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Nestlé Quality Assurance Center  
Dublin

# Technical Datasheet

**Analysis Name:** Beta-Lactam Residues in Food by LC-MS/MS

**Method Number:** LI-00.041

**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 extracted with a mixture of a phosphate buffer solution and acetonitrile followed by a liquid-liquid partition using sodium sulphate ( $\text{Na}_2\text{SO}_4$ ) and sodium chloride ( $\text{NaCl}$ ). After centrifugation, an aliquot of the resulting supernatant is cleaned by dispersive Solid Phase Extraction (d-SPE) using a mixture of  $\text{Na}_2\text{SO}_4$  and octadecyl-silica C18 sorbents. The resulting extract is then concentrated before LC-MS/MS analysis in scheduled multiple reaction monitoring (MRM) mode by electrospray ionisation (ESI) using polarity switching. 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. 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.

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



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Family	Compound	Screening Target Concentration (µg/kg)	
		Milk-based product Meat- and fish-based product	Hypoallergenic infant formula powder
Penicillins	Amoxicillin	4	16
	Ampicillin	4	16
	Aspoxicillin	25	100
	Cloxacillin	10	40
	Dicloxacillin	10	40
	Nafcillin	5	20
	Oxacillin	10	40
	Penicillin-G	4	16
	Penicillin-V	10	40
	Piperacillin	10	40
	Sulbactam	25	100
	Tazobactam	25	100
Cephalosporins	Cefacetril	50	200
	Cefadroxil	50	200
	Cefalexin	50	200
	Cefalonium	10	40
	Cefapirin	10	40
	Cefazolin	50	200
	Cefoperazone	50	200
	Cefquinome	10	40
	Ceftiofur	50	200
	Cefuroxime	50	200
	Desacetylcefapirin	20	80