



NQAC

Nestlé Quality Assurance Center  
Dublin

# Technical Datasheet

**Analysis Name:** Total Choline and Carnitine by Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)

**Method Number:** OM-AOAC-2015.10

**Scope of Application:** Milk- and soy-based infant formula, adult and infant ready-to-feed formula, raw whey and soy materials, wet and dry pet foods/culinary products, and gummy based vitamins.

**Description:** The method uses an acid-assisted microwave hydrolysis for total choline and L-carnitine analysis. Both compounds are simultaneously analyzed and quantified by LC/MS/MS with ESI.

**Sample Weight Required:** 50 g

**Method Reference:** Ellingson, D.J.; Shippar, J.J.; Gilmore, J.M. (2016) Determination of Free and Total Choline and Carnitine in Infant Formula and Adult/Pediatric Nutritional Formula by Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS): Single-Laboratory Validation, First Action 2015.10. *Journal of AOAC International*, Vol. 99, No1,204-209(6)  
<http://dx.doi.org/10.5740/jaoacint.15-0144>

**Analytical Platform:** UPLC – LC/MS/MS

**Special Information:** For premixes or commodities, please specify the choline form (hydrochloride or bitartrate)

Analyte Reported	Alias	Unit of Measure	Limit of Quantification	Reproducibility
Choline	Choline, total as choline hydroxide	mg/100 g	1	10%
L-carnitine	L-carnitine, total as free base	mg/100 g	0.5	15%