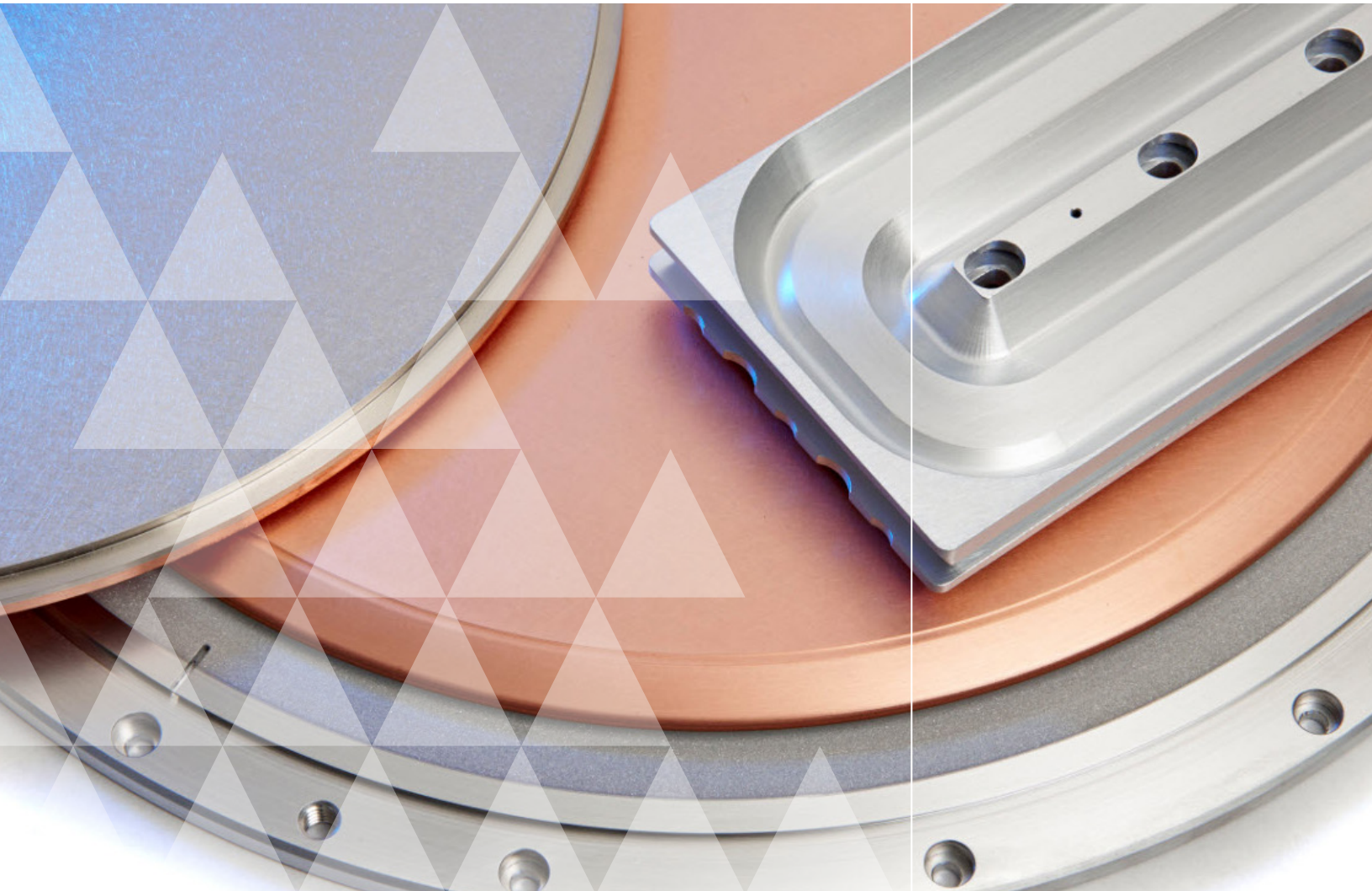




MATERION



**ADVANCED
MATERIALS GROUP**

Semiconductor
Materials

Semiconductor Materials

The Challenge

As demand for higher performing electronics in the semiconductor, MEMS, wireless and LED markets increases, the need for superior quality products arises. Optimal performance requires the use of consistently reliable and extremely clean materials. To achieve this level of quality, manufacturing facilities and processes must meet stringent conditions. Since the semiconductor industry is constantly seeking "smaller, faster, cheaper;" an active R&D program to develop better technologies and cost-effective processes is a necessity.

The Solution

Materion offers customized products & capabilities to meet customer requirements for quality, reliability and cleanliness.

- Full range of hermetic lids that can be customized to your specific application
- Market-leading value in precious metal & non-precious metal sputtering targets
- Solder & braze alloys for superior joining
- RF & microwave packaging for very low thermal resistance and RF loss
- R&D team pursues new product innovations and designs
- Manufacturing processes rigorously monitored to ensure product cleanliness and reliability

BENEFITS

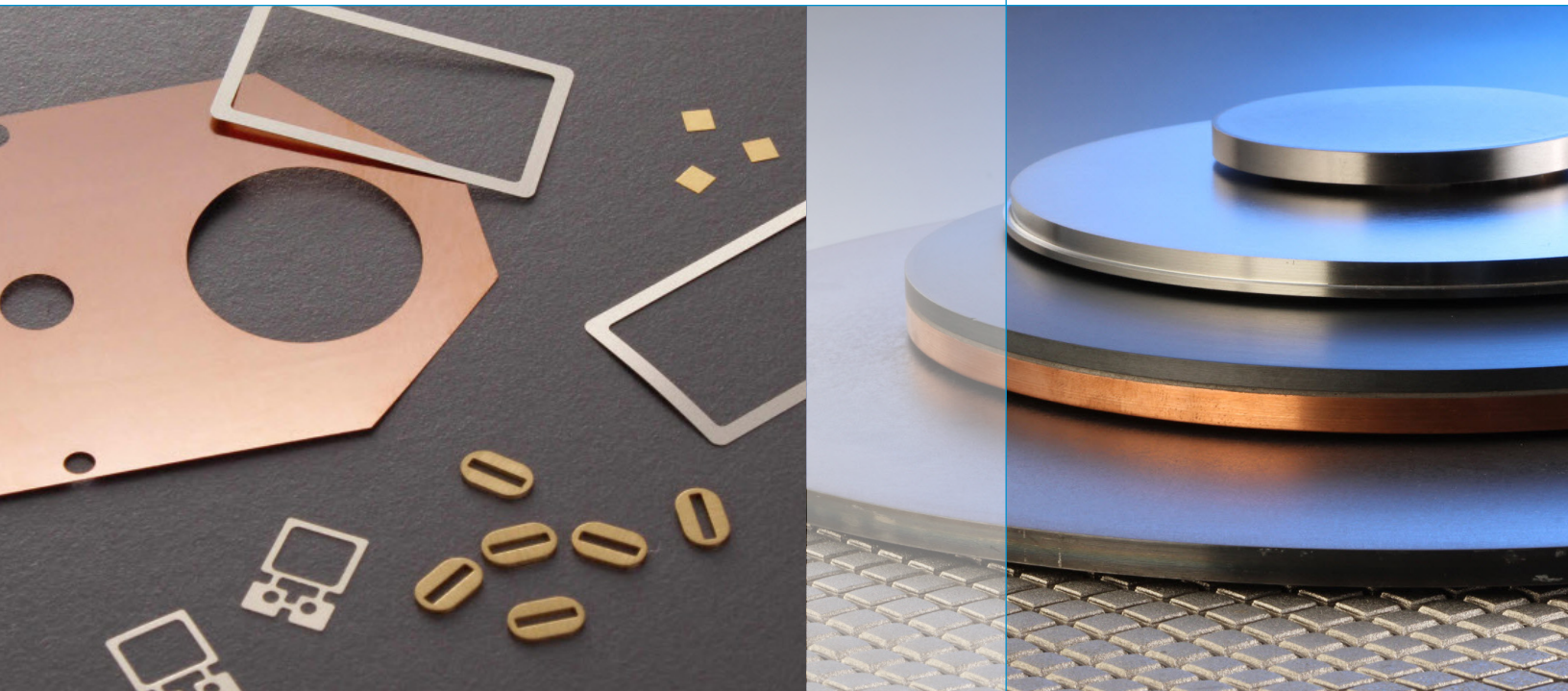
With our expertise in microelectronic packaging and thin film materials, we offer these advantages:

- Full cycle precious metal management
- Lower total cost of ownership
- Conflict-free metals
- Improved shield life through vacuum chamber parts cleaning
- Twin Wire Arc Spray (TWAS) coatings
- Reclaim and refine with flexible settlement options

ENVIRONMENTAL LEADERSHIP

All our disposal procedures comply with state & federal regulations. Certified:

- ISO 9001:2008 Quality Systems
- ISO 14001:2004 Environmental Safety & Management Systems
- ISO 17025:2005 Analytical Laboratory
- LeanSigma



Materion ... Materials to Advance the World's Technologies



MATERION

SPUTTERING TARGETS

Available Materials

- Precious metal & non-precious metal sputtering targets
- Standard and custom exotic alloys
- Ceramic and inorganic sputtering targets with customized chemistries

Available Forms

- Large area targets
- Non-traditional materials
- Custom alloys
- Multiple shapes & sizes
- Support all OEM platforms
- Extended life designs

EVAPORATION MATERIALS

Available Materials in Multiple Forms

- Precious metals & non-precious metals and alloys
- EVAPro® high performance metal
- Custom alloys
- Customizable purity levels up to 5N

MICROELECTRONIC PACKAGING MATERIALS

We manufacture a wide variety of customizable electronic packaging to meet any requirement.

Available Lids

- Combo-Lids®
- Seam Seal-Lids™
- Solder Reflow-Lids™
- Micro-Lids™
- Visi-Lids™

BRAZE AND SOLDER ALLOYS

High performance alloys available in custom forms and shapes.

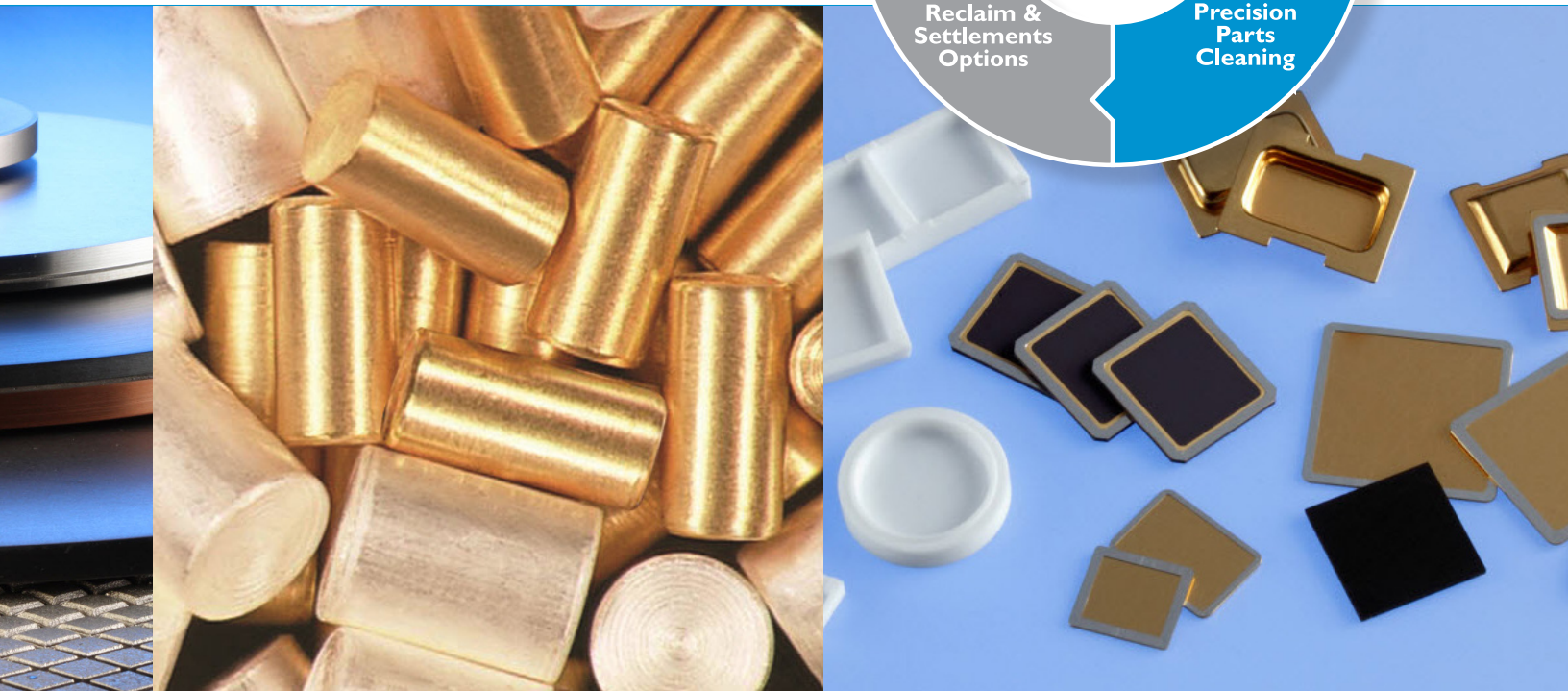
- AuSn Preforms
- Braze Materials
- Braze Powder
- SilSeal Materials
- Solder Alloys
- Lead-Free Solders

FULL CYCLE PRECIOUS METAL MANAGEMENT

- 100 years experience refining, recycling & recovery of metals
- Conflict-Free metals
- Vacuum chamber shield cleaning
- Valuable materials reclaimed and refined to purest forms
- Restart - Recycle

RELATED SERVICES

- Sputtering Target Bonding
- Custom Backing Plates
- Plating Anodes



Thin Film Deposition Materials

Au	Al	NiPt	SiGe	Au Alloys
AuSn	Pt	Mo	SiN	Ag Alloys
AuGe	Ag	TaN	SiO ₂	Ni Alloys
AuZn	Pd	Ta	SiC	Al Alloys
TiW	Ti	Nb	Oxides	
Ni	Cu	Si	Indium	
Cr	W	Ge	Ru	

Thin Film Deposition Products

Powders	Grain	Pieces	Wire	Starter Charges
Pellets	Shot	Slugs	Rods	Sputtering Targets

Microelectronic Packaging

Braze Materials	LeadFree Solders	Plated Flanges	VisiLids™	Bonding Pads
Braze Powder	BeO Packages	ComboLids®	EpoLids™	NonHermetic Cover Lids
SiSeal Materials	CuPacks™	MicroLids™	Ceramic ComboLids	Hermetic Cover Lids
AuSn Preforms	EpoLids™	Seam SealLids™	Metal Shims & Heatspreaders	
Solder Alloys	Air Cavity Packages	Solder ReflowLids™	Moly Tabs	



MATERION

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MATERION ADVANCED MATERIALS GROUP is an industry leader in microelectronic packaging for the semiconductor, MEMS, wireless & LED markets. We manufacture lids, frames, solder & braze alloys, precious metal targets, and evaporation materials to meet the broadest range of customer requirements. In addition to developing innovative packaging products, we offer related services to support your business needs including precision parts cleaning, precious metals refining & recycling, and sputtering target bonding.