

International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI)

Balapur P.O., Hyderabad – 500005, Telangana, India



Fabrication of free standing ceramics through Chemical Vapour Deposition

Overview

Chemical Vapour Deposition process developed using the reaction between zinc and hydrogen sulphide to produce stoichiometric zinc sulphide (ZnS). A technology of producing complex or simple shaped substrates for the CVD deposition depending on the target requirements is patented. Post processed CVD ZnS samples have shown close to theoretical values with respect to thermal, mechanical and transmission properties.

Key Features

- Theoretically dense
- Near net shape
- High homogeneity
- Thickness building upto 10mm



Photograph of Chemical Vapour Deposition unit

Potential Applications

- IR imaging
- Optical ceramics



Digital photograph of ZnS discs

Intellectual Property Development Indices (IPDI)

- IPDI level: 10 for ZnS

Status	1	2	3	4	5	6	7	8	9	10
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Major Publications

1. Effect of post CVD thermal treatments on crystallographic orientation, microstructure, mechanical and transmission Properties of ZnS Ceramics, **Journal of Alloys Compounds**, 496 (2010) 273-277
2. Effect of Sphalerite to Wurtzite Crystallographic Transformation on Microstructure, Optical and Mechanical Properties of Zinc Sulphide Ceramics, **Ceramic International**, 37 (2011) 1039-1046

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