

## Ukraine vs. Russia: How the current political conflict could affect the API market

Since Putin's war of aggression against Ukraine started about two weeks ago, several of our partners asked if we can help them assess the risk of supply chain disruptions.

With supply chain analytics coming to the QYOBO platform in the next few months, we used our current prototype to provide a short (and preliminary) answer to the two most frequently asked questions:

1. How many APIs are manufactured in Ukraine or Russia and exported elsewhere?
2. Which of these APIs are exclusively manufactured in these two countries or have few alternate sources in other countries?

Using over 30 million of trade and regulatory datasets from more than 30 countries worldwide, QYOBO supply chain analytics identifies API or intermediate suppliers, their manufacturing locations as well as their business relationships to buyers (up to marketing authorization holders) around the globe. For this analysis, we draw on the two former elements, i.e. the identification of suppliers and their manufacturing locations.

To answer the first question, the QYOBO platform listed that 33 molecules are manufactured in Ukraine and Russia for export into other countries. These include anaesthetics such as benzocaine (manufactured by Usolje-Sibirskij Chempharmzavod OJSC / АО Усолье-Сибирский химфармзавод in Irkutsk Oblast, Russia), oncology drugs, namely doxorubicin hydrochloride, epirubicin hydrochloride, idarubicin hydrochloride and valrubicin (all Synbias Pharma Ltd / Синбиас, Нпф in Donetsk, Ukraine) as well as rather exotic substances like Vipera beri venom (Siberian Serpentarium / Сибирский серпентарий in Novosibirsk, Russia)

The answer to the second, and from a supply chain risk perspective most pressing, question which of these substances is exclusively manufactured in Ukraine or Russia is simple - None. For all of the 33 substances, the QYOBO platform shows at least another source outside of Ukraine, Russia and even Belarus. Hence wide-ranging supply interruptions, due to the war itself or the sanctions imposed on Russia's economy, are not expected.

However, three APIs - namely phenazepam, tropicamide and valrubicin - merit a closer look due to their limited manufacturing footprint. Only two manufacturers are known for phenazepam - Olainfarm JSC (Olaine, Latvia) and Interchem / ІнтерХім (Krasnosilka, Ukraine) (see Figure 1). Given Interchem's location between two major fighting hot spots, Odessa and Mykolaiv, Latvian Olainfarm soon looks to be the only manufacturer worldwide.

For tropicamide, the situation is more relaxed with four alternatives (see Figure 2): Dishman Carbogen Amcis Ltd (Bubendorf, Switzerland), Sanvin Group (Navi Mumbai, India), Tokyo Chemical Industry Co., Ltd. (Fukaya, Japan) and Vivimed Labs Ltd. (Jiutepec, Mexico) stand by as API manufacturers beyond St. Petersburg-based SKTB TEKHNOLÓG / СКТБ Технолог.

Valrubicin, one of the chemotherapy APIs manufactured by Synbias Pharma Ltd in Donetsk, Ukraine 3 alternative suppliers are actively supplying the market: Gemini PharmChem Mannheim GmbH (Mannheim, Germany), DZD (Heze) Pharmaceutical Co. Ltd. / 道中道(菏泽)制药有限公司 (Heze, China), and Teva Pharmaceutical Industries Ltd (Santhià, Italy).

In summary, the insights provided by the QYOBO platform suggest no wider impact on the global pharmaceutical industry. For the three aforementioned APIs, drug manufacturers and marketing

authorization holders should take action to ensure their supply remains uninterrupted. For further information, feel free to contact QYOBO anytime via [service@qyobo.com](mailto:service@qyobo.com).

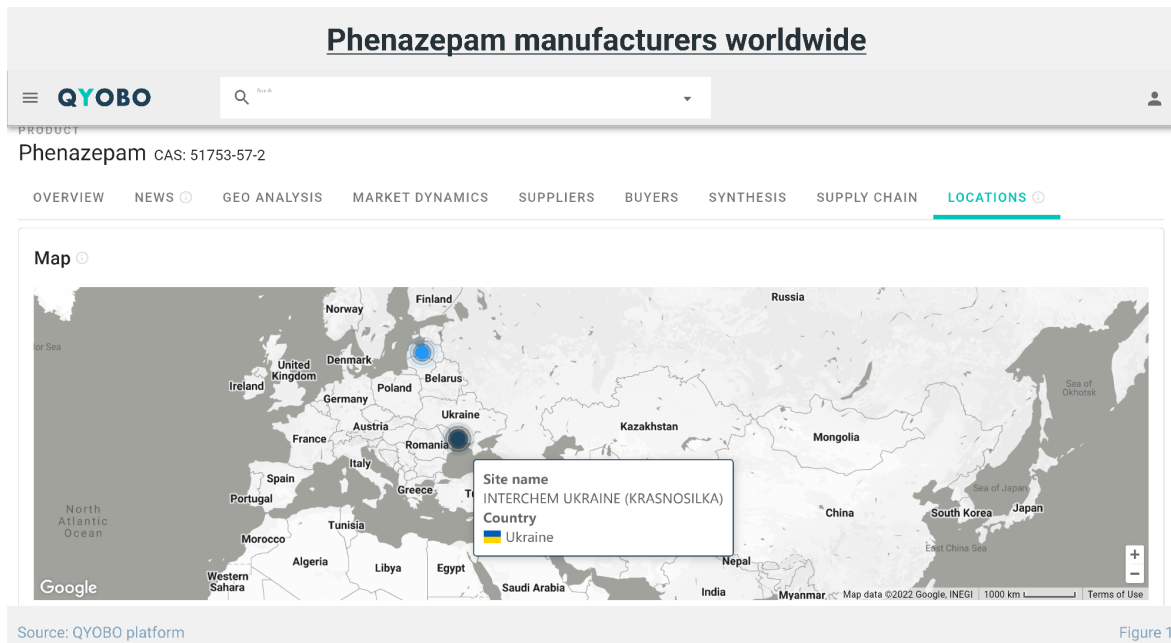


Figure 1: Screenshot of the QYOBO platform showing manufacturing locations of phenazepam around the world

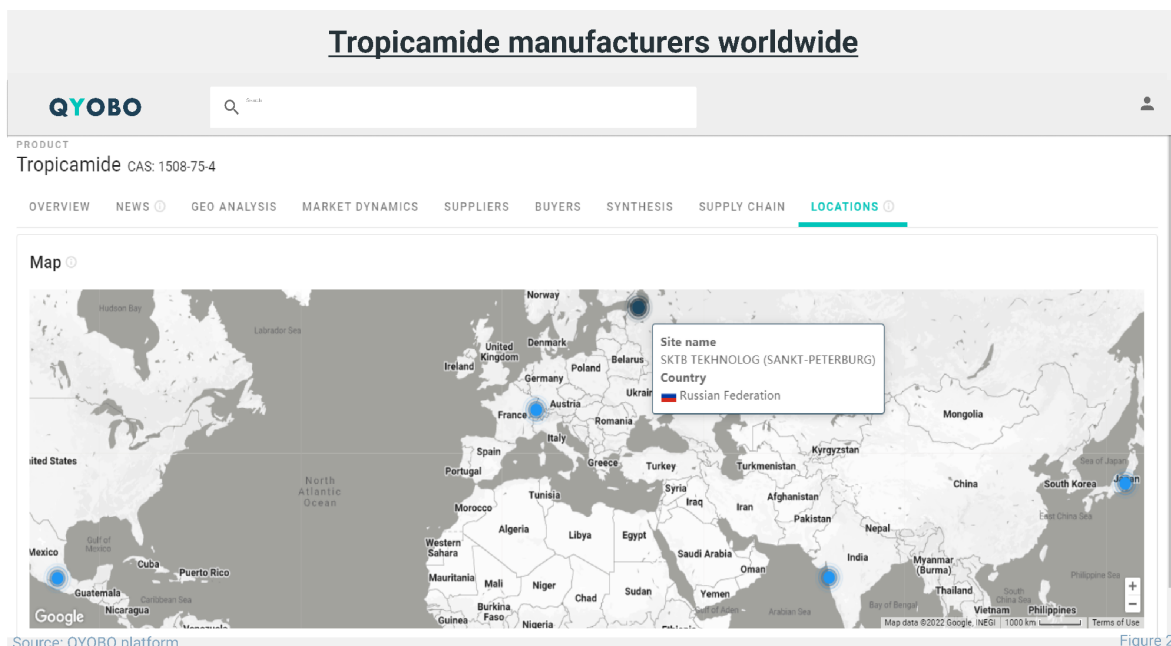


Figure 2: Screenshot of the QYOBO platform showing manufacturing locations of tropicamide around the world

**About QYOBO GmbH:**

QYOBO's mission is to improve access to essential medication for everyone by contributing to a more transparent, efficient and robust supply of pharmaceutical and chemical raw materials.

For this purpose, we've developed the QYOBO market analytics platform for APIs, intermediates and chemicals. From millions of trade, regulatory and financial datasets scattered around the world, our big data algorithms derive unique, actionable insights on market prices and trends, suggest suitable partners for your business and automate data-heavy workflows in procurement, supply chain and business development.

Founded in June 2019 and based in Munich, our company is pursuing its mission collaboratively with its international clients and has been recognized with numerous awards including the BASF market challenge and the Digital Innovation award 2020 by the German Federal Ministry for Economic Affairs & Energy (BMWi).

**Disclaimer:**

The information in this article is not intended to be used for medication purposes. Please do not self-medicate and consult a physician/doctor for any questions with regard to your personal medical needs. This assessment has been prepared adhering to the highest quality standards based on a variety of external data sources (see sources) with the purpose of making distributed information accessible to a broader audience. The information contained in this document is provided on an "as is" basis and QYOBO GmbH assumes no responsibility or liability for the completeness, accuracy, usefulness or timeliness of the information provided. This article contains links to external websites operated by third parties upon which QYOBO GmbH has no influence. QYOBO GmbH does not assume any guarantee or liability for third party content.