National Certified Reference Material (NCRM)

Code： GBW13664

Reference Material Certificate

Raman Shift Standards for Spectrometer Calibration: Polystyrene

Batch Number：

Certification Date：

Period of Validity：

Reference Material Producer：National Institute of Metrology

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Version：1.0

Raman Shift Standards are used for spectrometer calibration to ensure accurate and reliable results. Polystyrene is used for Raman shifts in the range of 621 cm^{-1} – 3056 cm^{-1}.

1. Sample Preparation

Polystyrene is synthesized by solution polymerization of styrene monomer and then moulded.

2. Traceability and Characterization Method

The certified value of Raman shifts reference material is determined by a laser confocal Raman spectroscopy metrological standard. Based on Raman scattering equation, Raman shift and relative intensity can traced to irradiance spectra standard in NIM through the use of mercury argon lamp and halogenated lamp, respectively.

3. Property Values and Uncertainties

The certified values and expanded uncertainties of the polystyrene material's representative Raman shifts are as follows：

Code	Name	Characteristic Raman shifts (cm^{-1})	Expanded Uncertainty U (k=2) (cm^{-1})	Characteristic Raman shifts (cm^{-1})	Expanded Uncertainty U (k=2) (cm^{-1})
GBW13664	Raman Shift Standards for Spectrometer Calibration: Polystyrene	621.2	2.1	1583.2	2.2
		795.5	2.2	1602.4	2.1
		1001.0	2.1	2851.3	2.3
		1031.2	2.1	2907.5	2.5
		1154.6	2.3	3055.7	2.4
		1449.0	2.1	/	/

4. Homogeneity and Stability Assessment

According to national technical specification of JJF1343（equivalent to ISO Guide 35）, randomized sampling rule were employed to evaluate the homogeneity of the material. 13 units were selected randomly from 100 units of samples and each unit was tested at three different spots based on variation analysis. The samples showed good homogeneity. Using same measurement methods, the samples also showed good stability during stability assessment.

The certification of this CRM is valid until Jan 2021, provided the CRM is handled and stored in accordance with the instructions given in this certificate. The producer will keep monitoring the stability of this CRM and make a notice to customers if any significant change happens within the period of validity.

5. Packaging, Storage and Use

Packaging: This reference material consists of polystyrene with 10 mm in diameter and fixed with a holder.

Storage: The CRM should be kept in dark and room temperatures (20-25)°C. Room temperature

transportation.

Statement

1. The reference material is only for lab study and analytical testing. In case of any complaint due to the improper use or storage by the user, the institute will bear no responsibility.
2. After receiving it, please immediately check variety, quantity and packaging. Relevant compensation is only limited to the reference material itself.
3. The institute is only responsible for the complete certificate affixed with the “Dedicated Seal for Reference Material of National Institute of Metrology”. Please properly keep this certificate.
4. To obtain more application related information, please contact the Department of Technical Consultation.

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