

# APPLICATIONS

## Balance of Better Separation and Short Run Time for PCDD and PCDF with Zebron™ ZB-Dioxin GC Columns

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### Overview

Poly Chlorinated Dibenzo Dioxins (PCDD) and Poly Chlorinated Dibenzo Furans (PCDF) are toxic compounds that are continuously monitored in food and environmental samples by high resolution Gas Chromatography. Presented in **Figure 1 through 6** are the separation comparison of Tetra through Octa CDD and CDF with column performance mix and comprehensive test mix (mimics real sample). Compared to a traditional 5ms phase vs ZB-Dioxin. ZB-Dioxin provides complete resolution of 2,3,7,8-TCDF and 2,3,7,8-TCDD from its isomer compounds thereby serving as a single column solution for Dioxin analysis, compared to brand R. Thus, ZB-Dioxin provides the right balance of better separation, short run time and serves as single column solution for Dioxin analysis.

### GC-HRMS Conditions

**Column 1:** Zebron ZB-Dioxin

**Dimension:** 60 meter x 0.25 mm x 0.20 μm

**Part No.:** [7KG-G045-10](#)

**Column 2:** Brand A Premium 5MS

**Dimension:** 60 meter x 0.25 mm x 0.25 μm

**Column 3:** Brand A 5MS

**Dimension:** 60 meter x 0.25 mm x 0.25 μm

**Column 4:** Brand R Dioxin

**Dimension:** 60 meter x 0.25 mm x 0.25 μm

**Recommended Z-Guard™:** [7AG-G000-00-GZK](#)

**Injection:** Splitless (hold 1.0 min) @ 280 °C, 2 μL

**Recommended Liner:** Zebron PLUS Single Taper

**Liner Part No.:** [AG2-0A10-05](#) (for Agilent® systems)

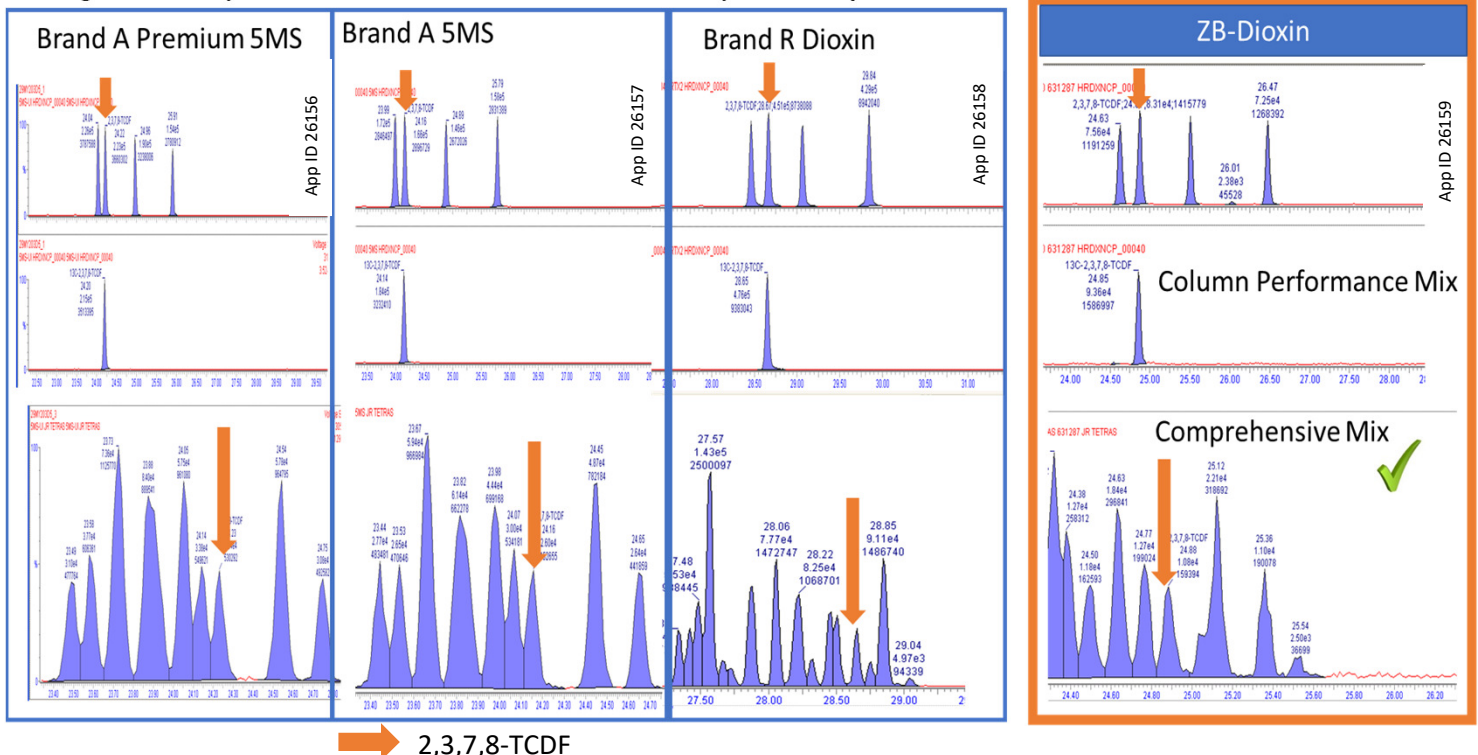
**Carrier Gas:** Helium @ 1.3 mL/min (constant flow)

**Oven Program:** 190 °C for 3.2 min, 230 °C @ 8 °C/min for 15 min, 290 °C @ 6.7 °C/min for 5 min, 315 °C @ 21 °C/min for 9 min

**Detector:** GC-HRMS

**Transfer Line Temperature:** 300 °C

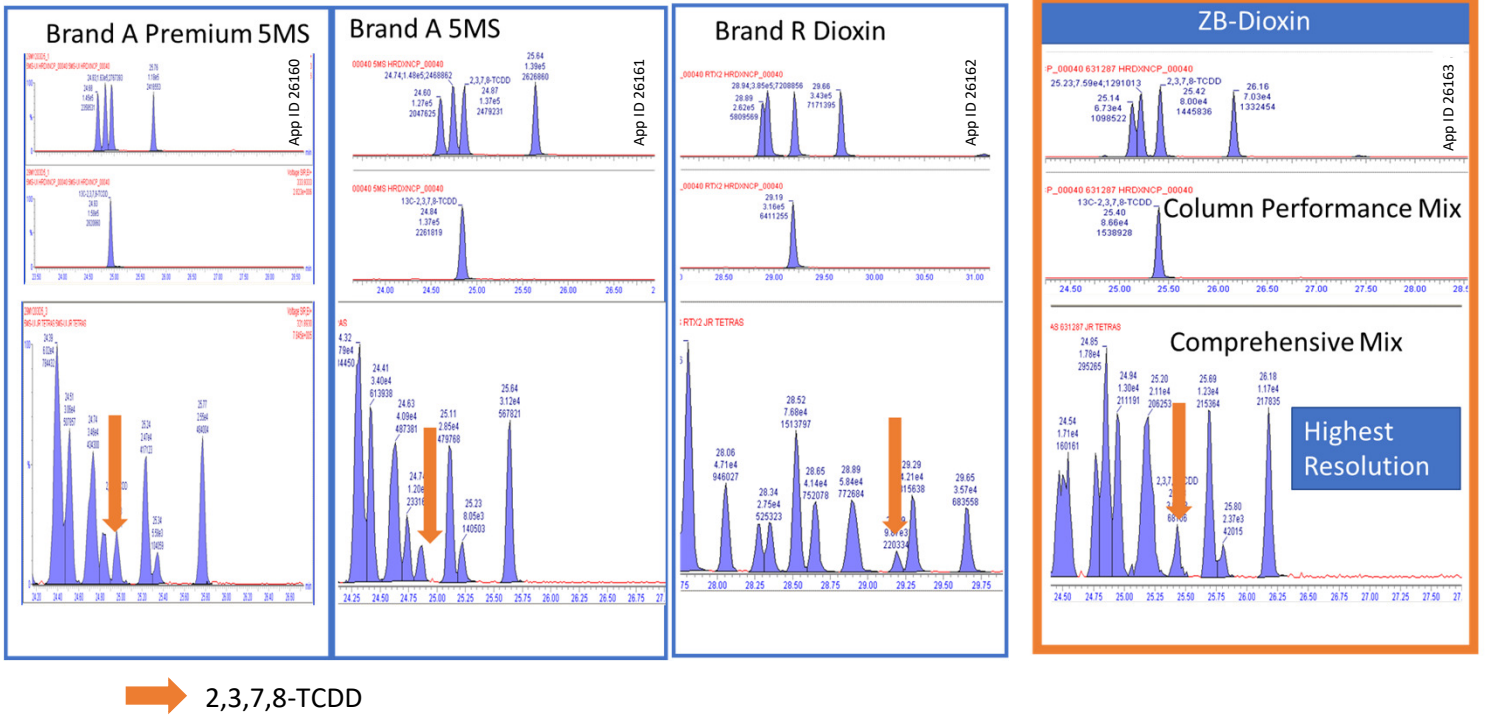
**Figure 1: Comparison of 2,3,7,8-TCDF and its isomer separation by GC-HRMS**



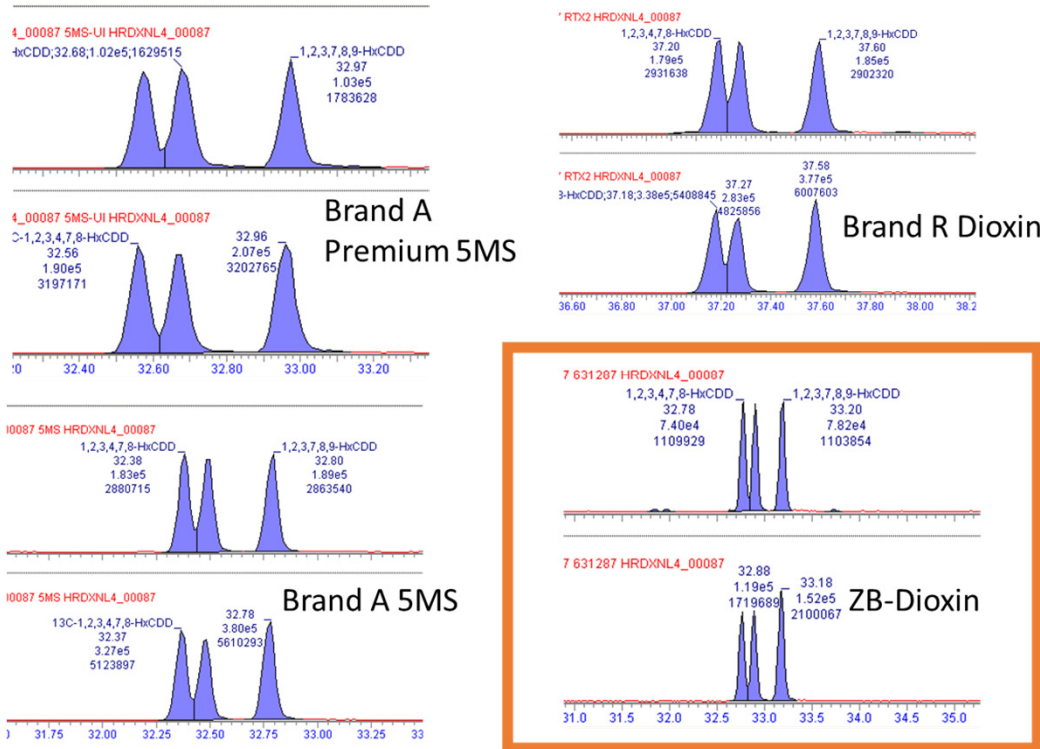
Comparative separations may not be representative of all applications.

Data Courtesy of Eurofins Environmental Testing, West Sacramento, USA. Phenomenex is not affiliated with Eurofins.

**Figure 2: Comparison of 2,3,7,8-TCDD and its isomer separation by GC-HRMS**

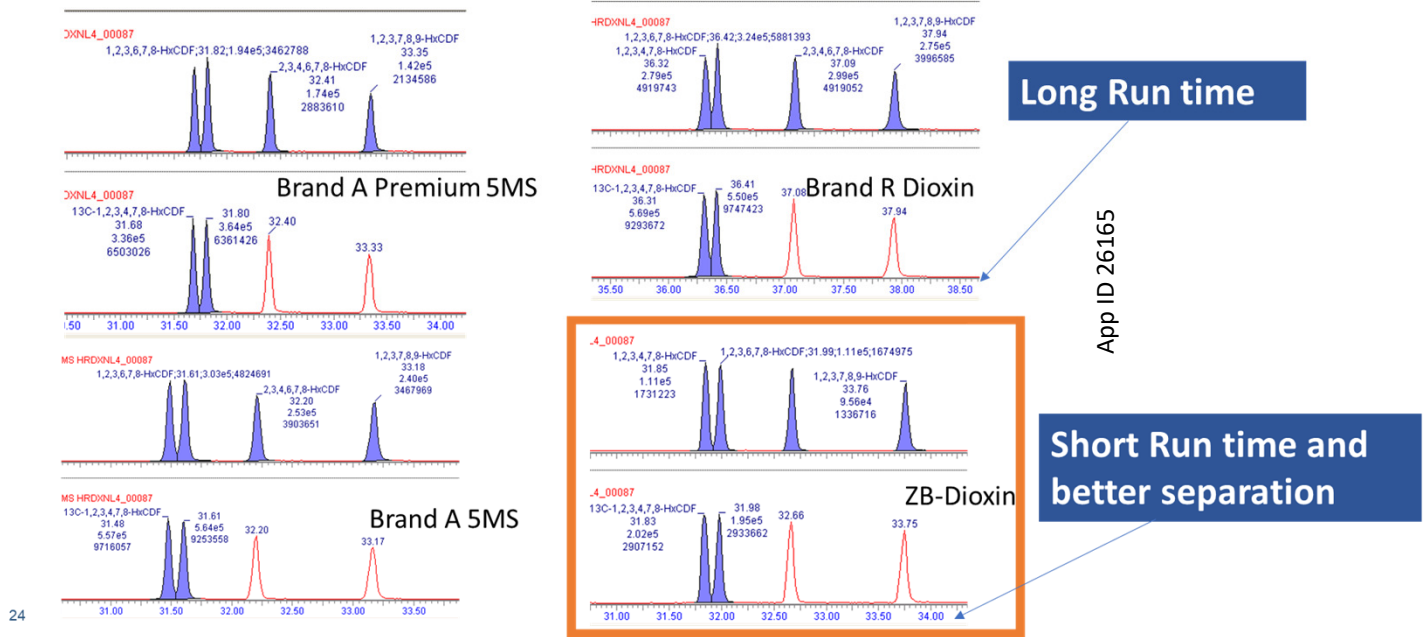


**Figure 3: Comparison of HxCDD and its isomer separation by GC-HRMS**

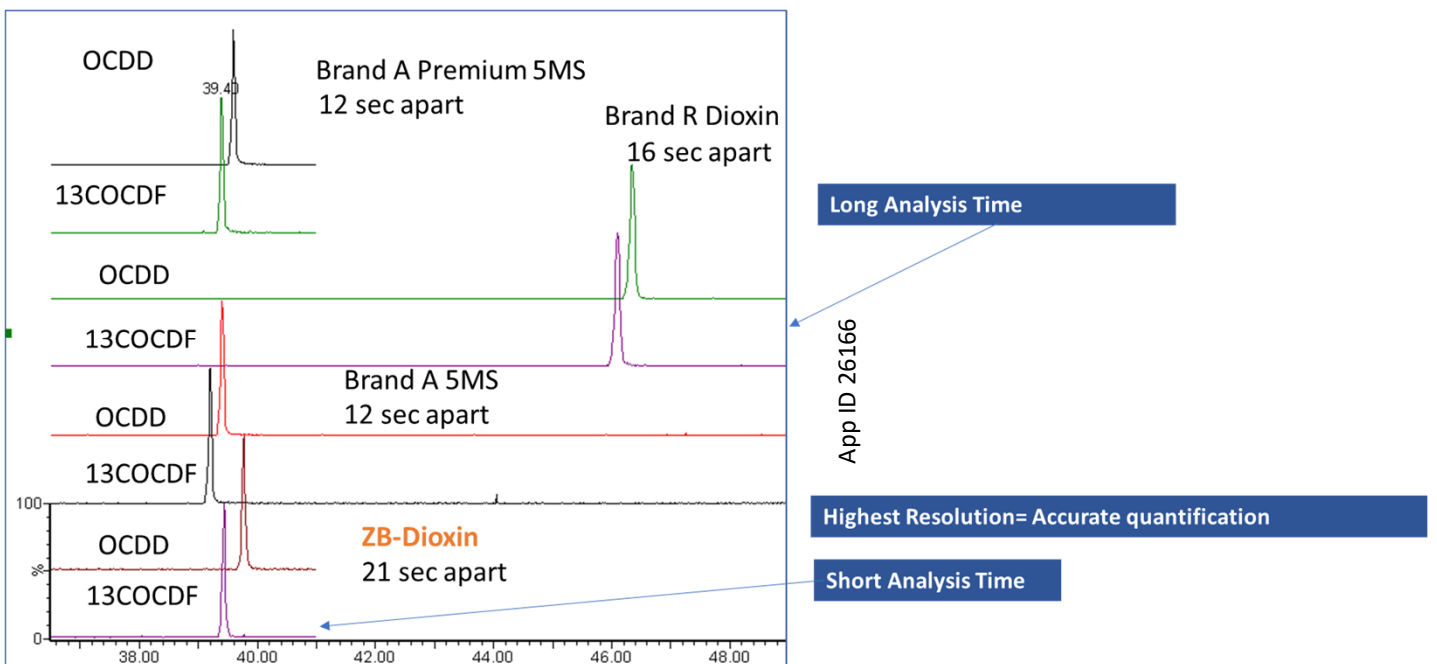


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**Figure 4: Comparison of HxCDF and its isomer separation by GC-HRMS**



**Figure 5: Comparison of OCDD and OCDF isotope separation by GC-HRMS**



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