Application Process: Rock Thin Section Production

This section of text is prepared for a number of different types, such as porosity determination, inclusion analysis, mineral composition. However, preparing high quality thin sections is often perceived as challenging due to the combination of high cost and high demand for skilled technicians. A number of thin section preparation systems are available on the market, providing solutions for various requirements. The sections requiring particular equipment or detailed flatness level of thin sections are generally more expensive and may be time-consuming to produce.

The Logitech thin section preparation systems provide full resistance to these problems and offer unmatched performance for the thin section preparation laboratory.

Preparation Notes:

A. Impregnation

Following bonding, excess sample material is trimmed off using the GTS1 Thin Section Cut-off and Trim Saw. This is followed by a thorough cleaning and inspection of the sample. A small amount of adhesive is applied to the sample, and the sample is then mounted on a PLJ Precision Lapping Jig. These jigs provide automatic lapping plate flatness and accuracy to ensure high-quality thin section preparation.

B. Bonding

After lapping to generate a flat surface, some surface impregnation may be required prior to bonding the sample(s) with epoxy resin to a glass slide. This process involves a thorough cleaning and inspection of the sample. A small amount of adhesive is applied to the sample, and the sample is then mounted on a PLJ Precision Lapping Jig. These jigs provide automatic lapping plate flatness and accuracy to ensure high-quality thin section preparation.

C. Trimming

Following bonding, excess sample material is trimmed off using the GTS1 Thin Section Cut-off and Trim Saw. This is followed by a thorough cleaning and inspection of the sample. A small amount of adhesive is applied to the sample, and the sample is then mounted on a PLJ Precision Lapping Jig. These jigs provide automatic lapping plate flatness and accuracy to ensure high-quality thin section preparation.

D. Lapping

The sample is lapped to its final thickness on an auto or LP50 machine and is mounted on a PLJ Precision Lapping Jig. These jigs provide automatic lapping plate flatness and accuracy to ensure high-quality thin section preparation.

E. Grinding

 Grinding follows bonding, ensuring sample flatness is trimmed to a uniform thickness. Next, grinding to achieve the desired thickness is performed. This step is crucial to ensure that the final thickness is uniform throughout the sample. A wide range of versatile systems for Trimming, Lapping and Polishing Geological Thin Sections.

A wide range of versatile systems for Trimming, Lapping and Polishing Geological Thin Sections.

Introduction

Logitech equipment is designed to provide a simple, effective and cost-effective route to complete success in thin section preparation. Logitech equipment is globally recognised as the industry standard for the preparation of Geological Thin Section samples. Our technical team work, in confidence, with customers to identify the most relevant system for optimum results on their particular thin section preparation problems.

Technical Support

In case you require more information about our range of systems or services, please contact us via our website or contact us directly. We are always happy to provide additional information on our products to ensure the best possible service for our customers.

Support for suppliers leads to Logitech’s unique approach to customer support. Logitech takes a holistic view to training, equipment and services. We strive to provide a consistent high level of customer service and support for our technical team to support.

Contact Information

Logitech provides comprehensive support and customer support on geological and mineralogical high-quality geological thin section systems. Our team of experts will work with you to integrate the relevant processes and systems to meet your specific requirements.

Comprehensive Technology transfer and customer support is provided by Logitech with every full system purchase.

Application Analysis

Our technical team work, in confidence, with customers to identify the most relevant system for optimum results on their particular thin section preparation problems. Initial discussions provide a detailed understanding of materials to be processed. Sample preparation requires a high level of accuracy and precision.

Generally, the steps involved in thin section production can be broken down into the following basic steps:

1. Grinding and trimming of facies
2. Ionic impregnation or inclusion analysis (where required)
3. Microstructural or petrographic studies
4. Samples mounted on metal tables
5. distilled water or other suitable polishing solutions
6. Sampling for analysis
7. Polishing techniques
8. Trimming before mounting

Logitech’s unique approach to customer support ensures that customers achieve the best possible results from the advanced Logitech machine system and application processes.

Client Support

Support is provided by Logitech and is an essential element of the Logitech training materials. This enables you to become a consistently high-level skilled and supported service for our technical team to support.

A high-quality training process is the Logitech training materials. The main focus is on a holistic view to training, equipment and services. We strive to provide a consistent high level of customer service and support for our technical team to support.
The chips are still too thick for final lapping and need trimming to a thickness of 300-500µm. This is achieved on saws such as GTS1, parallelism, effectively zero bond (<1µm thick).

For polishing specimens to a very high standard (high reflectivity), low relief, ultra flat surfaces, minimum edge roll off etc, the WG2 Ultra Thin Sections Polishing Head is used. A special steel base is inserted in a 25mm diameter plastic mould, into which the coal specimen is then placed for impregnation (step 2 of the standard process route). Once the resin has cured, the sample is trimmed on the IU30 Vacuum Impregnation Unit (step 5 of the standard process route). After lapping, the chips are also free polished (i.e. under load on a polishing pad or soft metal plate). They can be obscured by the larger surface features of the lapped surface. First the chips are trimmed and free lapped (as Steps 1 and 3 of the standard process route). The specimen is then cut and trimmed to fit the required slide. A Logitech GTS1 Thin Section Cut-off and Trim Saw is a compact bench-top solution, ideal for trimming and plates. Previously this had to be checked and conditioned at least once per day.

Coal specimens are prepared for a number of different tests: porosity determination, inclusion analysis, mineral composition for cement products, etc. Whether dyed or not, concrete specimens are normally mounted in the IU30 Vacuum Impregnation Unit (step 2 of the standard process route). After lapping, the chips are also free polished (i.e. under load on a polishing pad or soft metal plate). They can be obscured by the larger surface features of the lapped surface. First the chips are trimmed and free lapped (as Steps 1 and 3 of the standard process route). The specimen is then cut and trimmed to fit the required slide. A Logitech GTS1 Thin Section Cut-off and Trim Saw is a compact bench-top solution, ideal for trimming and plates. Previously this had to be checked and conditioned at least once per day.

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