

Status: Currently Official on 16-Feb-2025
Official Date: Official as of 01-Mar-2019
Document Type: NF Monographs
DocId: GUID-6A006600-2A4A-4DDE-B84E-E9FA59E3A468_5_en-US
DOI: https://doi.org/10.31003/USPNF_M2682_05_01
DOI Ref: igj48

© 2025 USPC
Do not distribute

Palm Oil

Palm oil
CAS RN®: 8002-75-3.

DEFINITION

Palm Oil is the refined fixed oil obtained from the pulp of the fruit of the oil palm *Elaeis guineensis* Jacq. (Fam. Arecaceae). It may contain suitable antioxidants.

IDENTIFICATION

- **A. IDENTITY BY FATTY ACID COMPOSITION**
Analysis: Proceed as directed in the test for [Fats and Fixed Oils \(401\), Procedures, Fatty Acid Composition](#).
Acceptance criteria: Meets the composition profile of fatty acids in [Table 1](#).
- **B.** It meets the requirements of the test for [Melting Range or Temperature \(741\)](#).

Add the following:

- ▲ **C. Identity by Triglyceride Profile**
Analysis: Proceed as directed in [Identification of Fixed Oils by Thin-Layer Chromatography \(202\), Identification, Method I](#) or [Method II](#).
Acceptance criteria: Meets the requirements in the chapter ▲ (2S (NF36))

IMPURITIES

- [RESIDUE ON IGNITION \(281\)](#)
Sample: 5 g of Palm Oil
Acceptance criteria: NMT 0.1%

Delete the following:

- ▲ [HEAVY METALS, Method II\(231\)](#): NMT 10 µg/g ▲ (Official 1-Jan-2018)
- **ALKALINE IMPURITIES**
Sample: 10 mL of Palm Oil
Analysis: Mix 10 mL of acetone and 0.3 mL of water, and add 0.05 mL of bromophenol blue TS. If necessary, neutralize the solution to a green color with 0.01 N hydrochloric acid or 0.01 N sodium hydroxide. Add the *Sample*, shake, and allow to stand. Titrate with 0.01 N hydrochloric acid VS until the color of the upper layer changes to yellow.
Acceptance criteria: NMT 0.1 mL of 0.01 N hydrochloric acid is required.

SPECIFIC TESTS

- [MELTING RANGE OR TEMPERATURE \(741\)](#): 30°–40°
- [FATS AND FIXED OILS \(401\), Procedures, Acid Value, Method II](#): NMT 2.0
- [FATS AND FIXED OILS \(401\), Procedures, Fatty Acid Composition](#): Palm Oil exhibits the composition profile of fatty acids as shown in [Table 1](#).

Table 1

Carbon-Chain Length	Number of Double Bonds	Percentage
≤12	0	≤2.5

Carbon-Chain Length	Number of Double Bonds	Percentage
14	0	0.5–5.9
16	0	39.0–47.0
18	0	2.0–8.0
16	1	≤0.5
18	1	36.0–44.0
18	2	7.0–12.0
18	3	≤0.5
≥20	0 or 1	≤1.0

- **FATS AND FIXED OILS** (401), *Procedures, Peroxide Value*: NMT 5.0
- **FATS AND FIXED OILS** (401), *Procedures, Unsaponifiable Matter*: NMT 1.0%
- **WATER DETERMINATION** (921), *Method I, Method Ic*: NMT 0.1%

ADDITIONAL REQUIREMENTS

- **PACKAGING AND STORAGE**: Preserve in well-closed containers. Do not store above 55°.
- **LABELING**: Label it to indicate the name and quantity of any added antioxidants.

Auxiliary Information - Please [check for your question in the FAQs](#) before contacting USP.

Topic/Question	Contact	Expert Committee
PALM OIL	Documentary Standards Support	CE2020 Complex Excipients
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	CE2020 Complex Excipients

Chromatographic Database Information: [Chromatographic Database](#)

Most Recently Appeared In:

Pharmacopeial Forum: Volume No. PF 43(2)

Current DocID: GUID-6A006600-2A4A-4DDE-B84E-E9FA59E3A468_5_en-US

Previous DocID: GUID-6A006600-2A4A-4DDE-B84E-E9FA59E3A468_2_en-US

DOI: https://doi.org/10.31003/USPNF_M2682_05_01

DOI ref: [igj48](#)