

# USED COOKING OIL (UCO) - TECHNICAL DATASHEET

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## 1. PRODUCT DESCRIPTION

Product Name: Used Cooking Oil (UCO)

Common Names: Waste Vegetable Oil, Recycled Cooking Oil, Waste Frying Oil

Source: Collected from post-consumption cooking and frying processes (vegetable-based sources).

Applications:

- Biodiesel Production
- Animal Feed Additive
- Soap Manufacturing
- Industrial Lubricants

## 2. PHYSICAL AND CHEMICAL PROPERTIES

Property	Typical Value	Unit	Test Method
Appearance	Yellow to brown liquid	-	Visual Inspection
Odor	Characteristic fried odor	-	Sensory Evaluation
Density	0.90 - 0.93	g/cm <sup>3</sup> @ 20°C	ASTM D4052
Viscosity	30 - 50	cSt @ 40°C	ASTM D445
Free Fatty Acids (FFA)	≤ 5% - 15%	% (as Oleic Acid)	AOCS Ca 5a-40
Moisture Content	≤ 1.0	%	ASTM E203 (Karl Fischer)
Impurities (Solids)	≤ 0.5	%	Filtration Method
Iodine Value	70 - 130	g I <sub>2</sub> /100g	AOCS Cd 1-25
Saponification Value	180 - 205	mg KOH/g	AOCS Cd 3-25
Acid Value	≤ 10	mg KOH/g	AOCS Cd 3d-63



Peroxide Value	≤ 5	meq/kg	AOCS Cd 8-53
Water Content	≤ 0.5	%	ISO 6296
Ash Content	≤ 0.1	%	ASTM D482
Color	5 - 20 (Yellow to brown)	Gardner Scale	ASTM D1544

### 3. COMPOSITION

- Triglycerides: 80% - 90%
- Free Fatty Acids (FFA): 5% - 15%
- Moisture: ≤ 1%
- Impurities: ≤ 0.5%

Typical Fatty Acid Profile:

- Oleic Acid (C18:1): 30% - 45%
- Linoleic Acid (C18:2): 20% - 30%
- Palmitic Acid (C16:0): 10% - 15%
- Stearic Acid (C18:0): 5% - 10%
- Other Fatty Acids: 5% - 10%

### 4. STORAGE AND HANDLING

Storage Temperature: Ambient (15°C - 25°C)

Storage Conditions: Store in clean, dry containers away from direct sunlight and sources of heat.

Container Material: Steel or HDPE drums/tanks with tight-sealing lids.

Handling Precautions: Avoid contact with moisture and keep containers closed when not in use to prevent contamination.

Shelf Life: 6 - 12 months if stored properly in a cool and dry environment.

### 5. SAFETY INFORMATION

Safety Aspect	Details
Hazard Classification	Not classified as hazardous under normal handling conditions.
Hazards	May be slippery if spilled; can cause skin irritation upon prolonged contact.
First Aid Measures	<ul style="list-style-type: none"><li>- Inhalation: Move to fresh air if inhaled in high concentrations.</li><li>- Skin Contact: Wash with soap and water.</li></ul>

	<ul style="list-style-type: none"> <li>- Eye Contact: Flush with water.</li> <li>- Ingestion: Seek medical attention if swallowed.</li> </ul>
Personal Protective Equipment (PPE)	Use gloves, protective clothing, and safety glasses when handling.
Spill Procedures	Contain and absorb with inert material; clean area with detergent and water.
Disposal Considerations	Dispose of in accordance with local, regional, and national regulations.
Fire Hazard	Combustible. Use dry chemical, foam, or CO <sub>2</sub> for extinguishing. Avoid using water on oil fires.

## 6. SPECIFIC INDUSTRIAL USES

- **\*\*Biofuel\*\***:
  - Suitable for transesterification to produce biodiesel (FAME).
  - High lipid content allows for efficient conversion to renewable fuel.
  - FFA levels should be managed to improve biodiesel yield and quality.
- **\*\*Animal Feed\*\***:
  - Utilized as a high-energy supplement for livestock.
  - Requires processing to remove impurities and stabilize fat content.
  - Should comply with local regulations regarding use in feed.
- **\*\*Soap Production\*\***:
  - Acts as a raw material for soap manufacturing via saponification.
  - High FFA content enhances soap-making efficiency.
  - Inexpensive and accessible alternative to virgin oils.

## 7. QUALITY STANDARDS AND TESTING

### Quality Standards:

- Should meet regional standards for specific applications (biodiesel, animal feed).
- Compliance with ISCC (International Sustainability & Carbon Certification) for biofuel applications.
- Compliance with EU REACH regulation for safe handling and processing.

### Quality Assurance Testing:

- Perform periodic testing for FFA content, moisture, impurities, and peroxide value to



ensure product quality.

- Retain sample records for traceability.

## **8. PACKAGING AND TRANSPORTATION**

Packaging: Available in bulk tankers, 200-liter drums, or 1,000-liter Intermediate Bulk Containers (IBC).

Transport: Classified as non-hazardous for road, sea, and air transport.

Regulations: Follow national and international regulations for transporting non-hazardous materials.

## **9. CERTIFICATIONS (If applicable)**

- ISCC Certification for biodiesel feedstock.
- ISO 9001 for Quality Management Systems.
- HACCP (Hazard Analysis Critical Control Point) for ensuring food safety if used for animal feed.