

ADVANCED TECHNOLOGIES FROM ISRO

Interest Exploration Note

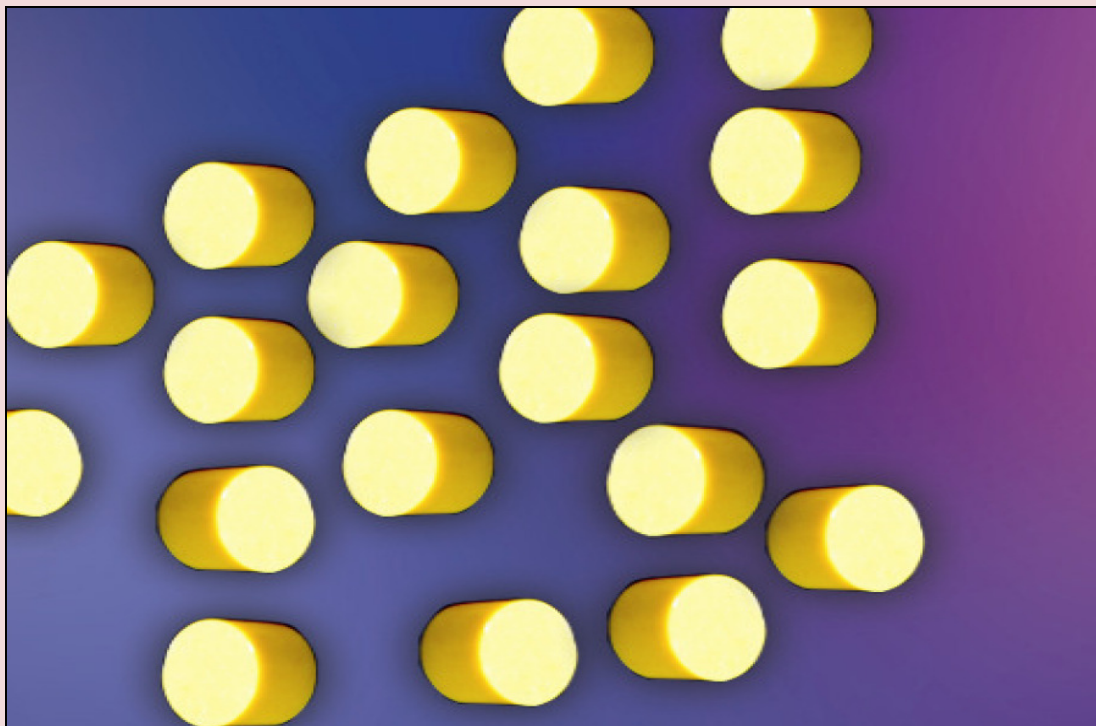
TT / 09 / 02 / VSSC

BMT Ceramics

Indian Space Research Organisation at its Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram has developed various kinds of 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 millimetre 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.



BMT CERAMICS

Typical Properties

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

TECHNOLOGY TRANSFER FROM ISRO

ISRO is willing to offer the technology of BMT ceramics to eligible interested parties who are in the field of manufacturing similar items. Interested entrepreneurs / industries 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. Alternatively, you can also fill in the response form provided in this website.

For further details, please contact:

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