



RFP UJ 33/2025: PROCUREMENT OF TWO TURBOVAP LVs WITH ACCESSORIES

1. EQUIPMENT DESCRIPTION AND BACKGROUND – REASON FOR PURCHASE

In Chemistry, the sample evaporation step is a critical component of many method development protocols. It typically follows procedures such as distillation, liquid-liquid extraction, compound isolation, and post-synthesis reactions—serving as a preparatory stage before instrumental analyses.

The TurboVap® LV system represents a modern, automated pre-concentration technology widely adopted in various industries—including environmental, pharmaceutical, food, petrochemical, agricultural, and metallurgical sectors. It enables rapid, efficient solvent evaporation and sample concentration, accommodating multiple samples simultaneously while reducing energy consumption. Its robust design and operational efficiency have made it a preferred tool in both industrial and academic laboratory settings. Importantly, the TurboVap LV system plays a significant role in undergraduate Chemistry education, especially in laboratory modules from first year through to Honours level. The equipment supports essential analytical prowess by providing a reliable method for solvent evaporation and pre-concentration of samples. Its use of minimal water and inert nitrogen gas helps prevent oxidation and degradation of thermally sensitive compounds—an important feature in high-precision analytical work.

The integration of such modern equipment into undergraduate practicals aligns with the University of Johannesburg's strategic vision to provide students with access to world-class technologies that enhance teaching, learning, research, and innovation. Acquiring the TurboVap LV will not only modernise traditional laboratory practices but also ensure that students gain hands-on experience with techniques that are directly relevant to current industrial and research environments. Moreover, the equipment serves as a crucial preparatory step for advanced analytical techniques such as High-Performance Liquid Chromatography (HPLC), Nuclear Magnetic Resonance (NMR), Fourier-Transform Infrared Spectroscopy (FTIR), Gas Chromatography-Mass Spectrometry (GC-MS), and Liquid Chromatography-Mass Spectrometry (LC-MS). Exposure to these protocols will better equip students for careers in industry and academia by aligning their skills with modern analytical standards.

Table 1: Current modules that use the TurboVap LV for practical training of UG and Hons students

Module Code	Brief description of practical	Approximate number of students in the practical

CEM3B10(CEM01B3): Instrumental Chemical Analysis	This equipment will support multiple practicals included in the module, which will introduce students to sample pre-treatment techniques commonly employed prior to instrumental analysis. Using the TurboVap® LV system, students will perform solvent evaporation and pre-concentration of liquid samples prepared through methods such as liquid-liquid extraction and post-synthesis reactions. The pre-concentrated samples are then prepared for further analysis using techniques such as UV/FLD, HPLC, GC-MS, or FTIR. The practical reinforces core concepts of analytical chemistry and provides hands-on experience with industry-relevant sample preparation protocols.	35
Code:CEM01B2 (CEM2B10) Intermediate Organic Chemistry <i>Isolation of eugenol from cloves</i>	The TurboVap LV system will be utilised in organic practical for the evaporation and pre-concentration of the extracts obtained from organic Chemistry practical. The system will be required for solvent evaporation of the collected samples prior to GC-FID and GC-MS analyses.	71
Code: CETOPA3 Organic Chemistry 3: The quantitative analysis of a mixture using Gas Chromatography (GC analysis)	The Turbo Vap LV system will be explored in organic Chemistry 3 practical for evaporation and pre-concentration of the samples. The concentration step will be introduced to enhance concentration levels of targeted compounds prior to GC-FID/GC-MS analyses of the selected standard mixtures.	60

2. SPECIFICATIONS OF INSTRUMENT

- Power supply: 100 To 240 V, 50/60 Hz
- Dimensions: (W X D X H)400 X 400 X 390 Mm (15.7" X 15.7" X 15.4") Including the hinges at the side and exhaust at the rear. The height with the lid open must be 590 mm (23.2").
- The equipment must be 17 kg (37.5 lbs) in weight when the water bath is empty and must not exceed a maximum of 29 kg (63.9 lbs) with deionized water, rack, and tubes
- Operating temperature: 18–32 °C storage and transportation temperature range : -25 °C to 60 °C
- Gas supply requirements minimum 4 bar (0.4 MPa, 58 psi) optimum 6 bar (0.6 MPa, 87 psi) maximum 9 bar (0.9 MPa, 130 psi) the system should operate using inert gas.
- The system must be shipped with connectors for conversion to 1/4" or 3/8" outer diameter.
- Must have 7" touch screen interface.
- Vial racks required: 48 positions, 24 positions and for 6 positions.
- Maximum gas flow: 48 positions: 3.5 litres/min 24 positions: 5.5 litres/min 6 positions: 7 litres/min
- Automated end point detection capability with sound level 75 dB(A)

3. INSTALLATION AND COMMISSION

- The equipment must have 12 months' warranty
- After sales support is required in the form of preventative maintenance labor whenever requested by the customer.
- Delivery required to the point of operation.
- The supplier is required to do installations and commissioning of the equipment including the gas regulator and cubing for the system.
- The supplier is required to provide training on how to use the machine.

4. SUPPORT AND MAINTENANCE

The service provider must provide,

- maintenance and service support including ad hoc services and additional consumables
- Provide details in the event of power failure, technical difficulties, or spares unavailability
- After-hours and emergency services: Provide details of support services for the University of Johannesburg end-users.

5. TENDER EVALUATION

The tender will be evaluated in 3 stages,

Stage 1: Tender Compliance

Stage 2: Technical Compliance

Stage 3: Financial and B-BBEE

Stage 2: Technical Evaluation

No	Area	Technical Criteria	Maximum Points
(i)	Industry Experience	The service provider must have a minimum of five (5) years' experience in a similar industry Bidder Experience 0 Years' Experience = 0 Points 1 Years' Experience = 10 Points 2 Years' Experience = 20 Points 3 Years' Experience = 30 Points 4 Years' Experience = 40 Points 5 Years' Experience and more = 50 Points	50 points
(ii)	Contactable references	The service provider must provide five (5) positive written contactable references on a client letterhead, indicating similar services rendered. The reference letters from the clients of a bidder must include: • Supplier name • Client letterhead • Contact person and contact telephone numbers • The letter	50 points

		must be signed by a duly authorized person. Bidders Reference Letters 0 Reference Letters = 0 Points 1 Reference Letters = 10 Point 2 Reference Letters = 20 Points 3 Reference Letters = 30 Points 4 Reference Letters = 40 Points 5 Reference Letters and more = 50 Points	
	Total		100

All bidders must obtain a minimum of 70 points out of 100 points in stage 2 evaluation (above) to be considered for further evaluation in terms of stage 3: financial and B-BBEE.

Stage 3: Financial and B-BBEE: