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Corrigendum - IV

REVISED TECHNICAL SPECIFICATIONS

GPC HPLC System

RFx No. 6100000723 (PR Reference No. 1000017907)

Supply, Delivery, Installation and Commissioning of ModularAnalytical cum Semi-Preparative HPLC with GPC System

The HPLC system shall include the following individual stackable self-contained modules. Modules should be connected via fibre optic noise resistant high-speed transmission technology to enhance the reliability & sensitivity of HPLC

1. Pump for Analytical andSemi-Preparative Flow Rates
2. Column Ovenwith valves for automatic column switching and solvent recycling
3. Autosampler with Sample Cooler and Manual Injector
4. Photo Diode Array (PDA) Detector
5. Evaporative Light Scattering (ELSD) Detector
6. Fraction Collector with suitable trays &racks
7. Chromatographic Software with GPC Software
8. Service, Warranty & Training

1. Pump for Analytical & Semi-Preparative flow rates

1.1. It should be a suitable high pressure pump
1.2. Operating pressure should be 40MPa or better
1.3. Flow rate should be settable between 0.01mL/min to 20.00mL/minor better without any hardware changes
1.4. Number of solvent channels should be at least eight
1.5. Flow rate accuracy should be ±1%
1.6. Flow precision value should be ≤0.07 % RSD
1.7. It should be supplied with reservoir tray with solvent bottles, complete with fittings etc.

1.8. It must have a leak sensor as safety feature
1.9. Pump should be capable of mixing solvents in different proportions for entire flow rate
1.10. Integrated degassing unit

2. Column Oven withColumn Switching & Solvent Recycling Valves:

2.1. Column Oven should be block heating or forced air circulation type for uniform temperature distribution
2.2. Temperature control range should be 10°C below ambient to 85°C
2.3. Temperature control precision should be at least ± 0.5°C
2.4. It should be possible to accommodate analytical as well as semi-preparative columns inside this column oven
2.5. Column oven should support mounting of two analytical or two GPC columnsalong with two semi-preparative columns
2.6. Automatic flow line switching from Analytical to Semi-Preparative scale & vice versa should be possible. Also automatic switching between two columns should be possible. Appropriate switching valves with required accessories should be supplied as standard with this system
2.7. Solvent recycle assembly with all essential valves & accessories should be provided. Suitable software for solvent recycle purpose, if any, should be included with this

3. Autosampler with Sample Cooler & Manual Injector:

3.1. Sample injection volume of Autosampler should be variable between 0.1 µl to 100µl
3.2. It should be variable injection volume type with zero sample loss during injection
3.3. It should be able to handle at least 150 vials of 1ml capacity or 70 vials of 1.5/2 ml capacity, 40 vials of 4ml capacity.
3.4. Flow line rinse capability both before and after sampling should be possible
3.5. It should be capable of a carry-over no more than 0.005 %
3.6. The injection precision should be at least less than 0.4% of RSD value
3.7. It should be supplied with additional sample loop of 1800/2000uL
3.8. Supply of at least 100 sample vials of 1.5/2 mL capacity with caps and septa
3.9. Autosampler should have provision of sample cooler for controlling temperature of the sample vials from 4°C to 40°C

4. Photodiode Array (PDA) Detector

4.1. The wavelength range should be 190 nm - 800 nm or better
4.2. The photo-diode array detector should have 1024 elements
4.3. The detector should have variable slit width for high resolution as well as high sensitivity
4.4. A standard flow cell of 12/14µL volume& 10 mm cell path length should be available. It should maintain a constant temperature between 19°C to 50°C.
4.5. Preparative flow cell with variable path length for preparative applications should be provided

4.6. Wavelength accuracy should be $\leq \pm 1$ nm
4.7. A deuterium lamp [D2] and a Tungsten lamp [W] should be available as Light Source for UV and visible wavelengths respectively.
4.8. The selection of light source should be flexible to select D2, W or both lamps for analysis
4.9. The Drift should be smaller than 0.9×10^{-3} AU/Hour or better
4.10. The Noise Level should be smaller than 7×10^{-6} AU or better
4.11. Linearity should be 2.0 AU or better (ASTM method)
4.12. It should have a self-aligning mechanism for the light sources and cell.
4.13. Light sources and cell should be accessible from the front for easy maintenance

5. Evaporative Light Scattering Detector (ELSD):

ELSD detector is intended to be used for non-UV absorbing compounds at analytical as well as semi-preparative scale. It will also be used for GPC applications. ELSD should have below mentioned specifications:

5.1. Temperature range of ELSD should be from Ambient to 100°C
5.2. ELSD should be supplied with nebulizer which will be compatible with analytical as well as semi-preparative flow rates
5.3. Nebulizer temperature 30 °C – 90 °C
5.4. Eluent flow rate in ELSD should be at least 200µl/min
5.5. Typical sensitivity of this ELSD should be 4 ng or better
5.6. It should be possible to use ELSD with Nitrogen gas cylinder without need of any gas generator

6. Fraction Collector

6.1. It should be possible to use fraction collector over wide range of flow rates covering small & large scale preparative work. It should adapt to applications such as manual collection while viewing chromatogram as well as advanced continuous & automated preparative separation & collection performed in combination with autosampler
6.2. Appropriate racks with vials/tubes (for4ml&20ml) should be supplied

7. Chromatographic Software with GPC Software:

7.1. Genuine Windows based Chromatography software for full control of this LC should be supplied along with this system. Appropriate GPC software should also be supplied along with this Chromatography software. It should be possible to perform all functions of Analytical LC, Semi-Preparative LC as well as GPC system with this software
7.2. It should cover full one-point digital instrument control, qualitative and quantitative processing, report creation and self-diagnosis

7.3. The data should be convertible to other formats. Spread Sheet software and word-processing software can be readily employed to provide data in tables or graphs through industry standard protocols

8. Service, Warranty and Training

8.1. Tendered price should include delivery, installation, commissioning and training (at least 4 users) at supplier's location

8.2. Comprehensive warranty for complete equipment for a period of 36 months should be provided. This shall include the following at no extra cost:

8.2.1. Travel and Labour expenses of Customer Engineer

8.2.2. Service Parts used for repairs

8.3. Vendor to provide service guarantee: should the system require service during the warranty period, vendor must guarantee turn-around-time within 24 hours

8.4. Vendor to provide a copy of Site-Preparation checklist

8.5. Vendor must demonstrate that it has a proven appropriate set-up and capability to provide after-sales service efficiently and effectively. The supplier should have in his facility a similar system to that proposed in this tender for training purpose

8.6. Automatic flow line switching from Analytical to Preparative scale & vice versa should be possible. Also automatic switching between two columns should be possible. Appropriate switching valves with required accessories should be supplied as standard with this system

8.7. One Analytical C-18 Column (5um, 4.6 x 250) should be supplied along with this LC system

8.8. All required kits, tubings, joints, tool kit etc. essential for running & maintenance of the system shall be supplied along with the system

8.9. Details of pre-installation requisites

8.10. The vendor must be reputed one having experience of at least 10 Years for supply of HPLC & Preparative LC systems. They must have more than 1000 installations of HPLC, UHPLC & Preparative LC systems in India. They should have their own facility within Mumbai for demo / training purpose having similar instrument which has been quoted here. Also vendor should have service as well as application engineers based within Mumbai city

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