1471 US HWY 51
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+1 (608) 509-7146

SECTION 1 - IDENTIFICATION

COMPANY ADDRESS:
The Virtual Foundry, Inc
1471 US HWY 51
Stoughton, WI 53589
USA

PRODUCT NAME: **Copper Filamet™**

SECTION 2 - TYPICAL MATERIAL PROPERTIES

Physical Properties	Unit	Value
Density	g/cc	4.50 - 4.70
Metal Content	%	87.0 - 90.0

SECTION 3 - FILAMENT SPECIFICATIONS

Nominal Diameter	Diameter Tolerance	Ovality	Net Filament Weight
1.75mm	± 0.05mm	≥ 95%	1000 / 500 grams
2.85mm	± 0.05mm	≥ 95%	1000 / 500 grams
Pellets	-	-	1000 grams

SECTION 4 - GUIDELINES FOR PRINTING

Advised Printing Temperature	190 - 230°C (374 – 446°F) For high speed printers: 235 - 250°C (455 - 482°F)
Advised Build Plate Temperature	40 - 65°C (104 – 149°F) (Optional) 65°C (149°F) is recommended for glass/G10 build plates
Build Plate Surface Type	Powder coated spring steel, glass, G10, blue painter's tape
Build Plate Preparation	Powder Coated Spring Steel: No preparation required Glass/G10: Clean with IPA, print at 65°C (149°F) PEI/PC/Fiberglass/Acrylic/Other: Blue painter's tape
Print Cooling	Recommended for small details/intricate parts
Advised Printing Speed	60 - 80mm/sec For high speed printers: 120 - 130mm/sec
Advised Flow Rate	120 - 135%
Nozzle Size/Type	0.6mm Hardened Steel

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SECTION 5 - ADDITIONAL INFORMATION

This filament is abrasive and will wear standard brass nozzles fast. The Virtual Foundry, Inc recommends a hardened steel nozzle. Gem tipped, stainless steel, titanium and tungsten nozzles have been tested and found to wear quickly.

Sintering Temperature: 1052°C (1925°F) **Instructions:** https://thevirtualfoundry.com/debind-sinter/

DISCLAIMER: The information provided in this TDS is correct to the best of The Virtual Foundry, Inc's knowledge. The Virtual Foundry, Inc makes no warranty, express or implied, regarding the accuracy of the data or the results obtained from the use of this product. Nothing herein may be construed as recommending any practice or any product in violation of any law or regulations. The information given is provided as a guidance for good use, handling and processing and is not to be considered as a quality specification. The user is solely responsible for determining the suitability of any material or product for a specific purpose and for adopting any appropriate safety precautions. The information only relates to the specific product and the material properties.

REVISED DATE: March 2025

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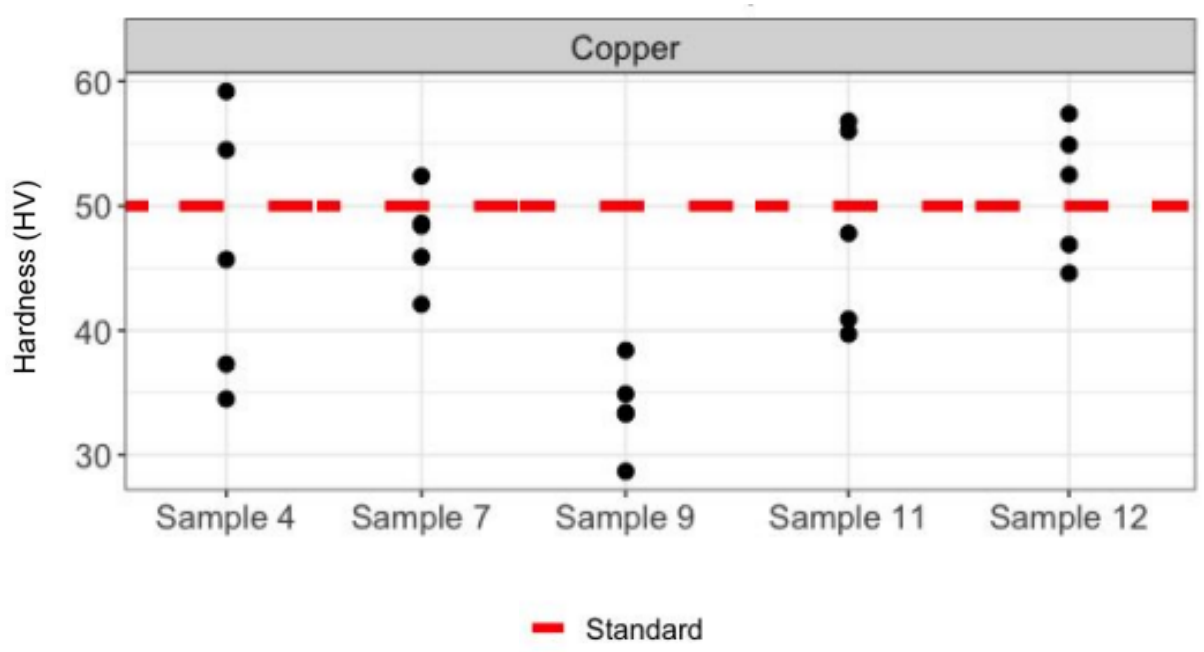
Engineering Standards and Procedures

Sample Preparation: ASTM E3 –11
Vickers Hardness Testing: ASTM E92 – 17
Rockwell Hardness Testing: ASTM E18 – 20
Hardness Conversions: ASTM E140 – 12b

Data and Analysis

Distribution of Hardness Values Over Each Sample



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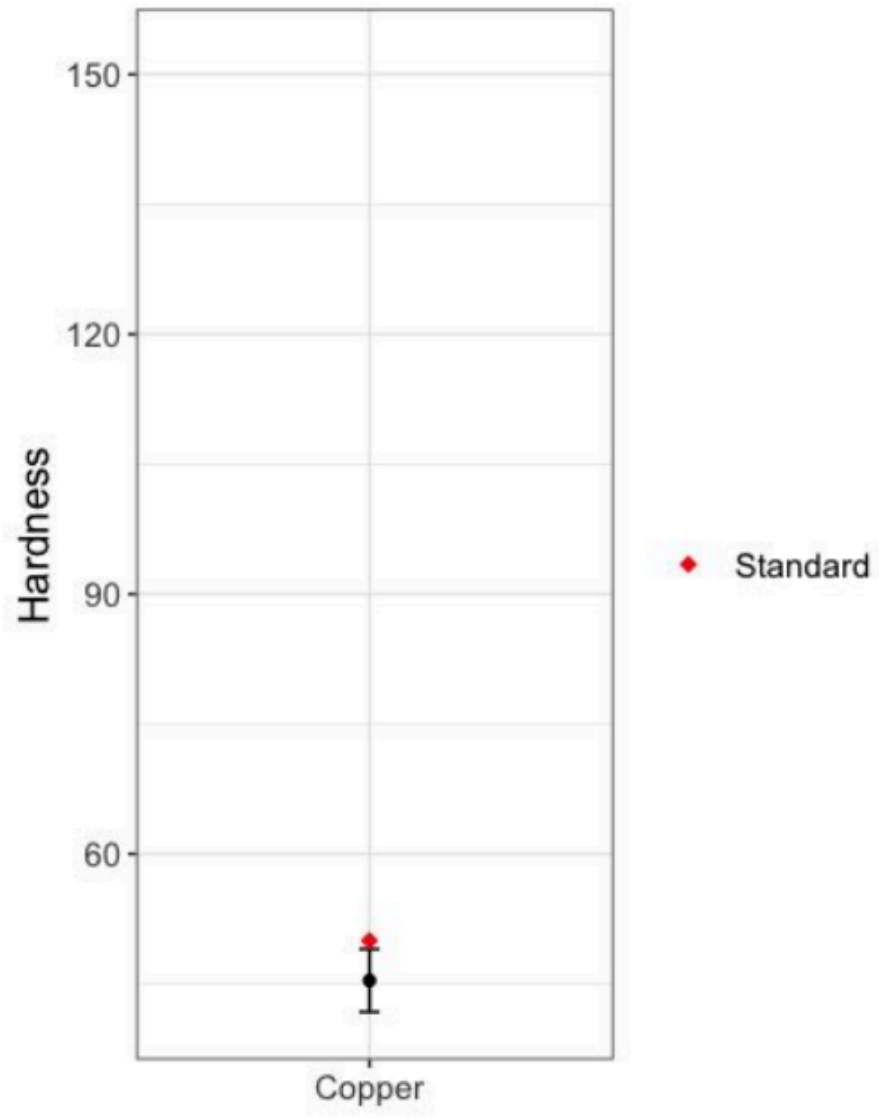
Data and Analysis

95% Confidence Levels of Hardness Values



Expected: 50 HV
Mean: 45.4 HV
Number of Measurements: 25
Standard Deviation: 8.8
P-Values: 0.0088