

The application of geochemistry in a modern commercial gem lab

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Historically, commercial gem labs have relied on traditional crystallographic techniques to facilitate the evaluation of gemstone properties. In recent decades, however, the integration of increasingly sophisticated and efficient analytical methods into a typical lab workflow has revolutionised the services that gem labs can provide. Combined with classical gemmology, these techniques permit the reliable identification of challenging gemstone species, the routine detection of diverse and often subtle clarity enhancements and the increasingly accurate determination of geographic origin. I describe the current state of analytical techniques that are routinely employed, using the Gübelin Gem Lab as an example. I explain why and how these techniques are applied, the challenges associated with them and how the datasets are integrated into a commercially viable and easily communicated result. Finally, I discuss the future of gem labs as technology to measure and interpret data continues to progress