

Application Data Sheet

No.29

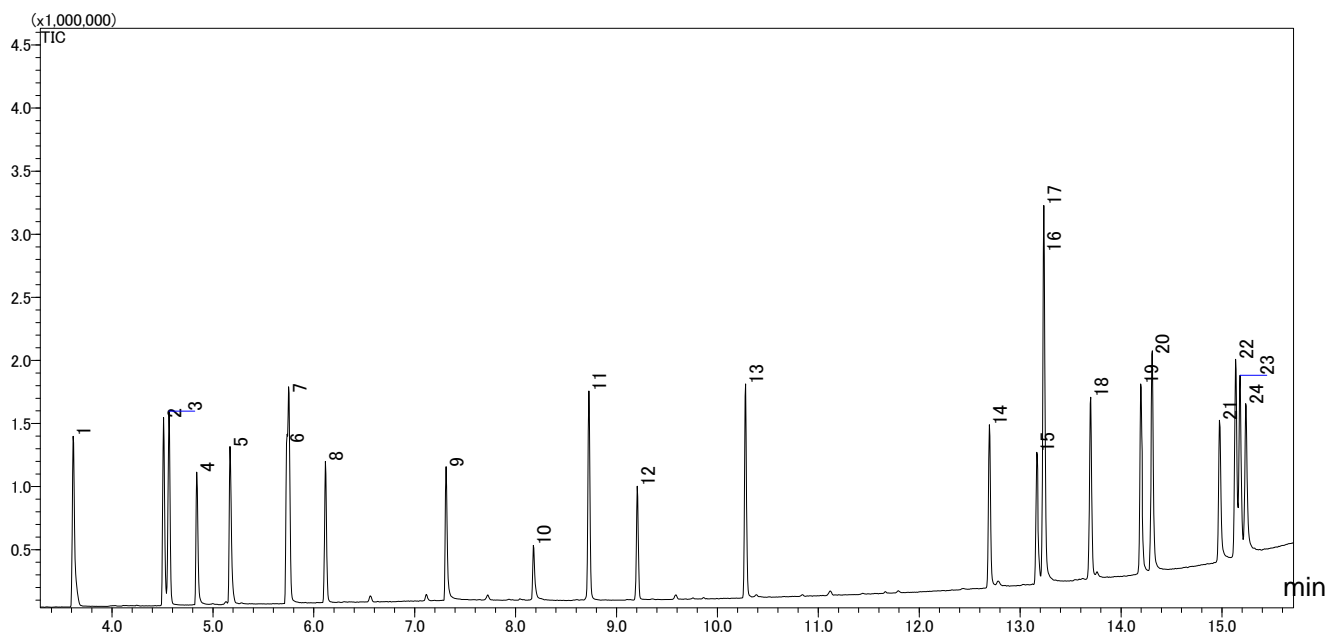
GCMS

Gas Chromatograph Mass Spectrometry

Analysis of Specific Aromatic Amines Formed From Azo Dyes and Pigments

Reductive cleavage of azo radicals from azo dyes and azo pigments comprising azo radicals (-N=N-) can form aromatic amines that are suspected carcinogens. Of these aromatic amines, 22 are designated as specific aromatic amines in Europe (EN 14362:2003) and 24 in China (GB/T 17592-2006), and the use of azo dyes and pigments that form these specific aromatic amines are regulated. The total ion current chromatogram (TIC) obtained from using GC-MS to measure a standard sample of the specific aromatic amines is shown here.

GC-MS	:GCMS-QP2010 Ultra	[MS]	
Column	:Rtx-35MS (L30 mL, X 0.32 mm I.D., df=0.25 μm)	Interface temperature	: 260°C
Glass insert	: Split insert with deactivated glass wool (P/N : 225-20803-01)	Ion source temperature	: 200°C
[GC]		Measurement mode	: Scan
Vaporization chamber temperature	: 260°C	Mass range	: m/z 35-350
Column oven temperature	: 100°C (2min) -> (10°C/min) -> 320°C (10min)	Event time	: 0.3 sec
Injection mode	: Split(1:15)	Emission current	: 60 μA (normal)
Sampling time	: 1 min		
Carrier gas	: Helium		
Control mode	: Linear velocity (55/0 cm/sec)		
Sample injection quantity	: 1.0 μL		



1:o-toluidine	8:4-chloro-o-toluidine	14:4-aminoazobenzene	20:3,3'-dimethylbenzidine
2,3:2,4/2,6-xylylidine	9:4-methyl-m-phenylenediamine	15:4,4'-oxydianiline	21:4,4'-thiodianiline
4:o-anisidine	10:4-methoxy-m-phenylenediamine	16:benzidine	22:3,3'-dichlorobenzidine
5:4-chloroaniline	11:2-naphthylamine	17:4,4'-methylenedianiline	23:4,4'-methylene-bis-(2-chloro-aniline)
6:p-cresidine	12:5-nitro-o-toluidine	18:o-aminoazotoluene	24:3,3'-dimethoxybenzidine
7:2,4,5-trimethylaniline	13:4-aminobiphenyl	19:4,4'-methylenedi-o-toluidine	