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# Technical Datasheet

**Analysis Name:** Veterinary Drugs in Food by LC-MS/MS

**Method Number:** LI-00.172

**Scope of Application:** Milk-based products (raw milk, milk fractions, infant formula, growing-up formula, adult formula, infant cereals, baby-foods)  
Meat- and Fish-based products (powdered, fresh, cooked, infant cereals, baby foods).

**Description:** Residues are initially extracted with a mixture of water, acetonitrile and formic acid followed by a liquid-liquid partitioning using a mixture of sodium sulfate ( $\text{Na}_2\text{SO}_4$ ), sodium chloride ( $\text{NaCl}$ ) and citrate salts. After centrifugation, the resulting acetonitrile supernatant is diverted to two different procedures named "Multifamily method" and "Avermectins method".

Multifamily method: A first aliquot of the acetonitrile extract is cleaned by dispersive Solid Phase Extraction (d-SPE) using a mixture of  $\text{Na}_2\text{SO}_4$ /PSA/C18 salts. The extract is centrifuged and the resulting supernatant is then evaporated to dryness before final reconstitution in methanol-water (15+85) and LC-MS/MS analysis.

Avermectins method: A second aliquot of the acetonitrile extract is cleaned by d-SPE using a salt mixture of  $\text{MgSO}_4$ /PSA/C18 salts. The extract is centrifuged and the resulting supernatant is then evaporated to dryness before final reconstitution in methanol-water (80+20) and LC-MS/MS analysis.

Each routine sample is analyzed twice: one test portion is extracted as such (= unspiked sample) and a second one is fortified at the screening target concentration (STC) with a known amount of analyte (= spiked sample). This procedure allows checking the presence/absence of an analyte in the unspiked sample while ensuring the presence of this analyte at the STC in the corresponding spiked sample.



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The goal of this screening method is to evidence samples with levels that may exceed the STC. The results are compared against a cut-off value. "<STC" results are those found below this cut-off value. Results listed as "Suspect" contain the target analyte residue.

**Sample Weight Required:** 100 g

**Method Reference:** Commission Regulation (EU) No 37/2010 of 22 December 2009 on pharmacologically active substances and their classification regarding maximum residue limits in foodstuffs of animal origin.  
Codex Alimentarius Commission - Maximum Residue Limits for Veterinary Drugs in Foods - Updated as at the 35th Session of the Codex Alimentarius Commission (July 2012)

**Analytical Platform:** LC-MS/MS

Family	Compound	Screening Target Concentration (µg/kg)
Anthelmintics	Levamisole	10
	Praziquantel	15
	Nitroxinil	15
	Haloxon	15
	Niclosamide	15
	Closantel	15
	Oxyclozanide	10
	Rafoxanide	10
	Pyrantel	15
Avermectins	Abamectin B1a	5
	Doramectin	5
	Emamectin B1a	5
	Eprinomectin B1a	5
	Ivermectin B1a	5
	Moxidectin	5



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Benzimidazoles	Albendazole	10
	Albendazole Sulfone	10
	Albendazole sulfoxide	10
	Albendazole-2-amino sulfone	10
	Febantel	10
	Fenbendazole	10
	Flubendazole	10
	Mebendazole	10
	Netobimin	10
	Oxfendazole	10
	Oxibendazole	10
	Thiabendazole	10
	Triclabendazole	10
	5-Hydroxythiabendazole	10
Coccidiostats / Non Ionophores	Amprolium	15
	Clopidol	15
	Diclazuril	15
	Imidocarb	15
	Nicarbazin	15
	Robenidine	15
Coccidiostats / Ionophores	Maduramycin	5
	Monensin	2
	Narasin	5
	Salinomycin	5
	Lasalocid A	5



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Family	Compound	Screening Target Concentration (µg/kg)
Miscellaneous	Novobiocin sodium	15
	Baquiloprim	15
	Trimethoprim	15
	Rifaximin	15
	Rifampicin	15
	Carazolol	5
	Virginiamycin M1	10
	Xylazine	15
	Chlorpromazine	15
	Lincosamides and Macrolides	Clindamycin
Lincomycin		15
Erythromycin A		15
Josamycin		15
Roxithromycin		15
Spiramycin		15
Tilmicosin		15
Tylosin A		15
Oleandomycin		15
NSAID	Phenylbutazone	15
	Carprofen	15
	Diclofenac	5
	Flunixin	15
	Meloxicam	15
Phenicols	Thiamphenicol	10
	Chloramphenicol	0.3
Quinolones I	Florfenicol	10
	Cinoxacin	10
	Ciprofloxacin	10
	Danofloxacin	10
	Difloxacin	10
	Enoxacin	10
	Enrofloxacin	10
	Fleroxacin	10
Flumequine	10	



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	Lomefloxacin	10
Quinolones II	Marbofloxacin	10
	Nalidixic acid	10
	Norfloxacin	10
	Ofloxacin	10
	Oxolinic acid	10
	Pefloxacin	10
	Pipemidic acid	10
	Piromidic acid	10
	Sarafloxacin	10
<b>Family</b>	<b>Compound</b>	<b>Screening Target Concentration (µg/kg)</b>
Sulfonamides	Dapsone	5
	Sulfabenzamide	10
	Sulfachlorpyridazine	10
	Sulfadiazine	10
	Sulfadimethoxine	10
	Sulfadoxine	10
	Sulfaguanidine	10
	Sulfamerazine	10
	Sulfameter	10
	Sulfamethazine	10
	Sulfamethizole	10
	Sulfamethoxazole	10
	Sulfamethoxypyridazine	10
	Sulfamonomethoxine	10
	Sulfamoxole	10
	Sulfanilamide	10
	Sulfapyridine	10
	Sulfaquinoxaline	10
	Sulfathiazole	10
	Sulfisomidine	10
Sulfamethazine-N4-acetyl	10	