

**Organic Geochemistry Research Laboratory Services
Lawrence, Kansas – FY 2017**

Methods analyzed by Liquid Chromatography/Mass Spectrometry

Triazine and Phenylurea Parents and Degradation Products

Analysis Code: LCEA

APPROVED USGS METHOD – 0-2138-02 – OFR 02-436

Triazines- (0.020 µg/L reporting limit)

Atrazine

Bromacil

Cyanazine

Prometon

Propazine

Simazine

*Deethylatrazine (DEA)

*Deisopropylatrazine (DIA)

*Hydroxyatrazine (HA)

*Hydroxysimazine

*Deethylhydroxyatrazine (DEHA)

*Deisopropylhydroxyatrazine (DIHA)

*Deethyldeisopropylatrazine/Didealkylatrazine (DDA)

*Cyanazine acid (CAC)

*Cyanazine amide (CAM)

*Deethylcyanazine acid (DCAC)

*Deethylcyanazine amide (DCAM)

*Deethylcyanazine (DEC)- (0.020 µg/L reporting limit)

Phenylureas- (0.020 µg/L reporting limit)

Diuron

Fluometuron

*DMFM (demethylfluometuron)

Linuron

* Degradation product

Acetamide Parents and Degradation Products

Analysis Code: LCPD

APPROVED USGS METHOD – 0-2139-03 - OFR 03-173

(0.02 µg/L reporting limit)

Acetochlor

*Acetochlor deschloro**

*Acetochlor ESA (ethane sulfonic acid)

*Acetochlor hydroxy**

*Acetochlor OXA (oxanilic acid)

*Acetochlor SAA (sulfynil acetic acid)

*Acetochlor/metolachlor – 2nd amide**

*Acetochlor/metolachlor ESA – 2nd amide

Alachlor

*Alachlor – 2nd amide**

*Alachlor deschloro**

*Alachlor ESA

*Alachlor hydroxy**

*Alachlor OXA

*Alachlor SAA

*Alachlor ESA – 2nd amide

Dimethenamid

*Dimethenamid deschloro**

*Dimethenamid ESA

*Dimethenamid hydroxy**

*Dimethenamid OXA

Flufenacet

*Flufenacet ESA

*Flufenacet OXA

Metolachlor

*Metolachlor deschloro**

*Metolachlor ESA

*Metolachlor hydroxy**

*Metolachlor OXA

Propachlor

*Propachlor OXA

(0.05 µg/L reporting limit)

*Propachlor ESA

* Degradation product

** This compound will be included in the updated Approved USGS Method report

Glyphosate, AMPA, and Glufosinate—on-line extraction: Water

Analysis Code: LCGY

APPROVED USGS METHOD – O-2141-09

(0.02µg/L reporting limit)

Glyphosate

*Aminomethylphosphonic Acid (AMPA)

Glufosinate

Four Class Antibiotic Method: Water

Analysis Code: LCAB

Fluoroquinolones- (0.005 µg/L reporting limit)

Ciprofloxacin

Enrofloxacin

Lomefloxacin

Norfloxacin

Ofloxacin

Sarafloxacin

Macrolides

Azithromycin (0.005 µg/L reporting limit)

Erythromycin (0.008 µg/L reporting limit)

*Erythromycin-H₂O (0.005 µg/L reporting limit)

Roxithromycin (0.005 µg/L reporting limit)

Tylosin (0.010 µg/L reporting limit)

Virginiamycin (0.005 µg/L reporting limit)

Sulfonamides

Sulfachloropyridazine (0.005 µg/L reporting limit)

Sulfadiazine (0.100 µg/L reporting limit)

Sulfadimethoxine (0.005 µg/L reporting limit)

Sulfamethoxazole (0.005 µg/L reporting limit)

Sulfamethazine (0.005 µg/L reporting limit)

Sulfathiazole (0.050 µg/L reporting limit)

Tetracyclines - (0.010 µg/L reporting limit)

Chlorotetracycline

Oxytetracycline

Tetracycline

Doxycycline

*Epi-chlorotetracycline

*Epi-iso-chlorotetracycline

*Epi-oxytetracycline

*Epi-tetracycline

*Iso-chlorotetracycline

***Degradation product**

Analysis Code: LCAB--continued

Pharmaceuticals

Carbamazepine (0.005 µg/L reporting limit)

Ibuprofen (0.050 µg/L reporting limit)

Others

Chloramphenicol (0.100 µg/L reporting limit)

Lincomycin (0.005 µg/L reporting limit)

Ormetoprim (0.005 µg/L reporting limit)

Trimethoprim (0.005 µg/L reporting limit)

Immunoassay

Atrazine (0.10 µg/L reporting limit)

Analysis Code: IMA

Cylindrospermopsin Total (0.05 µg/L reporting limit)

Analysis Code: IMYT

Cylindrospermopsin Dissolved (0.05 µg/L reporting limit)

Analysis Code: IMYD

Microcystin Total (0.10 µg/L reporting limit)

Analysis Code: IMNT

Microcystin Total High Salinity (0.52 µg/L reporting limit)

Analysis Code: IMNTS

Microcystin Dissolved (0.10 µg/L reporting limit)

Analysis Code: IMND

Saxitoxin Total (0.02 µg/L reporting limit)

Analysis Code: IMXT

Saxitoxin Dissolved (0.02 µg/L reporting limit)

Analysis Code: IMXD

****Other Immunoassay analysis potentially available upon request**

Custom Methods: Call to discuss (785)-832-3564

Glyphosate, AMPA, and Glufosinate: Soilds

Analysis Code: LCGS

(1-10 µg/Kg reporting limit)

Glyphosate

*Aminomethylphosphonic Acid (AMPA)

Glufosinate

Hormone Analysis: Water

Analysis Code: LCHM

Hormones

11-Ketotestosterone

17- α Estradiol

17- α Ethynylestradiol

17- β Estradiol

19-Norethindrone

4-Androstene-3,17-dione

Trans-Diethylstilbestrol

Equilin

Equilenin

Estriol

Estrone

Norgestimate

Progesterone

6- α -methyl-17- α -hydroxyprogesterone

Testosterone

*Epitestosterone

Trenbolone

Hormone Conjugates

17 β -estradiol-3-sulfate

17 β -estradiol-17-sulfate

Androsterone sulfate

Equilenin sulfate

Equilin sulfate

Estriol-3-sulfate

Estriol-17-sulfate

Estrone-3-sulfate

Ethinylestradiol-3-sulfate

Testosterone sulfate

17 β -estradiol-17-glucuronide

Androsterone-glucuronide

diethylstilbesterol glucuronide

Estriol-3-glucuronide
Estrone glucuronide
Ethenylestradiol-3-glucuronide
Testosterone glucuronide

Phytoestrogens

Genestein
Daidzein
Formononetin
Coumesterol
Equol
Biochanin A

Mycotoxin

A-zearalanol

**Isoxaflutole and Degradation Products: Water
Analysis Code: LCIX**

Isoxaflutole (0.002 µg/L reporting limit)
*Di-keto (0.002 µg/L reporting limit)
*Benzoic Acid (0.002 µg/L reporting limit)

**Algal Toxins: Water
Analysis Code: LCTX**

Anatoxin-a (ANTA)
Cylindrospermopsin (CYLS)
Domoic Acid (DMAC)
Microcystin HtYR (MCHtYR)
Microcystin HiLR (MCHiLR)
Microcystin LA (MCLA)
Microcystin LF (MCLF)
Microcystin LR (MCLR)
Microcystin LW (MCLW)
Microcystin LY (MCLY)
Microcystin RR (MCRR)
Microcystin WR (MCWR)
Microcystin YR (MCYR)
Nodularin R (NDLR)
Okadaic Acid (OKAC)

Custom ELISA Methods

Anatoxin A

Analysis Code: IMAA

17 Beta Estradiol (E2) (0.0015 µg/L reporting limit)

Analysis Code: IMB