

Material Product Data Sheet

Molybdenum – Nickel Chromium Iron Boron Silicon Powder Blend for Thermal Spray

Thermal Spray Powder Products: Amdry 1371

1 Introduction

Amdry 1371 is a thermal spray powder that contains molybdenum blended with a self-fluxing constituent to form hard, dense coatings that resist scuffing and abrasion in mild oxidizing environments. They are excellent for high wear resistance applications.

This two-component blend of Amdry 1371 consists of an agglomerated and sintered molybdenum constituent and an inert gas-atomized nickel-chromium-iron (NiCrFeBSiC) self-fluxing component. Molybdenum imparts toughness, scuff-resistance and a low coefficient of friction to the coating. The self-fluxing alloy constituent provides additional high temperature corrosion, erosion and oxidation resistance to the coating.

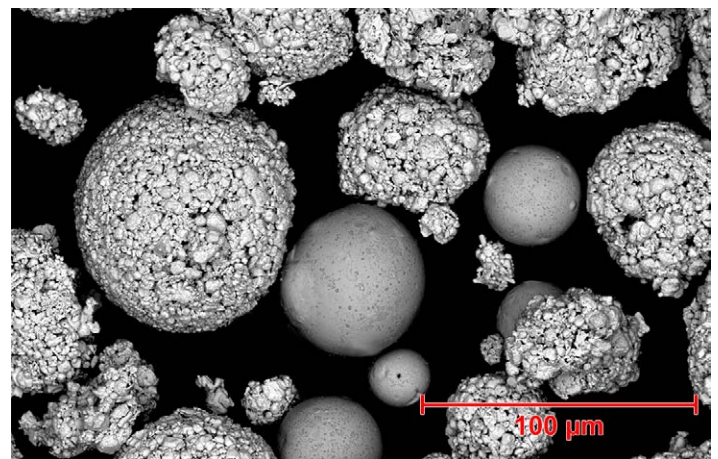
Coatings of Amdry 1371 are self-bonding on most substrates, but use on copper and copper-alloy substrates should be avoided.

1.1 Typical Uses and Applications

- Automotive piston and synchronizer rings
- Shifter forks
- Gear cones
- Pinion gear journals
- Pump bushings, sleeves and impeller shafts
- Hot strip mill cooling tables
- Agricultural grinding rolls
- Rudder bearing surfaces
- Wire drawing capstans
- Dragline brake drums

Quick Facts

Classification	Blend, Molybdenum-based
Chemistry	Mo-NiCrFeBSiC
Manufacture	Blended
Morphology	Spheroidal
Melting Point	660 °C (1215 °F)
Service Temperature	≤ 340 °C (650 °F)
Purpose	Wear and scuff resistance; low coefficient of friction
Process	Atmospheric Plasma Spray or HVOF



SEM Photomicrograph of Amdry 1371 showing the morphology of this blended powder product

2 Material Information

2.1 Chemical Composition

Product	Nominal Chemical Composition (wt. %)							
	Mo	Ni	Cr	Fe	B	Si	C	Others
Amdry 1371	Balance	17.5	4.0	1.0	0.85	1.0	0.25	< 0.3

2.2 Particle Size Distribution and Other Properties

Product	Nominal Particle Size Distribution (µm) ^a	Manufacturing Method ^b	Morphology
Amdry 1371	-90 +15	Blended	Spheroidal

^a Particle size ≥ 45 µm analyzed via sieve analysis in accordance with ASTM B214; particle sizes < 45 µm analyzed via analysis via laser diffraction (Microtrac).

^b Molybdenum constituent manufactured by agglomeration and sintering; other constituents are inert gas atomized.

2.3 Key Selection Criteria

■ Amdry 1371, with its high molybdenum content, produces coatings with excellent scuff resistance, high toughness and a low coefficient of friction.

2.4 Related Products

■ For applications where low frictional characteristics or better scuff resistance is needed, particularly in dry-running conditions, coatings of pure molybdenum using

Amdry 313X, Metco 63NS, Metco 4063; however, coatings of these materials have lower erosion resistance. Refer to datasheet DSMTS-0105 for more information.

- • When a good scuff-resistant surface with better hardness is needed, Metco 350NS can be considered. This is an iron-based composite powder that contains molybdenum and carbon. It has lower corrosion and oxidation resistance than coatings of Amdry 1371. Please refer datasheet DSMTS-0046.

2.5 Customer Specifications

Product	Customer Specification
Amdry 1371	Chromalloy BZ-0003 Type 56 Honeywell EMS 52417, Table 1, Class F

3 Coating Information

3.1 Key Thermal Spray Coating Information

Specification	Typical Data
Recommended Spray Process	HVOF or Atmospheric Plasma Spray
Recommended Finishing Method	Wet grind using a SiC or diamond wheel. Ample coolant has to be applied during grinding
Maximum Service Temperature	340 °C 650 °F

Data is provided is typical and variability can be expected. Changes in spray process, spray equipment or spray parameters can significantly change coating results.

3.2 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 Spray Guns

Atmospheric Plasma	HVOF
Metco 9MB series	DiamondJet (water-cooled) series
Metco F4 series	WokaJet series
TriplexPro series	WokaStar Series
SimplexPro series	

4 Commercial Information

4.1 Ordering Information and Availability

Product	Order No.	Package Size	Availability	Distribution
Amdry 1371	1001034	10 lb (approx. 4.5 kg)	Stock	Global

4.2 Handling Recommendations

- Store in the original container in a dry location.
- Tumble contents gently prior to use to prevent segregation.
- Open containers should be stored in a drying oven to prevent moisture pickup.

4.3 Safety Recommendations

See SDS 50-818 (Safety Data Sheet) 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).