

# Application Report 34

## Dioxins and Furans on the Equity-5

Dioxins and furans are byproducts of several different industrial processes, including incineration and paper bleaching. The extreme toxicity of several of these compounds has made their analysis in environmental samples increasingly important. In this application, the 60m x 0.25mm ID x 0.25µm Equity-5 was used to separate all 17 of the 2,3,7,8-substituted PCDDs and PCDFs listed in US EPA Method 8280. The column was able to easily meet the method specified resolution criteria of 75% for <sup>13</sup>C12-2,3,7,8-TCDD and <sup>13</sup>C12-1,2,3,4-TCDD.

### Key Words

dioxins, furans, Equity, Method 8280, 28090-U

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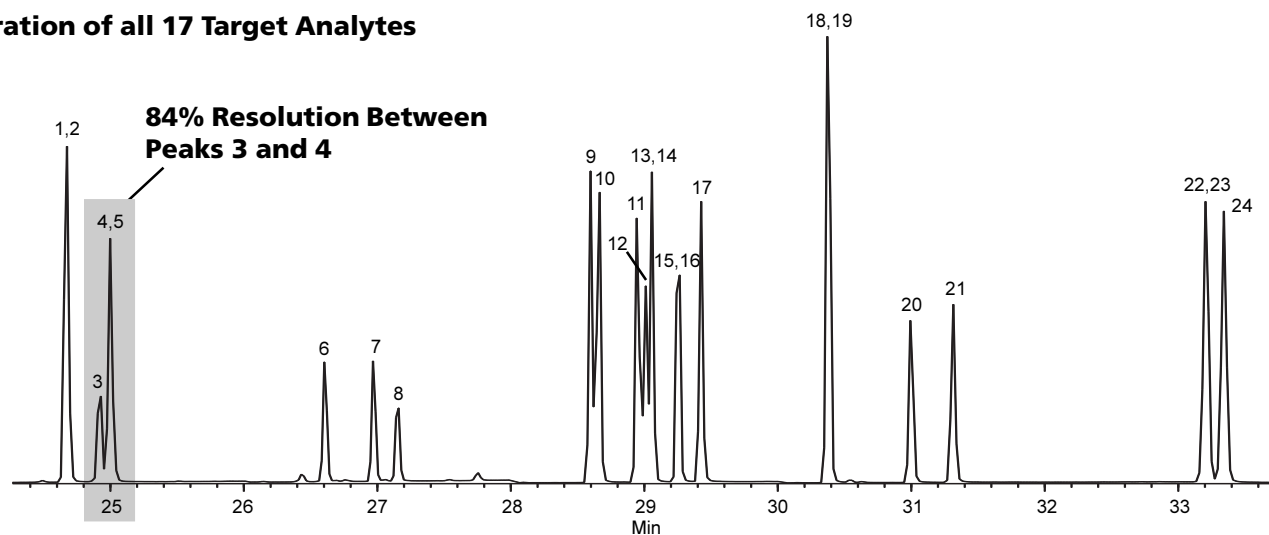
Raw Data File Name:

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Acquisition System: GC6249

Notebook Reference: 1435-55

### Separation of all 17 Target Analytes



### Conditions

Column: Equity-5, 60m x 0.25mm ID x 0.25µm  
Cat. No.: 28090-U  
Oven: 170°C (1 min), 8°C/min to 325°C (15min)  
Inj.: 250°C  
MSD Interface: 325°C  
Scan Range: SIM  
Flow: Helium, 37cm/sec constant  
Injection: 1µL, splitless (1 min)  
Liner: 4mm ID, single taper  
Sample: Dioxin standard, 500-2500ppb in octane

### Peak IDs

1. <sup>13</sup>C-2,3,7,8-TCDF, 500ppb
2. 2,3,7,8-TCDF, 500ppb
3. <sup>13</sup>C-1,2,3,4-TCDD, 500ppb
4. <sup>13</sup>C-2,3,7,8-TCDD, 500ppb
5. 2,3,7,8-TCDD, 500ppb
6. 1,2,3,7,8-PCDF, 500ppb
7. 2,3,4,7,8-PCDF, 500ppb
8. 1,2,3,7,8-PCDD, 500ppb
9. 1,2,3,4,7,8-HxCDF, 1250ppb
10. 1,2,3,6,7,8-HxCDF, 1250ppb
11. 2,3,4,6,7,8-HxCDF, 1250ppb
12. 1,2,3,4,7,8-HxCDD, 1250ppb
13. <sup>13</sup>C-1,2,3,6,7,8-HxCDD, 500ppb
14. 1,2,3,6,7,8-HxCDD, 1250ppb
15. <sup>13</sup>C-1,2,3,7,8,9-HxCDD, 500ppb
16. 1,2,3,7,8,9-HxCDD, 1250ppb
17. 1,2,3,7,8,9-HxCDF, 1250ppb
18. <sup>13</sup>C-1,2,3,4,6,7,8-HpCDF, 1000ppb
19. 1,2,3,4,6,7,8-HpCDF, 1250ppb
20. 1,2,3,4,6,7,8-HpCDD, 1250ppb
21. 1,2,3,4,7,8,9-HpCDF, 1250ppb
22. <sup>13</sup>C-OCDD, 1000ppb
23. OCDD, 2500ppb
24. OCDF, 2500ppb