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TECHNICAL SPECIFICATION FOR MICROTEXTURE ANALYSIS SOFTWARE

It is required to upgrade an existing Edax Hikari EBSD (Housed in an FESEM unit (Make: FEI Company USA Ltd) to perform micro texture analysis and material characterization along with an additional latest offline post processing OIM licence as per the following specification.

1.

The existing acquisition software and workstation for existing Edax Hikari EBSD should be upgrade with Intel i9-7980XE (2.6 GHz, Max: 4.2 GHz, 18-Core,Analyzer with Windows 10 Professional 64-bit Operating System, 32 GB DDR4-2600 MHz (4 x 8 GB) ,512 GB SSD M.2 Primary Drive ,12 TB 7200 RPM SATA Enterprise Hard Drive , DVD SATA Reader/Writer Microsoft Office 2016 Home & Business ,5 PCIe slots (No Motherboard PCI Slots),Rear Panel 5 USB 3.1, Front Panel 4 USB 3.1,1 Gigabit Motherboard Ethernet ,NVIDIA QUADRO K620 2GB 1ST GFX PCIe Graphics Adapter.

The above upgraded PC must come with preloaded EBSD acquisition software which must be compatible to existing installed Edax Hikari Ebsd, and should have features like ,Triplet Indexing Engine, Automated Camera Optimization, Dynamic Display Options during Data Collection, Batch Scanning ,Automated Data Management via Project Tree and HDF5 File Output, Integrated EDS-EBSD Analysis ,Advanced Reporting Multi-user Capability. The software should have suitable stage control and column control software.

2. **The post processing software for EBSD data analysis should have the following capabilities:**

2.1 Should provide wide choice of data cleaning algorithms.
2.2 Microstructural parameters, such as average grain size, average misorientation angle, high angle/low angle/CSL boundary fractions should be available directly without any need for secondary processing or replotting of the data.
2.3 Interactive data recording from the EBSD maps.
2.4 The software should allow subset or partition creation from the acquired EBSD data and allow to save the partition data. Should have following features
2.5 Partitioning by point or by grain-based properties
2.6 Boolean logic to combine partition definitions
2.7 Partition definitions can be saved as a template for repeated use
2.8 Allow texture to be represented using PF, IPF, ODF and texture fibres. The software should have the capability of calculating all common texture fibres in FCC and BCC systems under rolling and torsional deformation conditions.
2.9 Analysis software should have the resources to evaluate data quality and to improve it using EBSD pattern reindexing. It should include

  • Reindexing data by individual points, by defined partitions, by phase or all data

  • Reindexing using either saved band positions (Hough peaks) or using saved EBSD patterns

  • Optimization of EBSD pattern band detection and indexing parameters for each phase

  • Ability to find and add phases not included in the initial data collection

- Creation of EBSD signal background from individual phases and application of background processing optimized for specific materials

2.10   The software should have feature so that the S/N level can be improved by averaging each pixel with its surrounding neighbouring pixels. It should include

a. Improved EBSD pattern signal to noise ratio

b. pattern acquisition at lower beam currents and/or faster camera speeds

c. Higher EBSD mapping indexing success rates

3. Other Mandatory requirement

3.1 The EBSD related hardware and software are housed in an existing FESEM unit. The vendor should take responsibility to contact the existing FESEM supplier or Indian authorized dealer (FEI Company USA Ltd or ICON Analytical Pvt Ltd) for interfacing the workstation and software with the existing FESEM unit. The vendor should make sure that, the upgradation will not affect the functionality of the existing FESEM operation.

3.2 The vendor should provide detailed training of the EBSD software in free of cost

3.3 The vendor should provide

3.4 Compliance statement needs to be provided clearly specifying COMPLY/NON-COMPLY with remarks/reasons of all of the points mentioned above.

3.5 24 months of warranty from the date of installation/commissioning.