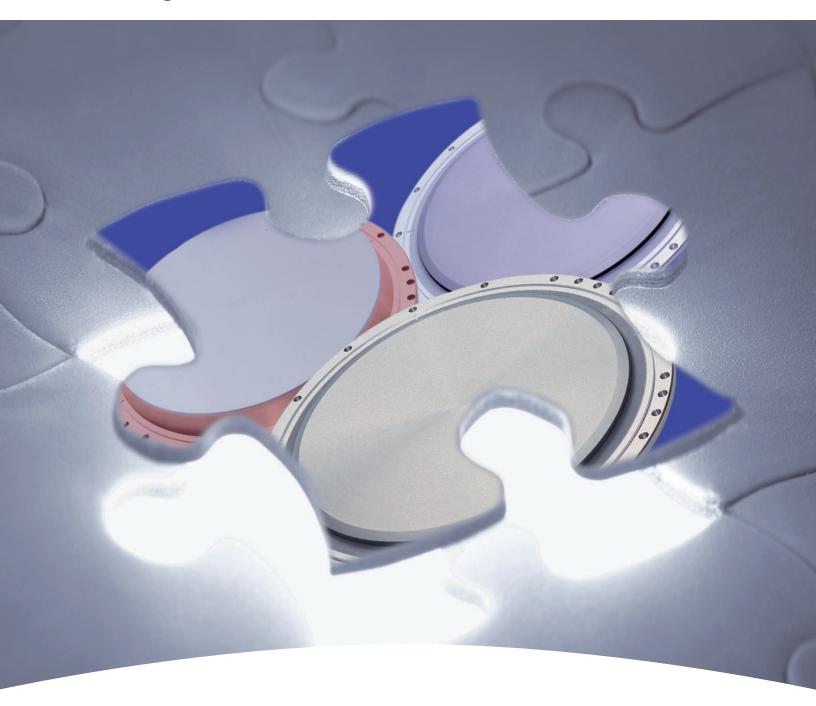
# **Honeywell**



Honeywell Copper Alloy Sputtering Targets

# Honeywell Copper Alloy Sputtering Targets

# LOWER PARTICLE GENERATION FOR HIGHER WAFER YIELDS



#### **BENEFITS**

- Increased wafer yields as a result of fewer thin film particles
- Reduced costs, and increased tool up-time, as a result of longer sputter life
- Complete roadmap alignment and reduced development time through our in-house custom alloy capability
- Experience with over 13 copper alloy systems including CuAl, CuMn, CuAg, CuSn, CuMg, CuIn and CuCo
- Optional ECAE® process sub-micron grain size improves uniformity, increases wafer yield and allows for monolithic designs for longer target life, greater tool utilization and lower costs

# RESPONSIBLE CARE OUR COMMITMENT TO SUSTAINABILITY

### **Honeywell Electronic Materials**

USA: 1-509-252-2102 China: 86-21-28942481 Germany: 49-5137-999-9199 Japan: 81-3-6730-7092 Korea: 82-2-3483-5076 Singapore: 65-6580-3593 Taiwan: 886-3-6580300 ext.312 www.honeywell.com/sm/em

#### **OVERVIEW**

Through over thirty years of experience and extensive research, Honeywell Electronic Materials has developed casting processes which eliminate voids and particles in our copper alloy sputtering targets.

The result is a target that generates fewer particles on the wafer, increases wafer yield and reduces wafer fabrication costs.

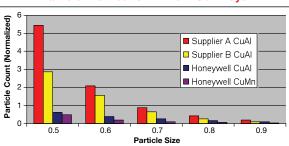
The patented\* Honeywell ECAE® process takes our ultra high purity copper a step farther with sub-micron grain size for the highest uniformity possible.

# FEATURES

## Standard Offering

 Honeywell's patent-pending metrology shows the significant particle reduction in Honeywell bulk copper alloys as compared to other available options

#### Particle Distribution in Bulk Cu Alloys



# ECAE® Process Eliminates Banded Structure in Cu.5%Mn





Non-uniform, banded structure of typical CuMn

Non-banded, uniform structure of ECAE® CuMn (2.5 µm)

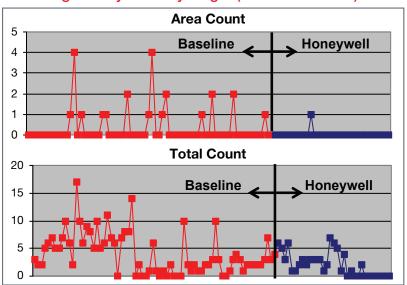
# Patented ECAE® Fine Grain Size Option

- ECAE® Cu Alloys
- Submicron grain sizes allow for high strength long life monolithic target designs
- Very uniform microstructures. No banding.
- Elimination of large non-soluble second phase precipitates due to mechanical shearing

#### **PERFORMANCE**

 In-line wafer particle counts show a measurable reduction in particles when using Honeywell's CuAl target compared to the incumbent target

### High-Purity Cu Alloy Target (Area/Total Count)



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