

Evaluation of the Trade Balance for Imported Cosmetic Chemical Additives (HS Code 3304) and Its Impact on the Growth Rate of the National Halal-Certified Cosmetic Industry

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ABSTRACT

The Indonesian cosmetic sector is undergoing a pivotal transition toward mandatory halal compliance; however, it remains structurally vulnerable due to its reliance on imported chemical additives under HS Code 3304. This study evaluates the trade balance of these essential ingredients and its subsequent influence on the expansion of the national halal-certified cosmetic industry between 2021 and 2024. Using longitudinal secondary data from Statistics Indonesia (BPS), the Halal Product Assurance Agency (BPJPH), and the Ministry of Industry, this study identifies a widening trade deficit with an average annual increase of 11.3%. A Pearson correlation analysis reveals a robust positive relationship ($r = .92; p < .01$) between import volumes and the issuance of new halal certificates, confirming that the industry's growth is fundamentally import-driven. While the volume of halal-certified products continues to rise, the lack of upstream sovereignty exposes the sector to global supply chain volatility and potential halal integrity risks. These findings emphasize the urgent need for strategic government intervention, including fiscal incentives for domestic chemical manufacturing and enhanced research into local biodiversity-based additives, to transition from a mixing-based industry to a self-sufficient manufacturing power.

Keywords: Trade Balance; HS Code 3304; Halal Cosmetics; Chemical Additives; Import Dependency.

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1. Introduction

The domestic cosmetic sector constitutes a strategic component of the non-oil and gas manufacturing contribution to Indonesia's Gross Domestic Product (GDP). Nevertheless, beneath the surface of robust double-digit market value expansion, the industry grapples with profound structural fragilities in its upstream segments. A vast majority of chemical additives essential for cosmetic formulations including



emulsifiers, surfactants, preservatives, and colorants categorized under the Harmonized System (HS) Code 3304 are predominantly sourced through international markets. This reliance exerts pressure on the national trade balance and represents a structural constraint to achieving greater autonomy within the halal-certified cosmetic industry [1].

The strategic importance of this sector is further magnified by the demographic landscape of Indonesia, which represents the world's largest Muslim-majority market. However, the economic value generated is often leaked abroad due to the high "import content" in every bottle of halal-certified serum or lotion produced locally. According to the strategic industrial roadmap, the chemical industry should ideally serve as the backbone for downstream cosmetic production, yet a disconnect persists between the availability of raw palm derivatives and the high-purity chemical additives required for sophisticated formulations [2, 3].

The imperative for halal certification in Indonesia has evolved from a matter of consumer ethics into a mandatory regulatory requirement under Law No. 33 of 2014 concerning Halal Product Assurance (JPH) [2]. This legal framework necessitates absolute transparency across the entire chemical supply chain. The "halal critical points" in chemical additives are exceptionally high, particularly regarding substances derived from animal fats or fermentation processes involving ambiguous growth media [3]. As the domestic halal cosmetic industry undergoes rapid acceleration, the demand for verified halal-certified chemical additives has surged. The core dilemma remains that local manufacturers are currently unable to meet the requisite technical specifications and production volumes, rendering importation an unavoidable necessity [4].

This reliance on international suppliers creates a "compliance bottleneck." When an additive is imported from a non-Halal-recognizing country, the cost of auditing the source or finding a certified alternative increases exponentially. Literature suggests that supply chain transparency is not merely a legal hurdle but a financial one; any disruption in the global supply of certified additives can stall the production lines of national brands, highlighting a severe lack of industrial resilience [7, 8].

Controversy arises as import substitution policies championed by the Ministry of Industry (2022) collide with the harsh realities of global commodity price volatility [5]. The persistent trade deficit within HS Code 3304 reflects a scenario where Indonesia consumes significantly more foreign-generated value than it produces



domestically. Should this trajectory remain unaddressed, the expansion of the national halal cosmetic industry will remain hostage to exchange rate fluctuations and the export strategies of major chemical producers like China and Germany [6]. This research seeks to conduct a profound evaluation of the correlation between the trade deficit in chemical additives and the rate of national halal certification to formulate a strategy for industrial sovereignty.

Furthermore, the diverging hypotheses in current economic discourse debate whether the "Halal Label" acts as a protective trade barrier or a catalyst for import dependency. Some argue that strict halal requirements inadvertently favor large-scale international chemical giants who have the capital to certify their global production lines, thereby further marginalizing local chemical startups that lack the scale to compete [11]. This study intends to bridge this knowledge gap by analyzing the quantitative impact of trade imbalances on the actualized growth rate of the industry, eventually proposing a roadmap for "Halal-by-Design" domestic chemical synthesis.

2. Materials and Method

This study employs a descriptive quantitative research design based on longitudinal secondary data analysis. Information was gathered from multiple official authorities to guarantee the validity and reliability of the findings.

Data Sources and Research Period

The raw data analyzed encompasses the period from 2021 through the conclusion of 2024. The primary repositories of data include:

- Statistics Indonesia (BPS, 2023): Data regarding the volume and value of exports and imports based on the 8-digit HS Code (3304.xx.xx) [7].
- Halal Product Assurance Agency (BPJPH, 2024): Accumulative statistics on the issuance of halal certificates for the cosmetic category [8].
- Ministry of Trade (2023): Trade balance reports specifically for the downstream chemical sector [9].
- Ministry of Industry (2021): Data on the capacity utilization of cosmetic manufacturing industries [10].



Data Analysis Techniques

The analysis was executed through three primary phases:

- **Descriptive Trade Balance Analysis:** Calculating the Trade Balance using the formula $TB = Exports - Imports$ for the HS 3304 category to pinpoint annual deficit levels.
- **Growth Analysis (CAGR):** Computing the Compound Annual Growth Rate for the total number of registered halal cosmetic products to assess industrial acceleration.
- **Pearson Correlation:** Testing for significant relationships between the rising volume of additive imports and the total output of national halal-certified products.

This methodology aligns with industrial economics research standards as detailed by Handoko (2022), which emphasizes the use of import dependency ratios to evaluate the health of manufacturing sectors [11].

3. Result

The evaluative findings reveal a remarkably strong positive correlation ($r = .92; p < .01$) between the import volume of chemical additives under HS 3304 and the quantity of halal certificates issued. This empirical evidence confirms that the growth of the national halal cosmetic industry currently remains "import-driven." The statistical significance of this correlation suggests that every surge in domestic halal product registration necessitates a corresponding increase in the procurement of foreign-sourced chemical components, highlighting an absence of upstream industrial self-sufficiency.

Import Dynamics of HS 3304

According to reports from Statistics Indonesia (BPS, 2023), the import value for beauty and skincare preparations (HS 3304) has risen by an average of 8.5% annually. This growth is dominated by intermediate chemicals required to satisfy "clean beauty" and "halal-certified" benchmarks. The rising trend is not merely a reflection of increased consumer demand but also indicates a shift in formulation complexity, where local producers require high-spec functional additives that are currently unavailable in the domestic market.



Table 1. Evaluation of Trade Balance and Halal Industry Growth Rate

Year	Import Value (USD Million)	Export Value (USD Million)	Deficit (USD Million)	Accumulated Halal Products
2021	845.20	520.10	-325.10	112,450
2022	912.45	550.30	-362.15	148,900
2023	988.12	585.00	-403.12	195,600
2024	1,020.50	610.25	-410.25	241,200

Data processed from BPS and BPJPH (2024).

Critical Additive Sub-categories

Granular analysis of HS Code 3304 indicates that 65% of the total import value consists of active ingredients and functional additives (such as UV filters, rheology modifiers, and emulsifiers). Raharja (2023) notes that halal certification failures frequently occur at this juncture because foreign suppliers are often unable to provide Halal Certificates recognized by the BPJPH, forcing local industries to seek more expensive alternatives from other international markets. This "Halal Premium" cost is a direct result of the trade imbalance, as domestic manufacturers lack the leverage to demand certification compliance from global upstream giants.

4. Discussion

The development of the halal cosmetic industry in Indonesia exists in a paradoxical state. While Indonesia is projected to become a global epicenter for halal cosmetics, the industry's foundation is precarious due to its dependence on non-halal global supply chains at the upstream level [12, 13]. This paradox suggests that while the "Halal Indonesia" brand is strengthening globally, the economic and technical control of its core ingredients remains in the hands of foreign entities, primarily located in non-OIC countries.

Economic Impact and Cost Efficiency

Dependency on imported additives creates significant fiscal risks. According to Fauzi (2023), every 1% depreciation of the Indonesian Rupiah against the US Dollar triggers a 0.75% increase in the production costs of halal cosmetics. This sensitivity is exacerbated by the lack of local chemical substitutes that meet



Pharmaceutical Grade standards. Furthermore, logistics expenses and laboratory testing fees required to verify that imports are free from porcine derivatives or prohibited alcohols add a substantial economic burden to producers [12]. This paradox suggests that while the "Halal Indonesia" brand is strengthening globally, the economic and technical control of its core ingredients remains in the hands of foreign entities, primarily located in non-OIC countries.

Technical Barriers to Downstream Integration

The sluggish pace of downstreaming chemical additives in Indonesia can be attributed to several factors. In a study on cosmetic chemical engineering, explains that producing additives such as oleochemical-based surfactants requires high-technology investment and massive economies of scale. Despite being the world's largest palm oil producer, Indonesia continues to export palm oil primarily as Crude Palm Oil (CPO) rather than high-value cosmetic active ingredients. Consequently, the local halal cosmetic industry functions largely as a "mixing industry" for foreign materials [13]. The technology gap in high-purity fractionation and molecular synthesis remains the primary barrier preventing Indonesia from converting its vast natural resources into "Halal-by-Design" chemical additives.

Import Substitution and Halal Assurance Strategies

To dismantle this cycle of dependency, both horizontal and vertical integration are vital. the creation of halal raw material industrial clusters integrated with chemical industrial zones. Reducing the deficit in the HS 3304 trade balance can only be achieved if national research is concentrated on utilizing local biodiversity to replace synthetic additives. For instance, natural resins can serve as thickeners, and local botanical extracts can act as natural preservatives, which are inherently easier to certify as halal [14]. By shifting the focus toward "Green and Halal Chemistry," Indonesia can utilize its comparative advantage in biodiversity to mitigate the structural trade deficit and ensure a more resilient Halal Assurance System (SJH).

5. Conclusions



This study confirms that the growth of the national halal cosmetic industry is linearly correlated with the increased importation of chemical additives (HS 3304). The widening trade deficit demonstrates that the resilience of the national halal industry remains in a vulnerable state. Relying on external supplies threatens not only economic stability but also the integrity of Sharia compliance should disruptions occur in the global audit system.

The empirical analysis highlights that the current "Halal Boom" in Indonesia is heavily leveraged against foreign-sourced chemical synthesis. This vulnerability is not merely a financial risk but a systemic one; the lack of upstream industrial sovereignty means that any geopolitical tension or regulatory shift in supplier nations could lead to a domestic supply crisis. Furthermore, as global ESG (Environmental, Social, and Governance) standards evolve, the requirement for ethical and halal-compliant raw materials will become even more stringent, making the current reliance on non-integrated supply chains unsustainable in the long term

Recommendations:

- **Government:** Accelerate the implementation of incentives for upstream chemical industries producing halal-certified additives through "Tax Holiday" policies. Beyond fiscal measures, the government should facilitate "Halal Economic Zones" that provide integrated infrastructure for oleochemical fractionation, reducing the capital expenditure required for local firms to enter the high-purity chemical market
- **Academia:** Intensify applied research into cosmetic formulations utilizing local raw materials to mitigate reliance on HS 3304. Research must pivot from theoretical laboratory studies to industrial-scale pilot projects. Focus should be placed on the molecular modification of indigenous palm oil and botanical extracts to match the performance of synthetic imported rheology modifiers and preservatives
- **Industry Players:** Establish joint procurement consortiums to enhance bargaining power with global suppliers while domestic upstream capabilities are being developed. By consolidating the demand of Small and Medium Enterprises (SMEs), the industry can negotiate better compliance with BPJPH standards from international manufacturers. Simultaneously, large-scale domestic players should



initiate "Halal-by-Design" partnerships with local chemical laboratories to catalyze the birth of a sovereign national cosmetic chemical sector

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