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**Technical Specifications for Differential Scanning Calorimeter(DSC) :**

The detailed specification of the systems should be as follows:

DSC principle	:	Heat flux type
Sample pans	:	Standard 5mm O.D. × 2.5mmh (about 45μL) Al (minimum 1000 Nos), Pt (minimum 4 Nos); Ag sample pans (1 pack) for liquid samples and solid samples should be provided.  Both closed pan (lid crimped to the pan) and open pan measurement should be possible.
Measurement temperature range	:	-150°C to 500°C or better
Measurement atmosphere	:	Inert Gas (N <sub>2</sub> , Ar) Possible to measure it by static or flow atmosphere
Heating/cooling temperature rate	:	Heating and cooling rate: 1°C/hr to 100°C/min or better Cooling type and rate: Liq. N <sub>2</sub> cooling system with appropriate cooling rates.
Heating or cooling rate stability	:	±5%
Measurement range	:	±400mW or better
Heat Flow Resolution:		<0.1 μW
Noise Level		0.1 μW or better
Temperature repeatability and Precision:		±0.05 °C

Baseline linearity and Repeatability		10 $\mu$ W and 20 $\mu$ W respectively
Real-time observation of sample		Camera or suitable accessory for sample image and video capture with variable functions like zoom, thumbnail, side-by-side display of images. Preferably integrated with the analysis software.
Temperature program settings	:	Sets the measurement control and analytical station on the PC screen

- Mass Flow Controller for two gases or equivalent system.
- Standard samples (In, Sn)-5gm or more, Standard reference (Sapphire; Al<sub>2</sub>O<sub>3</sub>) 2 units. Standard samples for polymers.
- Tweezers, Micro Spatula, Pt Pan with lid (4 nos.), Al Sample pans with lid (1000nos) along with suitable pan crimping and sealing tool for all the types of pans.
- A suitable method for Activation Energy Calculation.
- Heat capacity Calculation Software, sapphire and a suitable reference sample for heat capacity measurement.
- Software should have provision to evaluate Glass transition ( $T_g$ ), Crystallization temperature ( $T_c$ ), Phase transition, modulated DSC (MDSC), Purity Analysis software.
- PC should be of the following Specs or better – CPU i7 or better. 16GB RAM, 1TB SSD, Graphics Card with 4GB memory, 24-inch LED Screen, Keyboard, Mouse (Branded).
- Brand new N<sub>2</sub> gas cylinder (2 nos) of suitable purity with regulator should be quoted along with the system.
- All the tools and tackles required for analysis for the above systems should be part of the supply.
- All required utilities (eg. Gas tubing, connectors, etc.) to successfully install the instruments should be provided.
- Complete installation and training of DSC system.
- Comprehensive Warranty - For the complete system (DSC) should be 3 years with a minimum of one training session per year.