

Memorandum of Information TNO

Guidelines for the European Public procurement tender for the delivery of Scanning Electron Microscope Ref. 2022 FPL/INK 103 date February 23, 2023

Date : March 20, 2023

Version: 4

Questions about the European Public procurement tender procedure and/or the European Public procurement tender documents can be asked until no later than the closing date of the 'Deadline for asking questions' as mentioned in the tendering schedule shown in sub-section 2.3.

Section nr. / subject	Questions Tenderer	Answer TNO
2.3 Further information (questions)	<i>Will there be a possibility to do vibration and magnetic field measurements during the site check?</i>	TNO cannot guarantee the right conditions for this kind of measurements during the one hour site visit. The room is occupied with other equipment.
6.1.3 Evaluation of the images (Appendix C05)	<i>Cat3-1 calls for images at 200kx and 500kx, but the description for cat3-1 is "Cat 3-1: Cross-section, overview image of complete NMC layer including interface with substrate.". At 200kx and 500kx, an overview on typically 300µm thick LiB layers is impossible. Please clarify.</i>	Focus on the Al2O3 layer and interface
8 Minimum requirements with regard to Contract performance	<i>The preferences (QU) have a total amount of 603 points while the quality ratio is 600 points. What is correct?</i>	Preference 8.4.5; Place to retrofit detector for Li-ion detection in the future (> 3 years) is accidentally rated with 8 points. The mistype will be changed to 5 points in evaluation to make a maximum total of 600 points as stated in para 6.1
8.10 Sample preparation system	<i>Do sample 2 and 3 for the sample test require air isolation after milling? If that is required this will make scheduling the demo work a bit less flexible. A quick reply on this would be greatly appreciated.</i>	The samples provided can be imaged under normal conditions and do not need to be implemented to the SEM under airtight conditions.
8.10 Sample preparation system	<i>Does sample 1 require stage tilt or is using a cross section holder ok?</i>	Imaging of the CNT sample should not require stage tilt. Both surface imaging and cross section imaging don't need this.
8.2 Emitter	<i>8.2.4 Your request a thickness of 5mm, is 4 mm also acceptable?</i>	4mm for airtight transport is acceptable.
8.5 Resolution and samples evaluation	<i>8.5.4 Can you explain what you mean with height resolution?</i>	Ability to discriminate features with 5 nm height differences (the topographical height resolution).E.g. as steps. Specify the material (density) it is obtained on. Our reference is Silicon.
8.5 Resolution and samples evaluation	<i>Requirement 8.5.4. The SEM system must have a height resolution of 10 nm or better at different kV. What is meant with height resolution of de SEM?</i>	See previous! Hence ability to image small step heights/roughness on a sample in top view (important for e.g. atomic sputtered layers). To be shown on images incl acquisition conditions
8.5 Resolution and samples evaluation	<i>Preference 8.5.3. The SEM system with a better lateral resolution than 0.7 nm referring to a standard e.g. Au on C at different kV (1, 2, 5, 10, 15 and 30kV) There are several methods available to measure the resolution of the SEM. And the method used will have an impact on the resolution specifications. Which method should we therefore use?</i>	We required the spatial-separation resolution by line separation. On a Au-C sample (like AGS1987-<2-30nm (reference of agarscientific, similar or better) e.g. the distance between two Au-spheres. This as we need to image e.g. thin layers on cross cross sections. Point separation may be specified as well. The performance on the TNO samples will be taken into account as well. Images showing the resolution are mandatory.
9 Appendices	<i>Can the NDA be signed by someone with the foreign nationality?</i>	The NDA must be signed by a person who is legally authorized to sign on behalf of the tenderer. The signatory's authorization to sign must be established by means of a certified extract from the Chamber of Commerce Trade Register.
9 Appendices	<i>We have asked our Legal department to review the TNO NDA. As the clauses for Material Transfer are missing, our Legal department has proposed to use our MTA (Material Transfer Agreement) instead. Could you please let us know if it would be acceptable for you to accept our MTA. If not, would you be able to send us your MTA for us to review?</i>	Provided Appendix B06 - NDA will do for the purpose. Samples must be returned to TNO when the final bid is uploaded on TenderNed.

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