

CHEMICAL MECHANICAL POLISHING AGENT CEPSEL-86 FOR PLANARIZING THE SILICON CARBIDE SURFACE

Silicon carbide possesses unique electrical and physical properties that make it suitable for high power, high frequency and high temperature electronic devices including ICs. Such properties have fueled an intense research effort in the recent decades that has prompted the need to develop larger area defect/damage-free silicon carbide wafers. The preparation of silicon carbide wafers requires multiple polishing steps including a mechanical polishing step in which particles which are typically harder than silicon carbide are used to achieve reasonable silicon carbide polishing rates. The very hard particles used for the mechanical polishing usually result in a high degree of damage by generating scratches and dislocations on surface and sub-surface of the silicon carbide wafer. Typically the abrasives that are harder than silicon carbide provide reasonably high polishing rates, but cause significant Surface and Sub-Surface damage. However, the abrasive particles which are softer than silicon carbide typically provide low polishing rates, and significantly less damage. Since the CMP particles used are still significantly abrasive, new damage is generated during the CMP process. Therefore, there is a need to develop new CMP slurries and/or methods for polishing silicon carbide comprising materials which minimize the degree of damage and increase the polishing rate.

DMSRDE, Kanpur has developed a chemical mechanical polishing agent CEPSEL-86 for planarizing Silicon Carbide wafer using a non-hazardous and non-corrosive slurry for removal of SiC layer from silicon carbide substrates to planarize surface in large area for electronic applications.

Interested Industries are requested to forward their Expression of Interest (EoI) to Director DMSRDE, Kanpur (with attachments of supporting documents) with a copy of Director DIITM, DRDO HQ (without attachment) on following address:-

To,

Director

Defence Materials and Stores Research & Development Establishment (DMSRDE)

DRDO, Ministry of Defence, Government of India

PO DMSRDE, GT Road,

Kanpur-208013

Phone : (0512) 2451759-78

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E-mail ID : [director\[dot\]dmsrde\[at\]gov\[dot\]in](mailto:director[dmsrde[at]gov[dot]in)

Copy to

Director

Directorate of Industry Interface & technology Management (DIITM)

Room No. 447, DRDO Bhawan, DRDO HQrs, Rajaji Marg, New Delhi-110011

Phone: 011-23013209/23015291

Fax: 011-23793008

Email: [diitm\[dot\]hqr\[at\]gov\[dot\]in](mailto:diitm[hqr[at]gov[dot]in)

List of Support documents to be attached with EoI

- a) Memorandum and Articles of Association (Should be incorporated as per Indian Companies Act, as amended time to time)
- b) Certificates of registration as a manufacturing unit, if any.
- c) Audited Balance Sheet for the preceding three years.
- d) Income Tax returns for the preceding three year period
- e) Details of shareholding/ownership pattern especially foreign partners/ shareholders, foreign employees, directors, etc. The company must adhere to the prevailing Govt of India policies and regulations on Foreign Direct Investment (FDI)/DIPP norms as applicable.
- f) Annual budget for R&D during last three years.
- g) Numbers and details of IPR or patents, etc., held by the company.
- h) Number of technically or professionally qualified personnel.
- i) Record of past performance (e.g., Supply orders executed against of Ministry of Defence orders, Public Sectors and Paramilitary Forces, if any).
- j) Availability of adequate infrastructure (List of machines and their production capacities) and technical expertise.
- k) List of Testing and Support equipment's
- l) ISO/ ISI certification or any other certification
- m) Relevant clearances from the authorities/ ministries (if any)
- n) Capacity and capability to undertake developmental work and to accept attendant financial and commercial risks.
- o) Capacity/capability to market the product through the marketing network, sales and service network, reliability to maintain confidentiality.
- p) PESO and DPIIT license for explosive handling if ToT is for high energy Material, explosives, propellants, and component/ system dealing with it etc (if applicable).

- q) Under taking form company seeking ToT that none of its Directors, Independent Directors, non-executive Directors, Key management personnel are involved in any corrupt practices, unfair means and illegal activities.
- r) Details of the industrial license for defence manufacturing be provided by the industry seeking ToTs.