NQAC
Nestlé Quality Assurance Center
Dublin

# Technical Datasheet

**Analysis Name:** Fatty Acid Profile

**Method Number:** NQA-00.1610

**Scope of Application:** This method describes a capillary gas chromatography method to determine fatty acids in multicomponent foods and gummy-based vitamins. This method is suitable to quantify one specific fatty acid (e.g. linoleic acid) or all relevant fatty acids including saturated fatty acids, trans-fatty acids, mono and polyunsaturated fatty acids as well as total fat.

**Description:** For sample preparation by NQA-00.0301: Lyophilization of the sample portion. Direct saponification and derivatization of the fatty acids to fatty acid methyl esters.

Quantitation by gas chromatography (GC) with a flame ionization detector using C-11 triglyceride (triundecanoin) as an internal standard.

**Sample Weight Required:** 50 g

**Method Reference:** Determination of Eicosapentaenoic acid (EPA) and Docosahexaenoic acid(DHA) in fish oils and nutritional products by gas chromatography, C.A. Nelson and N.H. Tyrrell, Westreco, New Milford.

Identification of the Botanical Origin of Pine Nuts found in Food Products by Gas-Liquid Chromatography Analysis of Fatty Acid Profile, Destaillats F. et. al. Journal of Agricultural and Food Chemistry, 2010, 58, 2082-2087

**Analytical Platform:** Gas chromatography

**Special Information:** Soup mixes/dehydrated products will have higher reproducibility due to poor sample homogeneity.

| Analyte Reported | Alias | Unit of Measure | Limit of Quantification | Reproducibility |
|---|---|---|---|---|
| 4:0 Butyric | | % | 0.01 | 15% |
| 6:0 Caproic | | % | 0.01 | 15% |
| 8:0 Caprylic | | % | 0.01 | 15% |
| 10:0 Capric | | % | 0.01 | 15% |
| 12:0 Lauric | | % | 0.01 | 15% |
| 13:0 Tridecanoic | | % | 0.01 | 15% |
| 14:0 Myristic | | % | 0.01 | 15% |
| 14:1 Myristoleic | | % | 0.01 | 15% |
| 15:0 Pentadecanoic | | % | 0.01 | 15% |
| 15:1 Pentadecenoic | | % | 0.01 | 15% |
| 16:0 Palmitic | | % | 0.01 | 15% |
| 16:1 Palmitoleic | | % | 0.01 | 15% |
| 17:0 Margaric | | % | 0.01 | 15% |
| 17:1 Margaroleic | | % | 0.01 | 15% |
| 18:0 Stearic | | % | 0.01 | 15% |
| 18:1 Oleic | | % | 0.01 | 15% |
| 18:1 trans Elaidic | | % | 0.01 | 15% |
| 18:2 Linoelaidic | | % | 0.01 | 15% |
| 18:2 Linoleic | | % | 0.01 | 15% |
| 18:3 g-Linolenic | | % | 0.01 | 15% |
| 18:3 Linolenic | | % | 0.01 | 15% |
| 20:0 Arachidic | | % | 0.01 | 15% |
| 20:1 Gadoleic | | % | 0.01 | 15% |
| 20:2 Eicosadienoic | | % | 0.01 | 15% |
| 20:3 Eicosatrienoic | | % | 0.01 | 15% |
| 20:3 g-Eicosatrienoic | | % | 0.01 | 15% |
| 20:4 Arachidonic | | % | 0.01 | 15% |
| 20:5 Eicosapentaenoic | | % | 0.01 | 15% |
| 21:0 Heneicosanoic | | % | 0.01 | 15% |
| 22:0 Behenic | | % | 0.01 | 15% |
| 22:1 Erucic | | % | 0.01 | 15% |

| | | | | |
|---|---|---|---|---|
| 22:2 Docosadienoic | | % | 0.01 | 15% |
| 22:6 Docosahexaenoic | | % | 0.01 | 15% |
| 24:0 Lignoceric | | % | 0.01 | 15% |
| 24:1 Nervonic | | % | 0.01 | 15% |
| C18:2 C,T | | % | 0.01 | 15% |
| C18:2 T,C | | % | 0.01 | 15% |
| C18:3 C,T,C | | % | 0.01 | 15% |
| C18:3 C,T,T | | % | 0.01 | 15% |
| C18:3 T,C,C | | % | 0.01 | 15% |
| C18:3 T,T,C | | % | 0.01 | 15% |
| C18:3 T,T,T | | % | 0.01 | 15% |
| Total Fat as Triglycerides (%) | | % | 0.01 | 15% |
| Total Fat As Fatty Acids (%) | | % | 0.01 | 15% |
| cis-Monounsaturated Fat (%) | | % | 0.01 | 15% |
| cis-Polyunsaturated Fat (%) | | % | 0.01 | 15% |
| Saturated Fat (%) | | % | 0.01 | 15% |
| Trans Fat (%) | | % | 0.01 | 20% |
| Total Omega Fatty Acids (%) | | % | 0.01 | 15% |
| Total Omega-3 Fatty Acids (%) | | % | 0.01 | 15% |
| Total Omega-6 Fatty Acids (%) | | % | 0.01 | 15% |
| Sum of Trans and Saturated Fat (%) | | % | 0.01 | 15% |