Corrigendum –III

Reference (PR No. 1000020190) RFx No. 6100000959

Dynamic Mechanical Analyzer(DMA)

Please note that, following points were modified:

Sr No	Details	Previous clause	Modified clause
1.	Bid submission End Date/Date & Time of submission (Online RFx clause)	04.02.2022 at 13.00	15.02.2022 at 13.00
2.	Bid Opening Date & Time (Online RFx clause)	04.02.2022 at 16.00	15.02.2022 at 16.00
3.	Clause No.[1.3] (Technical specifications)	Cooling Rate: 0.1 to 10 C/min or better, should be from any starting temperature using Liquid Nitrogen cylinder, easily integrated (plug in – plug out) and programmable from software. Mention clearly the minimum and maximum pressure of the LN2 required for the operation.	Cooling Rate: 0.1 to 10 C/min or better, should be from any starting temperature using Liquid Nitrogen cylinder, easily integrated (plug in – plug out) and programmable from software.
4.	Clause No.[1.4] (Technical specifications)	Temperature Stability should be reached under a minute for any set temperature with ramp heating.	Temperature Stability should be reached under 5 minutes for any set temperature with ramp heating.
5.	Clause No[1.7] (Technical specifications)	Force amplitude: <= 0.1 mN under dynamic loading	Force amplitude: Minimum: 1 mN or better at all frequencies and under dynamic loading.
6.	Clause No[1.10] (Technical specifications)	Displacement Range: Min <= +/- 5 µm to >= +/- 200 µm. Displacement feedback should be available from within the software, for both ramp and cyclic loading. Full range available under dynamic loading.	Displacement Range: +/- 200 µm or better. Displacement feedback should be available from within the software, for both ramp and cyclic loading. Full range available under dynamic loading

7.	Clause No[1.11] (Technical specifications)	Minimum displacement Amplitude Range: <= 10 nm	Minimum displacement Amplitude Range: 100 nm or better
8.	Clause No[1.13] (Technical specifications)	tan δ sensitivity: <=0.0001	tan δ sensitivity: <=0.005
9.	Clause No[1.14] (Technical specifications)	tan δ resolution: <=0.00001	tan δ resolution: <=0.00005
10.	Clause No[1.17] (Technical specifications)	Force and displacement feedback bandwidth: >= 2 kHz or better. Fast transients under thermal loading and mechanical damage to be detected. Both force and displacement control should be available to pre-load and perform DMA analysis.	**The clause is deleted**
11.	Clause No[1.18] (Technical specifications)	Environmental Chamber with at least 10 to 100 % relative humidity control, purge with air, nitrogen or any other inert gas with full software control for pressure and flow rate inside the chamber should be available.	**Environmental Chamber** with at least 5 to 90 % relative humidity control, purge with air, nitrogen or any other inert gas with full software control for pressure and flow rate inside the chamber should be available.
12.	Clause No[1.19] (Technical specifications)	Humidity Chamber with 1% or better relative humidity control should be a part of the instrument.	**Humidity Chamber** with +/- 3 % or better relative humidity control should be a part of the instrument.
13.	Clause No[1.20] (Technical specifications)	Calibration: On site calibration and use of customized accessories should be possible within the software to account for inertia, thermal mass, etc., allowing all modes of instrument operation. Exceptions, if any,should be clearly mentioned and justified.	Demonstrate entire range of specifications quoted, on site, at the time of installation. Inertial and thermal mass compensation should be possible through the software.
14.	Clause No[1.21] (Technical specifications)	Automated Furnace: Calibration, and independent temperature measurement should be possible, e.g., using a thermocouple output.	**The clause is deleted**
15.	Clause No[1.24] (Technical specifications)	**Cooling unit**: Auto Liquid Nitrogen Cooling unit for temperature < -70 C and AirIntra- cooler for -70 C to	**Cooling unit**: (a) Auto Liquid Nitrogen Cooling unit for temperature < - 70

		600 C to be supplied with the main instrument.	C and (b) Air Intra- cooler for -70 C to 600 C to be supplied with the main instrument.
16.	Clause No[1.25] (Technical specifications)	Sample Holders for Deformation Modes: a) Single & dual cantilever, b) 3 and 4 point bending c) Tension d) Shearing, Film Shear e) Compression	Sample Holders for Deformation Modes: a) Single & dual cantilever, b) 3 and 4 point bending c) Tension d) Shearing e) Compression
17.	Clause No[1.26] (Technical specifications)	Controller: The DMA system should have a dedicated digital controller, operated using a PC. The controller should have at least 2kHz bandwidth for sensing and feedback loop operation. The controller should allow for setting all the above mechanical, thermal, humidity parameters, and control them using a feedback loop. The controller should provide output signals for force, displacement, temperature and humidity, measured by the sensors inside the chamber.	Controller: The DMA system should have a dedicated digital controller, operated using a PC.

for

Assistant Registrar

Materials Management Division