

## Rapid, Direct Mass Spectrometry Characterisation of Difficult Samples

### The ionRocket from BioChromato Inc.

is a temperature-heating device for direct thermal desorption and pyrolysis of samples, prior to ionization and analysis by mass spectrometry.

### Direct Analysis in Real Time Mass Spectrometry (DART-MS)

is a proven technique that enables rapid analysis of both solid and liquid samples under standard laboratory conditions without sample preparation. However, certain polymers, cosmetic powders and forensic materials are difficult to analyse using DART-MS due to the varying volatility of substituents in these complex samples. Even insoluble samples can be measured using the ionRocket / DART-MS set-up without treatment. To overcome these challenges, BioChromato developed an innovative sample introduction device (ionRocket), which gradually heats a sample placed directly beneath the DART-MS gas stream. Gradient heating of the sample before ionization creates time/temperature resolved mass spectra, separating species both by their thermal desorption profiles and mass to charge ratio ( $m/z$ ).



### ionRocket generates

a temperature gradient from ambient up to as high as 600°C in just a few minutes. This allows compounds in your samples to be sublimated, vaporized, or pyrolyzed according to their volatility, and then introduced into the DART-MS gas stream. Because the ionRocket offers the option to weigh samples prior to analysis this results in reproducible MS intensity, allowing calibration curves of analyte amount versus peak intensity to be calculated.

**Data obtained from ionRocket**

yields another axis of data (time/temperature) beyond that obtained from normal DART-MS analysis. Species desorb in order of their volatility along the temperature gradient, and therefore are separated in time. The data produced resembles that of an LC-MS or GC-MS chromatogram, consisting of temperature/time, m/z, and intensity. This can separate rare from abundant species, making them easier to detect.

**To watch a video introduction**

to ionRocket operation please visit <https://www.youtube.com/watch?v=yCROvjiDejo&feature=youtu.be>. For further information please visit <https://biochromato.com/analyticalinstruments/ionrocket/> or contact BioChromato Inc. on +81-466-23-8382 / [europe@bcr.co.jp](mailto:europe@bcr.co.jp) / [northamerica@bcr.co.jp](mailto:northamerica@bcr.co.jp) and [enquiries@bcr.co.jp](mailto:enquiries@bcr.co.jp).

**BioChromato Inc**

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**Worldwide HQ****BioChromato Inc.**

1-12-19 Honcho, Fujisawa-shi,  
Kanagawa-ken 251-0053  
JAPAN

tel: +81-466-23-8382

email: [enquiries@bcr.co.jp](mailto:enquiries@bcr.co.jp)

web: <https://biochromato.com/>

**Contact (Europe):** [europe@bcr.co.jp](mailto:europe@bcr.co.jp)