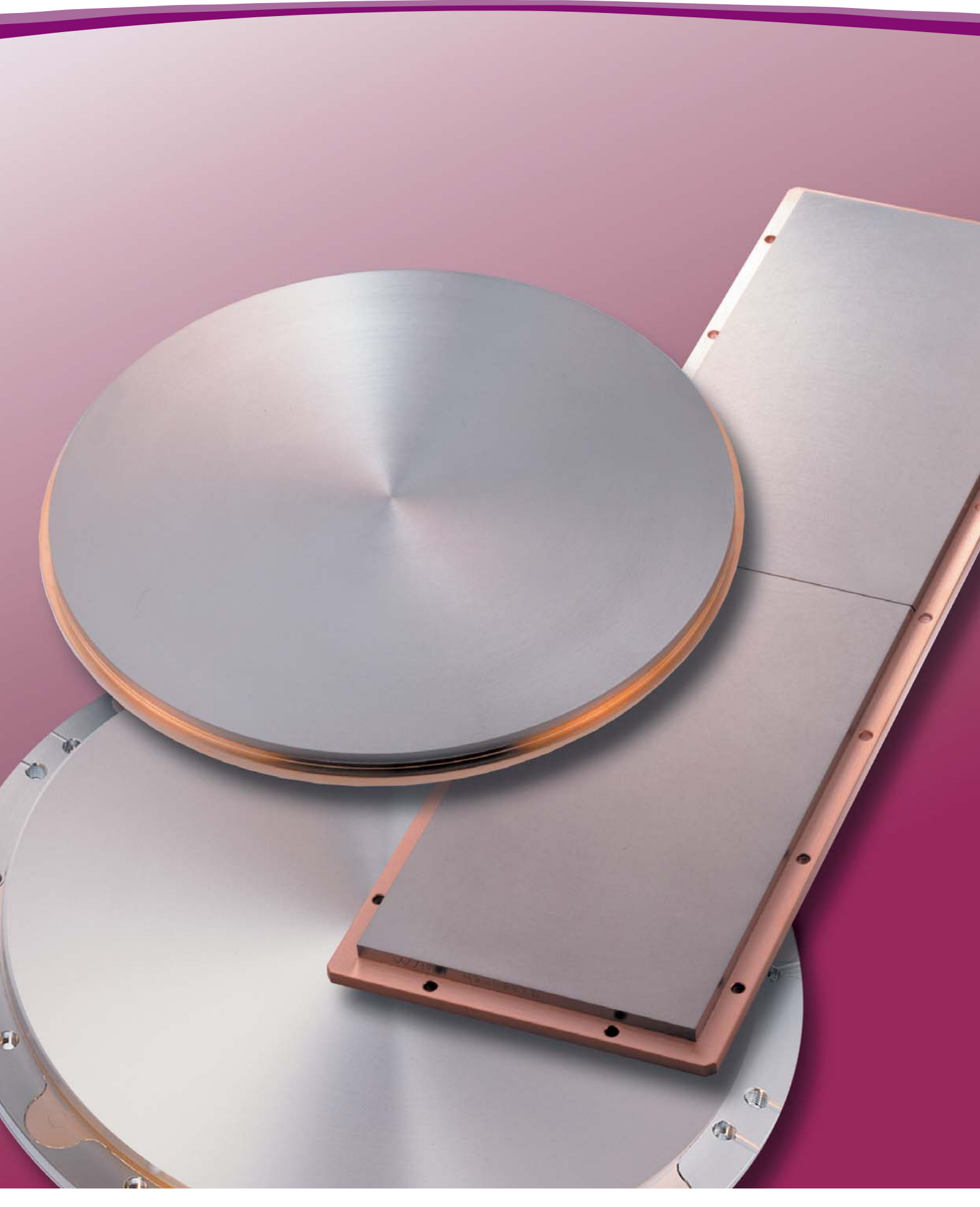


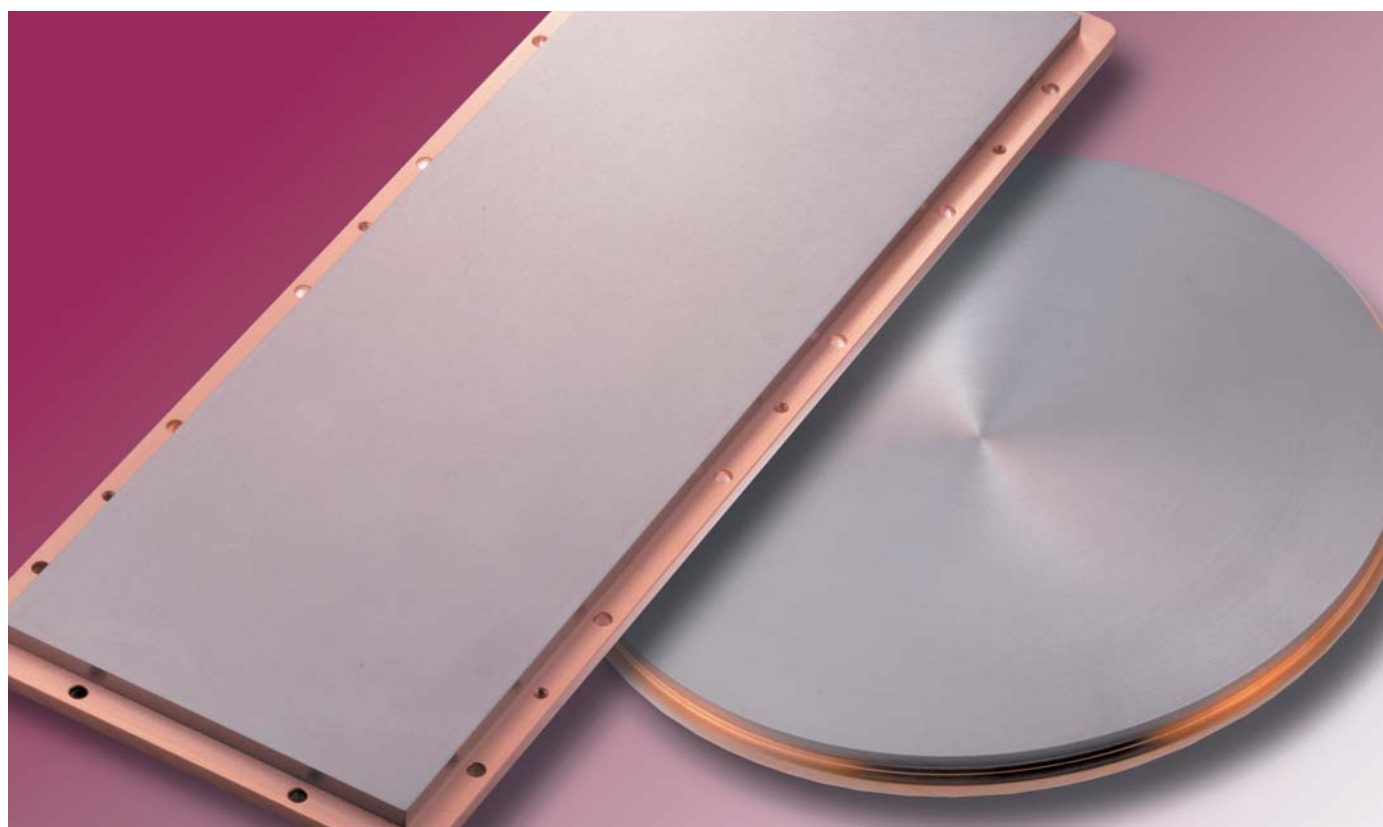
WTi10 for Semiconductor Applications



Umicore Thin Film Products

Umicore Thin Film Products, a globally active business unit within the Umicore Group, is one of the leading producers of coating materials for physical vapor deposition with more than 50 years experience in this field. Its Semiconductor portfolio covers a wide range of highly effective sputtering targets and evaporation materials.

WTi10 is an important thin film sputtering material in the field of Semiconductors and is used as diffusion barrier for advanced packaging, e.g. Flip-Chip technology, and in a variety of compounds. To match customers needs, Umicore targets are available in several sizes and grades.



Selection of WTi10 Targets

WTi10 for Semiconductor Applications

Production Process

Our Tugsten-Titanium material is produced by either Hot Pressing (HP) or Hot Isostatic Pressing (HIP). Precise quality control of powders and processes guarantee a uniform structure and high density.

Analysis

All materials are tested in our leading edge analytical laboratory or in one of our associate laboratories:

- › Glow Discharge Mass Spectrometry (GDMS)
- › Hot Gas Extraction (LECO)
- › Secondary Ion Mass Spectrometry (SIMS)
- › Metallographic Investigation
- › Density measurement (Archimedes principle)

Density

The density of fully consolidated WTi10 material is typically > 14.4 g/cm³.

Microstructure

Fine grain structure and good adherence between the W and Ti particles is obtained through the described compaction processes.

Purity

Our standard quality has a guaranteed metallic purity of 4N5. Other qualities like 4N or 3N5 are available on request.

Trace Impurities

A selection of maximum impurity values for WTi10 4N5 are listed below.

Metallic Element

Ca	max.	1.0
Cr	max.	4.0
Cu	max.	1.0
Fe	max.	10.0
K	max.	1.0
Mg	max.	5.0
Mn	max.	1.0
Na	max.	1.0
Ni	max.	3.0

All values are listed in ppm.

Dimensions

Due to our dynamic management processes different plate dimensions (Ø up to 400 mm, length up to 800 mm) can be realized. Targets are available in monoblock or bonded versions.

Bonding

Umicore Thin Film Products uses its own proprietary bonding method, based on a flux-free solder technique. Thin film adhesion and diffusion barrier layers are applied to the back of each target, followed by a temperature controlled metallic solder seal between target and backing plate. The bonding is compliant to accommodate mechanical and thermal stress.

Packaging

Final cleaning and packaging is completed under clean-room conditions. All targets are vacuum-sealed in argon-filled polyethylene bags, guaranteeing consistent target performance, even when stored for a longer period of time.

Quality Assurance

Our quality assurance process is ISO 9001:2000 certified to guarantee the highest and most consistent product reliability. Documentation, traceability, statistical process control, detailed test and process specifications as well as sophisticated analytical methods and continuously trained employees are important elements of our quality assurance process.

Please find your local sales partner at:
www.thinfilmproducts.umicore.com

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