

RELIABLE SUPPLY OF QUALITY DEF PRODUCT SOLUTIONS

WHITEPAPER
JANUARY 2023



DEF SUPPLY CHAIN CHALLENGES

Diesel Exhaust Fluid (DEF) is a urea-based product used around the world. A disruption in its supply chain affects its production and distribution and can cause a constraining ripple effect impacting stakeholders and consumers in many ways.

The North American DEF market has always been dependent on material imported from abroad; simply put, North American DEF demand exceeds the production output capacity of urea plants within the Americas. This supply vs. demand imbalance is anticipated to widen even further over the next few years as DEF demand continues to grow at 10% annually while we haven't heard of any plans for new North American urea production plants. This is expected to only increase our dependency on imported material.

Throughout the years 2021–2022, urea markets have been significantly challenged. The impacts of COVID-19 on the global economy, coupled with China's decision to limit its international urea exports, have resulted in a slowdown of the global urea market supply. The recent geopolitical and macroeconomic context resulting from the war in Ukraine that led to Russian sanctions is also contributing to supply shortage and impacting the cost of energy and natural gas supplies needed to convert ammonia into urea, and ultimately DEF.



More precisely, Russia is the number one global exporter of natural gas. Europe happens to be one of the largest customers for both heating and industrial processes including the manufacturer of urea and DEF as both are made using natural gas as a primary input. As the geopolitical situation over the invasion of Ukraine becomes more complex, supply of Russian natural gas has dropped dramatically, resulting in a fourfold or greater increase in price compared to before the invasion.

Less available natural gas leads to higher acquisition costs and ultimately more expensive urea and DEF.

Our sweat equity and hard work establishing processes, relationships, and commitment to our customers at Recochem made us able to stay on the right track without being destabilized by all these events, which were quite disruptive, to say the least.

OUR KNOWLEDGE AND FORESIGHT HAVE ENABLED US TO MEET THE GROWING DEMAND OF OUR CUSTOMERS WITH HIGH-QUALITY PRODUCT AND SERVICE STANDARDS, WHILE INCREASING DELIVERY VOLUME BY 17% IN THE LAST YEAR.¹

OPTIMAL WAY TO PURCHASE QUALITY DEF PRODUCT

Knowing the need to optimize supply and infrastructure for Canada-wide distribution, Recochem has developed an operational mode that, to this day, allows for the delivery and replenishment of quality DEF.

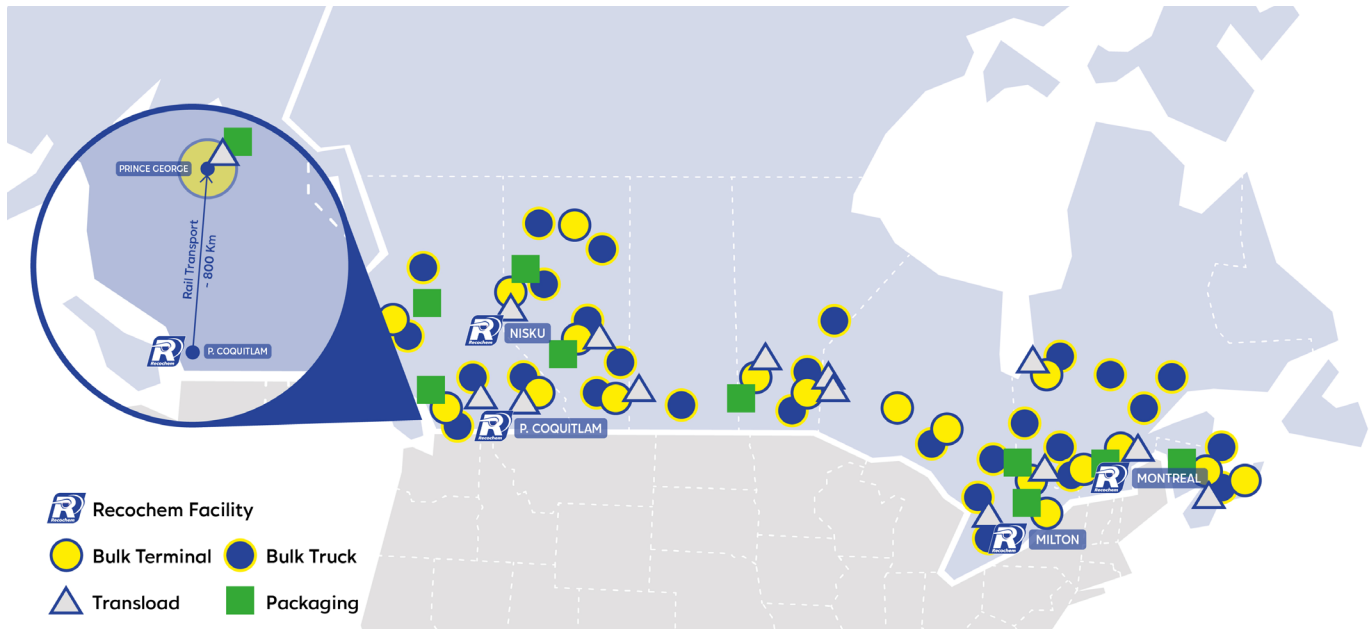
Blue Network is a one-stop shop solution for DEF distribution, delivery, equipment, and support.

WE PROVIDE A CONSISTENT SUPPLY SERVICE THAT GIVES YOU PEACE OF MIND.



¹ Recochem Freight Data, May 2020 – October 2022

BLUE NETWORK PROVIDES ONE OF THE LARGEST DISTRIBUTION NETWORKS IN CANADA



We have always placed a higher degree of importance on establishing and maintaining strong supply positions for all our product and service inputs. Foremost of which is our focus on DEF procurement in support of Blue Network. In the early 2010s as the DEF market was developing, we worked extensively at establishing a strong partnership with our global urea supplier. That effort continues through to today and enables us to enjoy guaranteed, contracted supply. This contractual agreement minimizes Blue Network's exposure to more risky spot market supply which tends to have a higher degree of volatility especially when DEF availability is tight as it is currently and into the foreseeable future.

With delivery points from coast-to-coast across Canada, Blue Network is already in your neighbourhood. **It's no surprise that we have increased our delivery points by 5% in the last year², delivering over 650 million litres since the beginning of the Blue Network service.** We can provide the fluids and supplies you need faster and more cost effectively.

WE DELIVERED ENOUGH DEF THAT IF TANKER TRUCKS WERE USED AND STACKED END TO END, THEY WOULD STRETCH OVER 340 KM!

Blue Network's reliability and professionalism have allowed us to become one of the largest DEF distributors in Canada.

2/3 or more DEF customers stated that availability is the most important factor when purchasing bulk DEF.³

² Recochem Freight Data, May 2020 – October 2022

³ Recochem Canadian Market Findings, Independent Study by Dynata, 2022

NEVER RUN OUT OF DEF

Anticipation and planning are key to ensure that you never run out of quality DEF. Our automatic refill scheduling makes it easy to keep your fleet's tank wet with high quality DEF.

DEF is a long-lasting product when stored and handled in the appropriate manner.

The ISO 22241 standard specifically identifies the equipment and engineering needs for appropriate storage and handling equipment, which we obviously have designed and meet with our Blue Network. We can supply you on a regular basis. Our recommendation is to be proactive and organized at all points to allow you to both control your costs and anticipate your supply plan.



ISO 22241 REQUIREMENTS: WHY SHOULD YOU CARE?

Meeting industry standards is a major factor when purchasing DEF for a large proportion of DEF customers⁴.

ISO stands for: International Organization for Standardization, a worldwide federation of national standards bodies. The ISO 22241 series provides specifications for quality characteristics, handling, transport, storage, and filling interface as well as test methods to manufacturers of motor vehicles and their engines, converter manufacturers, producers and distributors of urea solution and fleet operators.

The ISO 22241 standard specifies the Quality Characteristics Of The Agent AUS 32 (aqueous urea solution) for NOx reduction. Its certification provides assurance that our DEF solutions consistently meet stringent OEM (Original Equipment Manufacturer) requirements and conform to international quality standards. Blue Network maintains complete control to ensure that only

quality, multi stage filtered DEF ends up in each tank and is being delivered to our customers.

Blue Network DEF is fully tested by our ASTM-compliant laboratory. In-house testing and analysis allow us to maintain rigorous compliance with ISO 22241, the international standard for DEF quality. This unique testing facility in Canada is available to our customers for OEM claim support. As an added measure of assurance, we test throughout the supply chain, from initial bulk liquid transfer through individual delivered tanker load.

**IT'S OUR COMMITMENT
TO QUALITY.**

⁴ Recochem Canadian Market Findings, Independent Study by Dynata, 2022

DEF PRODUCT AND DISTRIBUTION: BLUE NETWORK MEETS HIGH QUALITY STANDARDS

At Blue Network we qualify the bulk fluid to ensure that when used in those systems, it will function properly. Blue Network DEF is delivered in temperature-controlled stainless-steel tanks, using only Measurement Canada

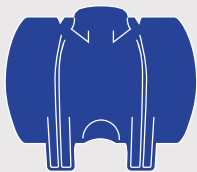
approved equipment. Specialized airtight dispensing equipment is used to transfer the pure liquid into your tanks on site. With DEF delivered properly, it's easier to keep your tanks full of DEF.

BLUE NETWORK, ALWAYS A STEP AHEAD!

Given the unpredictability experienced over the last 18 months as markets emerge from the pandemic restrictions, Blue Network has doubled down efforts with our key partners to ensure material is suitably distributed throughout our vast network from coast to coast.

This includes contingency plans and processes that can quickly move large volume of material when and where it's needed. We have progressively invested in additional storage and delivery assets while ensuring we have a dedicated team of Blue Network experts to assist you from the order placement to delivery. Blue Network customers can leverage the purchasing power and breadth of coverage that comes with our extensive bulk DEF distribution program.

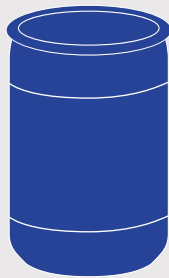
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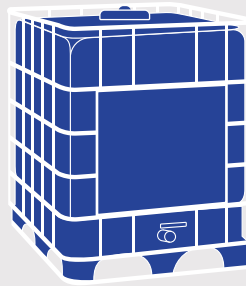
Tank



Jug
9.46 L/2.5 GAL



Drum
208 L/55 GAL



Tote
1041 L & 1250 L/
275 GAL & 330 GAL

ABOUT BLUE NETWORK

We are your one-stop-shop for the sale, distribution, and delivery of DEF, equipment, and support.

In addition to supplying high quality DEF, Blue Network and our national network of partners provide design, installation, maintenance, financing, equipment, and full system support.

SCAN THE QR CODE BELOW TO GET ONBOARDED WITH BLUE NETWORK



OR VISIT BLUENETWORK.CA

ABOUT RECOCHEM INC.

SECURING
YOUR JOURNEY

Since 1951, Recochem has been on your side to make your journey as safe as possible, whether you are on the road, at home or at work.

Founded in Montréal, we have grown into a leading manufacturer and distributor of automotive and household solutions for consumers and industrial customers worldwide.

With over 10 factories in North America and plants in Belgium, Australia, China, India, and the Asia Pacific ... we strive for everyday excellence by being a

reliable and efficient partner for our clients and customers. We have earned multiple nominations and awards from our long-standing customers, suppliers, and partners over the years.

Backed by in-depth consumer research and R&D expertise, we are poised to continue our expansion into global markets while maintaining our core values of exceptional customer service and consistent product quality by driving premium value for our customers and answering unmet needs for our consumers.



**OUR FOCUS IS THE JOURNEY
ALONG THE WAY AND NOT
THE DESTINATION.**

FOR MORE INFORMATION,
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