



iMethod™ Test for Triazine Pesticides (EPA Method 536) Version 1.0 for Cliquant® Software

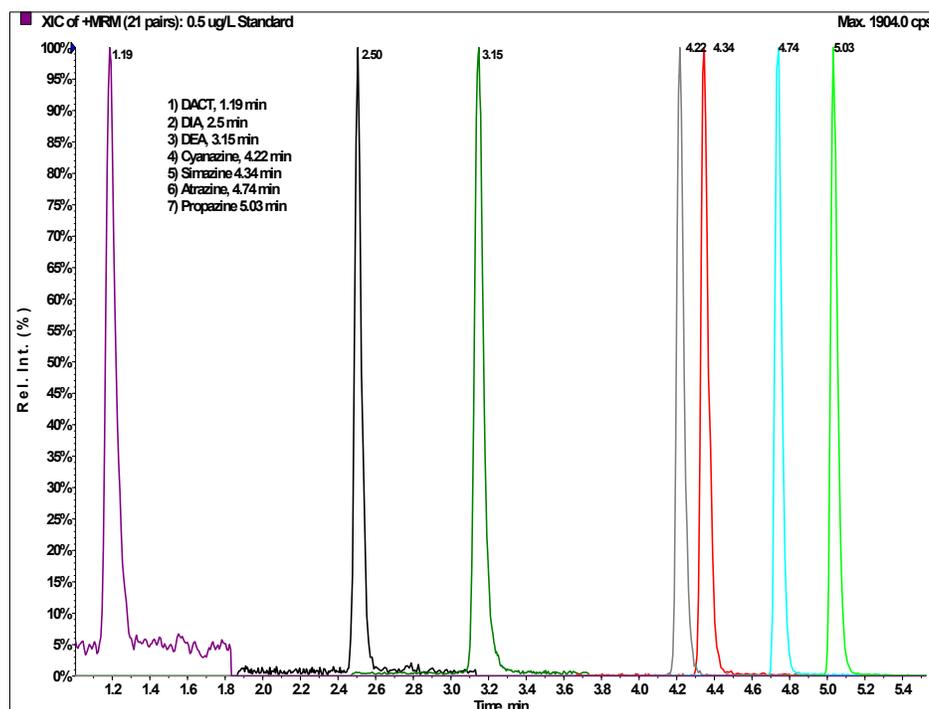
iMethod™ Tests are pre-configured and verified LC/MS/MS methods that reduce the need for method development and save you weeks of time and effort—and thousands of dollars—in the deployment of a new assay.

This note describes an iMethod™ Test for the determination of Triazine pesticides and their metabolites in accordance with EPA Method 536.

Triazine pesticides are widely used in agriculture, and as a result, can be found in ground and surface water. Herbicide members of this family include atrazine, hexazinone, metribuzin, prometon, prometryn, and simazine. Atrazine is widely used in corn, and was estimated to have been the most

often-used pesticide in the U.S. during the late 1990s. The EPA has established a Lifetime Health Advisory Level for atrazine in drinking water of 3 micrograms per liter. Water containing atrazine at or below this level is acceptable for drinking every day over the course of one's lifetime, and does not pose any health risk. Long-term consumption of high levels of atrazine has caused adverse health effects in animals, including tremors, changes in organ weights, and damage to the liver and heart.

Figure 1. Representative chromatogram of a 0.5 µg/L standard (the IS peaks have been omitted for clarity)



Calibration Range

A calibration range study consisting of standards run in triplicate (n=3) displayed a linear range extending from 0.1 to 5.0 µg/L using simple linear model with a weighting factor of 1/x. Representative calibration curves are shown in Figures 2 and 3.

Figure 2. Calibration curve for atrazine

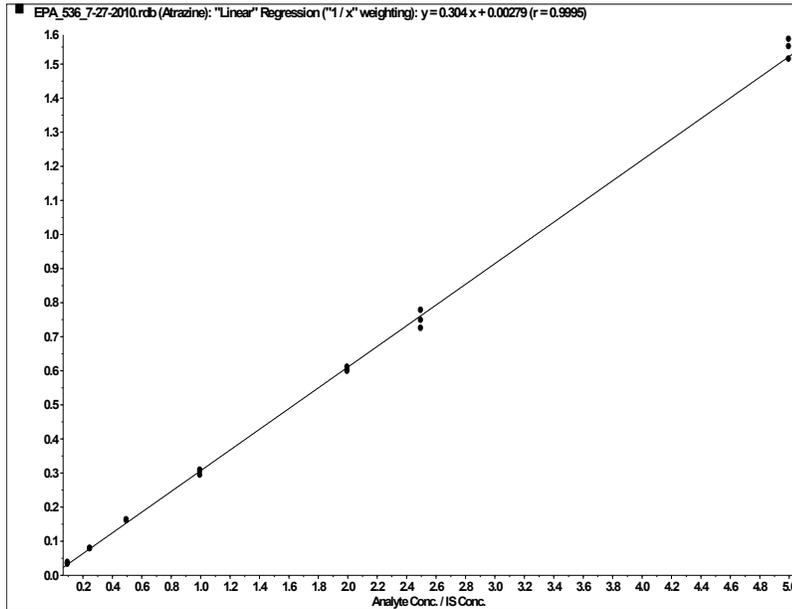


Figure 3. Calibration curve for atrazine-desethyl

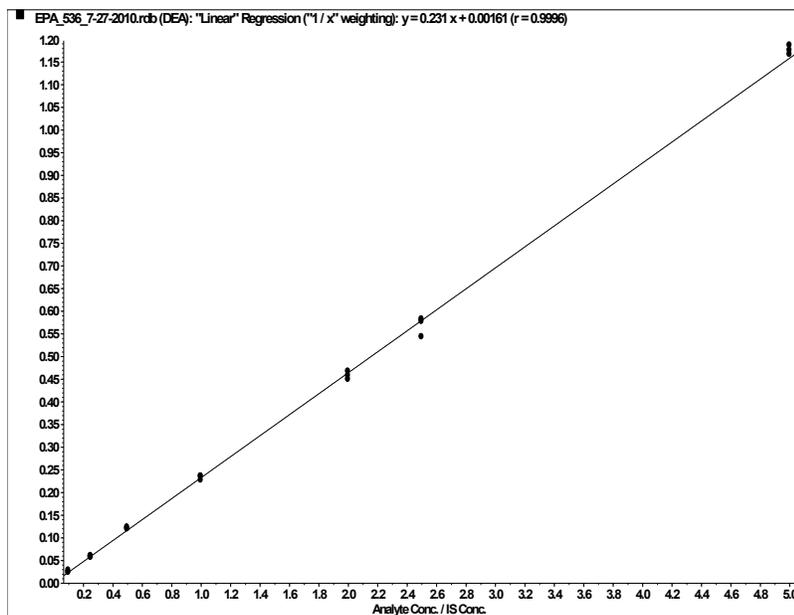


Table 1. Example accuracy reproducibility of method for 7 analytes “Element Library”

DACT	Measured conc.	Accuracy	% RSD
QC 1	2.67	107	
QC 1	2.8	112	
QC 2	2.7	108	
QC 3	2.77	111	
QC 4	2.76	110	
QC 5	2.69	108	
QC 6	2.71	109	
QC 7	2.79	111	1.81%

DIA	Measured conc.	Accuracy	% RSD
QC 1	2.64	106	
QC 1	2.73	109	
QC 2	2.69	108	
QC 3	2.69	108	
QC 4	2.67	107	
QC 5	2.68	107	
QC 6	2.71	109	
QC 7	2.67	107	1.00%

DEA	Measured conc.	Accuracy	% RSD
QC 1	2.69	108	
QC 1	2.7	108	
QC 2	2.66	106	
QC 3	2.67	107	
QC 4	2.65	106	
QC 5	2.68	107	
QC 6	2.66	107	
QC 7	2.67	107	0.62%

Simazine	Measured conc.	Accuracy	% RSD
QC 1	2.74	110	
QC 1	2.63	105	
QC 2	2.62	105	
QC 3	2.71	109	
QC 4	2.67	107	
QC 5	2.68	107	
QC 6	2.64	106	
QC 7	2.7	108	1.60%

Atrazine	Measured conc.	Accuracy	% RSD
QC 1	2.75	110	
QC 1	2.72	109	
QC 2	2.69	108	
QC 3	2.72	109	
QC 4	2.73	109	
QC 5	2.7	108	
QC 6	2.75	110	
QC 7	2.71	109	0.80%

Propazine	Measured conc.	Accuracy	% RSD
QC 1	2.65	106	
QC 1	2.67	107	
QC 2	2.67	107	
QC 3	2.68	107	
QC 4	2.7	108	
QC 5	2.67	107	
QC 6	2.68	107	
QC 7	2.7	108	0.62%

Cyanazine	Measured conc.	Accuracy	% RSD
QC 1	2.71	109	
QC 1	2.68	107	
QC 2	2.73	109	
QC 3	2.71	108	
QC 4	2.74	110	
QC 5	2.68	107	
QC 6	2.71	109	
QC 7	2.72	109	0.79%

Table 2. MRL qualification and calculation

Analyte	Target MRL (µg/L)	PIR	Lower PIR*	Upper PIR**
DACT	0.1	0.04620	53%	145%
DIA	0.1	0.01639	55%	88%
DEA	0.1	0.01004	83%	103%
Simazine	0.1	0.006567	77%	90%
Atrazine	0.1	0.001663	92%	95%
Propazine	0.1	0.005255	86%	96%
Cyanazine	0.1	0.008296	86%	103%

* Lower PIR must be ≥ 50%

** Upper PIR must be ≤ 150%

System requirements

AB SCIEX API 4000™ or 4000 QTRAP® LC/MS/MS system

Agilent 1200SL LC system consisting of the following components:

Binary pump G1312A
Autosampler G1367C
Column oven G1316B

LC Column: Phenomenex Kinetex, C18, 50 x 2.1 mm, 2.7 µm, Cat No 00B-4462-AN

Chemical standards, Sigma-Aldrich (www.sigmaaldrich.com)

Isotopically labeled internal standards, C/D/N Isotopes, Inc. (www.cdnisotopes.com), Cambridge Isotope Laboratories (www.isotope.com)

Ordering Information

Product Name	Part Number
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<i>iMethod™ Test for Triazine Pesticides in Water Version 1.0 for Cliquid® Software</i>	5011872
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While the information provided above outlines the instrument requirements and expected results obtainable from the AB SCIEX iMethod™ Test for the Analysis of Trazine pesticides in water, please note that the results obtained do require some experience with LC/MS/MS and sample preparation procedures. As such, web-based and on-site training are available to assist in the deployment of the iMethod™ Test and are recommended for inexperienced users. Please consult your local sales representative for more details.

Important Note

The iMethod™ Test described above has been designed by AB SCIEX to provide the sample prep and instrument parameters required to accelerate the adoption of this method for routine testing. This method is provided for information purposes only. The performance of this method is not guaranteed due to many different potential variations, including instrument performance, tuning, and maintenance, chemical variability and procedures used, technical experience, sample matrices, and environmental conditions. It is up to the end user to make adjustments to this method to account for slight differences in equipment and/or materials from lab to lab as well as to determine and validate the performance of this method for a given instrument and sample type. Please note that a working knowledge of Analyst® Software may be required to do so.

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