

Market evolution: Catalysts (CN 3815) — 2015–2025

Introduction

The EU's external trade in reaction initiators, reaction accelerators and catalytic preparations (CN 3815) underwent a profound transformation between 2015 and 2025. A product class that was once in near balance has turned into a high-value export champion, with a trade surplus expanding more than fivefold. This report examines the forces behind that shift: the decoupling of export volumes from values as unit prices soared, the reconfiguration of trading partners following Brexit and geopolitical shocks, and the growing specialisation of EU member states in the most sophisticated catalyst segments. All figures are drawn from the Eurostat-based trade dashboard and refer to EU transactions with non-EU countries, expressed in euros, unless otherwise stated.

1. From a balanced market to a commanding trade surplus

Export value climbs sharply while imports stagnate, propelled entirely by rising unit prices

Over the observation window, EU extra-EU exports of catalysts jumped from €2.68 billion to €4.22 billion (+57.8 %), while imports edged up from €2.40 billion to €2.63 billion (+9.5 %). The trade balance consequently swung from a modest €0.27 billion surplus to a robust €1.59 billion surplus, a 481.5 % increase. Strikingly, both export and import *quantities* fell: exported tonnage declined by 8.1 % and imported tonnage by 25.4 %. The growth in trade values is therefore entirely attributable to surging unit prices: the average export price rose from €8,498 per tonne to €14,591 per tonne (+71.7 %), while the average import price climbed from €15,659 to €22,980 per tonne (+46.8 %). The EU thus obtained a larger surplus not by shipping more material, but by commanding far higher prices for the catalysts it sells abroad.

Indicator (extra-EU)	2015	2025	Change
Exports (€ million)	2,676	4,224	+57.8 %
Imports (€ million)	2,402	2,631	+9.5 %
Trade balance (€ million)	274	1,593	+481.5 %
Export unit value (€/tonne)	8,498	14,591	+71.7 %
Import unit value (€/tonne)	15,659	22,980	+46.8 %
Export quantity (tonnes)	314,921	289,487	−8.1 %
Import quantity (tonnes)	153,410	114,492	−25.4 %

Source: General Overview

The precious-metal catalyst segment anchors the EU's export prowess

Disaggregating the HS heading reveals that supported catalysts containing precious metals (CN 381512) dominate the value of EU exports and largely drive the surplus. In 2025 this subheading alone accounted for €1.94 billion of exports, up from €0.76 billion in 2015, driven by a unit price that rose from €93,264 to €140,953 per tonne. By contrast, lower-value segment such as “reaction initiators, n.e.s.” (CN 381590) still represent the bulk of export volume but generate much less value per tonne, highlighting a clear structural upgrade towards high-tech, precious-metal-based formulations. A detailed breakdown is available in the Product Segment Comparison.

CN subheading	2015 export value (€ million)	2025 export value (€ million)	2015 export price (€/tonne)	2025 export price (€/tonne)
381512 (precious-metal supported catalysts)	761	1,945	93,264	140,953
381519 (other supported catalysts)	955	1,078	11,577	25,876
381511 (nickel-based supported catalysts)	221	325	15,429	18,615
381590 (reaction initiators, n.e.s.)	739	887	3,520	4,094

Expanding domestic production cements the EU's net-exporter status

EU production of catalysts (in quantity terms) more than doubled between 2019 and 2024, from 282 million kg to 683 million kg (+142.4 %), while the production value rose by 33.1 % to €4.92 billion. The resulting drop in the average ex-works unit price (from €13.13/kg to €7.21/kg) suggests a compositional shift towards high-volume, lower-price-per-kilo products. Simultaneously, net import reliance plunged from −2.2 % in 2019 to −32.9 % in

2024, meaning that the bloc's exports now absorb more than a third of its domestic output when measured against production. The EU has thus become a net exporter not only in value but also in footprint relative to its own manufacturing base. Data on production and net reliance are found under Production Volumes and Net Import Reliance.

2. Geopolitical tremors: Brexit, sanctions and a new import geography

UK catalyst shipments to the EU collapse, while North Macedonia emerges as the dominant import source

Among the most dramatic partner shifts is the near-extinction of UK-sourced imports. In 2015 the United Kingdom supplied catalysts worth €767 million to the EU; by 2025 that figure had fallen to €109 million (–85.8 %). In contrast, imports from North Macedonia leapt from €776 million to €1,690 million (+117.6 %), making it the EU's foremost external supplier. The United States remained a large but relatively stable partner, slipping from €520 million to €430 million. This realignment reflects both Brexit-related trade friction and the relocation of precious-metal catalyst recycling and production facilities to North Macedonia. The top-partner data are available in the Top Partner Analysis.

Import partner	2015 value (€ million)	2025 value (€ million)	Change
United Kingdom	767	109	–85.8 %
North Macedonia	776	1,690	+117.6 %
United States	520	430	–17.3 %
Japan	52	98	+87.2 %
China	22	71	+227.4 %

The Russian export market vanishes after 2022, illustrating sanction-driven supply shocks

On the export side, the most severe disruption was the complete halt of catalyst shipments to Russia. The EU exported catalysts to Russia worth substantial amounts until 2022 (€63 million in 2021), but volumes fell to a few hundred kilograms in 2023 and zero in 2025. This supply shock was detected by the dashboard's volatility analysis and is documented under Supply Shocks. The exit, driven by EU sanctions, demonstrates how quickly a stable export destination can be lost.

Cost spikes hit key import channels, revealing hidden vulnerabilities

The period also witnessed extraordinary price shocks on the import side. Most notably, the unit price of UK-origin catalysts surged 171.7 % in 2021, jumping to €95,078 per tonne while the imported volume collapsed, before partially normalising. Chinese catalyst imports experienced a 124.2 % price spike in 2020 (to €20,996/tonne). These events, identified by the Volatility & Shocks module, point to temporary dislocations in the supply of specific catalyst grades, probably linked to pandemic-era logistics and Brexit-related customs barriers. Their abnormality scores (1,495 for China, 16.1 for the UK) underline the exceptional character of the disruptions.

Import concentration rises sharply, amplifying single-supplier risks

Together with the shift towards North Macedonia, the Herfindahl-Hirschman Index (HHI) for imports climbed from 2,574 in 2015 to 4,448 in 2025 (+72.8 %). An HHI above 2,500 indicates a moderately concentrated market, and the upward trend signals a growing dependence on a handful of non-EU suppliers. Export concentration, though also rising (HHI from 741 to 1,057), remains at a far more diversified level. The evolving concentration metrics are shown in the Market Concentration section.

3. Structural upgrade and specialisation: how the EU moved up the value ladder

Unit values escalate for all major catalyst types, signalling a move up the technology scale

Across every HS subheading, both export and import unit prices climbed substantially over the decade, but the most pronounced increases occurred in the precious-metal segment (381512). Import prices for this segment rose from €92,971 to €167,125 per tonne, while export prices reached €140,953 per tonne, consistently higher than the average for other catalyst types. The widening price gap between exports of 381512 and those of nickel-based (381511) or non-precious supported catalysts (381519) indicates that EU exporters are specialising in the highest-value formulations—those used in emission control, petrochemical refining and fine chemistry—where performance and metal loading justify premium pricing.

Germany anchors the EU's export specialisation, while Poland and Sweden display exceptional focus

Looking at 2025 revealed comparative advantage (RSCA), Poland (RSCA = 0.570), Sweden (0.429), Germany (0.357), Luxembourg (0.289) and Denmark (0.158) are the most specialised member states in the catalyst sector. Germany alone accounts for 44.7 % of the EU's external catalyst exports, confirming its role as the bloc's chemical powerhouse. Poland's high RSCA—despite a much smaller total share of EU trade—points to a dedicated catalyst industry, possibly linked to the refining or petrochemical sector. The full specialisation map can be consulted at [Specialisation Map](#).

A production quantity boom masks a compositional shift toward lower-price-per-kilo output

EU production volumes skyrocketed from 282 million kg in 2019 to 683 million kg in 2024 (+142.4 %), yet the production value rose only 33.1 %. Consequently, the average ex-works price halved from €13.13/kg to €7.21/kg. This pattern—large volume growth with stagnating unit values—suggests that the additional output largely consists of less expensive supported catalysts (e.g., CN 381519) rather than the precious-metal-based types that dominate export value. The EU therefore appears to be ramping up mid-range catalyst production for both the internal market and third-country demand, while its export basket remains tilted towards the high-end segment that delivers the surplus.

Conclusion

EU trade in catalysts (CN 3815) over 2015–2025 tells a story of successful value-driven growth, profound partner realignment and rising specialisation. A trade balance that was nearly neutral in 2015 turned into a €1.6 billion surplus, financed not by higher volumes but by steep unit price increases—especially in the precious-metal supported catalyst segment that dominates EU exports. At the same time, the import landscape was reshaped by Brexit, which caused UK-sourced catalysts to collapse, and by the emergence of North Macedonia as the primary foreign supplier. Geopolitical disruptions, from sanctions on Russia to pandemic-era price spikes, injected considerable volatility but did not derail the overall upward trend. EU production expanded massively, albeit with a shift towards lower-price-per-kilo catalysts, while member states such as Germany, Poland and Sweden cemented their specialisation. The main challenges ahead lie in managing the heightened concentration of import sources and preserving the technological edge that underpins the EU's export pricing power.

Generated on 2026-07-28 based on data from tradedashboard.eu

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