# Market evolution: Diagnostic reagents (CN 3822) — 2015–2025

## Introduction

This report examines the European Union's trade in diagnostic or laboratory reagents on a backing, prepared diagnostic reagents, and certified reference materials (CN 3822) with non-EU partners between 2015 and 2025. The product group includes general diagnostic kits, blood-grouping reagents, malaria and Zika/Aedes tests, and certified reference materials, reflecting a sector at the intersection of healthcare, life sciences, and industrial testing. Over the period, the EU's trade in CN 3822 was transformed by a surge in exports, a temporary pandemic-driven import spike, and a profound rebalancing of trade partnerships and price levels.

## An Export Surge Drives a Widening Trade Surplus

The EU's external trade in diagnostic reagents evolved from a moderate surplus into a massive, export-led powerhouse. Exports grew far faster than imports, while unit values rose on both sides, fundamentally altering the bloc's commercial position.

### Export growth outpaced imports by a factor of two, lifting the surplus to over €5 billion

Total extra-EU exports of CN 3822 rose from €4.81 billion in 2015 to €11.59 billion in 2025 (trade overview). Over the same years, imports increased from €3.89 billion to €6.36 billion. The trade balance therefore jumped from a surplus of €0.93 billion to €5.23 billion, a 464 % improvement. Export quantities rose by 27 % (from 95.7 thousand tonnes to 121.3 thousand tonnes), while import quantities grew by 18 % (from 46.0 thousand tonnes to 54.5 thousand tonnes). The disparity in value growth is explained by a much stronger increase in the export unit price (+90 %, from €50.3 thousand/tonne to €95.5 thousand/tonne) than in the import unit price (+38 %, from €84.5 thousand/tonne to €116.6 thousand/tonne).

| Flow | 2015 | 2025 | Change (%) |
|---|---|---|---|
| Exports (€ bn) | 4.81 | 11.59 | +141 % |
| Imports (€ bn) | 3.89 | 6.36 | +64 % |
| Trade balance (€ bn) | 0.93 | 5.23 | +464 % |

### The pandemic briefly pushed imports to an all-time high, but the structural trend remains export-oriented

Imports peaked at €9.73 billion in 2022, driven by an extraordinary demand for testing materials during the COVID-19 crisis. However, by 2023 they had already fallen back to €6.05 billion, roughly the same level as 2025. Exports, in contrast, continued to climb after the pandemic, reaching a maximum of €12.41 billion in 2024 before a slight dip. The post-pandemic normalisation thus reinforced the EU's role as a net exporter of high-value diagnostic products.

## Geopolitical Realignment and Volatile Supply Chains

The period witnessed a rapid reshuffling of the EU's main trading partners, accompanied by a notable volatility in import quantities from certain suppliers and a series of price shocks concentrated in 2020.

### The United States remains the dominant partner, but China's role has exploded on both sides of the ledger

The United States was the top extra-EU supplier throughout, its imports rising from €2.13 billion to €3.54 billion (+66 %) (partners overview). On the export side, the U.S. market absorbed €0.97 billion in 2015 and €2.56 billion in 2025 (+165 %). China, however, recorded the most dramatic climb: imports from China surged 254 % (€93 million to €331 million), while EU exports to China leapt 239 % (€340 million to €1.15 billion). Other fast-growing export destinations included India (+270 %, to €353 million) and Saudi Arabia (+163 %, to €490 million).

### Import quantities from China and Korea show extreme year-on-year swings

The coefficient of variation for import quantities highlights the instability of certain supply chains (volatility bars). While the U.S. showed a very low CV of 0.08, Chinese imports exhibited a CV of 1.57, and Korea a CV of 0.96. This reflects the massive, pandemic-related spike in shipments of test kits and reagents from these countries in 2021-2022. On the export side, volatility was much lower: Switzerland (0.06) and Japan (0.06) were the most stable outlets, while Russia (0.26) and India (0.27) experienced stronger fluctuations.

| Partner (imports) | CV (quantity) |
|---|---|
| United States | 0.08 |
| China | 1.57 |
| United Kingdom | 0.38 |
| Korea, Rep. of | 0.96 |
| Switzerland | 0.28 |

### Price shocks struck multiple markets in 2020–2023

The shock detection identifies a cluster of price events centred in 2020. A massive 286 % price shift occurred on imports from China (value share 16.5 %), driven by the sudden demand for COVID-19 testing components. On the export side, prices to South Africa jumped 66 %, to India 61 %, and to the United Kingdom 81 % in 2020. Later, a 39 % price shock on exports to Egypt was detected in 2023. These episodes underline the sensitivity of diagnostic reagent prices to global health emergencies and supply-chain bottlenecks.

## From Pandemic Peak to Structural Normalisation: Segment Dynamics

The disaggregated product data reveal that the general reagents segment dominates trade, and that the 2022 import spike was almost entirely driven by this category. Since then, quantities have returned to pre-crisis levels, while export values have remained robust.

### The 2022 import bubble was concentrated in non-specialised reagents

In 2022, imports of subheading 382219 (general diagnostic reagents, excl. malaria, Zika, blood-grouping) reached 127.96 thousand tonnes, compared to only 44.63 thousand tonnes in 2023 (product compare). The value of these imports collapsed from €8.60 billion to €5.19 billion. Certified reference materials (382290) also halved in quantity. Blood-grouping reagents (382213) and the malaria (382211) and Zika (382212) categories remained marginal in volume, though blood-grouping imports have grown steadily.

### Exports show a more stable, high-value composition

Exports of general reagents (382219) stayed in a narrow band of 109-114 thousand tonnes between 2023 and 2025, while the value of these exports climbed from €10.35 billion in 2023 to €11.11 billion in 2024, aided by rising unit prices (€94.6 thousand/tonne in 2023 to €97.1 thousand/tonne in 2024). Exports of certified reference materials and blood-grouping reagents also increased in value, reinforcing the EU’s specialisation in high-range dia-

gnostic and reference products. The overall export concentration remains low (HHI 789 in 2025, up only 5.5 %), while import concentration declined markedly (HHI 3 421 in 2025, down from 3 595 in 2015) (concentration).

| Segment (imports) | 2022 Qty (t) | 2023 Qty (t) | 2025 Qty (t) |
|---|---|---|---|
| 382219 (general) | 127 956 | 44 626 | 44 322 |
| 382290 (certified) | 16 359 | 9 505 | 7 269 |
| 382213 (blood-gr.) | 1 211 | 2 199 | 2 855 |

### EU member-state specialisation concentrates the export capacity

In 2025, Ireland held the strongest revealed comparative advantage in CN 3822 (RCA 4.0, RSCA 0.60), followed by Lithuania (RCA 2.4), Sweden (RCA 2.0), and Finland (RCA 1.7) (specialisation). Germany, despite its large absolute trade, shows only a moderate RCA of 1.5. The high degree of specialisation in a handful of smaller member states helps explain the resilience of EU exports: cutting-edge diagnostic and reference material production is deeply embedded in a few highly competitive locations.

## Conclusion

The EU's trade in diagnostic reagents over 2015–2025 was defined by a powerful export momentum that lifted the surplus above €5 billion, while imports, after a massive pandemic spike in 2022, returned to a more moderate path. The partner structure shifted decisively: China became a key supplier and a top client, the United States remained the anchor of both import and export flows, and emerging markets like India and Saudi Arabia gained importance. Volatility was concentrated in a few supplier nations and in price shocks around 2020, reflecting the impact of global health crises on this high-tech chemical sector. Looking ahead, the EU's strong specialisation, stable export quantities, and diversified customer base provide a solid foundation, even as the market absorbs the post-pandemic normalisation.

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