



# ATP1016 Samples

## As-Fired Aluminum Oxide with Epoxy No Bleed Metalization

Applied Thin-Film Products (ATP) is pleased to provide ceramic thin-film samples for your evaluation.

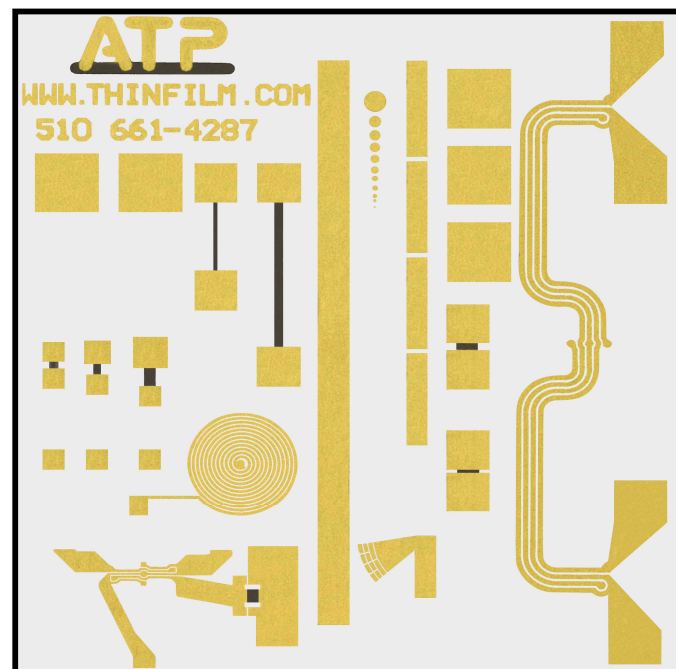
TaN/TiW/Au metalization on Aluminum Oxide (Al<sub>2</sub>O<sub>3</sub>). ATP offers a proprietary Gold metalization scheme that reduces epoxy bleed out during assembly. This process is wire and ribbon bondable.

### Material Specifications:

| Properties                             | Units                  | Asfired High Density 996 Aluminum Oxide Superstrate 996 |
|--|------------------------|---|
| Chemical Composition                   |                        | Al <sub>2</sub> O <sub>3</sub>                          |
| Purity                                 | %                      | 99.6  |
| Color                                  |                        | White   |
| Nominal Density                        | g/cm                   | 3.88  |
| Surface Finish As-Fired                | u-inches / (nm)        | 3u"(76.2nm)   |
| Coefficient of Thermal Expansion (CTE) | 10 (-6)                | 7.0-8.3 (25-1000 °C)                                    |
| Camber                                 | inches / um(microns)   | 0.002/(.508um)  |
| Thickness                              | inches / um(microns)   | .015/(.381mm)   |
| Thickness Tolerance                    | inches / um(microns)   | 0.001/(25.4um)  |
| Thermal Conductivity 100 °C            | Watts/m K              | 26.9  |
| Dielectric Constant                    | 1 MHz                  | 9.9 +/- .1  |
|  | 10 GHZ                 | 9.7 +/- .1  |
| Dissipation Factor (Loss Tangent)      | 1 MHz                  | 0.0001  |
| Hardness                               | Rockwell               | 87  |
| Flexural Strength                      | K(10-3) lbs/sq.in(Mpa) | 90(620)   |
| Compressive Strength                   | M(10-3) lbs/sq.in.     | 54  |
| Grain Size                             | um (microns)           | <1.0  |

Material Specifications provided by Coors Ceramic Company

### Sample Provided:



**ATP1016, Material is 15 mil As-Fired Al<sub>2</sub>O<sub>3</sub>**  
 TaN Resistors = 50 Ohms per Square  
 TiW = 400 to 800 Angstroms  
 Au = 120 u" minimum

ATP offers build-to-print service for a wide range of materials and metalization schemes. ATP fabricates circuits on substrates from As-Fired Alumina to Beryllium Oxide to Fused Silica, even Silicon. Metalizations range from the standard Tan/TiW/Au to films including Nickel, Palladium, or Titanium.

At ATP, we constantly evolve our processing and material capabilities to reflect our customer's changing needs. If you have a circuit requirement that is out of the "normal" thin-film type, please contact ATP at (510) 661-4287 or visit our web site [www.thinfilm.com](http://www.thinfilm.com). ATP would enjoy discussing your application with you and working to develop a solution.

web site: [www.thinfilm.com](http://www.thinfilm.com)

