## MIMETE® M 17-4PH

FOMAS Group's metal powder plant has been specifically designed to serve the additive manufacturing market. A VIGA, Vacuum Induction melting Inert Gas (argon or nitrogen) Atomization, ensures high purity and spherical powders.

FOMAS Group's guarantees the properties of the standard powder "M 17-4PH" set forth in the datasheet included in this page, which is available on stock.

| PRODUCT | MIMETE® M 17-4PH | *According to UNS S17400 and EN 1.4542* |
|---|---|---|
| *Precipitation hardening martensitic stainless steel with addition of Cu and Nb/Cb. It is characterized by high strength, hardness and corrosion resistance.* | | |
| Production process | *Vacuum Inert Gas Atomization* | |
| Packaging | *10 kg plastic sealed bottle or 100 kg steel drum, with silica bags* | |

| CHEMICAL PROPERTIES [1,2] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *MIMETE® M 17-4PH* | C | Cr | Cu | Fe | Mn | Nb | Ni | P | Si |
| MIN | *0* | *15,0* | *3,00* | *bal* | *0* | *0,15* | *3,00* | *0* | *0* |
| MAX | *0,07* | *17,0* | *5,00* | | *1,00* | *0,45* | *5,00* | *0,040* | *0,70* |

[1] *Minor element ranges, even if not explicitly listed in the table, comply with both UNS and EN standards.*
[2] *MIMETE® powders are supplied to a tighter specification to minimise batch-to-batch variations.*

| PHYSICAL PROPERTIES [3] | | Sampling / Analysis Methods |
|---|---|---|
| Nominal particle range | *20-53 (max 5% over and under size)* | *ASTM B215 / ASTM B822 / B214* |

[3] *Other standard particle ranges (i.e. 0-20, 50-100 and 50-150 µm) available on request.*

*The production plant has also a testing laboratory accredited by ACCREDIA in compliance with the requirements of the ISO/IEC 17025 international standard.*

*Unless provided otherwise hereto, terms and conditions ruling the offer of MIMETE® apply.*

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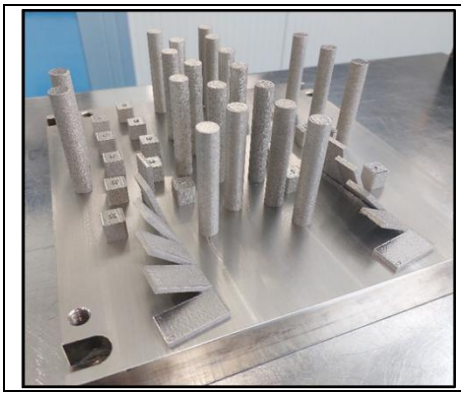
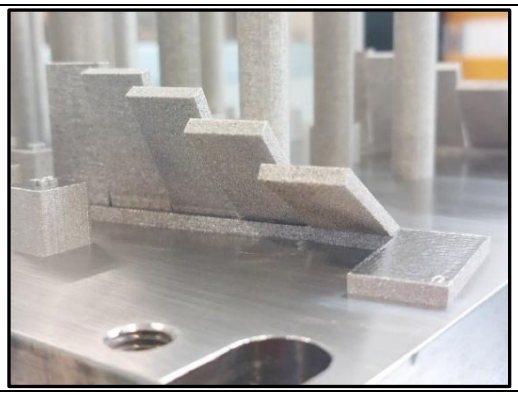
## MIMETE® M 17-4PH

***LEGAL DISCLAIMER***

*All data included in following pages are for reference purposes only. They are not sufficient for designing or certifying components and no warranties or guarantees are expressed against these results. However, psd and chemical composition of the powder lot 8230226D001 are compliant to allowable limits reported on page 1.*

*INSPECTION CERTIFICATE TYPE 3.1 ACCORDING TO EN10204.*

| | |
|---|---|
| POWDER LOT | *8230226D001* |
| PRINTER - SOFTWARE | *EOS M290 – EOSPrint 2.13 (17-4PH_040_Stainless_M291_1.02)* |
| INERT GAS | *Argon* |
| RECOATER BLADE | *Ceramic blade* |
| LAYER THICKNESS | *40 µm* |
| VOLUME RATE | *4.2 $mm^3/s$ (15.2 $cm^3/h$)* |


| PROPERTIES (as built, AVG) | *Test Standard* | AMS 2759/3J* | **M 17-4PH** |
|---|---|---|---|
| Hardness HRC | *UNI EN ISO 6508-1* | NA | 29 |
| Hardness HBW | *UNI EN ISO 6506-1* | NA | 318 |
| Yield strength (vertical) [MPa] | *ASTM A370-24a* | NA | 795 |
| Tensile strength (vertical) [MPa] | | NA | 963 |
| Elongation at break (vertical) [%] | | NA | 20,0 |
| Reduction of area (vertical) [%] | | NA | 65,8 |

| HEAT TREATMENT | According to AMS 2759/3J |
|---|---|
| Solution annealing in vacuum at 1038°C for 30min – air cool or faster to 32°C.<br>Aging in vacuum at 482°C for 1 hour – air cool or faster to 32°C. | |

| PROPERTIES (heat treated, AVG) | *Test Standard* | AMS 2759/3J* | **M 17-4PH** |
|---|---|---|---|
| Hardness HRC | *UNI EN ISO 6508-1* | 40-47 | 44 |
| Hardness HBW | *UNI EN ISO 6506-1* | NA | 440 |
| Yield strength (vertical) [MPa] | *ASTM A370-24a* | NA | 1305 |
| Tensile strength (vertical) [MPa] | | ≥ 1310 | 1410 |
| Elongation at break (vertical) [%] | | NA | 11,3 |
| Reduction of area (vertical) [%] | | NA | 40,3 |

*AMS 2759/3J: Heat Treatment Precipitation-Hardening Corrosion-Resistant, Maraging, and Secondary Hardening Steel Parts*

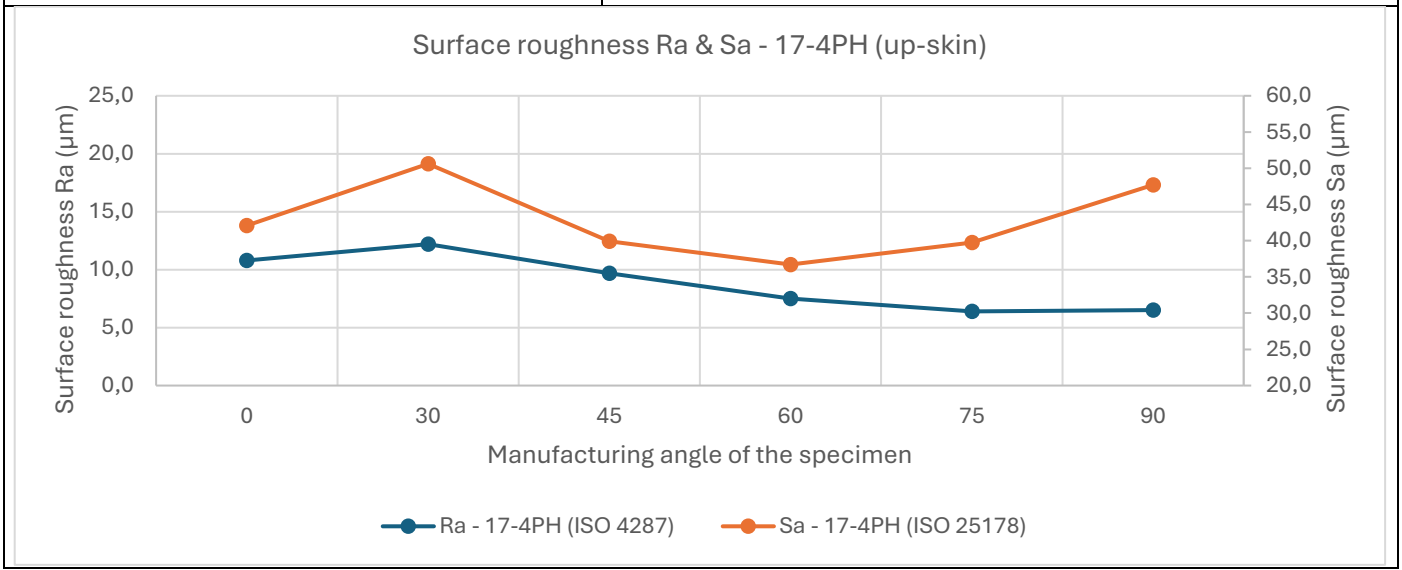
**For reference only.*

## MIMETE® M 17-4PH

| HEAT TREATED MICROSTRUCTURE | *Etched according to ASTM E407-23 with Kalling's 2 reagent.* |
|---|---|
|  |  |
| *Section_XY_100x* | *Section_YZ_100x* |

| PROPERTIES | *Test Standard* | **M 17-4PH** |
|---|---|---|
| Density [g/cm$^3$] | *UNI EN ISO 3369-2010* | 7,74 |
| Avg. Defects [%] | *ASTM E3-11(2025)* | 0,04 |

| SURFACE ROUGHNESS | *Ra according to ISO 4287. Sa according to ISO 25178* |
|---|---|




*Manufacturing angle: 0° is the horizontal printing plane.*

| COEFFICIENT OF THERMAL EXPANSION (avg $\alpha_m$) (as built) | *According to ASTM E228-22 [*10-6/K]* |
|---|---|
| 25-100 °C | 10,73 |
| 25-200 °C | 11,09 |
| 25-300 °C | 11,52 |
| 25-400 °C | 11,83 |
| 25-500 °C | 12,07 |
| 25-600 °C | 12,12 |
| 25-700 °C | 12,08 |