

## Heat Barrier Coating

Heat barrier coating based on silicone epoxy hybrid resin has been developed for application on bulkheads of Aircraft carrier Ships. This coating minimizes the heat transfer by acting as barrier for conduction, convection, and radiation. The developed coating has shown a temperature reduction of minimum 50 °C at the back side of coated surface against the outer surface exposed to 150 °C. This coating is fire retardant in nature and can sustain up to 300 °C. Heat Barrier Coating can be applied by brush, roller and spray on to surfaces. It provides a dry film thickness of 250-300 µm in single coat application. It is suitable for marine application and provides good corrosion resistance, mechanical properties and heat insulation properties. This coating is formulated with low thermal conductivity materials viz. microsphere, silicone-epoxy hybrid resin, pigments, fillers and additives etc.

### Comparative performance of Commercial coating vs. NMRL

Properties	Commercial coating	NMRL coating
Thermal conductivity, W/m.K	0.086	0.90
Adhesion strength, MPa	2	4
Tensile strength, MPa	2	3
Resistance to salt spray test, 500 h (Corrosion rating: 0-No protection, 10-Highest protection)	1	9
Heat build-up in sample, °C	37	25

Interested Industries are requested to apply against this EoI to following address:-

Director  
Naval Materials Research Laboratory  
PO Anand Nagar

Ambernath (East)-421506

Phone : 0251-2623131

Fax : 0251-2623004

E-mail ID : director[dot]nmrl[at]gov[dot]in

A copy of the interest may be sent to the following address without any attachment:

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

Industries are requested to fill in the form given below and provide supporting documents (as applicable). Kindly provide the reference of page no. of supporting document in the relevant field of form. The list of documents to be attached is provided in Annexure – I.

### **PART-1**

#### **General Information**

(Please enclose documents in support of information provided)

1.	<b>Name of the Technology requested for Technology Transfer (Technology name and concerned Lab, Category)</b>		
2.	<b>Name of the industry/ organization</b>		
3.	<b>Complete Address and other details</b>		
	<b>Registered Office</b>  State Phone No Fax Email Website		
	<b>Factory</b>  State Phone No Fax		

	Email Website		
4.	<b>Point of Contact</b> Name Designation Address Mobile No Ph No Email ID		
5.	<b>NAME OF CMD/ MD /PARTNERS/ PROPRIETOR/ etc</b> Name Designation Address Mobile No Ph No Email ID		
6.	<b>Date of Incorporation of company</b>		
7.	<b>Foreign Direct Investment in company (if any in %)</b>		
8.	<b>Shareholding pattern</b>		
9.	<b>Turn over as per Audited Balance Sheet for the preceding three years.</b> Year _____ Year _____ Year _____		
10.	<b>Annual budget for R&amp;D during last three years (if any)</b> Year _____ Year _____ Year _____		
11.	<b>Income Tax returns for the preceding three years period</b> Year _____ Year _____ Year _____		
12.	<b>Nature of company</b> DPSU, Private Limited, Public Limited, Partnership, Proprietary, Ex- Serviceman Unit		
13.	<b>Category of industry</b> Large Scale, Medium Scale, Small Scale, Micro, Startup		
14.	<b>MSME Registration No</b>		
15.	<b>Certificates of registration as a manufacturing unit, if any.</b>		
16.	<b>If Startup, DPIIT Registration No</b>		
17.	<b>UDYOG AADHAR No</b>		

18.	<b>PAN Number</b>		
19.	<b>Details of Industrial license for defence manufacturing issued by DPIIT (if any)</b>		
20.	<b>Details of PESO license (if any)</b>		
21.	<b>GST Number</b>		
22.	<b>Nature of business</b> Manufacturing/ Sole Selling or Authorized Agent/ Assembler/ Traders/ Dealer/ Processor/ Repacker/ Others		
23.	<b>Details of current products and services</b> Products and services Supplied (please specify Govt/ Domestic market/ Export)		
24.	<b>Record of past performance</b> (e.g., Supply orders executed against of Ministry of Defence orders, Public Sectors and Paramilitary Forces, if any).		
25.	<b>Details of registration</b> with NSIC / SSI, DGS&D, other Defence Department, other Govt. Dept, membership of FICCI/ASSOCHAM/CII or other Industrial Association <b>(Attach relevant copies of registration letters)</b>		
26.	<b>Have you already taken any technology from DRDO</b> (If yes, give details attaching separate sheet)  Name of the Technology, Lab, Year, License number & Status		
27.	<b>ISO/ ISI certification or any other certification</b> (If yes, give details)		
28.	<b>Relevant clearances form the authorities/ ministries</b> (if any)		
29.	<b>Capacity and capability to undertake developmental work and to accept attendant financial and commercial risks.</b>		
30.	<b>Capacity/capability to market the product through the marketing network, sales and service network, reliability to maintain confidentiality.</b>		

## **PART-2**

### **Infrastructure and other Information**

1.	<b>Total area of factory</b> Covered (m <sup>2</sup> ), Uncovered (m <sup>2</sup> ),	
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	Bonded space available (m <sup>2</sup> )	
<b>2.</b>	<b>Ownership of factory</b> Self-owned, partnership, rental	
<b>3.</b>	<b>Electric power</b> Sanctioned Installed Standby (if any)	
<b>4.</b>	<b>Availability of adequate infrastructure</b> (List of machines and their production capacities) and technical expertise	
<b>5.</b>	<b>Name of bank &amp; A/c No</b> Name of bank A/c type A/c no Address of the bank Phone: Email:	

**6. Details of current products:**

S.No	Type	Description	Licensed/installed capacity	Annual production for preceding 3 years

**7. Details of foreign collaboration, if any**

S.No	Product	Name and address of collaborator	Year	Remarks

**8. Details of products developed for services**

S.No	Nomenclature of stores	Order No. and date	Remarks

**9. Please give details of important facilities & infrastructure as per following format for:**

- (a) Production
- (b) Unconventional, special m/c
- (c) Testing & quality control facilities

S.No	Description of m/c	Make & model	Qty	Date of purchase	Remarks

**10. Furnish the following details with relevant certificates and documents**

- (a) R&D facilities available :
- (b) Inspection quality control of raw material components :
- (c) Assistance from central agency for testing / calibration etc. :
- (d) laboratory and drawing office facility :

**11. Principal customers:**

S. No	Name & address	S.O No and date	Date of last supply	Products supplied	Value

**12. Future plans (if any) in respect of expansion programme/ installation of additional machines/ test facilities etc.**

**13. Name of the technology requested for transfer**

(give self-assessment of your capability to absorb the technology)

**14. Details of employee as on date on firm's pay roll**

<b>PERMANENT</b>				
Category	Post Held	Number	Qualification	Total Service
Technical	Prod. Manager Q.C. Manager Supervisor Testing Staff (QC) Skilled workers Unskilled workers, etc			
Administrative	Purchase Manager Accounts Officer Office Superintendent Clerical Others, etc			

<b>TEMPORARY</b>				
Category	Post Held	Number	Qualification	Total Service
Technical	Prod. Manager Q.C. Manager Supervisor Testing Staff (QC) Skilled workers Unskilled workers, etc			
Administrative	Purchase Manager Accounts Officer Office Superintendent Clerical			

	Others, etc			
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**DECLARATION :**

I / we confirm that the information furnished in Part 1 & 2 above is correct. In the event of any information given by me / us is found incorrect / false at any time, I / we understand our EoI for ToT will be cancelled/ rejected without notice, beside any other appropriate action against me / us.

Industry seal

Authorized signatory

Name(s) in capital

Designation and seal of authorized signatory

date:

Place:

Annexure – I

**List of supporting 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 employed.
- 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.
- 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. Industrial license for defence manufacturing issued by DPIIT (if any).
- q. PESO and DPIIT license for explosive handling if ToT is for high energy Material, explosives, propellants, and component/ system dealing with it etc. Any other special license compliance requirement to be specified by the lab.
- r. Undertaking from company seeking ToT that none of its Directors, Independent Directors, non-executive Directors, Key management personnel is involved in any corrupt practices, unfair means/ illegal activities.