**Appendix 2:**

**Tender for Purchase of a new SEM with automated mineralogy analysis software**

The tenderers are requested to use this template only for their description of the offered instrument, collaboration, training and documentation according to the minimum requirements, the competitive requirements and the collaboration criterion given by GEUS (Appendix 1, paragraph 2.1, 2.2, 3, 4).

|  |  |
| --- | --- |
| **General information** | **The response of the tenderer** |
| The name and the corporate form of the tenderer | [Fill out] |
| The address of the tenderer | [Fill out] |
| The contact person at the tenderer’s organisation; name and email address | [Fill out] |

**Requirement 1**

**Description of the SEM instrument**

Descriptive parameter, which will not be used for evaluation. The tenderer provides a short description of the SEM instrument that will be offered. Further documentation regarding the SEM instrument can be given here, **cf. Appendix 1, paragraph 2.1, Requirement 1.** Maximum length, including Figures: **1.5 A4 page**.

**Description of the SEM instrument** [enter documentation]

**Requirement 2**

**Description of the automated particle analysis software**

Descriptive parameter, which will not be used for evaluation. The tenderer provides a short description of the automated particle analysis software that will be offered. Further documentation regarding the automated particle analysis software can be given here, **cf. Appendix 1, paragraph 2.1, Requirement 2.** Maximum length, including Figures: **1 A4 page**.

**Description of the automated particle analysis software** [enter documentation]

**Requirement 3**

**Training**

Descriptive parameter, which will not be used for evaluation. The tenderer provides a short description of the Training that will be offered **cf. Appendix 1, paragraph 2.1, Requirement 3.** Maximum length, including Figures: **1 A4 page**.

**Training** [enter documentation]

**Requirement 4**

**Dokumentation**

Descriptive parameter, which will not be used for evaluation. The tenderer provides a short description of the Documentation that will be offered **cf. Appendix 1, paragraph 2.1, Requirement 4.** Maximum length, including Figures: **1 A4 page**.

**Documentation** [enter documentation]

**Requirement 5**

Requirement 5, Service and Maintenance, needs to be answered in Appendix 4.

**Requirement 6**

**Imaging of coated samples at high magnification**

Quality parameter used in the evaluation of tenderer’s offer. The tenderer provides an SEM instrument that is able to make sharp images at high magnification on coated rock samples. Further documentation regarding the imaging capabilities can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 6.** Maximum length, including Figures: **1 A4 page**.

**Imaging of coated samples at high magnification** [enter documentation]

**Requirement 7**

**Imaging of uncoated samples at high magnification**

Quality parameter used in the evaluation of tenderer’s offer. The tenderer provides an SEM instrument that is able to make sharp images at high magnification on uncoated rock samples. Further documentation regarding the imaging capabilities can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 7.** Maximum length, including Figures: **1 A4 page**.

**Imaging of uncoated samples at high magnification** [enter documentation]

**Requirement 8**

**EDS on uncoated samples**

Quality parameter used in the evaluation of tenderer’s offer. The tenderer provides an SEM instrument that allows for EDS analyses on uncoated rock samples. Further documentation regarding the EDS analyses on uncoated samples can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 8.** Maximum length, including Figures: **1 A4 page**.

**EDS on uncoated samples** [enter documentation]

**Requirement 9**

**Fast and easy shift between high- and low vacuum**

Quality parameter used in the evaluation of tenderer’s offer. The tenderer provides an SEM instrument that has a fast and technically-easy implementation of the switch between low-vacuum and high-vacuum analysis conditions. Further documentation regarding the switch between low- and high-vacuum analysis conditions can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 9.** Maximum length, including Figures: **1 A4 page**.

**Fast and easy shift between high- and low vacuum** [enter documentation]

**Requirement 10**

**Automated stitching**

Quality parameter used in the evaluation of tenderer’s offer. The tenderer provides an SEM instrument that is able to stitch images near-perfectly without manual post-processing. Further documentation regarding automated stitching software can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 10.** Maximum length, including Figures: **1 A4 page**.

**Automated stitching** [enter documentation]

**Requirement 11**

**Quality of CL images**

Quality parameter used in the evaluation of tenderer’s offer. The tenderer provides a CL detector, which is able to analyse carbonates, quartz and feldspars simultaneously, as well as give excellent quality images for zircons. Further documentation regarding the quality of the CL imaging can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 11.** Maximum length, including Figures: **1 A4 page**.

**Quality of CL images** [enter documentation]

**Requirement 12**

**Simultaneous BSE & CL**

Quality parameter used in the evaluation of tenderer’s offer. The tenderer provides a CL detector that can be used simultaneously with a BSE detector. The signals of both detectors can be viewed simultaneously in two windows on a monitor, or as a combined signal in one window. The CL detector can be used at the same working distance as the SE, BSE and EDS detectors. Further documentation regarding the simultaneous usage of the CL and BSE detectors can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 12.** Maximum length, including Figures: **1 A4 page**.

**Simultaneous BSE & CL** [enter documentation]

**Requirement 13**

**EDS detectors**

Quality parameter used in the evaluation of tenderer’s offer. The tenderer provides a short description of the EDS detectors that will be offered, including the width of the Mn-peak (in eV FWHM), the size of the windows (in mm2) and the range of the pulse processor speed/throughput rate. The tenderer provides two EDS detectors, which are able to analyse with a combination of a high analytical speed and, at the same time, low detection limits. Further documentation regarding the EDS detectors can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 13.** Maximum length, including Figures: **1.5 A4 pages**.

**EDS detectors** [enter documentation]

**Requirement 14**

**Measurement of Boron with EDS**

Quality parameter used in the evaluation of tenderer’s offer. The tenderer provides EDS detectors, which are able to analyse 5 wt% of Boron in silicate minerals. Further documentation regarding the measurement of Boron with EDS can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 14.** Maximum length, including Figures: **1 A4 page**.

**EDS Boron measurements** [enter documentation]

**Requirement 15**

**Fast and precise EBSD**

Quality parameter used in the evaluation of tenderer’s offer. The tenderer provides an EBSD detector that is able to analyse with a combination of high analytical speed and, at the same time, reasonable precision. The EBSD detector can be operated at the same working distance as the SE, BSE, and EDS detectors. Further documentation regarding the EBSD detector can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 15.** Maximum length, including Figures: **1 A4 page**.

**Fast and precise EBSD** [enter documentation]

**Requirement 16**

**EBSD Library**

Quality parameter used in the evaluation of tenderer’s offer. The tenderer provides EBSD software with a large, easily-accessible, and easily-extendable best-match mineral library. Further documentation regarding the EBSD library can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 16.** Maximum length, including Figures: **1 A4 page**.

**EBSD library** [enter documentation]

**Requirement 17**

**Quantitative analysis of 1200 touching grains in rock samples**

Quality parameter used in the evaluation of tenderer’s offer. The automated mineralogy software should be able to analyse the major and minor element composition of at least 1200 representative grains in a polished section. The grains to be analysed are part of a solid rock. Further documentation regarding the merits of the automated mineralogy software’s ability for quantitative analyses on rock samples can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 17.** Maximum length, including Figures: **1.5 A4 page**.

**Quantitative analysis of 1200 touching grains in rock samples** [enter documentation]

**Requirement 18**

**Pixel spacing of 0.2 µm**

Quality parameter used in the evaluation of tenderer’s offer. The automated mineralogy software should be able to analyse a solid rock sample with a pixel-spacing or spot analysis spacing of less than 0.2µm. Further documentation regarding the pixel-spacing during the automated analysis can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 18.** Maximum length, including Figures: **1 A4 page**.

**Pixel spacing of 0.2 µm** [enter documentation]

**Requirement 19**

**Mineral library**

Quality parameter used in the evaluation of tenderer’s offer. The automated mineralogy software should be suitable for usage on a wide range of rock types, including reservoir rocks and mining samples. The software should contain a large starting library, which is easy to expand. Further documentation regarding the mineral library can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 19.** Maximum length, including Figures: **1 A4 page**.

**Mineral library** [enter documentation]

**Requirement 20**

**Grain-size as a basis for classification**

Quality parameter used in the evaluation of tenderer’s offer. The automated mineralogy software should be suitable for usage on a wide range of rock types, including mudstone, sandstone and carbonate reservoir rocks and mining samples. The tenderer provides a software packages that allows for a grain-size-sensitive mineral classification. Further documentation regarding the usage of grain-size in mineral classifications can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 20.** Maximum length, including Figures: **1 A4 page**.

**Grain size as a basis for classification** [enter documentation]

**Requirement 21**

**Boron in mineral mapping**

Quality parameter used in the evaluation of tenderer’s offer. The tenderer provides automated mineralogy software that is able to measure boron in silicates in concentrations down to 5wt%. Further documentation regarding the detection of boron under automated mineralogy analyses can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 21.** Maximum length, including Figures: **1 A4 page**.

**Boron in mineral mapping** [enter documentation]

**Requirement 22**

**Carbon in mineral mapping**

Quality parameter used in the evaluation of tenderer’s offer. The tenderer provides automated mineralogy software that is able to measure carbon in rock samples in concentrations down to 5wt%. Further documentation regarding the mineral library can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 22.** Maximum length, including Figures: **1 A4 page**.

**Carbon in mineral mapping** [enter documentation]

**Requirement 23**

**Batch reporting with figures**

Quality parameter used in the evaluation of tenderer’s offer. The automated mineralogy software must be able to export the data for batches of samples. Further documentation regarding the exporting of batches of samples can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 23.** Maximum length, including Figures: **1 A4 page**.

**Batch reporting with figures** [enter documentation]

**Requirement 24**

**Automated mineralogy based on optical or CL images**

Quality parameter used in the evaluation of tenderer’s offer. The tenderer provides automated mineralogy software that is able to do mineral mapping from other images as a basis than BSE images. Further documentation regarding the use of other types of images for mineral mapping can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 24.** Maximum length, including Figures: **1 A4 page**.

**Automated mineralogy based on optical or CL images** [enter documentation]

**Requirement 25**

**Integrated images: BSE, optical, CL**

Quality parameter used in the evaluation of tenderer’s offer. The automated mineralogy software or any other offered software should be able to combine different kind of images. Further documentation regarding the combination of different types of images for mineral mapping can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 25.** Maximum length, including Figures: **1 A4 page**.

**Integrated images: BSE, optical, CL** [enter documentation]

**Requirement 26**

**Integrated software solution**

Quality parameter used in the evaluation of tenderer’s offer. The tenderer provides an automated mineralogy software that combines quantitative analysis of polished sections with separated grains and mineral mapping of neighbouring grains in one program. Further documentation regarding the integration of quantitative analyses on loose grains and touching grains can be given here, **cf. Appendix 1, paragraph 2.2, Requirement 26.** Maximum length, including Figures: **1 A4 page**.

**Integrated software solution** [enter documentation]

**Collaboration criterion**

Parameter used in the evaluation of tenderer’s offer. If tenderer is able to provide a plan for further updates and development of the delivered software after the delivery, this should be described. Tenderer should also indicate whether it is possible to establish cooperation regarding customers’ suggestions for changes of the software during the contract period, as well as inform of the conditions for such cooperation. Further documentation regarding the proposed collaboration can be given here, **cf. Appendix 1, paragraph 3.** Maximum length, including Figures: **1 A4 page**.

**Integrated software solution** [enter documentation]