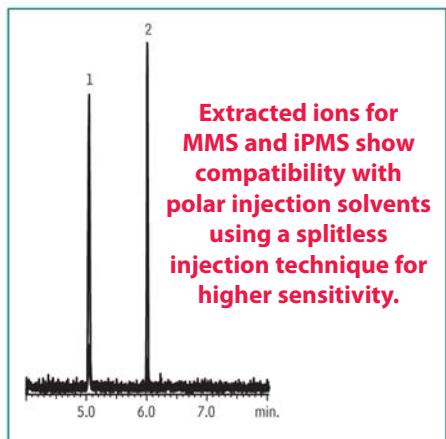
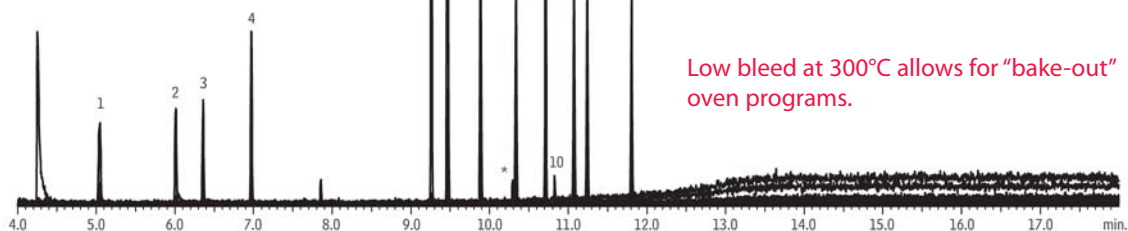


Mesylate, Besylate, and Tosylate Genotoxic Impurities
Rxi®-624Sil MS (extracted ion chromatograms)



Peaks	RT (min.)	Ions Monitored (m/z)
1. Methyl methanesulfonate (MMS)	4.253	79, 80, 95
2. Isopropyl methanesulfonate (iPMS)	5.043	59, 79, 123
3. Diethyl sulfate (DES)	6.010	111, 125, 139
4. di-isopropyl sulfate (DPS)	6.357	45, 87, 167
5. dibutyl sulfate (DBS)	9.260	29, 41, 56
6. Methyl benzenesulfonate (MBS)	9.463	77, 141, 172
7. Ethyl benzenesulfonate (EBS)	9.883	77, 141, 186
8. Methyl toluenesulfonate (MTS)	10.337	91, 155, 186
9. Ethyl toluenesulfonate (ETS)	10.713	91, 155, 200
10. n-propyl toluenesulfonate (nPTS)	10.827	91, 155, 172
11. n-butyl benzenesulfonate (nBBS)	11.07	77, 141, 159
12. isopropyl p-toluenesulfonate (iPTS)	11.240	91, 155, 172
13. p-toluenesulfonic acid n-butyl ester (nBTS)	11.823	91, 155, 173

* Ortho isomers of ETS.



GC_PH1165

Column Rxi®-624Sil MS, 20 m, 0.18 mm ID, 1.00 μm (cat.# 13865)
Sample
 Diluent: 90:10 acetonitrile:water
 Conc.: 500 ng/mL
Injection
 Inj. Vol.: 1 μL splitless (hold 0.5 min.)
 Liner: 3.5mm Single Gooseneck Liner with wool placed 3cm from top (middle) (cat.# 22286)
 Inj. Temp.: 220 °C
 Purge Flow: 3 mL/min.
Oven
 Oven Temp: 80 °C (hold 2 min.) to 300 °C at 20 °C/min. (hold 5 min.)
Carrier Gas He, constant flow
 Linear Velocity: 45 cm/sec.
Detector MS
 Mode: SIM
 Transfer Line
 Temp.: 200 °C
 Analyzer Type: Quadrupole
 Source Temp.: 280 °C
 Solvent Delay
 Time: 4 min.
 Ionization
 Mode: EI
Instrument Shimadzu 2010 GC & QP2010+ MS
Acknowledgement In collaboration with Merck and Company

