



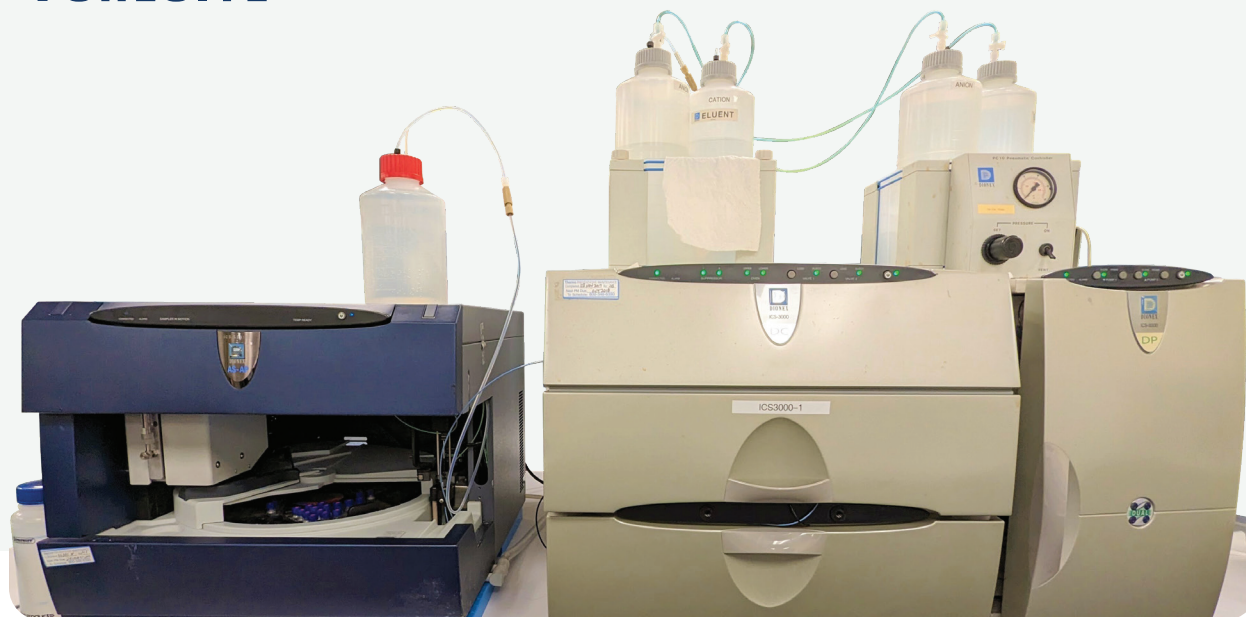
Tech Brief

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Ion Chromatography vs IC-MS

What is Ion Chromatography?

Ion Chromatography is an analytical technique well-suited for failure analysis, that utilizes conductivity and separation to detect individual ions in a liquid sample. In minutes, we can separate ionic and organic residues to get a known response, then compare that to a control. It's an excellent solution for pinpointing the source of contamination related issues in reliability.

This technique is excellent at separating and detecting ionic sources of contamination. However, the myriad flux formulations in use today utilize a wide variety of weak organic acids and other ionic ingredients. Sometimes coelution occurs (two or more ions with the same conductivity) or we need additional information (e.g., IC chromatogram exhibits unexpected peaks, identifying specific flux formulas). When this happens, it becomes difficult to separate those ions and use Ion Chromatography to study them. A different technique can be used for further analysis.

What is IC-MS?

IC-MS means Ion Chromatography-Mass Spectroscopy. Similar to Ion Chromatography, this analysis tool is used to gain insight into what is causing the electronic failure. IC-MS, however, provides more detail. The addition of a quad pole mass spectrometer allows separation by conductivity and molecular weight. This also allows for much greater separation of coeluting ions and identification of myriad weak-organic acid species. Overall, this provides valuable insights into the source(s) of chemical contamination on electronic assemblies.

When doing root cause failure analysis, it is often of value to go beyond the surface. These two failure analysis methods do just that.