

【붙임 2】

## 규 격 서(구매, 제조.제작 요청용)

□ 구매개요

품명	(한글)* : 나노입도 및 제타전위 측정기 (영문) : Particle size and zeta potential analyser		
< 연구장비 또는 연구시설 관련 구매 시 추가 작성 >			
구매 종류	<input checked="" type="checkbox"/> 연구장비 <input type="checkbox"/> 연구부속장비 <input type="checkbox"/> 연구장비성능향상 <input type="checkbox"/> 연구장비수리 <input type="checkbox"/> 기타 <input type="checkbox"/> 연구시설구축 <input type="checkbox"/> 시설부속장비 <input type="checkbox"/> 시설성능향상 <input type="checkbox"/> 시설수리		
과제계획 반영여부	<input checked="" type="checkbox"/> 반영 <input type="checkbox"/> 미반영	공동활용 여부*	<input type="checkbox"/> 타부서와 공동활용 가능 <input checked="" type="checkbox"/> 타기관과 공동활용 가능 <input type="checkbox"/> 공동활용 불가능
중복 구매여부	<input type="checkbox"/> 중복 <input checked="" type="checkbox"/> 미중복		
제조사 (제조국가)		추정가격* (부가세 미포함)	

※ \* 표시 필수 입력사항

※ 3천만원 이상 또는 타기관 공동활용가능 연구장비 등 구매 완료 30일 이내 nfec-input.ntis.go.kr 등록 필수

□ 규격 및 사양(기기 구성품 또는 구매물품 내역 등)

<p><b>A. Feature</b></p> <ol style="list-style-type: none"> <li>1. 'Particle size analyzer system' for various nano scale particles with Dynamic light scattering method. Size, Zeta potential and Molecular weight can be analyzed in one system.</li> <li>2. It should have better specifications than international particle size measurement standard, ISO13321-PCS.</li> <li>3. Available to handle both of pH Autotitrator and Nano particle analyzer by one software at the same time.</li> <li>4. The optics need be fully pre-aligned with</li> </ol> <p><b>B. Specification</b></p> <ol style="list-style-type: none"> <li>1. Measurement Method             <ul style="list-style-type: none"> <li>- Using the theory of Dynamic light scattering (=Photon correlation spectroscopy) based on ISO13321</li> <li>- Backscatter (more than 173 degree) preferred for concentrated dispersions</li> <li>- Prefer Non-invasive back scatter for size and MW measurement</li> <li>- This is achieved by a phase analysis light scattering, mixed mode measurement (FFR+SFR) for the Zeta-potential measurement</li> <li>- Organic solvent sample can be measured by Smoluchowski formula and Huckel formula in analysis software</li> <li>- When we measure a particle size, we can make sure Aggregation and dispersion which be known to quality of particle through measurement quality report and correlogram.</li> </ul> </li> <li>2. Optic             <ul style="list-style-type: none"> <li>- Laser : 4mW 632.8nm He-Ne gas laser</li> <li>- Detector : Avalanche Photodiode Detector</li> <li>- Size measurement : more than 173 degree back scattering detector</li> <li>- Zeta measurement : Laser Doppler method 13 degree or more</li> <li>- Debye Plot for MW measurement</li> <li>- Automatic attenuation selection</li> <li>- Attenuation level : 1-11 level</li> </ul> </li> <li>3. Measurement range             <ul style="list-style-type: none"> <li>- Size (diameter) : 0.3 – 10,000nm</li> <li>- Zeta-potential : +/- 500mV</li> <li>- Concentration range for size measurement : 0.1ppm, 0.1mg/ml to 40%w/v</li> <li>- Conductivity range : 0 to 200mS/cm</li> </ul> </li> </ol>
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- Mobility range : Minimum zero, No effective limitation
- Minimum Sample volume for Size measurement : 12ul or more
- Minimum Sample volume for Zeta potential measurement : 20ul or more
- Molecular weight range (Abs) : 980 to  $2 \times 10^7$  Da
- Temperature range : 10 - 90 degree

4. Various cell for measurement

- Available to use disposable cell for size and zeta potential
- Available to use organic solvent for size and zeta potential
- No need to clean cell or electrodes
- Automatic cell recognition system
- Zeta potential and size can be measured in the same cell
- Maintenance-free zeta potential cell
- Universal Dip cell kit for organic solvent based Zeta potential

5. Measurement position in sample

- Variable. The optics are automatically focused to the optimal position in the cell to maximize the ratio of signal to noise and minimize multiple scattering effects for accuracy

6. Available to measure Particle size, Molecular weight and zeta potential

- Polymer and proteins analysis
- Little or no dilution necessary
- 2nd virial coefficient determination
- Micell structure
- Emulsion stability
- Formulation stability
- Protein melting point

7. Alignment

- An automatic complete system self check ensures that all components are ready for Operation
- No alignment, Calibration or Maintenance required

8. Software

- Available fully automated operation with auto-titrator afterwards
- SOP (Standard Operation Procedure)
- Customer report generator
- Temperature trend analysis
- Time and measurement trend analysis
- Select parameter trend analysis
- Overplotting of results for direct comparison
- Full range of statistical plot
- Auto refractive index, Viscosity and dielectric constant calculation function for mixed solvent
- Enhanced Protein measurement
- Microrheology (Option)

9. ISO 13321 implemented

10. Data processing system

**C. Configuration**

- Nano Particle Size & Zeta potential Analyser 1set
- Data Processing system 1set

**D. Remarks**

1. Warranty : One year warranty will be provided after installation
2. Installation and operation will be performed by maker
3. Supply operation manual

※ 조달청 지정정보처리장치(전자견적시스템) 사용에 따른 명확한 규격 및 사양이 요구됨으로 견적서와 필요 시 사진, 카달로그, 시방서, 도면 등 첨부 요망

☐ 구매사유 및 활용용도

○ 플라즈마기반 나노입자 및 나노다이아몬드의 크기 및 zeta potential 측정