

EFFECTIVE DATE	N P A n a l y t i c a l L a b o r a t o r i e s	METHOD CODE
REVISED: 01/05/26	LABORATORY TEST METHOD SUMMARY	FFAE
REPLACES: 02/14/25	FREE FATTY ACIDS (EXTRACTS)	PAGE 1 OF 1
KEY WORDS: Free Fatty Acids, Fat Quality, Titratable Acidity		

1. SCOPE AND PURPOSE:

This method measures free fatty acids in petroleum ether extractable fats in grains, feeds, cereals, feed ingredients, foods, food ingredients, and meats. There is no assurance that matrices other than those listed can be assayed using this method.

2. PRINCIPLE:

- 2.1. Crude fat is extracted from the sample by dissolution in petroleum ether. The ether is volatilized, and the fat is redissolved in hot, neutralized ethanol, with a phenolphthalein indicator. The solution is quickly titrated with a standardized sodium hydroxide solution to the pink phenolphthalein end point. Percent free fatty acids in the fat, as oleic acid, is calculated from the volume of standardized base required to neutralize the sample.
- 2.2. Using a 5 g fat sample, the lowest confidence level of this method is 0.2% free fatty acids, as oleic acid, in the fat. This lowest confidence level may vary with sample matrix.
- 2.3. Known Interferences: Exposing samples to excessive temperatures during handling and analysis may cause an increase in free fatty acid content.

3. PRECISION:

Records of method precision based on Method Validation and/or known control summaries are located in the QA Master file for this test method. Assay precision may vary with test matrix and analyte level. Terms used to describe method precision are defined in NPSOP3000, *Validation of Quantitative Chemical Tests*.

4. REFERENCES:

- 4.1. Official Methods and Recommended Practices of the AOCS, Method Ca 5a-40
- 4.2. Official Methods of Analysis of the AOAC International, Method 940.28 (Modified)