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# SILICONE POLYMER BASED THERMAL PROTECTION SYSTEM PC-10 TPS

Indian Space Research Organisation (ISRO) at its Vikram Sarabhai Space Centre (VSSC) has developed a technology for processing and application of different types of silicone polymer based thermal protection systems with tailored properties to meet various mission/application requirements. PC-10 Thermal Protection System (TPS) is silicone polymer based filled compounds, which are good ablative thermal insulators. These compounds are room temperature curing systems which can be applied by brushing, spraying and putty blade. The remarkable features of the system include good thermal, chemical and ageing resistance and compatibility with wide variety of substrates.

The processing involves incorporation of selected quality fillers and ingredients in specific type of silicone polymer resin and use of suitable curatives to achieve desired thermo-physical properties.

## Salient features

- Simplified and cost effective technology for processing premium quality ablative thermal protection systems.
- Overnight, room temperature curing system.

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- Flexibility with respect to application procedure such as spraying, brushing or putty application.
- Compatibility with wide variety of substrates including metals, composites, glass etc.
- Excellent ageing behaviour and hydrophobicity, making it suitable for long term application with no deterioration of properties for more than 5 years.

**Applications of PC-10 TPS**

- Useful for high quality ablative thermal protection system for temperatures up to 350 deg C direct exposure with reasonable stability and capability to retain properties. The system also has good moisture resistance and good age resistance. The system can be applied to desired thickness depending upon the thermal environment envisaged. Reasonable mechanical strength and adhesive properties with large number of substrates has been demonstrated by the system. Ability to retain properties at temperatures up to 150 deg C and low temperature flexibility are other highlights of the system owing to the low glass transition characteristics associated with silicone polymers.
- The product can be used for thermal protection application for protecting launch vehicle hardware from aerodynamic heating and launch pad components from flame impingement and also as moisture/ water impermeable coating etc.
- The system can be tailored for use as corrosion protection coating on metal substrates for outdoor use.

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*ISRO is willing to offer the technology of PC-10 TPS to capable and interested parties who are in the field of manufacturing similar items.*

*Interested industries/ 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, strength of the company, turn over and sales of their products for the past few years and a copy of their latest annual report.*

**For further details, please contact :**

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