

STL-150D

ALUMINUM NITRIDE LOSSY DIELECTRICS

STL-150D Aluminum nitride (AlN) based lossy dielectrics are vacuum compatible ceramic microwave absorbers that are developed for cryogenic applications in particle accelerators; and as drop-in replacements for beryllia-silicon carbide (BeO-SiC) composites at a more economical cost and without BeO's toxicity concerns for high power microwave applications.

Sienna's STL-150D lossy dielectrics can be designed to meet specific microwave energy absorption and charge dissipation requirements by varying their dielectric properties (dielectric constant, loss tangent and dc conductivity) through compositional adjustments.

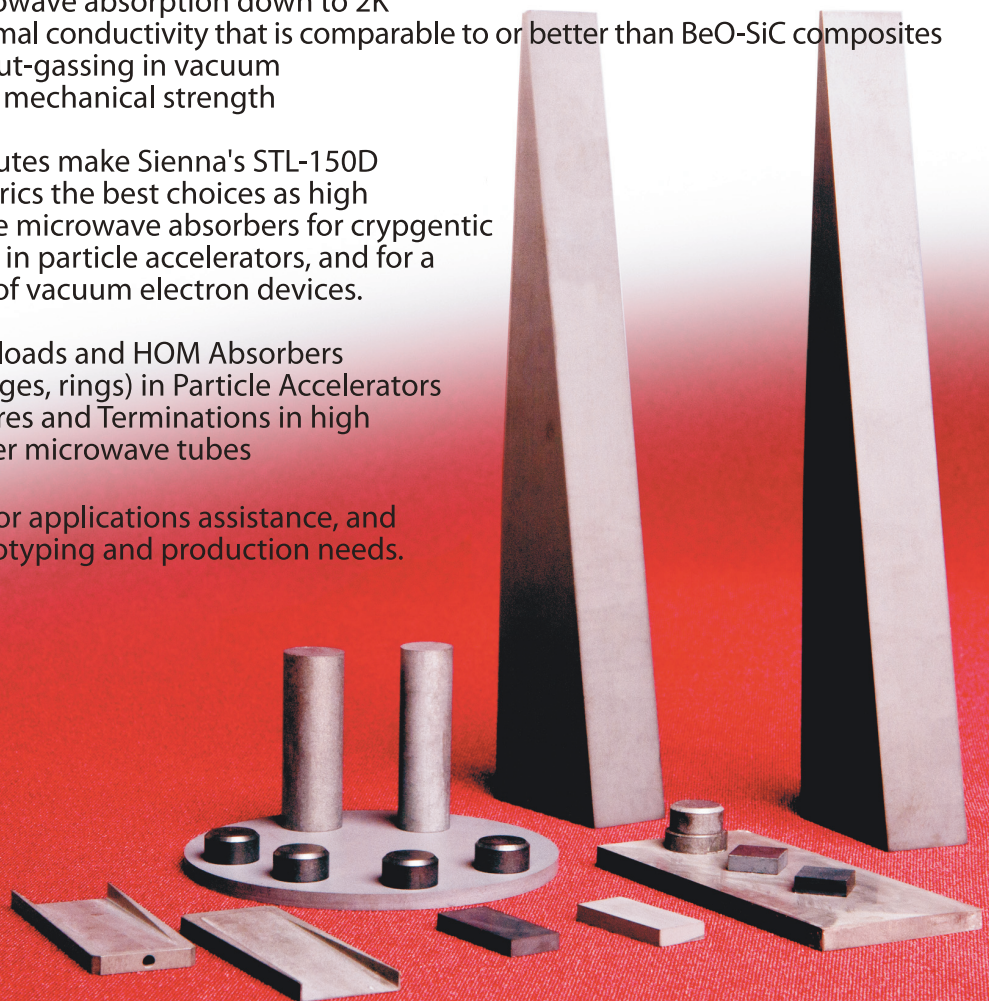
Sienna's STL-150D lossy dielectrics offer:

- Customizable dielectric properties to meet specific absorption and frequency requirements
- Temperature independent loss characteristics
- Microwave absorption down to 2K
- Thermal conductivity that is comparable to or better than BeO-SiC composites
- No out-gassing in vacuum
- High mechanical strength

These attributes make Sienna's STL-150D lossy dielectrics the best choices as high performance microwave absorbers for cryogenic applications in particle accelerators, and for a wide range of vacuum electron devices.

- Loss loads and HOM Absorbers (wedges, rings) in Particle Accelerators
- Severs and Terminations in high power microwave tubes

Contact us for applications assistance, and for fast prototyping and production needs.



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 **SIENNA**
TECHNOLOGIES Inc.®
providing solutions through advanced materials

STL-150D

AlN LOSSY DIELECTRIC PROPERTIES

	STL-150D075	STL-150D09	STL-150D11
Composition	AlN (Doped)	AlN (Doped)	AlN (Doped)
Density, g/cm³	3.27	3.27	3.27
Outgassing	No	No	No
Thermal Conductivity, W/m·K	135±10	135±10	135±10
Thermal Expansion Coefficient, X10⁻⁶/°C	4.0	4.0	4.0
Dielectric Constant 6 GHz	24.5	25.0	26
Loss Tangent 6 GHz	0.21	0.32	0.39
Flexural Strength, MPa	300	300	300
Elastic Modulus, GPa	320	320	320
Hardness, GPa	12	12	12
Application	Lossy Dielectric, HOM Absorbers, Severes, Terminations, Loss loads	Lossy Dielectric, HOM Absorbers, Severes, Terminations, Loss loads	Lossy Dielectric, HOM Absorbers, Severes, Terminations, Loss loads
Additional Attributes	<ul style="list-style-type: none"> • Properties can be tailored by changing composition. • High thermal conductivity • Maintains loss characteristics at cryogenic temperatures to 2K 	<ul style="list-style-type: none"> • Properties can be tailored by changing composition. • High thermal conductivity • Maintains loss characteristics at cryogenic temperatures to 2K 	<ul style="list-style-type: none"> • Properties can be tailored by changing composition. • High thermal conductivity • Maintains loss characteristics at cryogenic temperatures to 2K • Can dissipate static charges

The information given herein is a representation of typical properties and is not specifications.
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