RESEARCH NOTE

THE GLOBAL USED COOKING OIL SUPPLY CHAIN

Trade Flow Disruption, Certification Integrity, and the Emerging Feedstock War

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EXECUTIVE SUMMARY

The global used cooking oil market is undergoing its most significant structural realignment in a decade. China exported a record 3 million metric tons of UCO in 2024, but the imposition of 125% US tariffs and the removal of China's 13% export tax rebate are forcing a rapid redirection of trade flows toward Europe, where the EU's ReFuelEU Aviation mandate now requires 2% SAF blending. Simultaneously, certification fraud on an industrial scale — with an estimated one-third of UCO entering the EU likely mislabelled — threatens to undermine the regulatory architecture that sustains waste-based biofuel premiums. For physical traders, the convergence of tariff disruption, regulatory tightening, and audit failure creates both acute risk and positioning opportunity across the UCO value chain.

Market Context: A Feedstock in Transition

Used cooking oil has evolved from a low-value waste stream into the single most critical feedstock underpinning the global energy transition in transport fuels. According to EASA data, approximately 81% of all SAF feedstock inputs in 2024 were UCO, with animal fats comprising most of the remainder. The global UCO market was valued at approximately USD 8.0 billion in 2025, with projections pointing toward USD 8.6 billion in 2026 and a trajectory toward USD 15.2 billion by 2034, according to Fortune Business Insights.

This growth is not driven by new applications but by regulatory mandates. The EU's Renewable Energy Directive (RED II, now transitioning to RED III) grants **double-counting** status to biofuels derived from waste feedstocks listed in Annex IX Part B — including UCO. Under this mechanism, one litre of UCO-based biodiesel counts as two litres toward a member state's renewable energy target. The commercial consequence is a substantial premium for waste-based biofuels over crop-based alternatives, which in turn underpins the price premium that UCO commands over virgin vegetable oils.

However, the regulatory landscape is shifting. Germany and the Netherlands — two of Europe's largest biofuel markets — are preparing to remove double-counting incentives for Annex IX Part B feedstocks as they transpose RED III into national legislation, effective from 2026. The removal of double counting means suppliers must deliver higher physical volumes of renewable fuel to meet the same targets, making cheaper crop-based biodiesel relatively more attractive and potentially compressing UCO premiums in those markets. Mediterranean member states, by contrast, are expected to retain double counting through at least 2026, creating intra-EU arbitrage dynamics.

China exported a record 3 million metric tons of UCO in 2024, but the combination of 125% US tariffs and the removal of China's export tax rebate is triggering the most significant rerouting of biofuel feedstock flows since the EU's anti-dumping measures against Argentine and Indonesian biodiesel in 2018.

Supply Side: China's Export Machine Under Pressure

China dominates global UCO supply. The country exported approximately 3 million metric tons in 2024, an all-time high, driven by demand from the United States, the European Union, and Singapore, according to S&P Global Commodity Insights. China's collection infrastructure — largely informal, fragmented, and operated by thousands of small-scale aggregators — generates volumes that official data struggles to fully capture. The International Council on Clean Transportation (ICCT) has estimated that China collects only about 15% of its available waste cooking oil, suggesting substantial room for supply growth if collection economics improve.

The export landscape is now being reshaped by two simultaneous policy shocks. First, the Trump administration imposed 125% tariffs on Chinese UCO imports, effectively shutting the US market. The United States had been the single largest destination for Chinese UCO, importing approximately 2.8 billion pounds (roughly 1.27 million metric tons) in 2024. Second, China eliminated its 13% export tax rebate on UCO effective December 2024, raising the effective cost of Chinese exports by a corresponding margin.

The combined effect has been dramatic. Chinese UCO exports for the first half of 2025 totalled approximately 1.5 billion litres, representing a 2% year-on-year decline despite the record 2024 base. Traders estimate that monthly export volumes will settle at 150,000–200,000 metric tons from Q2 2025 onward, down from 250,000–300,000 metric tons per month in 2024, representing a reduction of 20–40%.

Destination	2023 (mt)	2024 (mt)	Change	Share of 2024
United States	~1,200,000	**~1,270,000**	+6%	~42%
European Union	~529,000	**~737,000**	+39%	~25%
Singapore	~350,000	**~420,000**	+20%	~14%
Other Asia	~280,000	**~350,000**	+25%	~12%
Rest of World	~180,000	**~223,000**	+24%	~7%
Total	**~2,539,000**	**~3,000,000**	**+18%**	**100%**

Table 1: Chinese UCO Exports by Destination (estimated). Sources: S&P Global Commodity Insights, China Customs / GACC data, Fastmarkets.

The EU has emerged as the primary beneficiary of the US–China tariff disruption. According to S&P Global, the EU was the second-largest buyer of Chinese UCO at 737,000 metric tons in 2024, up 39% year-on-year, with the Netherlands, Spain, and Belgium accounting for more than 90% of total EU

volumes. Trading executives in Shanghai indicate that at least half of China's UCO shipments are now expected to flow to Europe, with additional volumes redirected to Korea, Thailand, Malaysia, and India.

Demand Side: The Feedstock War Intensifies

UCO demand is being pulled simultaneously by three sectors — road transport biodiesel, HVO/renewable diesel, and sustainable aviation fuel — each of which is scaling on the back of increasingly aggressive regulatory mandates.

HVO/Renewable Diesel. European HVO consumption is projected to increase by approximately 26% in 2025 compared to 2024 levels, reaching an estimated 4.28 million metric tons, according to S&P Global. Production capacity continues to expand: Neste commands approximately 28% of global HVO production capacity, with its Rotterdam facility expanded to 1.4 million tons annually. TotalEnergies converted its Grandpuits refinery to produce 400,000 tons per year of HVO. UCO and animal fat residues now comprise over 40% of HVO production inputs industry-wide, making UCO availability a binding constraint on HVO output growth.

Sustainable Aviation Fuel. The EU's ReFuelEU Aviation regulation mandates a minimum 2% SAF blending at European airports from 2025, rising to 6% by 2030 (including 1.2% e-SAF). EASA estimates operational European SAF capacity at approximately 1.4 million tonnes per year, well below the roughly 9.6 million tonnes needed for the 6% mandate in 2030. With 81% of SAF feedstock inputs currently sourced from UCO, the aviation sector's claim on available supply is large and growing. Critically, ReFuelEU sets no cap on UCO usage within SAF production, meaning European aviation demand could absorb an outsized share of available waste oil supply.

Road Transport Biodiesel. Traditional biodiesel (FAME) production in Europe remains significant, though the removal of double counting in Germany and the Netherlands may redirect some mandate demand toward cheaper crop-based feedstocks. EU crop biodiesel demand is set to rise in 2026, according to Argus Media, as higher physical volume requirements under RED III's greenhouse gas reduction targets offset the loss of the double-counting multiplier.

> *With 81% of SAF feedstock inputs sourced from UCO and no regulatory cap on its use in aviation, the competition between HVO producers, SAF refiners, and FAME plants for the same barrel of waste oil is set to intensify through 2026 and beyond — particularly as European supply remains structurally import-dependent.*

Certification Integrity: The Fraud Problem

The UCO supply chain's dependence on certification schemes — primarily the International Sustainability and Carbon Certification (ISCC) system — is the market's most significant structural vulnerability. The commercial value of UCO rests entirely on its classification as a waste feedstock under EU regulations. If a consignment cannot demonstrate waste origin through a valid chain of custody, it loses its premium and regulatory eligibility. The ISCC system, which maintains at least 1,275 valid UCO certificates globally, is the primary mechanism for providing this assurance.

The evidence of systematic fraud is substantial and well-documented. European Commission data published in December 2025 indicated that approximately one-third of UCO entering the EU is likely fraudulent — most probably virgin palm oil mislabelled as waste. Data from EU fuel regulators estimated

that 1.8 million tonnes of fraudulent ISCC-certified Palm Oil Mill Effluent (POME) entered the EU in 2023 alone, according to analysis by Transport & Environment.

The audit infrastructure is demonstrably inadequate. Based on Transport & Environment's analysis of ISCC-certified UCO collectors in China, Malaysia, and Indonesia — the three largest UCO-exporting countries to Europe — only 9% of certified collecting points had a sample of their points of origin audited. For the remaining 91%, no audits were conducted to verify sources. The mass-balance approach used by ISCC is structurally susceptible to fraud: documents can be falsified, and the practice of "multiple claiming" — where the same physical consignment generates sustainability certificates in more than one jurisdiction — remains difficult to detect.

Issue	Scale	Source
Fraudulent UCO entering EU	**~33%** of total imports	European Commission (Dec 2025)
Fraudulent POME in EU (2023)	**1.8 million** tonnes	EU fuel regulators / T&E
ISCC collecting points audited (CN, MY, ID)	**9%**	Transport & Environment
Proposal to suspend ISCC recognition	**2.5 years**	European Commission (reported)
Certi W Baltic "red card" suspension	Banned until 2026	ISCC

Table 2: UCO Certification Fraud — Key Indicators. Sources: European Commission, Transport & Environment, ISCC.

Regulatory responses are emerging but remain fragmented. ISCC issued its first-ever "red card" suspension to Certi W Baltic, the certifier implicated in a Hong Kong-based fraud scheme, banning it from certifying new clients until 2026. A proposal has reportedly been made to the European Commission to suspend recognition of ISCC certifications for waste-based biofuels for 2.5 years — a measure that, if enacted, would disrupt the entire waste-based biofuel value chain. In March 2025, ISCC published new guidance on waste and residue verification from food and food processing, tightening documentation requirements at the point of origin. Whether these measures are sufficient to restore market confidence remains to be seen.

Price Dynamics

UCO prices CIF Amsterdam-Rotterdam-Antwerp (ARA) — the benchmark delivery point for European biofuel feedstock — traded between $1,030 and $1,200 per tonne in 2025, according to Fastmarkets assessments. The 2025 high of $1,200/t (recorded in September) represented a meaningful premium over the December 2024 high of $1,070/t, reflecting the tightening of available certified supply against rising mandate-driven demand.

Price direction through H1 2026 will be shaped by three competing forces. First, the redirection of Chinese UCO from the United States to Europe should, in isolation, be bearish for CIF ARA pricing — more physical supply arriving at the same demand centre. Second, the removal of double counting in Germany and the Netherlands may reduce the effective premium that UCO commands over crop-based alternatives in those specific markets, though mandate volumes will rise to partially offset this. Third, the escalation of fraud scrutiny and potential tightening of ISCC certification standards could constrain the supply of *certified* UCO, even as physical volumes remain ample. The net effect is likely to be elevated

volatility rather than a clear directional trend, with certified UCO trading at a widening premium to uncertified material.

Forward Outlook

3–6 month view. Chinese UCO volumes are being redirected to Europe, with the Netherlands, Spain, and Belgium absorbing the largest share. This redirection should ease near-term physical tightness in European feedstock markets, but it also increases the risk of fraudulent or mis-certified material entering EU supply chains at greater volume. Expect elevated regulatory and reputational risk for European importers and blenders sourcing Chinese UCO. HVO producers will continue to compete aggressively for certified waste feedstock, with UCO pricing supported above $1,000/t CIF ARA absent a macro-driven demand shock.

12-month view. The structural demand outlook for UCO is firmly bullish. ReFuelEU's 2% SAF mandate is in its first full year, European HVO capacity continues to ramp, and RED III's higher greenhouse gas reduction targets require larger physical biofuel volumes even where double counting is removed. On the supply side, Chinese exports face persistent headwinds from the loss of the US market and the export tax rebate elimination. Southeast Asian exporters — Indonesia and Malaysia — are expanding domestic biofuel mandates (B40 and B20 respectively), tightening regional UCO availability for export. The ISCC certification system faces an existential credibility challenge. If the European Commission proceeds with even a partial suspension of ISCC recognition for waste-based biofuels, the supply of eligible feedstock could contract sharply, driving certified UCO premiums to levels that fundamentally alter blending economics.

Key Risks and Watch Items

ISCC suspension risk. A European Commission decision to suspend ISCC recognition for waste-based biofuels — even temporarily — would be the single most disruptive event for the UCO market. Traders should monitor EU regulatory proceedings closely.

US tariff escalation or reversal. Any change to the 125% tariff on Chinese UCO would immediately alter global trade flows. A tariff reduction would redirect volumes back to the US, tightening European supply. A further escalation or expansion to other Asian origins would deepen the European supply glut.

Chinese domestic policy. China's elimination of the export tax rebate may be a precursor to greater domestic consumption of UCO for renewable fuel production. If China's domestic HVO/renewable diesel ambitions accelerate, export volumes could decline more sharply than current trader estimates suggest.

Southeast Asian mandate expansion. Indonesia's progression toward B40 and Malaysia's B20 mandate tighten regional feedstock supply. Any acceleration of these mandates would reduce UCO and PFAD availability for European buyers.

Double-counting implementation timeline. The pace at which EU member states actually remove double counting under RED III will determine the near-term demand trajectory for UCO versus crop-based biodiesel. Delays in transposition (particularly in France, which has not yet committed to removal) would sustain UCO premiums longer than currently priced.

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