

Application Note

Analysis of Drugs of Abuse Using XBridge Shield RP₁₈

Waters Corporation



For forensic toxicology use only.

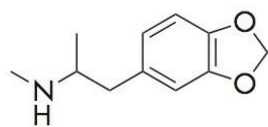
This is an Application Brief and does not contain a detailed Experimental section.

Abstract

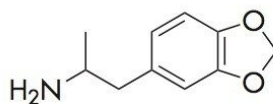
This application brief highlights the analysis of drugs of abuse using Bridge Shield RP₁₈ Columns.

Introduction

Benzodiazepines, such as clonazepam, bromazepam, lorazepam and flunitrazepam are a class of drugs with sedative, hypnotic, anxiolytic, anti-convulsant, amnestic, and muscle relaxant properties. They are considered minor tranquilizers and have a high potential for abuse. MDA is the parent drug of MDMA, also known as Ecstasy. They are commonly abused, amphetamine – derived recreational drugs.



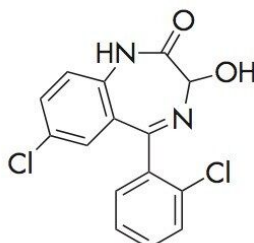
1. MDMA



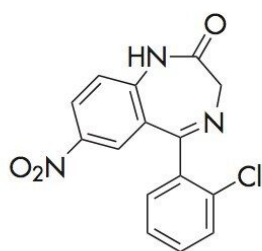
2. MDA



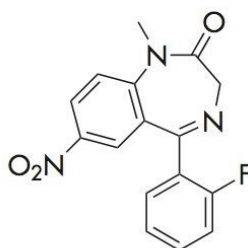
3. Bromazepam



4. Lorazepam



5. Clonazepam



6. Flunitrazepam

Experimental

Test Conditions

Columns:

XBridge Shield RP₁₈ 4.6 X 100 mm, 3.5 µm p/n:
186003044

Mobile phase A:

H₂O

Mobile phase B:

ACN

Mobile phase C:	100 mM NH ₄ HCO ₃ , pH 9.6
Flow rate:	0.6 mL/min
Injection volume:	10 µL
Sample Concentration and Diluent:	10 µg/mL in H ₂ O
Temp.:	40 °C
Sampling Rate:	5 points /second
Detection:	UV @ 210 nm
Time Constant:	1.0
Needle Wash:	5/95 MeOH/H ₂ O
Instrument:	Alliance 2695 with 2996 PDA

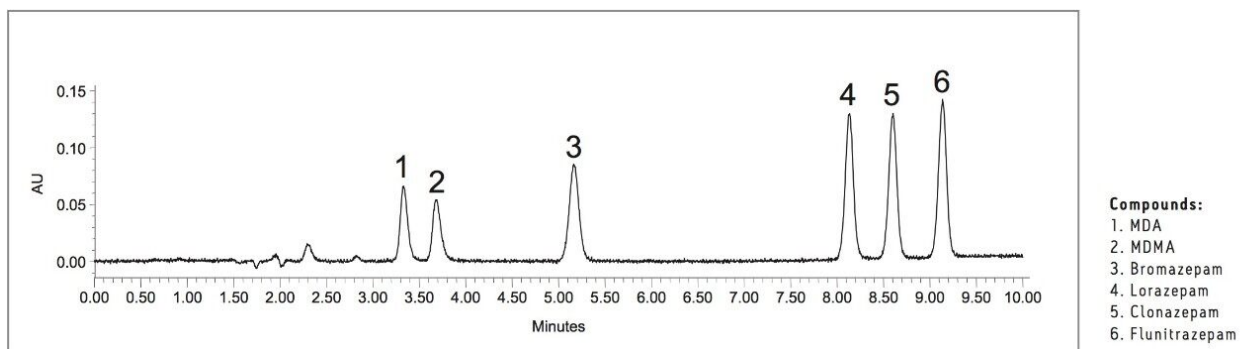
System Suitability Parameters

	Retention Time (min)	USP Tailing Factor	Width at 4.4%	USP Resolution
MDA	3.32	0.98	0.181	
MDMA	3.66	1.21	0.190	2.14
Bromazepam	5.16	1.05	0.223	8.28
Lorazepam	8.13	0.97	0.209	16.68
Clonazepam	8.60	0.97	0.209	2.81
Flunitrazepam	9.14	0.98	0.208	3.28

Gradient

Time(min)	%A	%B	%C
0	63	32	5
3	63	32	5
7	45	50	5
9	45	50	5
10	63	32	5
12	63	32	5

Results and Discussion



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WA60202, June 2007

