Market evolution: Blood and immunological products (CN 3002) — 2015–2025

Introduction

Heading 3002 of the Combined Nomenclature covers a wide array of advanced biologicals: blood fractions, immunological products, vaccines, toxins, cell cultures, and similar preparations. Between 2015 and 2025 the European Union's extra-EU trade in these goods has been transformed, moving from a strong but relatively stable position to that of a global powerhouse running one of the largest trade surpluses in any high-tech sector. This report describes the main dynamics using the complete trade, production, volatility, and autonomy data provided.

1. Exponential Growth in EU Trade Surplus Driven by Immunological Products

The headline figures underscore an extraordinary expansion, heavily concentrated in immunologicals, while the balance of trade reached unprecedented levels.

Export value nearly quadruples while imports more than double, generating a surplus of €58 billion

EU exports of chapter 3002 jumped from €33.2 billion in 2015 to €114.8 billion in 2025, an increase of 246.1 % EU trade overview. Imports rose from €22.1 billion to €56.9 billion (+157.4 %). As a result, the trade balance widened from €11.1 billion to €57.9 billion (+423.3 %). Both export and import unit prices also climbed (export price +119.0 %, import price +96.5 %), indicating a shift toward higher-value products.

EUR (billion)	2015	2025	Change
Exports	33.18	114.81	+246.1 %
Imports	22.12	56.92	+157.4 %
Trade Balance	11.06	57.89	+423.3 %

Immunological products put up in measured doses (300215) constitute the backbone of trade, while human vaccines surge and then retreat

The sub-category “Immunological products, put up in measured doses or in forms or packings for retail sale” (300215) dominates both flows. In 2025 it accounted for €68.6 billion of exports and €26.9 billion of imports Product segment breakdown. “Antisera and other blood fractions” (300212) followed with €13.0 billion in exports and €8.6 billion in imports. Human vaccines for medicine (300241) peaked at €36.9 billion in exports in 2022 — a direct consequence of COVID-19 vaccination programmes — but then fell sharply to €16.8 billion in 2025. Mixed immunological products not put up in retail packings (300214) also contributed significantly, with imports of €13.6 billion and exports of €6.7 billion in 2025.

2. Deepening Export Concentration Among a Few Partners and Highly Specialised Member States

The rapid expansion was not broad-based; it entrenched a handful of destinations and producing countries, reinforcing the EU’s role as a concentrated global supplier.

The United States absorbs more than half of EU exports, and the HHI for export destinations climbs sharply

The United States solidified its position as the dominant customer. EU exports to the US soared from €9.5 billion in 2015 to €58.8 billion in 2025 (+520.9 %), capturing 51 % of all extra-EU exports of heading 3002 Top partners. Switzerland and China also recorded strong rises (to €12.0 billion and €3.4 billion, respectively), but the export Herfindahl-Hirschman Index (HHI) jumped from 1,505 to 2,875 (+91 %), reflecting the growing weight of a few destinations Concentration HHI. On the import side, concentration remained high but stable (HHI around 3,340), with the US providing 45 % of extra-EU supplies.

Ireland and Germany anchor EU production, with Ireland displaying an extraordinary revealed comparative advantage

Within the EU, Ireland has become the foremost export hub. In 2025 its extra-EU exports reached €24.6 billion, followed by Germany (€30.2 billion) and Belgium (€19.1 billion) Top reporters. Ireland’s revealed comparative advantage (RCA) stood at 10.15, and its revealed symmetric comparative advantage (RSCA) at 0.82, magnitudes unparalleled by any other member state Specialisation. Belgium (RSCA 0.24), Austria (0.21), and the

Netherlands (0.16) also exhibited clear specialisation, while most other EU countries remained far below the bloc's average, highlighting a deep production divide.

EU production value skyrockets from under a billion to over €80 billion, boosting export propensity above 100 %

Domestic output, measured by PRODCOM data, rocketed from €0.85 billion in 2015 to an estimated €81.7 billion in 2024 Production value. This surge, together with the even faster growth of exports, pushed the export propensity (exports/production) from 35 % in 2015 to 144 % in 2024 Export propensity. Values above 100 % indicate that a part of imported intermediates is processed and re-exported, underscoring the EU's deep integration in global immunological value chains. Net import reliance consequently swung from –29 % to –431 %, confirming that the EU has become a massive net exporter relative to its own consumption Net import reliance.

3. Pandemic-Induced Volatility and Price Shocks Reshape Supply Chains and Partner Relationships

The decade was marked by extreme fluctuations, particularly in quantities and prices from and to certain partners, reflecting both the acute COVID-19 demand and subsequent adjustments.

Imports from China experience extreme volume and price swings, culminating in a 2023 price shock

China's import flows show the highest volatility (coefficient of variation of quantity: 2.60) Volatility bars. Imports surged to over 62,700 tonnes in 2021 (a 109-fold increase from 2020) then collapsed to 507 tonnes in 2023, while the import unit price skyrocketed by 604.8 % to €510,655 per kg in 2023 — one of the most dramatic price shocks detected Price shocks. By 2025, volumes had contracted further to 230 tonnes and unit prices stood at €924,335 per kg, signalling a structural break in the EU–China relationship for these goods.

Geopolitical and health crises trigger abrupt price surges on exports to Ukraine, Colombia, and South Korea

Export prices also experienced pronounced shocks. Exports to Ukraine saw unit prices jump by 123 % in 2021 (to €355,054 per kg) amid the COVID-19 emergency and geopolitical tensions, before stabilising at around €286,000 per kg in 2025.
Colombia recorded a 62.8 % price spike in 2022, and South Korea's export unit price leapt 125.6 % in 2021, reaching €1.96 million per kg, before retreating in subsequent years.

These events underline how sudden demand shifts and logistical bottlenecks can rapidly distort trade values, even for relatively small partner shares.

Conclusion

Between 2015 and 2025, the EU transformed its position in chapter 3002 from a solid net exporter to an indispensable global supplier of immunological and blood products. Exports quadrupled, the surplus widened to nearly €58 billion, and production capacity expanded dramatically — largely concentrated in Ireland, Germany, and Belgium and overwhelmingly destined for the United States. The data reveals two key risks: an increasing reliance on a single export market (the US now absorbs over half of extra-EU exports) and the vulnerability to sharp price and volume shocks, as seen with China and several smaller partners. Nevertheless, the EU's extreme net-export position, sky-high export propensity, and deep specialisation suggest the bloc has built a resilient and technologically advanced biological manufacturing base that will continue to shape global trade in these critical products.

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