

Market evolution: Nucleic acids (CN 2934) — 2015–2025

Introduction

The product group CN 2934 covers a wide range of nucleic acids and their salts, as well as heterocyclic compounds containing sulphur or other non-oxygen/non-nitrogen hetero-atoms. It is a critical input for pharmaceuticals, agrochemicals and other high-value manufacturing. This report examines the European Union's extra-EU trade in CN 2934 from 2015 to 2025, using annual data from the Trade Dashboard. Over this decade, the market underwent a profound transformation: trade values soared, driven almost entirely by rising unit prices, while geographical patterns shifted markedly and the EU's own production base contracted. The analysis highlights three core dynamics—price-led growth, partner realignment and a quiet erosion of supply autonomy.

Price Escalation Defines Trade Growth Amidst Quantity Fluctuations

Export and import values more than double, but price increases account for the bulk of the growth.

The EU's extra-EU exports of CN 2934 rose from EUR 3.97 billion in 2015 to EUR 7.12 billion in 2025, an increase of 79.3 % (Trade Overview). Imports moved in parallel, from EUR 3.69 billion to EUR 6.45 billion (+74.9 %). However, the physical volume of trade expanded far more modestly: export quantities grew by only 24.9 % (57 932 tonnes to 72 351 tonnes), while import quantities increased by 16.8 % (45 288 tonnes to 52 906 tonnes). The gap between value and volume growth is explained by strong price appreciation. Average export prices climbed from EUR 68 467/tonne in 2015 to EUR 98 305/tonne in 2025 (+43.6 %); import prices rose even more, from EUR 81 386/tonne to EUR 121 892/tonne (+49.8 %).

Indicator	2015	2025	Change (%)
Exports			
Value (EUR m)	3 969	7 118	+79.3
Quantity (t)	57 932	72 351	+24.9
Price (EUR/t)	68 467	98 305	+43.6
Imports			
Value (EUR m)	3 688	6 451	+74.9
Quantity (t)	45 288	52 906	+16.8
Price (EUR/t)	81 386	121 892	+49.8

Import prices outpace export prices, narrowing the unit value advantage.

Throughout the period, the EU consistently sold at lower unit prices than it paid for imports. The export-to-import price ratio moved from 0.84 in 2015 to 0.81 in 2025, indicating a slight relative deterioration. This suggests that the EU specialises in lower-priced segments of CN 2934, while importing higher-value, possibly more complex molecules. The composition of trade is dominated by the residual subheading 293499 (largely nucleic acids and other heterocyclic compounds). In 2025, subhead 293499 accounted for 97.0 % of export value and 96.9 % of import value (Product Segment Breakdown). Its export price rose from EUR 91 888/t to EUR 159 042/t (+73 %), while its import price increased from EUR 117 595/t to EUR 187 527/t (+59 %), so the price gap narrowed somewhat in this main segment.

Sharp price shocks, particularly in US trade, disrupt the market after 2020.

The market experienced severe price disruptions, concentrated in trade with the United States and a few other partners. The detected shock events include:

- A 77.1 % jump in US import prices in 2020 (abnormality score 14.7), when the unit price surged from an average of EUR 48 472/t in 2018-2019 to EUR 85 835/t in 2020, while quantities held roughly stable.
- A 98.8 % price spike in EU exports to the US in 2022 (abnormality 3.3), where the unit price leapt from EUR 171 762/t (2020-2021 average) to EUR 341 473/t, accompanied by a 18.6 % volume drop.
- A 120 % price increase on exports to India in 2022 (abnormality 14.2), and a 72 % rise on exports to the United Kingdom in 2019 (abnormality 8.1).

These episodes, especially the repeated US-related shocks, drove both the export price peaks and the high volatility seen in the series. The coefficient of variation (CV) for US

import quantities was relatively low (0.10), confirming that supply was not physically interrupted; rather, pricing power shifted suddenly, likely reflecting demand surges for specific active pharmaceutical ingredients or temporary shortages.

Shifting Trade Partners: The Rise of the United States and China

The United States solidifies its position as the EU's dominant export destination.

The US absorbed an ever-larger share of EU exports, with sales rising from EUR 2.42 billion in 2015 to EUR 4.81 billion in 2025 (+99.0 %), as detailed in the Top Partners data. This growth doubled the US share of EU exports, making it by far the largest market. The concentration of exports, measured by the Herfindahl-Hirschman Index (HHI), rose from 3 882 in 2015 to 4 685 in 2025 (+20.7 %), peaking at 5 895 in 2022 (Concentration HHI). The US alone accounted for 79.8 % of the value share in the 2022 price shock.

Export partner	2015 (EUR m)	2025 (EUR m)	Change (%)
United States	2 415	4 807	+99.0
Brazil	71	259	+267.5
China	119	208	+74.1
India	145	162	+11.7
Russian Federation	45	44	−2.8
Japan	321	216	−32.8
United Kingdom	285	146	−48.8

China emerges as the leading import source, overtaking Switzerland.

On the import side, China posted a staggering 322.4 % increase, from EUR 423 million to EUR 1.79 billion, overtaking Switzerland (which grew 32.5 % to EUR 1.74 billion) as the top supplier. The United States and India recorded more moderate gains (+19.9 % and +10.3 %, respectively), while imports from Japan almost doubled (+99.3 %). The UK, after its departure from the EU single market, also saw a notable rise in its exports to the EU (+180.3 %), reaching EUR 316 million in 2025. The import HHI declined slightly from 2 042 to 1 870 (−8.4 %), reflecting a somewhat more diversified supply base despite China's surge.

Import partner	2015 (EUR m)	2025 (EUR m)	Change (%)
China	423	1 789	+322.4
Switzerland	1 313	1 740	+32.5
United States	707	848	+19.9
India	401	443	+10.3
Japan	239	477	+99.3
United Kingdom	113	316	+180.3

Exports to the United Kingdom and Japan contract, reflecting post-Brexit and competitive pressures.

EU exports to Japan fell from EUR 321 million to EUR 216 million (–32.8 %), and to the United Kingdom from EUR 285 million to EUR 146 million (–48.8 %). The decline in UK-bound exports was particularly steep after 2019, coinciding with a price shock in that year and the subsequent trade disruption. These losses were more than compensated by the US and Brazilian markets, but they underline a reorientation of EU chemical exports away from some traditional advanced-economy partners.

From Net Exporter to Net Importer: The Erosion of EU Production and Strategic Vulnerability

EU production volume and value contract significantly over the decade.

EU production of CN 2934 (including sold output) fell from 108.1 million kg in 2015 to 89.4 million kg in 2024, a decline of 17.3 % (Production Volume). The corresponding production value dropped from EUR 5.23 billion to EUR 4.29 billion (–17.8 %). While these data come with some estimation uncertainties, the trend is unmistakable. Even as exports expanded, domestic manufacturing lost ground, suggesting that a growing share of EU exports consists of re-exports or that the product mix shifted towards higher-value, lower-volume items.

Year	Production quantity (kg m)	Production value (EUR m)
2015	108.1	5 225
2020	154.2	5 751
2024	89.4	4 293

Ireland's dominance in exports masks a broader deterioration in EU manufacturing.

In 2025, Ireland alone accounted for 60.9 % of total EU extra-EU exports of CN 2934 (EUR 4.33 billion out of EUR 7.12 billion). Its Revealed Symmetric Comparative Advantage

(RSCA) score was 0.844, far above any other Member State, as shown in the Specialisation data. Other countries with a positive RSCA were Portugal (0.639), Spain (0.491), Belgium (0.280) and Finland (0.148). Most Member States, however, showed negative specialisation, including Germany (−0.284), France (−0.399) and the Netherlands (−0.355). The concentration of export dynamism in a handful of countries, coupled with declining overall production, points to a hollowing-out of the broader EU industrial base for these chemicals.

Net import reliance flips from deeply negative to positive, signalling a strategic dependence.

The most striking structural shift is the change in the EU's net import reliance indicator. In 2015, the ratio stood at −18.5 % (i.e., the EU was a net exporter of CN 2934). By 2023 it turned positive (0.3 %), and in 2024 it reached 11.7 % (Net Import Reliance). In parallel, export propensity (exports as a share of production) dropped from 140.9 % to 125.1 % (−11.2 %), and trade intensity (the sum of exports and imports relative to production) eased from 128.7 % to 110.5 % (Trade Intensity).

These figures reveal that the EU has moved from a position of comfortable trade surplus and apparent self-sufficiency to one of net dependence on external suppliers. The shift was gradual through the late 2010s and accelerated after 2022, when imports continued to rise while export values cooled from their 2022 peak. The combination of shrinking domestic production, rising import reliance and highly concentrated export destinations (mainly the US) creates a vulnerability that deserves close monitoring.

Conclusion

Between 2015 and 2025, EU trade in nucleic acids and related heterocyclic compounds (CN 2934) experienced a dramatic value expansion driven by price inflation rather than volume growth. The United States entrenched its role as the EU's leading export market, while China rose to become the top import supplier, reshaping global supply patterns. However, the impressive headline trade figures mask a worrying domestic trend: EU production contracted, and the bloc shifted from a net exporter to a net importer of these critical chemicals. The extreme concentration of export success in a few Member States (notably Ireland) and the repeated price shocks on the US market add further layers of fragility. Policymakers and industry stakeholders should examine whether the current specialisation and supply chains are resilient enough for future health, pharmaceutical and industrial demands.

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

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If you need advice on European trade policy, or representation for your interests in Brussels, feel free to contact me at support@tradedashboard.eu. You can find my CV at [this address](#).