LECO SPECTRUM SYSTEM 2000

LECO Spectrum System 2000 polishing and grinding machine

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Overview

The LECO Spectrum System 2000 is a robust grinding and polishing machine that was designed for preparing the metallurgical polished section for microscopical studies. In the Egyptian Petroleum Research Institute, we have this monster machine for moreover fifteen years. The machine is fully automatic with easy to handle digital interface. The machine works perfect with minimum maintenance processes and easy replaceable spare parts and consumables.

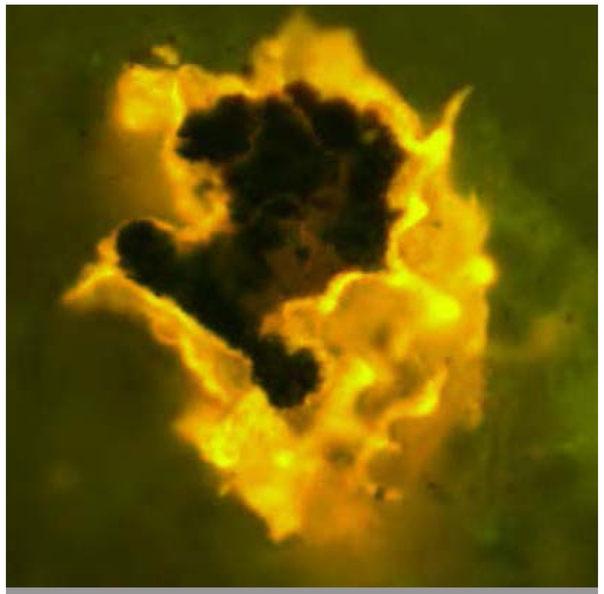
1. LECO Spectrum System 2000 in EPRI laboratory

Conclusion

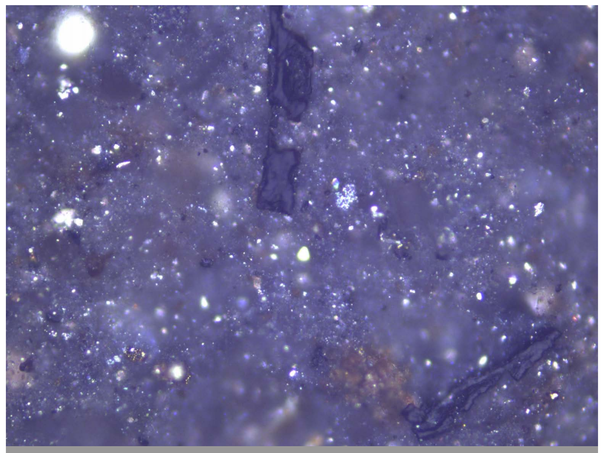
However, we use the machine to polish the soft and hard rocks for the purposes of the microscopical studies in the field of sedimentology and organic petrography. In organic petrography, a polished relief-free sample surface is required to measure light reflectance from the organic particles (Vitrinite) in the matrix of mineral grains. The vitrinite reflectance is the main parameter to assess the thermal maturity of the organic matter in the rock samples and their potential to generate petroleum.

According to the method and polishing sequence we designed for processing the samples in our lab, the Spectrum System 2000 machine produces flawless rock briquettes that comply with the ASTM preparation method. We believe that the efficiency of the polishing process can be improved if the machine is supplied with grinding and polishing discs that are specifically customized to confront the fragile nature of soft shale samples. The samples of soft shale require special precaution during the grinding and polishing to avoid grain loss can cause relief and pits. The pits cause many problems during the measuring of the reflectance and produce many errors in the results.

2. Rock sample pellet under the microscope



3. Organic matter in fluorescence mode



4. Notice the vitrinite particles with grey color reflectance in white light