

# Bulletin

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## Powder Characteristics

### **TAFE 1356VF Tungsten Carbide – 20 Chromium – 7 Nickel**

#### **Nominal Composition: % Weight**

Tungsten Carbide	73
Chromium	20
Nickel	7

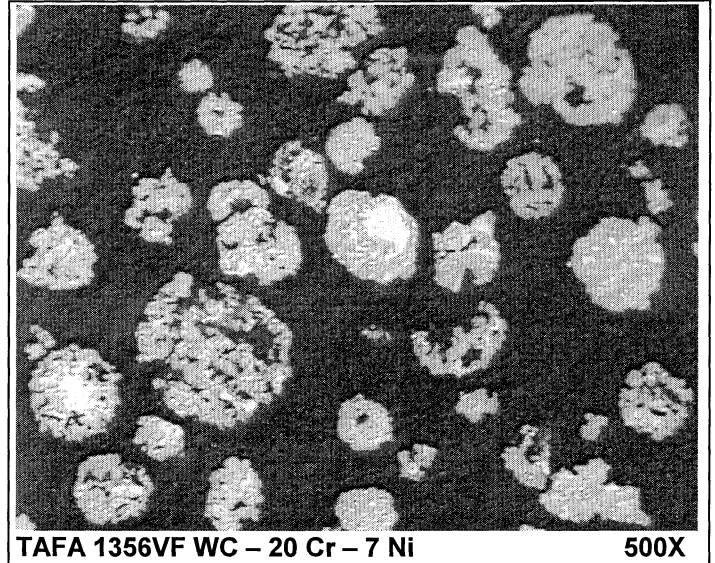
**Powder Type:** Spray Dried & Sintered

**Particle Shape:** Mainly Spherical

**Particle Size:** -45 $\mu$  + 5 $\mu$

**AD** (g/cm<sup>3</sup>) (ASTM B-212) typical: 3.7

**HF** (sec/50g) (ASTM B-213) typical: 20



#### **Overview:**

This powder has been made exclusively for high velocity thermal spraying. TAFE 1356VF powder is used to produce dense, hard and tough coatings that are suited to many applications. These applications include sliding wear erosion, impingement, abrasion and fretting wear. Coatings of TAFE 1356V show good wear resistance in basic and organic acid solutions. The TAFE 1356V coatings are better for oxidation and corrosion resistance than WC - Co coatings. Also, the absence of cobalt makes TAFE 1356V suitable for nuclear environments. TAFE 1356V coatings exhibit good wear resistance up to 1400° F (760° C). TAFE 1356VF can be used in the TJ-4000 HVOF, JP-5000<->ST HP/HVOF and the Diamond Jet™.

#### **Typical Applications:**

- Petrochemical industry:
  - Chemical processing equipment
  - Sucker rods
  - Gate & Ball valves
  - High wear areas on “down hole” equipment
  - Gas transmission equipment
- Wear applications in nuclear environments
- Paper rolls
- Hot crushing rolls
- Fretting wear environments up to 1400°F (760°C)
- Repair of plastic granulation screws and equipment

Consult your TAFE coatings application engineer for help in solving your specific coating requirements.

**Typical High Velocity Applied Coating Properties\*:**

Finish	As Sprayed Ground	150 - 170 $\mu\text{in } R_a$ Less than 10 $\mu\text{in } R_a$
Bond Strength		10,000 psi (Epoxy failure at 0.015" thickness)
Hardness -	Superficial Macro Micro	92- 95 $R_{15N}$ 64 - 68 $R_C$ 900 - 1350 $DPH_{300}$
Microstructure -	Porosity Oxides	1 - 4% 1 - 5%

\*For more specific coating data, see the Coating Properties Bulletin for each particular system (JP-5000<math>\leftrightarrow</math>ST, AF-3000, TJ-4000).

**The information provided herein is believed to be accurate and reliable; however, results may vary with workpiece preparation and operator technique. Tafa warrants only that the powders are free of defects in material and workmanship. No other warranty is expressed or implied.**

**Hazards:**

Observe normal spraying practices. Respiratory and hearing protection is advised. For general guidelines see AWS Publication C2.1-73, and AWS TSS-85. Thermal spraying is a safe process when performed in accordance with proper safety measures.

**Tafa Delivers Your "Operating Advantage"**

Tafa's primary objective is to ensure you consistently get the coating quality you require...with greatest application ease...at the lowest coating costs. Tafa accomplishes this by engineering the most advanced thermal spray materials and equipment available.

***Coating Performance + Ease-of-Use + Low Costs =  
"Operating Advantage"***

**For further information** on HVOF coatings, equipment and supplies, as well as other thermal spray processes and custom automated systems, contact: