corrosion at elevated temperatures up to 980 °C (1800 °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 8223	1031732	1.6 mm (14 ga)	25 lb (approx. 11.3 kg)	Dorn Spool	Special Order	Global

4.2 Handling Recommendations

Store in the original container in a dry location.

4.3 Safety Recommendations

See SDS 50-572 (Safety Data Sheet) 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.