

BMT- Ceramics

Dielectric ceramics find application as resonators (DR), substrates, antennas etc. in terrestrial as well as space communications systems ranging from UHF to mm-band frequencies. Their advantages are small size, light weight, temperature stability etc. Globally, a few materials have been manufactured for use in specific range of microwave spectrum.

Barium Magnesium Tantalite (BMT) is a typical perovskite ceramic, which is widely used in oscillators, multiplexers, filters etc above 10GHz in satellite and terrestrial microwave communication system. The technology has been developed in collaboration with

CMET, Thrissur. This dielectric, coming in the medium permittivity materials, possesses extremely low dielectric loss ($\tan\delta \sim 10^{-5}$) in microwave and millimeter wave frequency ranges.

This indigenously developed BMT is equivalent to 8700 series of Trans-Tech and D series of Murata that are used in 10-25 GHz range.

Typical properties

1 Bulk density (Target)	< 8 g/cm ³
(Achieved)	7.45 ± 0.1 g/cm ³
Dielectric constant (ϵ_r)(Target)	25 ± 3
(Achieved)	24 ± 1
2 Unloaded Q-factor (Q_u)(Target)	15,000 @ 5.6 GHz
(Achieved)	28,000 @ 5.6 GHz
(Achieved)	22,000 @ 7.5 GHz
3 Unloaded Q-factor (Q_u)(Target)	8,000 @ 10 GHz
(Achieved)	20,000 @ 10 GHz
4 Temp. coeff. of freq. (τ_f)(Target)	< 7 ppm/K
(Achieved)	6 ± 1.0 ppm/K

VSSC is willing to offer the technology of BMT ceramics to eligible interested parties who are in the field of manufacturing similar items

Interested entrepreneurs are requested to contact the address given below with all relevant particulars regarding their line of current activity, infrastructure available, market assessment of the product, financial arrangements made, turn over and sales of their products for the past years and a copy of their latest annual report.

Technology Transfer from ISRO

ISRO is willing to offer the knowhow of this technology to suitable entrepreneurs / industries in India. Capable manufacturing industries interested in acquiring this knowhow may write with details of their present activities, requirements and plans for implementation, infrastructure and technical expertise available with them, their own market assessment, if any, and plans for diversification to the address given below: