



Alumina-Titania Composite
Ceramic Powder

MetaCeram[®]

25020



- Excellent resistance to wear by abrasion
- Resists wetting by molten metals
- Good thermal shock resistance and electrical insulating properties
- Excellent chemical stability in alkali and acids

MetaCeram® 25020

MetaCeram 25020 is a grey aluminum oxide powder with properties similar to MetaCeram 25010. It is designed for application by high energy combustion or conventional plasma non-transferred arc systems. The coatings produced are hard and resistant to abrasive and adhesive wear at moderate temperatures. In addition, 25020 coatings have good thermal shock resistance, good dielectric properties and are non-wetting to molten metals such as copper, aluminum and zinc. MetaCeram 25020 is similar to MetaCeram 25010 and can be used as an alternative when a lower cost is desired or when a white colored coating raises aesthetic concerns.

MetaCeram 25020 will require a bond coating in nearly all applications. Use Proxon 50000 or 21021 when the application temperature is low or when corrosion is not a concern. Use ProXon 21031 when the application temperature is high, corrosion is a concern or when the base metal is a stainless steel.

PROCEDURE FOR USE

Coating Procedure: Pre-heat the bond-coated part to 300°F (150°C) and maintain in the 300 – 400°F (149 - 204°C) temperature range during coating. Rotational speed should be 150 to 200 sfpm and traverse speed should be fast enough to apply about 0.001" coating thickness per pass. Coatings applied at too low a temperature will be soft. Coatings applied at a high temperature will tend to crack or delaminate during cooling. Exact pre-heat temperature and the torch to work-piece speed will depend heavily on the geometry of the part.

Finishing Procedure: Coatings of 25020 may be rough ground with 120 grit silicon carbide wheels but diamond grinding is preferred. Use a 150 grit diamond wheel for roughing and a 400 grit diamond wheel for finishing. Lapping with successively finer compounds will produce a finish of less than 20 microinches AA for combustion applied and less than 15 microinches AA for plasma non-transferred arc applied coatings. Coatings should be sealed with a high temperature wax or suitable alternative when wet grinding is performed.

Spray Parameters

| TD 2000 | Acetylene | Propylene |
|--------------------|-------------------|------------------|
| Nozzles | RL210 or RI 210-W | RL 210M |
| Module Adaptor | Aqua | Aqua |
| RotoJet | RPA 3@40psi air | RPA 3@25psi air |
| Oxygen | 50 psi / 35 flow | 80 psi / 50 flow |
| Acetylene | 12 psi / 75 flow | 30 psi / 56 flow |
| T-Valve Setting | 5 clicks | 5 clicks |
| Coating Rate | 3.0 lbs/hr | 4.0 lbs/hr |
| Deposit Efficiency | 80% | 80% |
| Spray Distance | 5 inches | 6 inches |

| TD 3000 | Acetylene | Propylene |
|----------------|------------------|------------------|
| Nozzles | RL 3310 | RL 310M |
| RotoJet | None | RPA 3@10psi |
| Oxygen | 50 psi / 36 flow | 80 psi / 53 flow |
| Gas Flow | 12 psi / 60 flow | 30 psi / 47 flow |
| Carrier Gas | N2 or Ar@55 psi | N2 or Ar@55 psi |
| TeroMeter* | 60 | 60 |
| Coating Rate | 2.5 lbs/hr | 3.5 lbs/hr |
| Spray Distance | 3.5 inches | 8 inches |

*Adjust to achieve spray rate

TECHNICAL DATA

| Typical Coating Properties | |
|----------------------------|--|
| Composition: | Grey Aluminum Oxide |
| Method of Manufacture: | Agglomerated and Sintered |
| Flow Rate: | 13.5 seconds |
| Bulk Density: | 1.8 g/cc |
| Typical Powder Properties | |
| Macrohardness: | HRC55 (15 N scale converted) |
| Microhardness: | DPH ₃₀₀ 775 |
| Coating Density: | 3.4 g/cc (combustion) 3.9 g/cc (plasma NTA) |
| Max. Service Temperature: | 2000°F (1090°C) |
| Porosity: | < 10% (combustion) < 5% (plasma NTA) |
| Ground and Lapped Finish: | < 20 microinches AA |

TYPICAL APPLICATIONS

- Pump Sleeves
- Thermal Insulation
- Pouring troughs for molten metals
- Soldering Tips
- Pyrometer Probes

Observe normal spraying practices, respiratory protection and proper air flow pattern advised. For general spray practices, see AWS Publications AWS C2.1-73, "Recommended Safe Practices for Thermal Spraying and AWS T55-85, "Thermal Spraying, Practice, Theory and Application." Thermal spraying is a completely safe process when performed in accordance with proper safety measures. Become familiar with local safety regulations before starting spray operations. DO NOT operate your spraying equipment or use the spray material supplied, before you have thoroughly read the equipment instruction manual. Refer to the Eutectic website for Material Safety Data Sheet (MSDS) information. DISREGARDING THESE INSTRUCTIONS MAY BE HAZARDOUS TO YOUR HEALTH.



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