

10 Reasons Steel Industry Uses the

ARL iSpark Plus with Spark-DAT Inclusion Analysis

ThermoFisher
S C I E N T I F I C

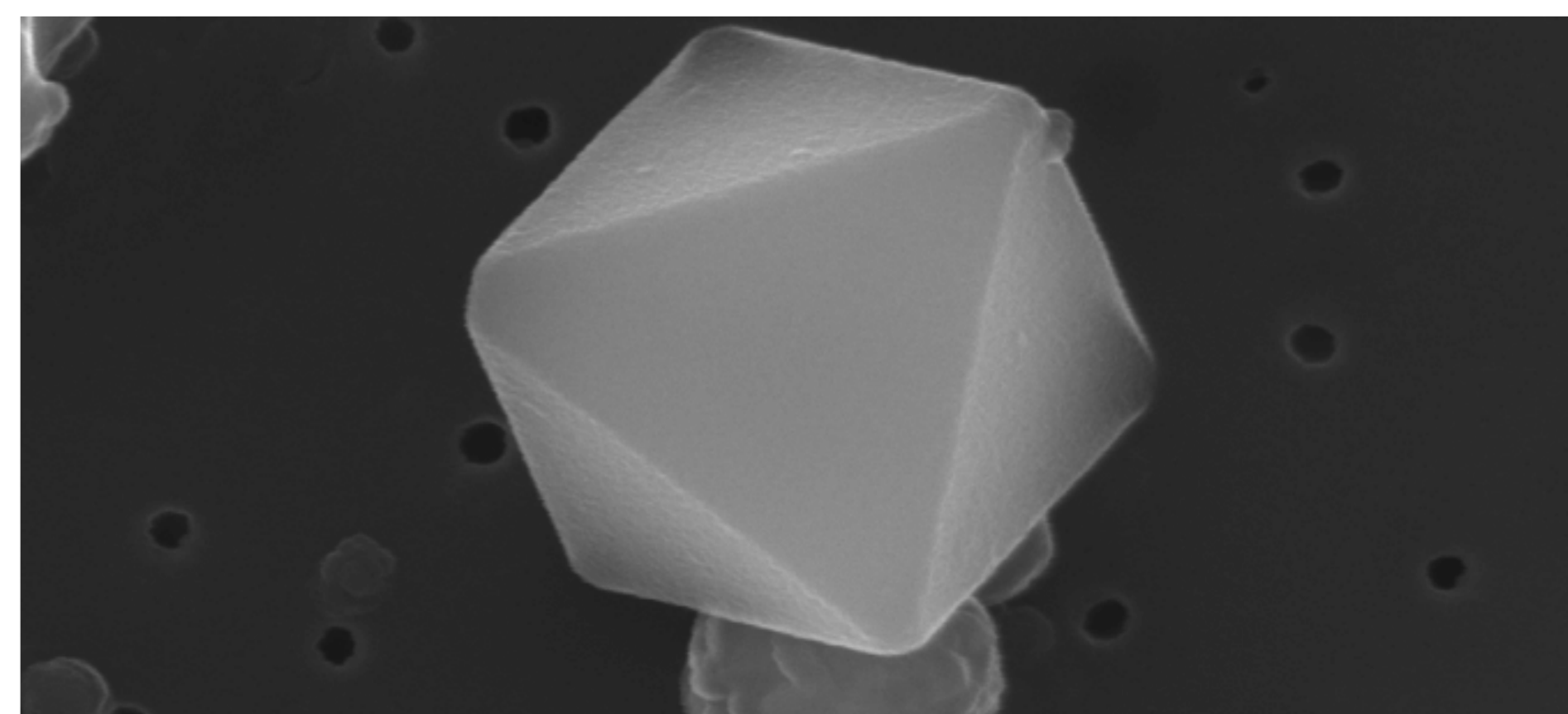
Always present in steel, inclusions are often undesirable, because of deleterious effects on the properties of the steel and the running of the manufacturing process, and considerable costs that this entails for the steelworks. The effects can, for example, lead to failure of the end product, which is especially critical when steel is used in buildings, infrastructure, cars, airplanes and many other objects where safety is paramount.

For more than 20 years, Thermo Fisher Scientific has been leader in ultra-fast analysis of non-metallic micro-inclusions by spark OES. Today, the Thermo Scientific Spark-DAT inclusion analysis is used, combined with the elemental analysis, by many leading steel companies. Thanks to latest developments, it enjoys growing popularity throughout the steel community and it contributes to the success of the Thermo Scientific™ ARL™ iSpark Plus OES spectrometer.

Let's take a look at 10 reasons why it is so.

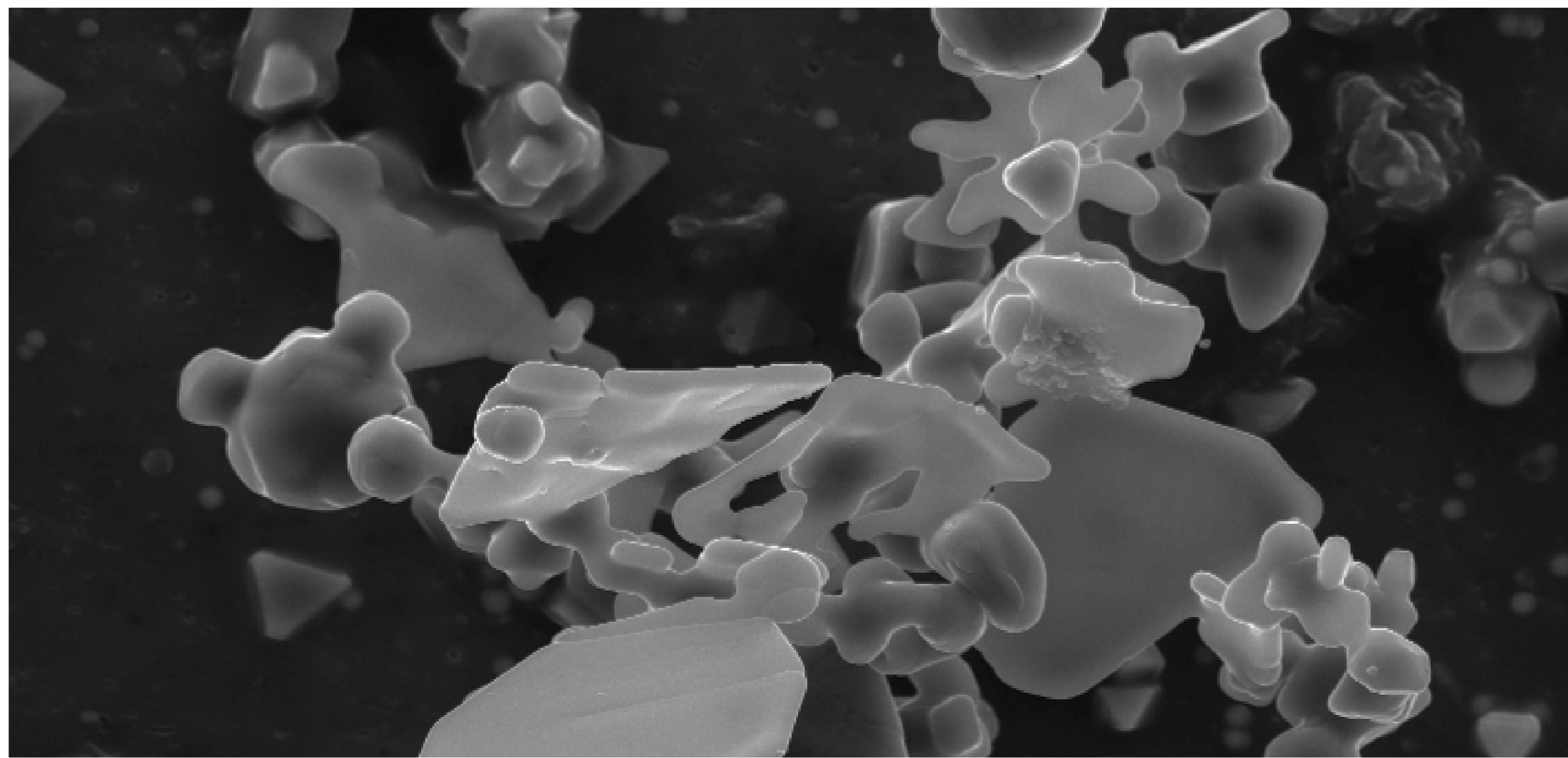
1 Real-Time Control of Inclusions

Analysis (average of 2 measurements) takes a minute and results are available less than 10 min after sampling of the liquid steel. This allows high analysis throughput and real-time control of inclusions in steel production.



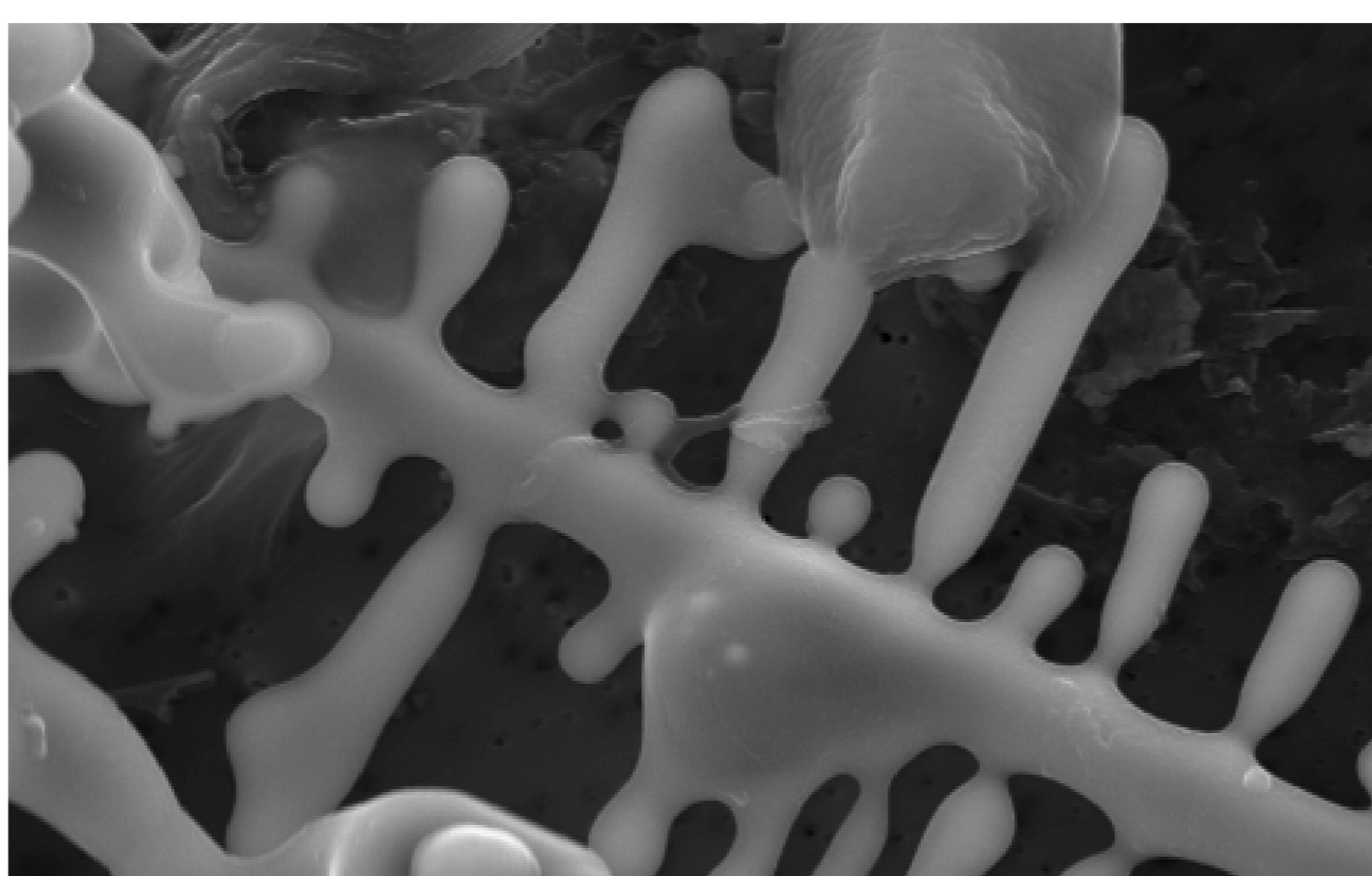
2 Superior Steel Quality

Combined inclusion analysis and elemental analysis guarantee optimum composition and properties of the steel.



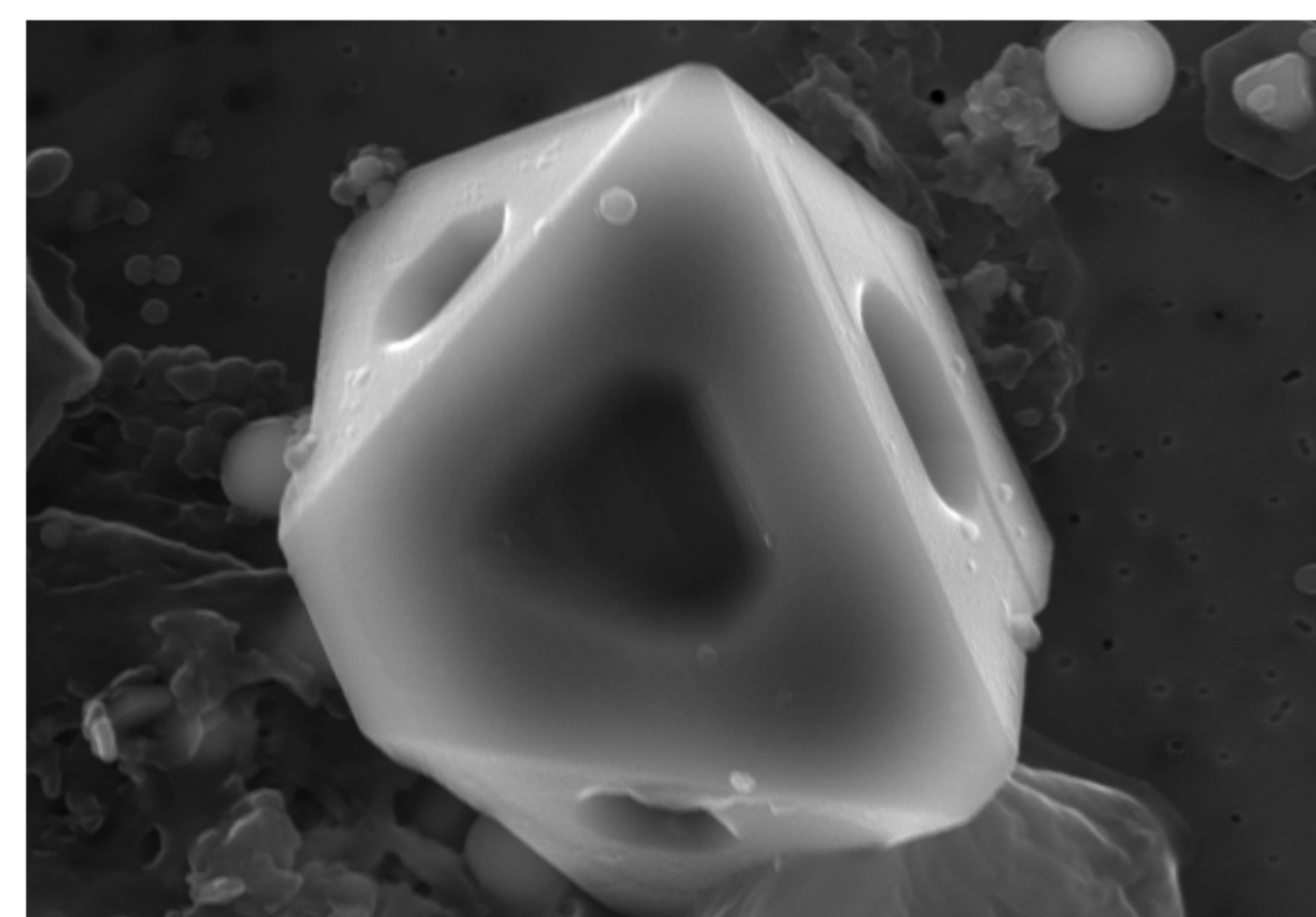
3 Smoothly Running Process

High throughput, ultra-fast analysis allows, for example, to control the modification of the inclusions and to quickly adjust calcium additions, as well as to minimize the clogging of the nozzle.



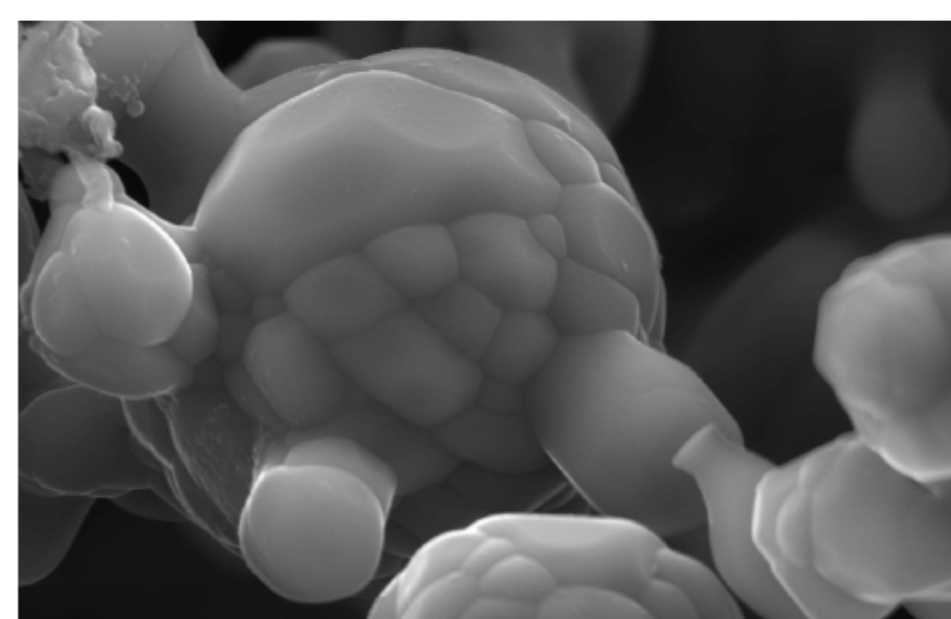
4 Huge Savings and Fast Payback

A customer claim for non-conform steel quality due to inclusions can cost up to \$ 100,000, and a heat that is scrapped, reworked or downgraded can cost even more. A steel mill can save more than half a million dollars a year if several of these problems inclusions are controlled with their ARL iSpark. Such savings guarantee extremely fast payback of the ARL iSpark.



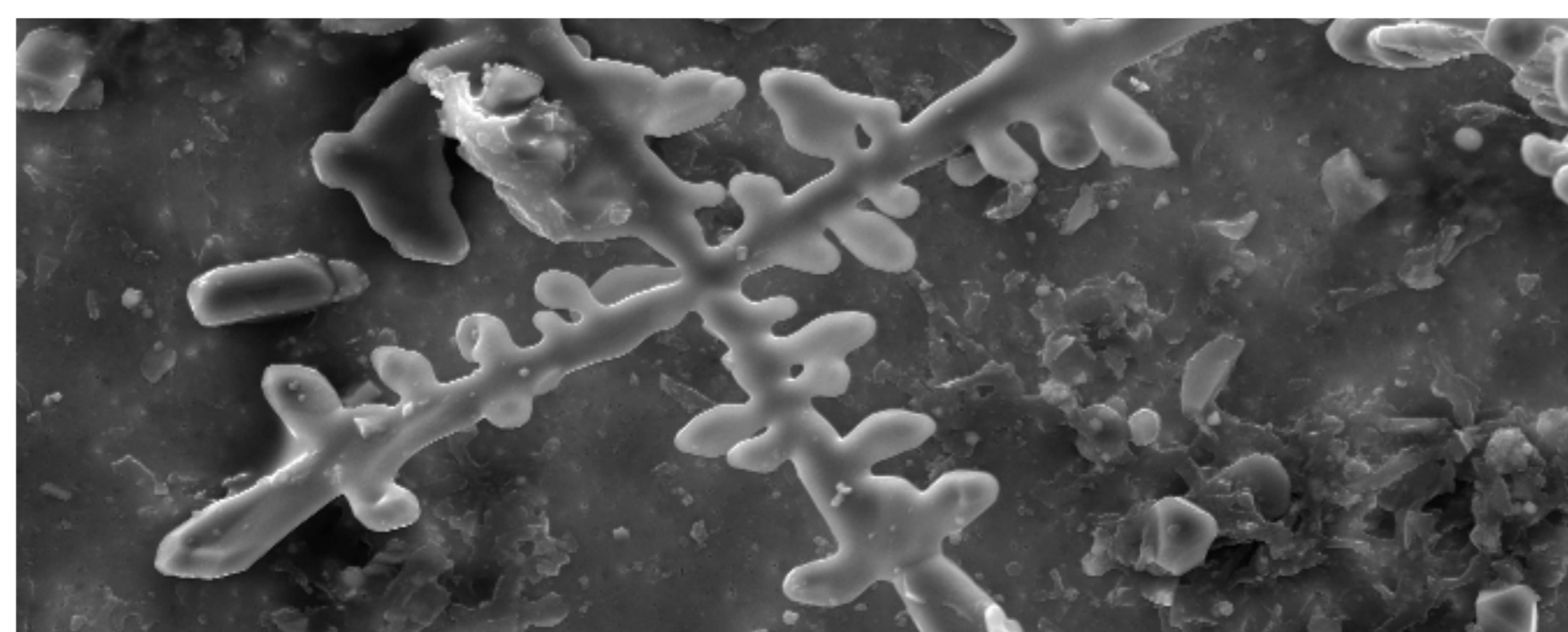
5 Low Investment Cost

No extra material is needed for the ARL iSpark to perform inclusion analysis in addition to elemental analysis.



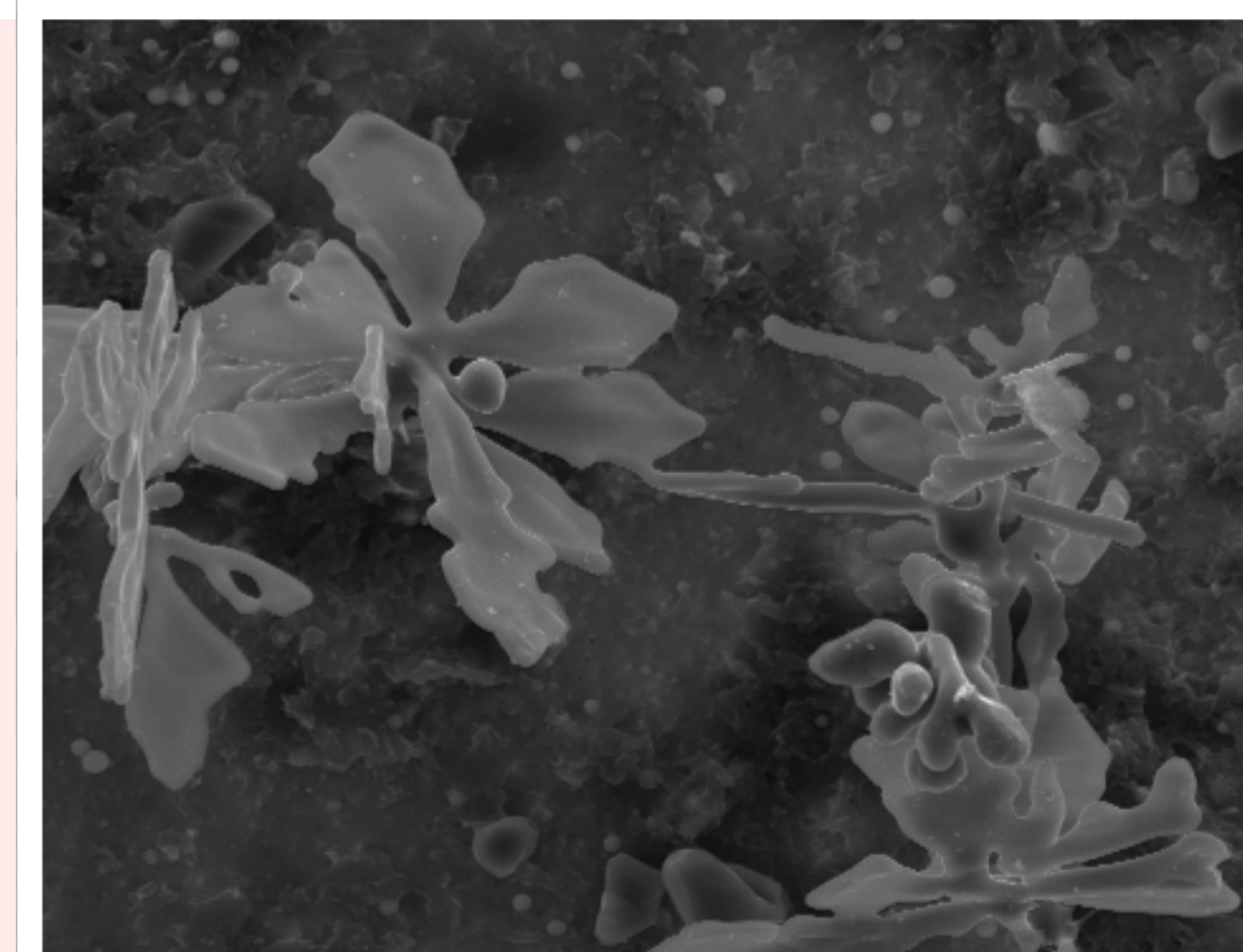
7 Sample Preparation and Maintenance Unchanged

Sample preparation and instrument maintenance are the ones used for the standard elemental analysis.



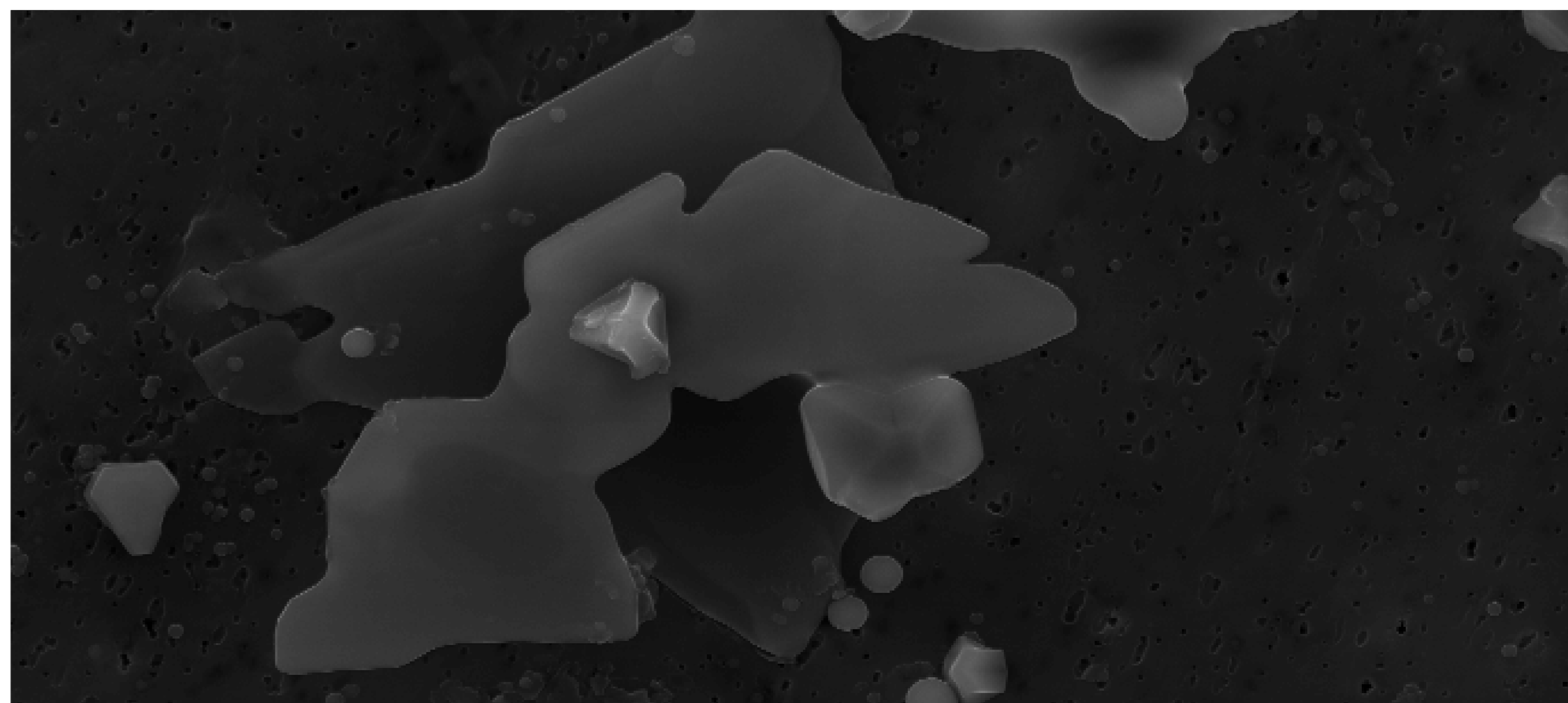
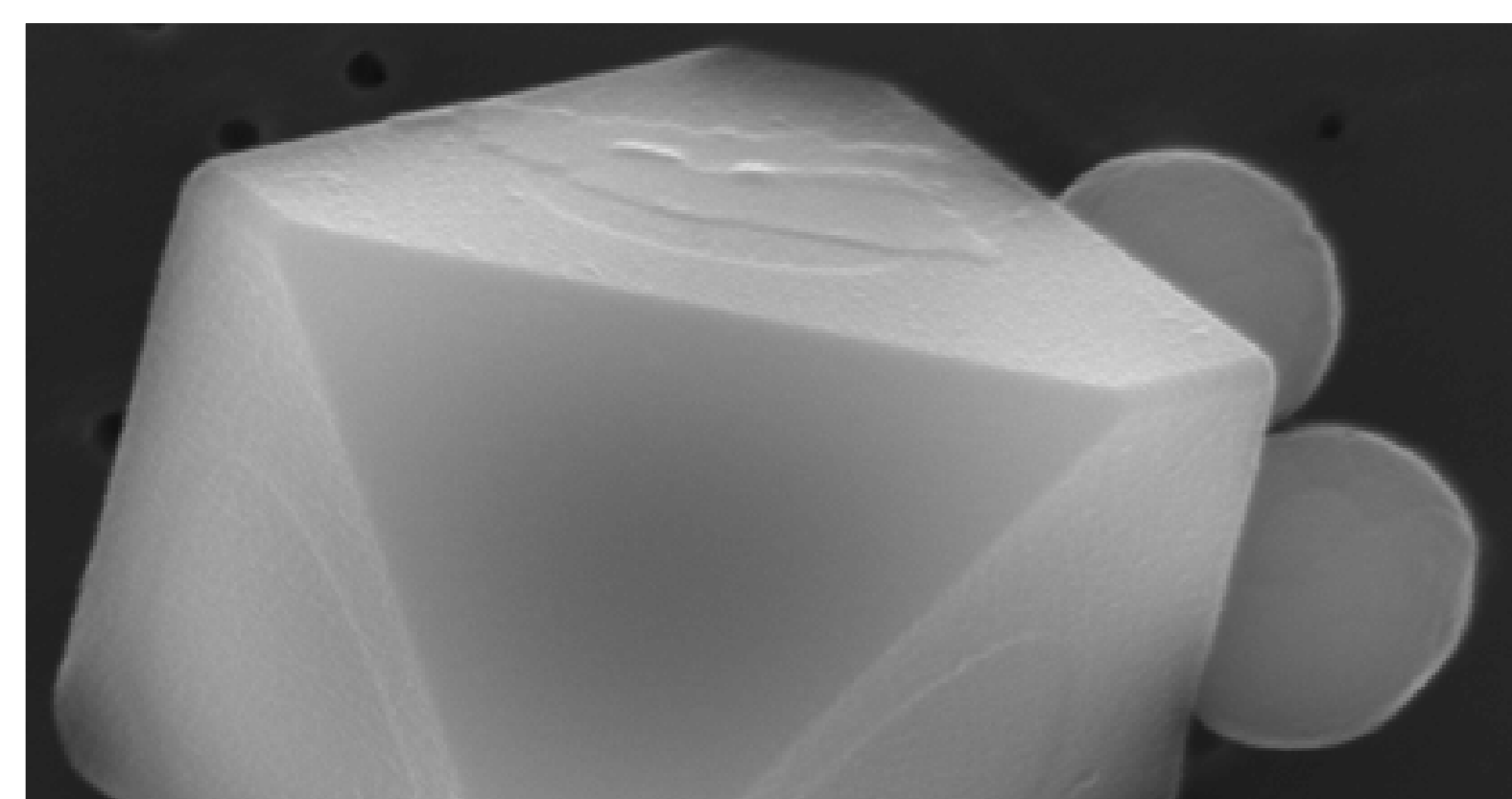
6 Easy-to-Operate

No additional operator skills are required for the inclusion analysis.



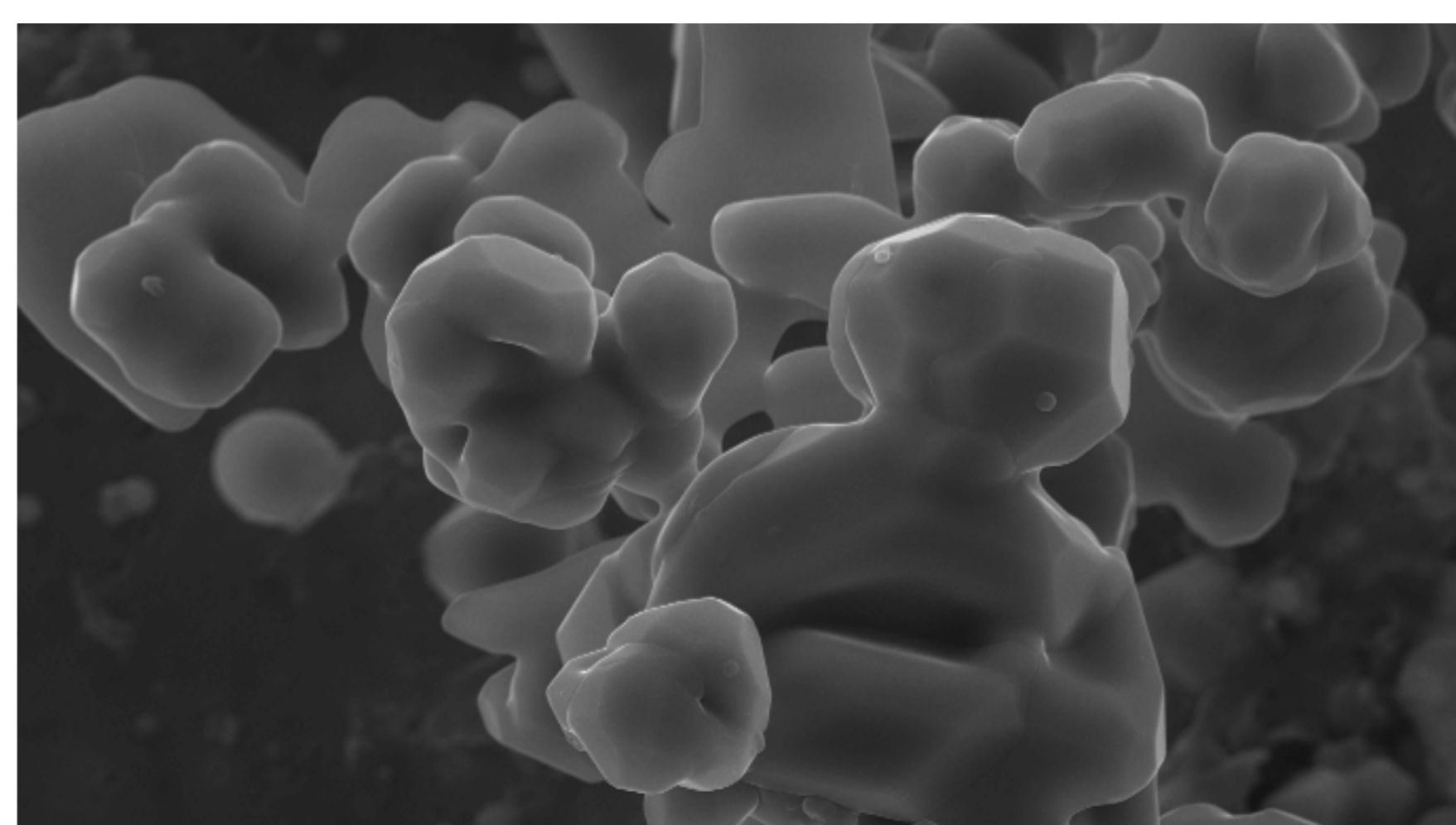
8 Turn-Key, Customized Spark-DAT Methods

The inclusion analysis methods are customized to the needs and ready to use at reception of the ARL iSpark.



9 Complete Software Suite for Inclusion Analysis

The OXSAS analytical software and the Spark-DAT software suite provide all the necessary tools for analysis and reporting of inclusions, detailed exploration of inclusion data, creation of new methods of analysis and more.



10 Automation

Thermo Scientific Sample Manipulation Systems (SMS) enable fully automated sample preparation, and combined elemental and inclusion analysis.