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Nestlé Quality Assurance Center
Dublin

Technical Datasheet

Analysis Name: Vitamins A, D, E, K by UHPSFC-MSMS

Method Number: LI-00.608

Scope of Application: Infant formulas, cereals, healthcare nutritional products, oils (excluding vitamin E), culinary, premixes, and gummy-based vitamins. Vitamin K2-MK-4 is not in the scope of the method.

Description: The sample preparation is identical to ISO 20633:2015 for the determination of vitamins A and E in infant formula and adult/pediatric nutritionals and AOAC 2015.09 for the analysis of vitamin K1. Separation and detection are achieved by UHPSFC-MS/MS. Vitamins A, E and K are analyzed directly from the sample extract and vitamin D after a derivatization step (as in ISO 20636:2017).

Samples with known interferences to be analyzed for vitamin A and E require an alternative step during sample preparation that includes a saponification..

Reported units are: Vitamin A as $\mu\text{g RAE}/100\text{ g}$, Vitamin E as $\text{mg}/100\text{ g}$, Vitamin D and K as $\mu\text{g}/100\text{ g}$.

Sample Weight Required: 50 g

Analytical Platform: UHPSFC-MS/MS

Special Information: Provide Certificate of Analysis (COA) or estimated levels for premixes.

Analyte Reported	Alias	Unit of Measure	Limit of Quantification	Reproducibility
Vitamin A (sum of palmitate and acetate)		$\mu\text{g RAE}/100\text{ g}$	3.0	<20%
Vitamin E	Alpha Tocopherol	$\text{mg}/100\text{ g}$	0.1	
Vitamin E	Alpha Tocopheryl acetate	$\text{mg}/100\text{ g}$	0.1	<20%



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Vitamin K1	phylloquinone	µg/100 g	2.0	<15%
Vitamin K2	menaquinone	µg/100 g	2.0	<15%
Vitamin D3	cholecalciferol	µg/100 g	0.2	<20%
Vitamin D2	ergocalciferol	µg/100 g	0.2	<20%

*Based on infant formula matrix