



## ULTRA HIGH PURITY TUNGSTEN POWDER

### 5N Series

### Technical Data Sheet



High Purity Tungsten Powders produced at Buffalo Tungsten are typically greater than 99.999% in tungsten content. Impurity analyses are performed by EAG labs using GDMS method for accurate low level results.

**APPLICATIONS:** Semiconductors, Sputtering Targets, Thin Film Deposition

| PHYSICAL PROPERTIES |                                 |                                       |                                | NON-METALLIC IMPURITIES (WT%) |              |
|---------------------|---------------------------------|---------------------------------------|--------------------------------|-------------------------------|--------------|
| Type                | Average Particle Size FSSS (µm) | Apparent Density (g/in <sup>3</sup> ) | Standard Screening (mesh size) | Carbon                        | Oxygen (LOR) |
| C10-5N              | 3.0-5.0                         | 40-70                                 | -200                           | ≤0.003                        | ≤0.030       |

| METALLIC IMPURITIES (WT% parts per million) |       |       |       |        |       |       |       |       |       |       |       |       |       |      |       |
|---|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| Element                                     | Ag    | Al    | As    | Au     | B     | Ba    | Be    | Bi    | Br    | Ca    | Cd    | Ce    | Cl    | Co   | Cr    |
| Typical                                     | 0.01  | 0.03  | 0.01  | 0.01   | 0.001 | 0.09  | 0.001 | 0.001 | 0.01  | 0.07  | 0.10  | 0.005 | 0.001 | 0.10 | 0.25  |
| Max   | 0.01  | 0.05  | 0.01  | 0.01   | 0.001 | 0.20  | 0.001 | 0.005 | 0.01  | 0.10  | 0.10  | 0.005 | 0.002 | 0.25 | 0.90  |
| Element                                     | Cs    | Cu    | Dy    | Er     | Eu    | F     | Fe    | Ga    | Gd    | Ge    | Hf    | Hg    | Ho    | I    | In    |
| Typical                                     | 0.01  | 0.03  | 0.005 | 0.005  | 0.005 | 0.05  | 0.50  | 0.01  | 0.005 | 0.01  | 0.01  | 0.10  | 0.005 | 0.01 | 0.01  |
| Max   | 0.01  | 0.05  | 0.005 | 0.005  | 0.005 | 0.05  | 1.00  | 0.01  | 0.005 | 0.01  | 0.01  | 0.10  | 0.005 | 0.01 | 0.01  |
| Element                                     | Ir    | K     | La    | Li     | Lu    | Mg    | Mn    | Mo    | Na    | Nb    | Nd    | Ni    | Os    | P    | Pb    |
| Typical                                     | 0.005 | 0.05  | 0.01  | 0.005  | 0.005 | 0.005 | 0.03  | 0.40  | 0.15  | 0.10  | 0.005 | 0.10  | 0.01  | 0.25 | 0.005 |
| Max   | 0.005 | 0.10  | 0.01  | 0.07   | 0.005 | 0.010 | 0.05  | 1.00  | 0.20  | 0.13  | 0.005 | 0.30  | 0.01  | 0.35 | 0.005 |
| Element                                     | Pd    | Pr    | Pt    | Rb     | Re    | Rh    | Ru    | S     | Sb    | Sc    | Se    | Si    | Sm    | Sn   | Sr    |
| Typical                                     | 0.01  | 0.005 | 0.01  | 0.005  | 0.05  | 0.005 | 0.005 | 0.01  | 0.01  | 0.001 | 0.01  | 0.03  | 0.005 | 0.01 | 0.005 |
| Max   | 0.01  | 0.005 | 0.01  | 0.005  | 0.05  | 0.005 | 0.005 | 0.50  | 0.01  | 0.001 | 0.01  | 0.10  | 0.005 | 0.01 | 0.007 |
| Element                                     | Ta    | Tb    | Te    | Th     | Ti    | Tl    | Tm    | U     | V     | Y     | Yb    | Zn    | Zr    |      |       |
| Typical                                     | 2.00  | 0.005 | 0.01  | 0.0001 | 0.001 | 0.005 | 0.005 | 0.003 | 0.05  | 0.005 | 0.005 | 0.01  | 0.005 |      |       |
| Max   | 2.00  | 0.005 | 0.01  | 0.001  | 0.03  | 0.005 | 0.005 | 0.010 | 0.10  | 0.005 | 0.005 | 0.02  | 0.005 |      |       |