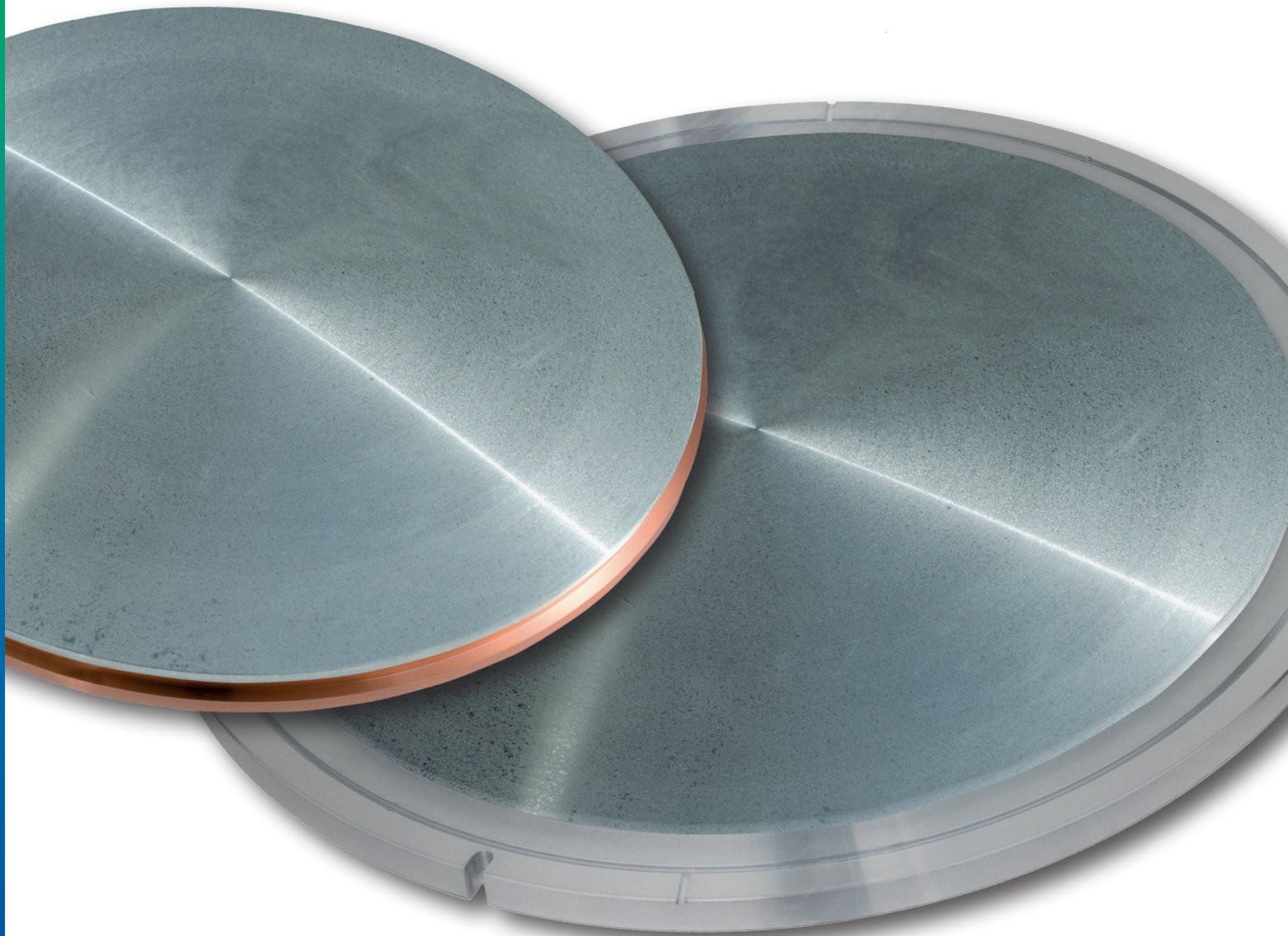




**umicore**  
Metal Deposition Solutions

## AlSc Alloys for Microelectronic Applications



# AlScN Thin Films

AlN is widely used as the piezoelectric film in piezoMEMS. The addition of ScN strongly improves the limited performance of AlN. Until 43at% Sc content AlScN crystallizes in the wurtzite structure and exhibits a continuous improvement of the piezoelectric coupling. Above 43at% Sc content AlScN reverts to the cubic structure, which has no piezoelectric properties. AlScN is most advantageously sputtered from AlSc alloy targets in a N<sub>2</sub> atmosphere.

## APPLICATIONS OF AlScN THIN FILMS

- piezoMEMS
  - BAW (Bulk Acoustic Wave) RF-Filters for 5G
  - acoustic sensing for microphones, fingerprint recognition pMUT
- potential applications
  - ferroelectrics for memories
  - power electronics making use of the wide band gap semiconductor properties

## UMICORE OFFERING

- AlSc up to 20at%
- AlSc up to 43at% under development
- min. purity 3N (= 99.9%)
- solder bonded or diffusion bonded to backing plate
- for all prominent OEMs

Please find your local sales partner at: [www.tfp.umicore.com](http://www.tfp.umicore.com)

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