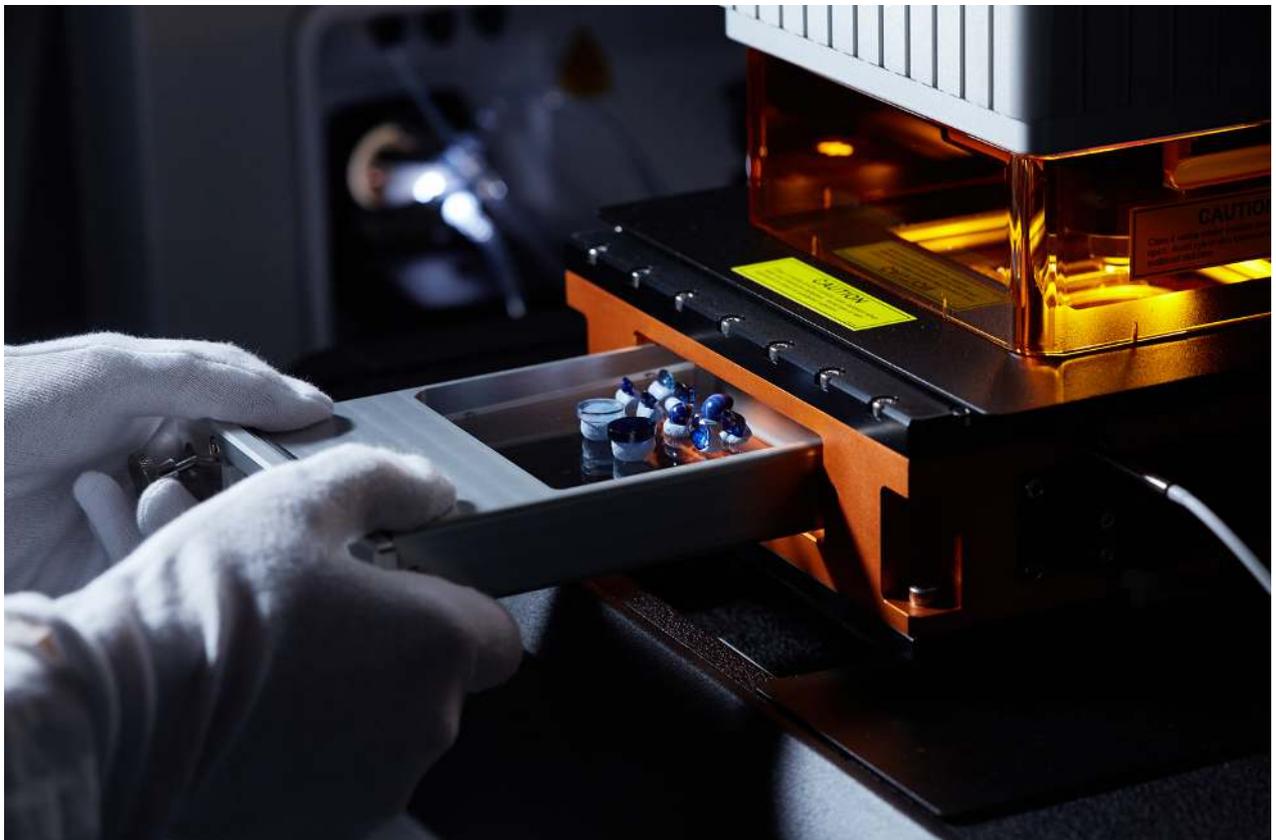


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SSEF becomes first gemstone-testing lab to introduce ground-breaking GemTOF chemical analysis system



A technician placing sapphires for analysis in the GemTOF instrument. The system, which precisely identifies chemical components in gemstones, among other things, expands the ability of SSEF's experts to address questions about a gem's origin.

BASEL, SWITZERLAND: NOVEMBER 14, 2016 –The Swiss Gemmological Institute SSEF has become the first gem laboratory worldwide to introduce into its facility the ground-breaking GemTOF instrument, which conducts chemical analysis through laser ablation, thereby providing more information about the origin of a variety of gems, as well precisely identifying a range of other elements in coloured gemstones, diamonds and pearls.

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Considered a next-generation elemental analytical device, the GemTOF instrument uses Laser Ablation Inductively Coupled Plasma Time-Of-Flight Mass Spectrometry (LA-ICP-TOF-MS) to conduct chemical analyses of gemstones and pearls.

Like other laser-ablation based systems, it extracts chemical information from a few tiny laser-ablated pits, usually restricted to the girdles of gemstones. But, unlike the other laser-ablation systems currently being used by gem labs, GemTOF's Time of Flight technology allows almost all isotopes to be measured simultaneously, rather than analysing a selection of them one after the other. It also creates very shallow pits with the diameter of a single human hair, which are hardly visible and do not affect the weight of a stone.

The GemTOF's breakthrough technique offers new possibilities for origin determination of coloured gemstones, among them emerald, ruby, sapphire, spinel, alexandrite, tourmaline and garnet. Other applications include age dating, analysis of inclusions and chemical zoning in coloured gemstones, diamonds and pearls.

"Being the first gemmological laboratory worldwide to introduce this new and highly sensitive instrument to gemstone testing marks a further milestone in SSEF's mission to offer our clients services based on the most sophisticated scientific techniques available," said Dr. Michael Krzemnicki, Director of SSEF.

Detailed information about the use of GemTOF technology in gemmology has been published in the most recent issues of the *Journal of Gemmology* and *Incolor*.

For a video on GemTOF and more background information visit www.gemtof.ch



The GemTOF system in operation at the SSEF laboratory in Basel, Switzerland.

The **Swiss Gemmological Institute**, which is part of the Swiss Foundation for the Research of Gemstones (SSEF: Schweizerische Stiftung für Edelstein-Forschung), was founded by trade organisations in 1974 and works independently on a scientific basis. It is structured as a foundation under the aegis of Switzerland's Federal Department of Home Affairs. The function of its laboratory is to analyse precious stones and issue test reports for diamonds, coloured stones and pearls. Members of SSEF Laboratory are also engaged in research and education, either in connection with the University of Basel or with other gemmological laboratories.