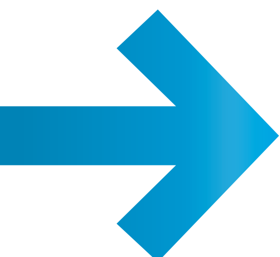
5N **PLUS**
Enabling Performance™

Building on our Momentum

2022 Annual Report



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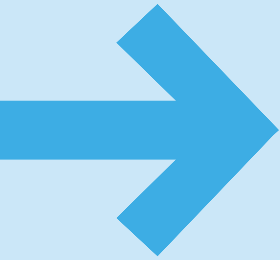
5N Plus (TSX:VNP) is a leading global producer of specialty semiconductors and performance materials. Our ultra-pure materials often form the core element of our customers' products.

We create critical materials that enable various applications in critical industries, including for the renewable energy, security, space and medical imaging sectors under our Specialty Semiconductors segment, and for the health and pharmaceutical, as well as industrial sectors under Performance Materials.



Why Invest in 5N Plus

1	**Market leading global supplier of value-added products to leading customers in high-growth industries**	➜ Leading supplier of specialty semiconductor compounds for renewable energy ➜ Leading supplier of solar cells for space industry	➜ Leading supplier of engineered semiconductor substrates and ultra-high purity materials to sensing and imaging industries	➜ Leading supplier of bismuth-based active pharmaceutical ingredients ➜ Industrial partner and supplier to governments and agencies around the world
2	**Integrated manufacturer of advanced materials utilizing unique and proprietary process technologies**	➜ Highly specialized producer of high-purity metals and compounds that often form core components of customer end-products	➜ R&D, manufacturing facilities and commercial centres strategically located around the globe close to suppliers and customers	➜ Operating in stable markets ➜ Strong technological platform and skillset enabling first-to-market advantage and continuous improvements
3	**Effective commercialization strategy**	➜ Focused on securing long-term value-added partnerships with leading customers in high-growth markets	➜ Streamlined product portfolio with growing emphasis on higher value-added specialty semiconductors and performance materials	
4	**Financial discipline**	➜ Strong balance sheet	➜ Invest in operations in line with demand and ramp up of commercial agreements	➜ Disciplined approach to potential acquisitions and/or entering new end markets
5	**Committed to sustainable development**	➜ ISO-certified operations committed to high standards in health and safety, quality and sustainability	➜ Closed-loop resources management approach	➜ Provider of essential materials for applications critical to the decarbonization and the energy transition

Mission

To be critical to our customers, valued by our employees and trusted by our shareholders.

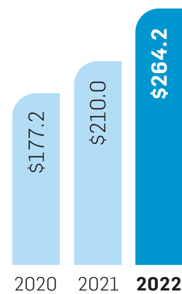
Vision

To enable critical industries through essential products based on advanced material technology.

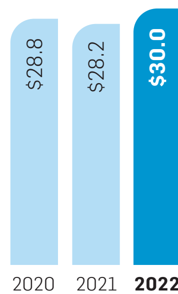
Values

Commitment
Continuous improvement
Customer focus
Health and safety
Integrity
Sustainable development

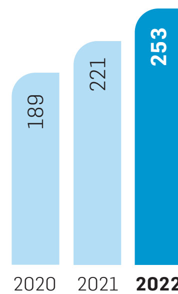
Revenues
(in millions)



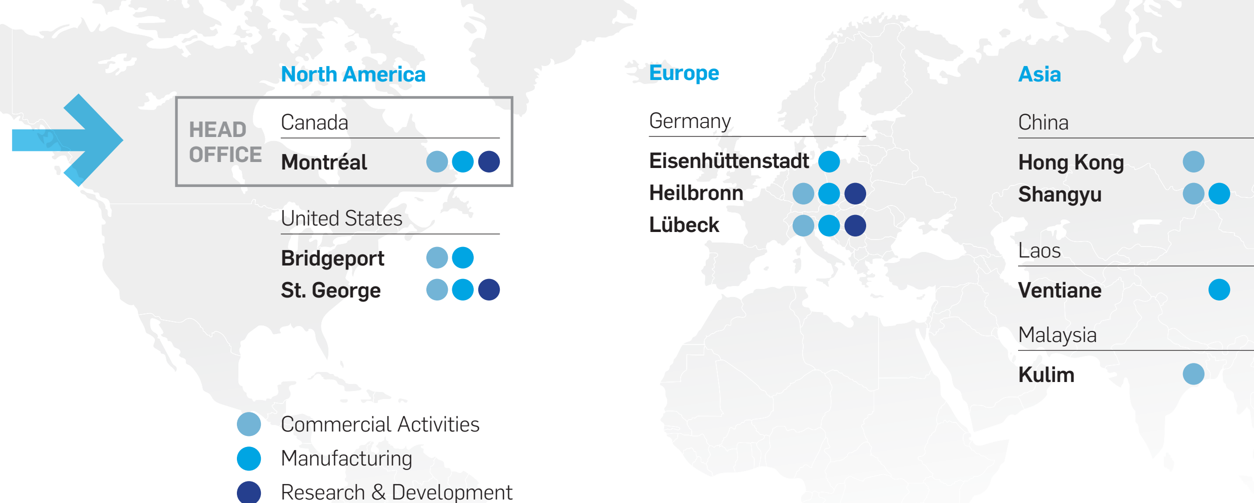
Adjusted EBITDA[1]
(in millions)



Backlog[1]
(number of days of last quarter annualized revenue)



800 Employees on Three Continents



1 Adjusted EBITDA and backlog are non-IFRS financial measures. See Non-IFRS Measures section in this document for more information.

All amounts in this document are experessed in U.S. dollars unless otherwise indicated.

On the Right Path to Unlock Future Growth

The year 2022 was a productive year for 5N Plus. Under new leadership, the Company integrated AZUR after it was acquired in late 2021, signed significant commercial agreements, further streamlined the Company's product mix and made steady progress on its sustainability roadmap.

As stewards of the Company on behalf of shareholders, the Board has full confidence in the senior management team and its ability to capitalize on opportunities for growth, underpinned by strong strategic execution. As a Board, we remain committed to ensuring high standards of governance and are highly engaged in the oversight of the Company's long-term strategy.

Luc Bertrand
Chair of the Board

The right talent executing on our strategy
Gervais Jacques was appointed to the role of interim President and CEO on December 1, 2021 and was permanently appointed to the role in March of 2022. The Board is pleased with the Executive Committee's strong leadership and the progress the Company is making in the execution of its strategy.

The Executive Committee was also further strengthened last fall with the addition of Roland Dubois as Chief Commercial Officer and Executive Vice President of Specialty Semiconductors. Ensuring that we can attract and retain top talent, as well as succession planning for key roles, remains an ongoing Board priority.

Through continuing economic and market challenges, the Company's Executive Committee moved ahead decisively as a team by securing strategic supply agreements and commercial partnerships with Rio Tinto, Sierra Space and First Solar, among others. The team also took action to exit less attractive and more commoditized business lines and invested in our operations to expand our presence in high-growth end markets, like renewable energy and space power. These actions expand the Company's presence in its target markets, ensure that we have the right product mix and focus for the future and demonstrate 5N Plus' resilience and ability to adapt as it positions itself for further growth.

A sustainable business fueled by growth
The Board and management are aligned when it comes to the need to have a sustainable business model as part of its future growth and conducting business in an ethical and responsible manner.

To that end, we continue to work with management to enhance our disclosure of Environmental, Social and Governance (ESG) matters and make improvements in all areas, particularly on those over which we have direct control. In 2023, we intend to officially integrate ESG oversight and responsibility to the Board's Governance and Compensation Committee, which is in addition to the Audit and Risk Management Committee's oversight of climate risks, part of our enterprise risk management. We have also remained engaged with, and supportive of, management in the advancement of the Company's sustainability agenda, notably with the publication of the Company's first comprehensive Sustainability Report.

We take our responsibility for improved governance at the Board and executive level very seriously, which includes continually evaluating Board composition to ensure it is best aligned with the objectives of the Company, while maintaining independence and improving upon diversity. Following an extensive search process which began in 2022, in early 2023, we were pleased to welcome Blair Dickerson as an independent director. Ms. Dickenson brings a wealth of experience and expertise in the natural resources sector, communications, public affairs and public policy work. With the addition of Ms. Dickerson, the Board has surpassed its diversity objective of having at least 30% female representation on the Board by 2025.

Looking ahead, we will continue to be diligent in tracking the Company's progress on the execution of its growth strategy. Our role is to guide management as it capitalizes on opportunities through a diversified, value-added business mix and expands in the right markets to create long-term value for all stakeholders.

On behalf of the Board, I would like to express our gratitude to all our employees and management for their commitment to the success of the Company and to all our shareholders for your continued trust and support.

Sincerely,

Luc Bertrand
Chair of the Board

Building on our Momentum

Looking back on 2022, we at 5N Plus are proud of how we continued to execute on our strategy for growth in value-added end markets. We remain at the forefront of our field as a critical supplier to critical industries around the globe and a genuine differentiator and partner of choice in the field of speciality semiconductors.

Last year marked my first full year as CEO and I am pleased with what we have been able to accomplish as a team, particularly in the context of continuing headwinds and market challenges. Revenues reached $264.2 million, representing a 26% year-over-year increase, and Adjusted EBITDA[1] came in at $30 million, at the high end of our 2022 guidance range. These results were supported by both our Specialty Semiconductors and Performance Materials segments, and the team's ability to remain agile in a dynamic environment.

Our financial performance is a testament to our rigorous focus on increasing volumes and structurally improving our costs and product mix to be better positioned for the long term. We enter 2023 with strong momentum, well-positioned for continued growth in our key sectors of activity, as illustrated by our historically high backlog[1] at year end.

Strong Partnerships and the Right Product Mix

Operationally, our sights remained fixed on ensuring commercial excellence in every sector we serve. The year 2022 also marked the completion of the integration of AZUR, which we acquired in November 2021. Through AZUR, we signed a ten-year extension to an exclusive teaming arrangement with Sierra Space, a leading U.S. based commercial space company at the forefront of space innovation and commercialization. The commercial relationship further establishes 5N Plus as the clear partner in high-end space solar cell technology and speaks to what can be accomplished as one team.

Our long-time relationship with First Solar has reached an unprecedented level as reflected in the renewal of our contract. We increased the volume for the supply of semiconductor materials associated with the manufacturing of thin-film photovoltaic modules by 35% in 2023 and over 100% in 2024, compared to 2022 levels. Related to First Solar, we also reached a commercial agreement with Rio Tinto to source the tellurium produced at its Kennecott copper operation in Utah, which began last December. The tellurium refined at our Montréal facility is primarily used for the manufacturing of thin-film photovoltaic modules by First Solar, and for ultra-high purity semiconductor substrates for the security and medical imaging markets at our Utah facility.

1 Adjusted EBITDA and backlog are non-IFRS financial measures.
See Non-IFRS Measures section in this document for more information.

All amounts in this document are expressed in U.S. dollars unless otherwise indicated.

Gervais Jacques
President and CEO

Further to that, we recently completed investments in Montréal to expand the development and manufacturing of critical materials, including those containing tellurium for advanced II-VI semiconductor compounds. We will continue to invest in our operations to increase our production capacity to meet the needs of our clients.

Finally, in late 2022, we exited the extractive and catalytic sector with the divestiture of our manufacturing facility in Tilly, Belgium, in line with our strategy to improve our product mix and reduce exposure to more commoditized end markets. This also marked the completion of our strategic review process which served to reinforce our focus on value-added products.

We are also proud of the work we completed in 2022 with respect to establishing and setting our sustainability framework. In early 2023, we published our inaugural comprehensive Sustainability Report, simultaneous with this Annual Report. In the Sustainability Report, we outline our commitment to and progress in contributing to a sustainable economy through the critical sectors we serve and enable. Going forward, our goal is to further minimize our environmental footprint and impact, as we continue to contribute to the communities in which we are present.

A Focused Strategy for A High-Growth Future

As we move away from more commoditized business lines and invest in innovative specialty semiconductors and performance materials, we will continue to develop value-added partnerships leveraging our unique expertise in enabling critical industries. As an example, we are making further developments in our imaging technology business with strategic partnerships, as well as in active pharmaceutical ingredients, such as through our investment in Microbion, which is a longer-term endeavour on which we are progressing.

Our focused strategy strengthens our Company and positions us for the future, as we capitalize on our momentum for further growth fueled by our strategic partnerships. In Specialty Semiconductors, we expect unprecedented demand and high growth in sectors like renewable energy and space solar power to be sustained and supported by growing demand in both North America and Europe. We also expect significant growth in medical imaging applications in the next three to five years, supported by the introduction of photon counting detectors to replace scintillator technology, allowing significantly lower radiation and improved image enhancing diagnostic accuracy. In Performance Materials, we expect that our focus on the right sectors and the investments made in the business will enable us to expand our product mix in attractive end markets.

As we look ahead, we are invested to meet customer demand and are ready to unlock the full potential of our strategy supported by our commercial excellence mindset and investments in value-added and high-growth markets.

I am grateful to our Board for their guidance, oversight and support in my first official year as CEO and to our entire team for their dedication and professionalism as we refocused our strategy, brought AZUR into the fold, delivered on commercial excellence and selectively invested in our sustainable growth. I am extremely excited by the prospects ahead in 2023 and beyond to drive more growth and value for our employees, our customers and our shareholders.

Sincerely,

Gervais Jacques
President and CEO

Enabling Products and Growing Markets

As a leading global producer of specialty semiconductors and performance materials, we create critical materials that enable a wide variety of technologies and products essential to people's daily lives. Our world-class R&D and manufacturing capabilities as well as our technical expertise and proprietary processes enable us to transform metals into value-added specialty materials that form the core of our customers' products.

Specialty Semiconductors

Through our Specialty Semiconductors segment, we sell semiconductor compounds, semiconductor wafers, ultra-high purity metals, epitaxial semiconductor substrates and solar cells, primarily derived from from cadmium, zinc, germanium, indium, antimony and tellurium.

Performance Materials

Through our Performance Materials segment, we sell bismuth and bismuth-based chemicals, trace element premixes, as well as optical and low melting point alloys. This segment is strongly associated with bismuth, which is non-toxic and possesses anti-microbial activity, and is used in several applications as a replacement for more harmful metals and chemicals. Products are primarily sold as active pharmaceutical ingredients, animal feed additives, specialized chemicals, commercial grade metals and alloys.

Renewable Energy

Our engineered semiconductor compounds are used to make the black thin-film photovoltaic modules on solar panels enabling the conversion of solar energy into electricity. Today, gigawatts of solar panels incorporating our materials are installed in utility-scale projects, generating renewable power for consumers worldwide.

Space

Our high-purity germanium wafers and epitaxial semiconductor substrates are used to produce ultra-high efficiency photovoltaic solar cells for satellite power generation and concentrated photovoltaic systems. Our enabling materials are currently in orbit powering commercial and defense satellites around the globe, as well as incorporated in next-generation energy storage infrastructure on land.

Imaging and Sensing

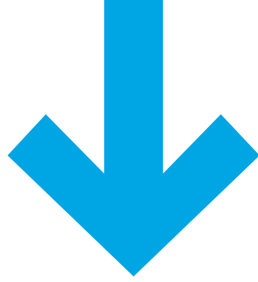
Made of cadmium, tellurium and zinc of the very highest purity, our materials are used to manufacture radiation detector chips used in medical, infrared and earth imaging applications in the medical, security and defense industries, helping to reduce patient exposure to x-rays and keeping nations safe.

Health and Pharmaceutical

Non-toxic to human health or the environment and with anti-microbial properties, our bismuth products are used as active pharmaceutical ingredients in over-the-counter antacids, antibiotic creams and cosmetics products.

Industrial

Our alloys are used in aviation for work-holding applications where dimensional stability and low temperature are critical characteristics. Bismuth is used as a replacement for lead in other industrial applications, like coatings and pigments, and is in electronics, optics and glass. We also produce pre-mixes containing trace elements of iodine, selenium and cobalt for animal feed.



Enabling a Sustainable Future

At 5N Plus, sustainable development is at the core of our growth strategy. We aim to extend our position in the circular economy, enable innovative technology and be a critical supplier to sectors essential to a sustainable future. Internally, our sustainability programs aim to reduce our ecological footprint and ensure we maintain sustainable procurement practices.

We consider ourselves optimally positioned in **three areas** to support our communities and environment:

Leading the Sustainable Economy, Minimizing our Environmental Footprint and Impact
From our supply chain to our products, we are constantly looking to improve. Currently, we are initiating two circular economy studies to investigate more renewable and local raw material sources and our mineral recycling program spans three continents. We are early adopters of sustainable procurement programs and focus on reducing waste, proudly ensuring thoughtful circular supply chains.

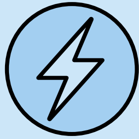
Supplying the Renewable Energy Industry and Enabling New Technology
Solar energy is one of the most important components required for transitioning the world to a decarbonized economy. We are proud to be a leading supplier of semiconductor materials for the manufacturing of thin-film solar power generating technologies for terrestrial and space power generation. In new technologies, we support pharmaceuticals and medical technology developments by providing materials needed for new medical imaging devices, which reduce x-ray exposure, and investing in novel class pharmaceuticals, among other critical sectors.

Community Responsibility
We give back to our communities and invest in their development. We have provided books and reading materials to communities in need and coordinated community tree planting events. We are committed to maintaining our reputation as a great place to work, a trusted supplier and valued member of the community.

We continued to work diligently throughout 2022 on the development of our sustainability approach. As a result, in early 2023, guided by the Global Reporting Initiative (GRI) framework and the recommendations from the Task Force on Climate-Related Financial Disclosures (TCFD), among other frameworks, we published our first comprehensive Sustainability Report. We continue to mindfully plan our path forward to further integrate our approach to sustainability into our business model, while engaging with our stakeholders and keeping them informed of our progress.

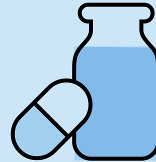
We invite you to consult our inaugural Sustainability Report, available at **www.5nplus.com**.

2022 Sustainability Highlights



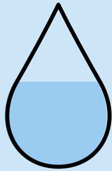
~25GW

of solar power equivalent in the world has been enabled by 5N Plus technology to date[1]



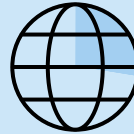
#1

supplier of bismuth[2]-based active pharmaceutical ingredients, representing 80% of global demand[1]



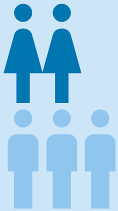
↓30%

reduction in process water consumption over five years



27%

female staff across the global office



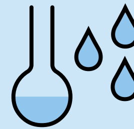
40%

female representation on the Board of Directors[3]

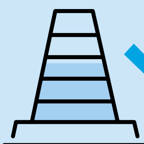
We have the ISO 50001 standard in two sites in Germany, an energy management methodology that aims to improve energy performance

100%

of process water is recycled at our facilities in Eisenhüttenstadt and Shangyu

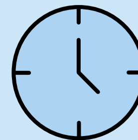


Our sodium nitrate containing wastewater in Lübeck is used for odor reduction (organic wastewater, against anaerobic digestion in the sewers)



↓65%

reduction in work-related incidents since 2018



4,220

hours of EHS training provided in 2022

1 Based on management estimates
2 See Performance Materials on page 9
3 Since February 23, 2023

Management's Discussion and Analysis

This Management's Discussion and Analysis ("MD&A") of the financial condition and results of operations is intended to assist readers in understanding 5N Plus Inc. (the "Company" or "5N Plus"), its business environment, strategies, performance and risk factors. This MD&A should be read in conjunction with the audited consolidated financial statements and the accompanying notes for the year ended December 31, 2022, based on International Financial Reporting Standards (''IFRS'') as issued by the International Accounting Standards Boards, unless otherwise stated. This MD&A has been prepared in accordance with the requirements of the Canadian Securities Administrators.

All amounts in this MD&A are expressed in U.S. dollars, and all amounts in the tables are in thousands of U.S. dollars, unless otherwise indicated.

Information contained herein includes any significant developments until February 21, 2023, the date on which the MD&A was approved by the Company's Board of Directors. Unless otherwise indicated, the terms "we", "us", "our" and "the group" as used herein refer to the Company together with its subsidiaries. "Q4 2022" and "Q4 2021" refer to the three-month periods ended December 31, 2022 and December 31, 2021, respectively. "FY 2022" and "FY 2021" refer to the years ended December 31, 2022 and December 31, 2021, respectively.

Non-IFRS Measures

This MD&A contains certain non-IFRS financial measures and ratios, which do not have a standard meaning under IFRS and, therefore, may not be comparable to similar measures presented by other issuers. Such non-IFRS measures and ratios include backlog, bookings, EBITDA, EBITDA margin, Adjusted EBITDA, Adjusted EBITDA margin, Adjusted operating expenses, Adjusted net earnings, Basic adjusted net earnings, Adjusted gross margin, total debt, net debt, working capital and working capital ratio.

For definitions, further information and reconciliation of these measures to the most directly comparable measures under IFRS, see the "Non-IFRS Measures" section.

Notice Regarding Forward-Looking Statements

Certain statements in this MD&A may be forward-looking within the meaning of applicable securities laws. Forward-looking information and statements are based on the best estimates available to the Company at the time and involve known and unknown risks, uncertainties or other factors that may cause the Company's actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. Factors of uncertainty and risk that might result in such differences include the risks associated with interest rate, foreign currency, credit, liquidity, global economic conditions, crisis and climate change management, international operations including China, environmental regulations, social and governance (ESG) considerations, safety and hazards, prolonged armed conflict in Ukraine, COVID-19, availability and retention of qualified employees, collective agreements, litigation, our growth strategy, competition, commodity price, sources of supply, protection of intellectual property, inventory price, business interruptions, changes in backlog, acquisitions, systems, network infrastructure and data failure, as well as market price of the common shares. A description of the risks affecting the Company's business and activities appears under the heading "Risk and Uncertainties" of this MD&A dated February 21, 2023.

Forward-looking statements can generally be identified by the use of terms such as "may", "should", "would", "believe", "expect", the negative of these terms, variations of them or any similar terms. No assurance can be given that any events anticipated by the forward-looking information in this MD&A will transpire or occur, or if any of them do so, what benefits that 5N Plus will derive therefrom. In particular, no assurance can be given as to the future financial performance of 5N Plus. The forward-looking information contained in this MD&A is made as of the date hereof and the Company has no obligation to publicly update such forward-looking information to reflect new information, subsequent or otherwise, unless required by applicable securities laws. The reader is warned against placing undue reliance on these forward-looking statements.

Overview

5N Plus is a leading global producer of specialty semiconductors and performance materials. The Company's ultra-pure materials often form the core element of its customers' products. These customers rely on 5N Plus' products to enable performance and sustainability in their own products. 5N Plus deploys a range of proprietary and proven technologies to develop and manufacture its products. The Company's products enable various applications in several key industries, including renewable energy, security, space, pharmaceutical, medical imaging, and industrial. Headquartered in Montréal, Québec, 5N Plus operates R&D, manufacturing and commercial centers in strategically located facilities around the world including Europe, North America and Asia.

Vision, Mission and Values

The Company's vision is to enable critical industries through essential products based on advanced material technology and 5N Plus' aim is to propel the growth of these markets by developing and manufacturing advanced materials to enable product performance.

The Company's mission is to be critical to its customers, valued by its employees and trusted by its shareholders. The Company's core values are integrity, commitment and customer development, with an emphasis on sustainable development, continuous improvement, and health and safety.

Reporting Segments

Following the acquisition of AZUR SPACE Solar Power GmbH ("AZUR") on November 5, 2021, and the subsequent integration of its activities within the Company's operations, 5N Plus repositioned certain products and applications between its two reportable segments effective in the fourth quarter of 2021.

Since then, the Company has the following two reportable segments: Specialty Semiconductors and Performance Materials. Corresponding operations and activities are managed accordingly by the Company's key decision makers. Segmented operating and financial information and labelled key performance indicators are available and used to manage these business segments, review performance and allocate resources. Financial performance of any given segment is evaluated primarily in terms of revenues and Adjusted EBITDA[1], which are reconciled to consolidated numbers considering corporate income and expenses.

Operating in North America and Europe, the Specialty Semiconductors segment is similar to the former Electronic Materials segment and integrates the products and operations of AZUR since November 5, 2021. The segment manufactures and sells products used in several applications, such as renewable energy, space satellites and imaging. Typical end markets include photovoltaics (terrestrial and spatial solar energy), medical imaging, infrared imaging, optoelectronics and advanced electronics. These products are sold either as semiconductor compounds, semiconductor wafers, ultra high purity metals, epitaxial semiconductor substrates and solar cells. Revenues and earnings associated with recycling services and activities provided to Specialty Semiconductors customers are captured in this segment.

The Performance Materials segment operates in North America, Europe and Asia and is similar to the former Eco-Friendly Materials segment. The segment manufactures and sells products that are used in several applications in pharmaceutical and healthcare, industrial, and catalytic and extractive. Main products are sold as active pharmaceutical ingredients, animal feed additives, specialized chemicals, commercial grade metals, alloys and engineered powders. All commercial grade metal and engineered powder sales have been regrouped under Performance Materials. Revenues and earnings associated with recycling services and activities provided to Performance Materials customers are captured in this segment.

Corporate expenses associated with the head office and unallocated selling, general and administrative expenses (SG&A), together with financial expenses (income), are grouped under "Corporate".

[1] See Non-IFRS Measures

Q4 and FY 2022 Highlights – Building on our Momentum

Fiscal 2022 was an important chapter in the history of 5N Plus. Executing on its strategy, the Company made significant progress and is now well-positioned to build on its momentum and market leadership in the promising sectors in which it operates, as illustrated by its historically high backlog as at December 31, 2022.

All amounts are expressed in U.S. dollars.

FY 2023 and FY 2024 Adjusted EBITDA[1] guidance is presented in the Outlook section.

Against the backdrop of geo-political and macro-economic challenges, the Company responded swiftly to inflationary and energy related cost pressures, quickly implementing the first wave of its commercial excellence program to mitigate the negative impact of inflation on product margins. This resulted in a sequential improvement of consolidated adjusted gross margins[1] from 21.9% for Q1 2022 to 26.7% in Q4 2022. The Company continues to approach partnerships and product development opportunities with discipline.

During the year, the Company renewed and increased its supply agreement with First Solar, for the supply of semiconductor materials associated with the manufacturing of thin-film photovoltaic (PV) modules, further strengthening its leadership in renewable energy. Under the new agreement, the Company's supply volumes will increase by 35% in 2023 and over 100% in 2024, compared to 2022 levels, in line with First Solar's own growth plans.

Through its subsidiary AZUR, 5N Plus signed a ten-year extension to an exclusive teaming arrangement with Sierra Space, a leading U.S.-based commercial space company, to produce a new solar cell for use in the production of Sierra Space's unique Space Solar Surface Mount Technology solar array systems. Sales to Sierra Space are anticipated to reach $10 million in 2023 and over $20 million in 2024, incremental to the current sales. The commercial relationship entrenches 5N Plus as a trusted partner in a sector experiencing rapidly accelerating demand which is expected to exceed current available capacity. AZUR is uniquely positioned to supply both North America and Europe. In 2022, the Company completed its integration of AZUR, which was acquired in November 2021.

In December 2022, the Company exited the manufacturing of low margin extractive and catalytic products with the divestiture of its Tilly, Belgium operations to a third party, thereby completing the strategic review of its operations. On a forward-looking basis, exiting this business is expected to provide incremental Adjusted EBITDA[1] contribution to consolidated results and support more favourable net working capital levels.

By year end, the Company completed its St-Laurent project (Montréal, Canada), expanding the development and manufacturing of critical minerals for advanced II-VI based semiconductor compounds. For this facility, by-products sourced from Rio Tinto's copper operations from its Kennecott, Utah copper operation started late December 2022, part of a strategic commercial agreement with Rio Tinto announced in May 2022 to secure a North American supply of tellurium.

Financial Highlights

- Revenue in Q4 2022 reached $61.0 million, compared to $64.6 million for the same period last year. The decrease is primarily attributable to the phase out and divestiture of the Tilly, Belgium operations. Revenue increased by 26% to $264.2 million in FY 2022, compared to $210.0 million last year, supported by the acquisition of AZUR and higher demand for renewable energy in Specialty Semiconductors, as well as for pharmaceutical and health in Performance Materials.

[1] See Non-IFRS Measures

- Adjusted EBITDA[1] in Q4 2022 reached $6.7 million, compared to $10.1 million for the same period last year, due to AZUR realizing the majority of its 2021 annual Adjusted EBITDA in the months following its acquisition. Adjusted EBITDA for FY 2022 reached $30.0 million, achieving the high end of the Company's FY 2022 guidance, compared to $28.2 million last year, despite the negative impact of the Russia/Ukraine conflict in Q1 2022, rising inflation and the winding down and divestiture of the Tilly, Belgium operations.

- In Q4 2022, the Company recorded a loss on divestiture of $7.8 million on the winding down and divestiture of the Tilly, Belgium operations completed in December 2022, as well as a $3.2 million in litigation and restructuring costs, mainly attributable to the same transaction.

- On December 31, 2022, the backlog[1] represented 253 days of annualized revenue, 61 days higher than the previous quarter, and 32 days higher than the same period last year. The increase in the backlog is attributable to favourable negotiations of long-term contracts under Specialty Semiconductors.

- Net debt[1] stood at $78.3 million on December 31, 2022, down from $80.1 million at the end of the prior year.

Outlook

Under its Specialty Semiconductors segment, 5N Plus continues to be the only viable global supplier, outside China, of ultra-high purity semiconductor compounds used in a wide range of critical technologies essential to people's lives. With unprecedented demand for applications, such as terrestrial renewable energy and space solar power, the Company is well-positioned to unlock the full potential of its enhanced product offering and is investing in its operations to meet exceptional customer demand in the years to come.

The Company is uniquely positioned to play a significant role in the new Photon Counting Detectors technology for CT scan, which is set to revolutionize medical imaging in the medium-term. The Company also continues to explore other potential market opportunities for its specialty semiconductor products in namely the defence and security sectors.

Under Performance Materials, management expects its health and pharmaceutical products to continue providing high profitability and consistent cashflows. The Company will continue to focus on the right sectors to expand the segment's product mix in attractive end markets.

The Company will continue to implement operational optimization initiatives, where appropriate, to bring incremental benefits to 5N Plus in support of organic growth, while remaining opportunistic regarding M&As.

Given its investments in high-growth potential opportunities, with unprecedented demand in key end markets and a simplified business and product mix, management expects its projected Adjusted EBITDA[1] range to be between $35 million and $40 million for FY 2023, with a higher contribution in the second half of the year, and between $45 million and $50 million for FY 2024.

Looking ahead, 5N Plus is focused on meeting customer demand and building on its momentum to reap the full potential of its strategy, supported by its commercial excellence program and investments in value-added and high-growth markets.

[1] See Non-IFRS Measures

Summary of Results

(in thousands of U.S. dollars, except per share amounts)	**Q4 2022**	Q4 2021	**FY 2022**	FY 2021
	$	$	**$**	$
Revenue	**61,042**	64,556	**264,223**	209,990
Adjusted operating expenses[1]*	**(54,337)**	(54,470)	**(234,195)**	(181,751)
Adjusted EBITDA[1]	**6,705**	10,086	**30,028**	28,239
Impairment of inventories	**-**	-	**-**	-
Share-based compensation recovery (expense)	**171**	460	**(999)**	(689)
Litigation and restructuring costs	**(3,210)**	(1,644)	**(3,823)**	(2,144)
Impairment of non-current assets	**-**	-	**(12,478)**	-
Loss on divestiture of subsidiary	**(7,834)**	-	**(7,834)**	-
Loss on disposal of assets held for sale	**-**	-	**(216)**	-
Foreign exchange and derivative gain (loss)	**497**	(1,080)	**(42)**	(418)
EBITDA[1]	**(3,671)**	7,822	**4,636**	24,988
Interest on long-term debt, imputed interest and other interest expense	**716**	1,164	**5,192**	3,713
Depreciation and amortization	**4,051**	4,364	**17,732**	12,535
(Loss) earnings before income taxes	**(8,438)**	2,294	**(18,288)**	8,740
Income tax expense (recovery)				
Current	**43**	1,446	**6,865**	5,580
Deferred	**(335)**	(132)	**(2,154)**	50
	(292)	1,314	**4,711**	5,630
Net (loss) earnings	**(8,146)**	980	**(22,999)**	3,110
Basic (loss) earnings per share	**($0.09)**	$0.01	**($0.26)**	$0.04
Diluted (loss) earnings per share	**($0.09)**	$0.01	**($0.26)**	$0.04

**Excluding impairment of inventories, share-based compensation recovery (expense), litigation and restructuring costs, impairment of non-current assets, loss on divestiture of subsidiary, loss on disposal of assets held for sale, and depreciation and amortization.*

Revenue by Segment and Adjusted Gross Margin

(in thousands of U.S. dollars)	**Q4 2022**	Q4 2021	Change	**FY 2022**	FY 2021	Change
	$	$		**$**	$	
Specialty Semiconductors	**31,951**	30,160	6%	**121,918**	70,655	73%
Performance Materials	**29,091**	34,396	(15%)	**142,305**	139,335	2%
Total revenue	**61,042**	64,556	(5%)	**264,223**	209,990	26%
Cost of sales	**(47,909)**	(53,090)	(10%)	**(215,715)**	(171,214)	26%
Depreciation included in cost of sales	**3,155**	3,515	(10%)	**14,208**	10,539	35%
Adjusted gross margin[1]	**16,288**	14,981	9%	**62,716**	49,315	27%
Adjusted gross margin percentage[1]	**26.7%**	23.2%		**23.7%**	23.5%	

Revenue in Q4 2022 decreased by 5%, reaching $61.0 million, compared to $64.6 million for the same period last year. The decrease is primarily attributable to the phase out, initiated earlier in the year, of the Company's extractive and catalytic products manufactured in Tilly, Belgium, and its divestiture in late December 2022, recorded under Performance Materials. In FY 2022, revenue increased by 26%, reaching $264.2 million, compared to $210.0 million in FY 2021, supported by the acquisition of AZUR completed in November 2021, higher demand from renewable energy under Specialty Semiconductors, as well as pharmaceutical and health under Performance Materials.

Adjusted gross margin[1] in Q4 2022 was favourably impacted by the product mix and the Company's commercial excellence program launched earlier this year aimed at rapidly mitigating the negative impact of inflation on product margins. The Adjusted gross margin reached $16.3 million, or 26.7%, compared to $15.0 million, or 23.2%, in Q4 2021. In FY 2022, Adjusted gross margin was also favourably impacted by higher volumes and the acquisition of AZUR, reaching $62.7 million, or 23.7%, compared to $49.3 million, or 23.5%, in FY 2021.

[1] See Non-IFRS Measures

Specialty Semiconductors Segment

Revenue in Q4 2022 increased by 6%, reaching $32.0 million, compared to $30.2 million in Q4 2021. In FY 2022, revenue reached $121.9 million, compared to $70.7 million in FY 2021, supported by higher demand over and above the contribution from AZUR.

Adjusted gross margin[1] in Q4 2022 was 31.0%, compared to 29.5% in Q4 2021. In FY 2022, Adjusted gross margin was 28.1%, compared to 31.5% in FY 2021, mainly explained by inflation.

Performance Materials Segment

Revenue in Q4 2022 reached $29.1 million, compared to $34.4 million in Q4 2021, impacted by the phase out, initiated earlier in the year, of the Company's extractive and catalytic products manufactured in Tilly, Belgium, and its divestiture in late December 2022. In FY 2022, revenue reached $142.3 million, compared to $139.3 million in FY 2021, favourably impacted by product mix and price increases, primarily in pharmaceutical and health sectors.

Adjusted gross margin in Q4 2022 was 22.5%, compared to 18.8% in Q4 2021, favourably impacted by product mix and price increases to mitigate inflation. In FY 2022, Adjusted gross margin was 20.4%, compared to 19.8% in FY 2021.

Operating (Loss) Earnings, EBITDA and Adjusted EBITDA

(in thousands of U.S. dollars)	**Q4 2022**	Q4 2021	Change	**FY 2022**	FY 2021	Change
	$	$		**$**	$	
Specialty Semiconductors	**5,690**	8,304	(31%)	**24,318**	18,817	29%
Performance Materials	**3,997**	5,159	(23%)	**17,277**	18,957	(9%)
Corporate	**(2,982)**	(3,377)	(12%)	**(11,567)**	(9,535)	21%
Adjusted EBITDA[1]	**6,705**	10,086	(34%)	**30,028**	28,239	6%
EBITDA[1]	**(3,671)**	7,822	(147%)	**4,636**	24,988	(81%)
Operating (loss) earnings	**(8,219)**	4,538	(281%)	**(13,054)**	12,871	(201%)

Adjusted EBITDA[1] in Q4 2022 reached $6.7 million, a decrease of $3.4 million, compared to $10.1 million in the same period last year. Adjusted EBITDA decreased by $2.6 million under Specialty Semiconductors, mainly explained by AZUR's better balanced quarterly Adjusted EBITDA contribution throughout FY 2022 compared to in FY 2021 when most of the contribution was realized in Q4 2021 following their acquisition in November 2021. Under Performance Materials, Adjusted EBITDA decreased by $1.2 million, mainly impacted by inflation, and the phase out and divestiture of the Company's low-margin product manufacturing activities in Tilly, Belgium. For more information, see the "Divestiture of 5N Belgium SA" section.

Adjusted EBITDA for FY 2022 reached $30.0 million, compared to $28.2 million last year, despite the negative impact of the Russia/Ukraine conflict in Q1 2022, rising inflation and the winding down and divestiture of the Tilly, Belgium operations. Corporate incurred additional expenses related to the integration of AZUR, other corporate projects and the impact of inflation.

In Q4 2022, EBITDA[1] was negative $3.7 million, compared to $7.8 million in Q4 2021. The decrease of $11.5 million is mainly explained by a decrease in Adjusted EBITDA of $3.4 million mentioned above, a loss on divestiture of a subsidiary of $7.8 million and $1.6 million in litigation and restructuring costs.

In FY 2022, EBITDA was $4.6 million, compared to $25.0 million in FY 2021. While the Adjusted EBITDA increase by $1.8 million, this increase did not compensate for the elements mentioned above and for the impairment on non-current assets of $5.4 million recorded earlier in the year to reflect the assessment of the carrying value of intangible assets impacted by the Russia/Ukraine conflict. In addition to the loss on divestiture recorded in Q4 2022, the Company recorded an impairment on non-current assets of $7.1 million in Q3 2022 following the Company's intention to exit the manufacturing of low margin extractive and catalytic products in Tilly, Belgium.

[1] See Non-IFRS Measures

In Q4 2022, operating loss amounted to $8.2 million, compared to operating earnings of $4.5 million in Q4 2021. In FY 2022, operating loss amounted to $13.1 million, compared to operating earnings of $12.9 million in FY 2021. The decreases are mainly explained by the same reasons mentioned above.

Specialty Semiconductors Segment

Adjusted EBITDA[1] in Q4 2022 decreased by $2.6 million to $5.7 million, representing an Adjusted EBITDA margin[1] of 18%, compared to 28% in Q4 2021 due to the recognition timing of R&D subsidies and other income. Adjusted EBITDA in FY 2022 increased by $5.5 million to $24.3 million, representing an Adjusted EBITDA margin of 20%, compared to 27% for the same period in 2021, which was favourably impacted by the contribution timing from AZUR.

Performance Materials Segment

Adjusted EBITDA in Q4 2022 decreased by $1.2 million to $4.0 million representing an Adjusted EBITDA margin of 14%, compared to 15% in Q4 2021. Adjusted EBITDA in FY 2022 decreased by $1.7 million to $17.3 million, representing an Adjusted EBITDA margin of 12%, compared to 14% in FY 2021.

Net (Loss) Earnings and Adjusted Net Earnings (Loss)

(in thousands of U.S. dollars, except per share amounts)	**Q4 2022**	Q4 2021	**FY 2022**	FY 2021
	$	$	**$**	$
Net (loss) earnings	**(8,146)**	980	**(22,999)**	3,110
Basic (loss) earnings per share	**($0.09)**	$0.01	**($0.26)**	$0.04
Reconciling items:				
Share-based compensation (recovery) expense	**(171)**	(460)	**999**	689
Litigation and restructuring costs	**3,210**	1,644	**3,823**	2,144
Impairment of non-current assets	**-**	-	**12,478**	-
Loss on divestiture of subsidiary	**7,834**	-	**7,834**	-
Loss on disposal of assets held for sale	**-**	-	**216**	-
Income tax recovery on taxable items above	**(595)**	(285)	**(2,618)**	(589)
Adjusted net earnings (loss)[1]	**2,132**	1,879	**(267)**	5,354
Basic adjusted net earnings per share[1]	**$0.02**	$0.02	**$-**	$0.06

In Q4 2022, net loss was $8.1 million or $0.09 per share, compared to net earnings of $1.0 million or $0.01 per share in Q4 2021. Adjusted net earnings[1] were $2.1 million or $0.02 per share in Q4 2022, compared to $1.9 million or $0.02 per share in Q4 2021.

In FY 2022, net loss was $23.0 million or $0.26 per share, compared to net earnings of $3.1 million or $0.04 per share in FY 2021. Adjusted net loss was $0.3 million or $nil per share in FY 2022, compared to Adjusted net earnings of $5.4 million or $0.06 per share, in FY 2021.

Excluding income tax recovery, the items reconciling to Adjusted net earnings (loss) in Q4 2022 and FY 2022 were share-based compensation (recovery) expense, litigation and restructuring costs, an impairment of non-current assets, a loss on divestiture of subsidiary and a loss on disposal of assets held for sale. For more information, see the "Expenses" section.

Backlog and Bookings

	BACKLOG[1]			**BOOKINGS[1]**		
(in thousands of U.S. dollars)	**Q4 2022**	Q3 2022	Q4 2021	**Q4 2022**	Q3 2022	Q4 2021
	$	$	$	**$**	$	$
Specialty Semiconductors	**129,710**	104,336	94,363	**57,325**	71,013	83,180
Performance Materials	**39,611**	35,054	60,454	**33,648**	23,959	39,512
Total	**169,321**	139,390	154,817	**90,973**	94,972	122,692

Comparative results have been adjusted to reflect a change in our reporting segments

[1] See Non-IFRS Measures

	BACKLOG[1]			BOOKINGS[1]		
(number of days based on annualized revenues) *	**Q4 2022**	Q3 2022	Q4 2021	**Q4 2022**	Q3 2022	Q4 2021
Specialty Semiconductors	**370**	297	293	**164**	202	258
Performance Materials	**124**	93	160	**106**	64	105
Weighted average	**253**	192	221	**136**	131	175

** Backlog and bookings are also presented in number of days to normalize the impact of commodity prices.*

Q4 2022 vs. Q3 2022

Backlog[1] on December 31, 2022, represented 253 days of annualized revenue, an increase of 61 days, or 32%, over the backlog on September 30, 2022. The increase in the backlog is mainly attributable to favourable negotiations of long-term contracts under Specialty Semiconductors, confirming the near-term growth potential in renewable energy and space applications.

Backlog on December 31, 2022, for Specialty Semiconductors represented 370 days of annualized revenue an increase of 73 days, or 25%, over the backlog on September 30, 2022. The backlog for Performance Materials represented 124 days of annualized revenue, an increase of 31 days, or 33%, over the backlog on September 30, 2022. The increase under Performance Materials is mainly associated with the timing of the renewal of key contracts, usually occurring in the fourth quarter of the year.

Bookings[1] for Specialty Semiconductors decreased by 38 days, from 202 days in Q3 2022 to 164 days in Q4 2022. Bookings for Performance Materials increased by 42 days, from 64 days in Q3 2022 to 106 days in Q4 2022. Bookings are calculated by adding revenues to the increase or decrease in backlog for the period divided by annualized revenues. As such, the increase or decrease in bookings is attributable to the same factors as the increase or decrease in backlog.

Q4 2022 vs. Q4 2021

Backlog on December 31, 2022, for Specialty Semiconductors increased by 77 days, largely attributable to favourable negotiations of long-term contracts under Specialty Semiconductors, confirming the near-term growth potential in renewable energy and space applications. The backlog for Performance Materials decreased by 36 days, compared to December 31, 2021, reaching 124 days, compared to 160 days in Q4 2021. The decrease is mainly associated with the Company's divestiture of its Tilly, Belgium operations.

Following the acquisition of AZUR in Q4 2021, the integration of its backlog led to a higher than usual increase in bookings and mainly explained the decrease of 94 days in bookings for Specialty Semiconductors in Q4 2022. Bookings for Performance Materials increased by 1 day compared to the previous year quarter.

Expenses

(in thousands of U.S. dollars)	**Q4 2022**	Q4 2021	**FY 2022**	FY 2021
	$	$	**$**	$
Depreciation and amortization	**4,051**	4,364	**17,732**	12,535
SG&A	**7,183**	7,025	**28,565**	21,883
Share-based compensation (recovery) expense	**(171)**	(460)	**999**	689
Litigation and restructuring costs	**3,210**	1,644	**3,823**	2,144
Impairment of non-current assets	**-**	-	**12,478**	-
Loss on divestiture of subsidiary	**7,834**	-	**7,834**	-
Loss on disposal of assets held for sale	**-**	-	**216**	-
Financial expense	**219**	2,244	**5,234**	4,131
Income tax (recovery) expense	**(292)**	1,314	**4,711**	5,630
Total expenses	**22,034**	16,131	**81,592**	47,012

[1] See Non-IFRS Measures

Depreciation and Amortization

Depreciation and amortization expenses in Q4 2022 and FY 2022 amounted to $4.1 million and $17.7 million, respectively, compared to $4.4 million and $12.5 million, respectively, for the same periods in 2021. The increase in FY 2022 is mainly explained by the increase in property, plant and equipment ("PPE"), intangible assets and right-of-use assets following the acquisition of AZUR in Q4 2021.

SG&A

SG&A expenses in Q4 2022 and FY 2022 were $7.2 million and $28.6 million, respectively, compared to $7.0 million and $21.9 million, respectively, for the same periods in 2021. The increases are mainly explained by the acquisition of AZUR in Q4 2021, inflation impacting various expenses and the lifting of restrictions related to COVID-19.

Share-based Compensation (Recovery) Expense

Share-based compensation recovery in Q4 2022 amounted to $0.2 million, compared to $0.5 million in Q4 2021. In FY 2022, share-based compensation expense amounted to $1.0 million, compared to $0.7 million in FY 2021.

Litigation and Restructuring Costs

In Q4 2022 and FY 2022, the Company recorded litigation and restructuring costs of $3.2 million and $3.8 million, respectively. These include $2.6 million related to the divestiture of a subsidiary, $0.4 million for the site closure in Asia, $0.2 million due to a change to its senior executive management recorded in Q2 2022, and $0.4 million for the settlement of a contract by mutual agreement recorded in Q1 2022.

In FY 2021, the Company recorded a charge of $1.5 million following the announcement of a change to its senior executive management as well as a provision for restructuring costs of $0.6 million which consisted of severance and other related costs related to the site closure in Asia.

Impairment of Non-Current Assets

In Q3 2022, the Company recorded an impairment of non-current assets of $7.1 million ($2.4 million for buildings, $4.6 million for machinery and $0.1 million for furniture and fixtures), under its Performance Materials segment, to reflect the assessment of the carrying value of PPE following its intention to halt production at its manufacturing facility in Tilly, Belgium.

In Q1 2022, the Company recorded an impairment of non-current assets of $5.4 million ($5.1 million for customer relationships and $0.3 million for other intangibles) under its Specialty Semiconductors segment, to reflect the assessment of the carrying value of intangible assets due to the impact of the Russia/Ukraine conflict on the Company's Russia-based customer relationships. The Company's initial assumptions regarding future cashflows from these customers are no longer supported given the international sanctions in place against Russia and the uncertainty related to, and the unknown duration of, the Ukraine/Russia conflict.

Loss on Divestiture of Subsidiary

In Q4 2022, the Company divested its 100% interest in 5N Belgium SA and recognized a loss on divestiture of $7.8 million. For more information, see the "Divestiture of 5N Belgium SA" section.

Loss on Disposal of Assets Held for Sale

In Q3 2022, the Company recorded a loss of $0.2 million on the disposal of assets held for sale. The asset, previously presented as held for sale within the Specialty Semiconductors segment, pertains to a building reclassification of $3.0 million in Q2 2022. The reclassification was related to the planned relocation of operations to Canada from one of the Company's subsidiaries in Asia, announced in the third quarter of 2020.

Financial Expense

Financial expense in Q4 2022 amounted to $0.2 million, compared to $2.2 million in Q4 2021. The positive impact is mainly due to interest income earned following the recent settlement of an international tax arbitration between two jurisdictions where the Company operates, a gain of foreign exchange and derivatives mitigated by higher interest on long-term debt and imputed interest following the acquisition of AZUR, as well as a significant increase in interest rates in the second half of FY 2022.

In FY 2022, financial expense amounted to $5.2 million, compared to $4.1 million in FY 2021. The negative impact is mainly due to the same reasons mentioned above, with the exception of a lower loss on foreign exchange and derivatives recorded in FY 2022 compared to FY 2021.

Income Taxes

The Company reported a loss before income taxes of $8.4 million in Q4 2022 and $18.3 million in FY 2022. Income tax recovery in Q4 2022 and income tax expense in FY 2022 was $0.3 million and $4.7 million, respectively, compared to income tax expense of $1.3 million and $5.6 million, respectively, in the same periods in 2021. Both periods were impacted by deferred tax assets applicable only in certain jurisdictions.

Liquidity and Capital Resources

(in thousands of U.S. dollars)	**Q4 2022**	Q4 2021	**FY 2022**	FY 2021
	$	$	**$**	$
Funds from operations before the following	**5,478**	5,604	**13,498**	16,553
Net changes in non-cash working capital items	**7,927**	(3,233)	**10,243**	(6,283)
Cash from operating activities	**13,405**	2,371	**23,741**	10,270
Cash used in investing activities	**(8,895)**	(42,615)	**(18,994)**	(49,929)
Cash (used in) from financing activities	**(2,308)**	42,922	**2,409**	36,219
Effect of foreign exchange rate changes on cash and cash equivalents	**317**	107	**(405)**	(570)
Net increase (decrease) in cash and cash equivalents	**2,519**	2,785	**6,751**	(4,010)

In Q4 2022, cash generated by operating activities amounted to $13.4 million, compared to $2.4 million in Q4 2021 positively impacted by the realization of working capital held at Tilly, Belgium prior to the divestiture. In FY 2022, cash generated by operating activities amounted to $23.8 million, compared to $10.3 million in FY 2021. The increase in FY 2022 was due to the positive changes in non-cash working capital.

In Q4 2022, cash used in investing activities totaled $8.9 million, compared to $42.6 million in Q4 2021. In FY 2022, cash used in investing activities totaled $19.0 million, compared to $49.9 million in FY 2021, of which $42.3 million was attributable to the acquisition of AZUR and $2.0 million to the acquisition of a minority equity stake in Microbion Corporation. In contrast, cash used in investing activities in FY 2022 is mainly attributed to the timing of additions to PPE, such as the St-Laurent project (Montréal, Canada), partially mitigated by the proceeds of $2.8 million from the disposal of assets held for sale in Q3 2022.

In Q4 2022, cash used in financing activities amounted to $2.3 million, compared to cash from financing of $42.9 million in Q4 2021. In FY 2022, cash generated by financing activities amounted to $2.4 million, compared to $36.2 million in FY 2021, mainly explained by the difference in the net drawdown of the credit facility during the periods. In FY 2021, the Company made a significant drawdown of the credit facility to finance the acquisition of AZUR, net of repayment of equipment loans in AZUR.

Working Capital

(in thousands of U.S. dollars)	**As at December 31, 2022**	As at December 31, 2021
	$	$
Inventories	**86,254**	95,526
Other current assets	**100,908**	99,996
Current liabilities	**(62,846)**	(65,059)
Working capital[1]	**124,316**	130,463
Working capital current ratio[1]	**2.98**	3.01

The decrease of $6.1 million in working capital[1], as compared to December 31, 2021, was mainly attributable to the divestiture of Tilly, Belgium at the end of FY 2022, net of higher other current assets and lower current liabilities for the remaining operations.

[1] See Non-IFRS Measures

Net Debt

(in thousands of U.S. dollars)	As at December 31, 2022	As at December 31, 2021
	$	$
Bank indebtedness	-	-
Long-term debt including current portion	121,000	116,000
Total Debt[1]	121,000	116,000
Cash and cash equivalents	(42,691)	(35,940)
Net Debt[1]	78,309	80,060

Total debt[1] stood at $121.0 million on December 31, 2022, from $116.0 million at the end of last year, following a drawdown of $10.0 million in Q2 2022 and reimbursements of $2.5 million in Q3 2022 and in Q4 2022 related to the credit facility.

Net debt[1], after considering cash and cash equivalents, decreased by $1.8 million to $78.3 million on December 31, 2022, from $80.1 million on December 31, 2021.

Available Short-Term Capital Resources

(in thousands of U.S. dollars)	As at December 31, 2022	As at December 31, 2021
	$	$
Cash and cash equivalents	42,691	35,940
Available revolving credit facility	28,000	33,000
Available short-term capital resources	70,691	68,940

In June 2022, the Company signed a senior secured multi-currency revolving credit facility of $124.0 million maturing in April 2026 to replace its existing $124.0 million senior secured revolving facility maturing in April 2023. At any time, the Company has the option to request that the credit facility be expanded through the exercise of an additional $30.0 million accordion feature, subject to review and approval by the lenders. This revolving credit facility can be drawn in U.S. dollars, Canadian dollars or Hong Kong dollars (up to $4.0 million). Drawings bear interest at either the Canadian prime rate, U.S. base rate, Hong Kong base rate or SOFR, plus a margin based on the Company's senior net debt to consolidated EBITDA[1] ratio. Under the terms of its credit facility, the Company is required to satisfy certain restrictive covenants as to financial ratios. As at December 31, 2022 and December 31, 2021, the Company had met all covenants.

In February 2019, the Company signed a five-year subordinated term loan with Investissement Québec. The loan was disbursed in two tranches: the first tranche of $5.0 million on February 6, 2019 and the second tranche of $20.0 million on March 22, 2019. The two tranches of the term loan bear interest equivalent to the five-year U.S. dollar swap rate plus a margin of 4.19%, which equals to 6.82% and 6.64%, respectively. Under the terms of the loan, the Company is required to satisfy certain restrictive covenants as to financial ratios. As at December 31, 2022 and December 31, 2021, the Company had met all covenants.

Share Information

	As at February 21, 2023	As at December 31, 2022
Issued and outstanding shares	88,330,236	88,330,236
Stock options potentially issuable	1,598,938	1,598,938

Restricted Share Unit and Performance Share Unit Plan

On November 4, 2015, the Company adopted a new Restricted Share Unit ("RSU") and Performance Share Unit ("PSU") Plan (the "RSU & PSU Plan") to replace the previous RSU Plan. The RSU & PSU Plan enables the Company to award eligible participants: (i) phantom RSUs that vest no later than three years following the grant date; and (ii) phantom PSUs that vest after certain periods of time, not exceeding three years, and subject to the achievement of certain performance criteria as determined by the Board of Directors. Such plan provides for the settlement of RSUs and PSUs through either

[1] See Non-IFRS Measures

cash or the issuance of common shares of the Company from treasury, for an amount equivalent to the volume weighted average of the trading price of the common shares of the Company on the TSX for the five trading days immediately preceding the applicable RSU vesting determination date or PSU vesting determination date.

In FY 2022, the Company granted 95,881 RSUs (2021 – 164,412), 146,549 RSUs were paid (2021 – 413,710) and 13,110 RSUs were forfeited (2021 – 143,851). On December 31, 2022, 278,481 RSUs were outstanding (2021 – 342,259).

In FY 2022, the Company granted nil PSUs (2021 – nil), nil PSUs were paid (2021 – 166,700) and 200,000 were cancelled (2021 – 230,000). On December 31, 2022, nil PSUs were outstanding (2021 – 200,000).

Stock Option Plan

On April 11, 2011, the Company adopted a new stock option plan under which a maximum number of options granted cannot exceed 5,000,000. Options granted under the Stock Option Plan may be exercised during a period not exceeding ten years from the date of grant. The stock options outstanding on December 31, 2022, may be exercised during a period not exceeding six years from their date of grant. Unless the Board of Directors decides otherwise at its sole discretion, options vest at a rate of 25% (100% for directors) per year, beginning one year following the grant date of the options. Any unexercised options will expire one month after the date beneficiary ceases to be an employee, director or officer and one year for retired directors.

The following table presents information concerning all outstanding stock options:

	2022		2021	
	Number of options	**Weighted average exercise price**	Number of options	Weighted average exercise price
		CA$		CA$
Outstanding, beginning of year	**825,968**	**2.46**	672,600	2.09
Granted	**772,970**	**1.33**	648,212	2.49
Exercised	**-**	**-**	(428,678)	1.88
Forfeited	**-**	**-**	(66,166)	2.78
Outstanding, end of year	**1,598,938**	**1.91**	825,968	2.46
Exercisable, end of year	**457,749**	**2.41**	267,007	2.33

Off-balance Sheet Arrangements

The Company has few off-balance sheet arrangements since most of the leases are recognized on the consolidated statement of financial position following the adoption of the standard, IFRS 16 – Leases, as at January 1, 2019. Any off-balance sheet arrangements consist of contractual obligations in the normal course of business.

The Company is exposed to currency risk on sales in euros and other currencies, as well as interest rate fluctuations on its credit facility, and, therefore, may periodically enter into foreign currency forward contracts and interest rate or foreign currency swap contracts to protect itself against interest rate and currency fluctuations. The reader will find more details related to these contracts in Notes 19 and 27 of the audited consolidated financial statements for the year ended December 31, 2022.

The following table reflects the contractual cash flows of the Company's financial liabilities as at Dec 31, 2022:

(in thousands of U.S. dollars)	Carrying amount	1 year	2 years	3 years	4 years	Over 5 years	**Total**
	$	$	$	$	$	$	**$**
Trade and accrued liabilities	40,200	40,200	-	-	-	-	**40,200**
Long-term debt	121,000	7,836	31,584	6,166	98,055	-	**143,641**
Lease liabilities	30,402	2,770	2,601	2,494	2,451	24,834	**35,150**
Total	191,602	50,806	34,185	8,660	100,506	24,834	**218,991**

Commitments

As at December 31, 2022, in the normal course of business, the Company contracted letters of credit for an amount of $0.9 million ($1.0 million as at December 31, 2021).

Contingencies

In the normal course of operations, the Company is exposed to events that could give rise to contingent liabilities or assets. As at the date of issue of the consolidated financial statements, the Company was not aware of any significant events that would have a material effect on its consolidated financial statements.

Acquisition of AZUR

On November 5, 2021, the Company acquired all of the issued and outstanding shares of AZUR for a purchase price of 50.1 million euros, subject to post-closing adjustments. The consideration transferred was comprised of 6.5 million shares of 5N Plus, which were issued from the treasury at 12.4 million euros, along with a cash payment of 37.7 million euros. Furthermore, the Company financed the working capital and equipment loans for an amount of 23.8 million euros. The cash portion and the working capital of the transaction were funded through the Company's liquidity and senior debt facility. Transaction fees for an amount of $0.3 million for 2022 (2021 - $0.7 million and 2020 - $0.5 million) were expensed as incurred in the consolidated statement of earnings.

Located in Heilbronn, Germany, AZUR is a global leader and develops and manufactures multi-junction solar cells based on III-V compound semiconductor materials. The integration of AZUR has not only expanded the Company's position within renewable energy, but has also established 5N Plus as a reliable and competitive supplier to the European and U.S. space programs through Canada's membership in the European Space Agency (ESA).

To estimate the fair value of the intangible assets, management used the excess earnings method to value customer relationships and the royalty relief method to value technology and trade names using discounted cash flow models. Management developed significant assumptions related to revenue and gross margin forecasts, customer retention rates, royalty rates and discount rates.

The tables below present the consideration paid and the Company's final assessment of the fair values of the assets acquired and liabilities assumed. As a result of finalizing its assessment, the Company has not restated the consolidated statement of financial position as at December 31, 2021 as the adjustments were deemed not material. The Company also determined that the net impact on net earnings as a result of these adjustments was not material for the year ended December 31, 2021, and, as such, were accounted for in the consolidated statement of (loss) earnings for the year ended December 31, 2022.

Consideration transferred	
	$
Cash and cash equivalents	34,301
Consideration payable [1]	9,158
Common shares issued	14,249
	57,708

[1] This amount of 8.0 million euros held in escrow and recorded in Other current assets, is expected to be released within 12 months in accordance with the terms of the Share Purchase Agreement.

Identified assets acquired and liabilities assumed	(in thousands of U.S. dollars)		
	Preliminary	Adjustments	Final
	$	$	$
Cash and cash equivalents	1,017	-	1,017
Accounts receivable	8,342	1,057	9,399
Inventories	21,394	(1,057)	20,337
Other current assets	256	-	256
Property, plant and equipment	31,128	4,993	36,121
Right-of-use assets	21,626	(938)	20,688
Intangible assets	32,144	(973)	31,171
Other assets	5	-	5
Goodwill	13,841	(2,016)	11,825
Total assets acquired	129,753	1,066	130,819
Trade and accrued liabilities	7,291	-	7,291
Current portion of deferred revenue	4,906	(1,294)	3,612
Long-term debt[(1)]	27,396	-	27,396
Employee benefit plan obligations	2,673	-	2,673
Lease liabilities	21,626	(938)	20,688
Deferred revenue	-	2,011	2,011
Other liabilities	1,059	216	1,275
Deferred tax liabilities	7,094	1,071	8,165
Total liabilities assumed	72,045	1,066	73,111
Total net assets	57,708	-	57,708

(1) The long-term debt acquired was repaid in full on November 5, 2021.

For the 57-day period ended December 31, 2021, AZUR contributed $17.0 million of revenue and $2.3 million of net earnings to the Company's consolidated statement of earnings based on operations after the acquisition date. If the acquisition of AZUR had been completed as of January 1, 2021, the Company estimates that its consolidated revenues and net earnings for the year ended December 31, 2021 would have totalled $261.0 million and $nil respectively, inclusive of the additional depreciation and amortization expenses recorded in reference to the preliminary purchased price allocation. AZUR delivers products to its customers on a project basis creating an unequal distribution of revenue and profitability from one period to another.

The amount recorded for goodwill is not deductible for tax purposes. The accounts receivable are presented net of a loss allowance of $28 thousand.

Divestiture of 5N Belgium SA

On December 19, 2022, the Company divested its 100% interest in 5N Plus Belgium SA, previously included within its Performance Materials segment, and recognized a loss on divestiture of $7.8 million. The decision to cease the production of lower margin products used in catalytic and extractive applications was made following a strategic review of the Company's legacy operations. As part of the transaction, a provision of $2.6 million, of which 2.0 million euros or $2.1 million is held in escrow, was recorded under Litigation and Restructuring costs to support the new owners to ensure site compliance with most recent environmental standards and other related costs. Prior to the divestiture, the Company recorded an impairment charge of $7.1 million on PPE following the announcement of its intention to halt production at its manufacturing facility in Tilly, Belgium.

If the divestiture of 5N Belgium SA had been completed as of January 1, 2022, the consolidated Adjusted EBITDA[1] would have been higher by approximately $2.0 million, and revenue under Performance Materials segment lower by $39.3 million.

[1] See Non-IFRS Measures

Governance

As required by Multilateral Instrument 52-109 of the Canadian Securities Administrators ("MI 52-109"), 5N Plus has filed certificates signed by the Chief Executive Officer and the Chief Financial Officer that, among other things, attest to the design of the disclosure controls and procedures and the design and effectiveness of internal controls over financial reporting.

Disclosure Controls and Procedures

The Chief Executive Officer and the Chief Financial Officer have designed disclosure controls and procedures, or have caused them to be designed under their supervision, in order to provide reasonable assurance that:

- Material information relating to the Company has been made known to them; and
- Information required to be disclosed in the Company's filings is recorded, processed, summarized and reported within the time periods specified in securities legislation.

An evaluation of the effectiveness of the Company's disclosure controls and procedures was carried out under the supervision of the Chief Executive Officer and Chief Financial Officer. Based on this evaluation, the Chief Executive Officer and the Chief Financial Officer concluded that the disclosure controls and procedures are effective.

Internal Control over Financial Reporting

The Chief Executive Officer and the Chief Financial Officer have also designed internal controls over financial reporting (ICFR) or have caused them to be designed under their supervision, in order to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with IFRS.

Based on their evaluation carried out to assess the effectiveness of the Company's ICFR, the Chief Executive Officer and the Chief Financial Officer have concluded that the ICFR were designed and operated effectively using the Internal Control – Integrated Framework ("2013 Framework") issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO 2013 Framework").

Changes in Internal Control over Financial Reporting

No changes were made to the ICFR during the fiscal year ended December 31, 2022 that have materially affected, or are reasonably likely to materially affect, the ICFR.

Adoption of New Accounting Standards and Future Changes in Accounting Policies

Adoption of new accounting standards

IFRS 3 – Business combinations

On January 1, 2022, the Company adopted the amendments to IFRS 3 regarding its reference to the Conceptual Framework. With this amendment, IFRS 3 will reference the current version of the Conceptual Framework rather than the Conceptual Framework in effect at the time of IFRS 3's development. The amendments to IFRS 3 also indicate that for the purposes of identifying certain liabilities within the context of a business combination, the definition of a liability as per IAS 37 – Provisions Contingent Liabilities and Contingent assets, shall supersede the definition within the Conceptual Framework. The amendments are effective for annual periods beginning on or after January 1, 2022, with earlier application permitted. In adopting the amendments, there has been no significant impact to the financial statements for the year ended December 31, 2022.

IAS 16 – Property, plant and equipment

On January 1, 2022, the Company adopted the amendments to IAS 16 regarding the accounting of Proceeds before Intended Use. Proceeds received from the sale of items produced by property, plant and equipment (PPE) which is still being prepared for its intended use cannot be deducted from the PPE's cost. Instead proceeds must be immediately recognized in the consolidated statement of earnings. The amendments are effective for annual periods beginning on or after January 1, 2022, with earlier application permitted. In adopting the amendments, there has been no significant impact to the financial statements for the year ended December 31, 2022.

IFRS 9 – Financial Instruments

On January 1, 2022, the Company adopted the amendment to IFRS 9 which clarifies which fees should be considered for the purpose of applying the derecognition test to a modified financial liability. The IASB clarified that only fees paid or received between the borrower and the lender should be considered. The amendment is effective for annual periods beginning on or after January 1, 2022, with earlier application permitted. In adopting the amendments, there has been no significant impact to the financial statements for the year ended December 31, 2022.

Future Changes in accounting policies

The following standards have been issued but not yet effective:

IAS 1 – Presentation of Financial Statements

In January 2020, the IASB issued amendments to IAS 1 to clarify its requirements for the presentation of liabilities in the statement of financial position. The amendments are effective from annual reporting periods beginning on or after January 1, 2024. The Company is currently evaluating the impact of the amendments on its consolidated financial statements.

Significant Management Estimation and Judgment in Applying Accounting Policies

The following are significant management judgments used in applying the accounting policies of the Company that have the most significant effect on the consolidated financial statements.

Estimation uncertainty

When preparing the consolidated financial statements, management undertakes a number of judgments, estimates and assumptions about recognition and measurement of assets, liabilities, revenues and expenses. Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected.

Information about the significant judgments, estimates and assumptions that have the most significant effect on the recognition and measurement of assets, liabilities, revenues and expenses are discussed below.

Impairment of non-financial assets

Non-financial assets are reviewed for an indication of impairment at each consolidated statement of financial position date upon the occurrence of events or changes in circumstances indicating that the carrying value of the assets may not be recoverable, which requires significant judgement.

An impairment loss is recognized for the amount by which an asset's or cash-generating unit's (“CGU") carrying amount exceeds its recoverable amount, which is the higher of fair value less cost of disposal and value in use.

An intangible asset and related equipment that are not yet available for their intended use and CGUs to which goodwill is allocated are tested for impairment at least annually, which also requires significant judgement. To determine the recoverable amount (value in use or fair value less cost to dispose of these assets), management estimates expected future cash flows from the asset or CGU and determines a suitable interest rate in order to calculate the present value of those cash flows. In the process of measuring expected future cash flows for intangible and tangible assets not yet available for their intended use and CGUs to which goodwill is allocated, management makes assumptions about future operating results using the estimated forecasted prices obtained from various market sources. These key assumptions relate to future events and circumstances. The actual results will vary and may cause adjustments to the Company's assets in future periods.

In most cases, determining the applicable discount rate involves estimating the appropriate adjustment to market risk and to asset specific risk factors. Assets not yet available for intended use have a higher estimation uncertainty, since they depend on future market information and the Company's ability to finish the project and realize the budgeted earnings. Management believes that the following assumptions are the most susceptible to change and therefore could impact the valuation of the assets in the next year: metal prices which have an impact on revenues and metal margins and the discount rate.

Inventories

Inventories are carried at the lower of cost and net realizable value, with cost determined using the average cost method. In estimating net realizable values, management takes into account the most reliable evidence available at the time the estimates are made. The Company's core business is subject to changes in foreign policies and internationally accepted metal prices which may cause future selling prices to change rapidly. The Company evaluates its inventories using a group of similar items basis and considers expected future prices as well as events that have occurred between the consolidated statement of financial position date and the date of the completion of the consolidated financial statements. Net realizable value for inventory to satisfy a specific sales contract is measured at the contract price.

Business Combination

The Company must make assumptions and estimates to determine the fair value of identifiable assets acquired and liabilities assumed. These estimates are based on future events, forecasts of future cash flows, future operating costs, future capital expenditures and estimated discount rates. Changes to the preliminary measurements of assets and liabilities acquired may be retrospectively adjusted when new information is obtained until the final measurements are determined within one year of the acquisition date.

Income taxes

The Company is subject to income taxes in numerous jurisdictions. Significant judgment is required in determining the worldwide provision for income taxes. There are many transactions and calculations for which the ultimate tax determination is uncertain. The Company recognizes liabilities for anticipated tax audit issues based on estimates of whether additional taxes will be due. Where the final tax outcome of these matters is different from the amounts that were initially recorded, such differences will impact the current and deferred income tax assets and liabilities in the period in which such determination is made.

The Company has deferred income tax assets that are subject to periodic recoverability assessments. Realization of the Company's deferred income tax assets is largely dependent on its achievement of projected future taxable income and the continued applicability of ongoing tax planning strategies. The Company's judgments regarding future profitability may change due to future market conditions, changes in tax legislation and other factors that could adversely affect the ongoing value of the deferred income tax assets. These changes, if any, may require a material adjustment of these deferred income tax asset balances through an adjustment to the carrying value thereon in the future. This adjustment would reduce the deferred income tax asset to the amount that is considered to be more likely than not to be realized and would be recorded in the period such a determination was to be made. Refer to note 18 of the 2022 audited consolidated financial statements of the Company.

Related Party Transactions

The Company's related parties are its directors and executive members. Transactions with these related parties are described in Note 26 in the 2022 audited consolidated financial statements of the Company.

Financial Instruments and Risk Management

Fair Value of Financial Instruments

A detailed description of the methods and assumptions used to measure the fair value of the Company's financial instruments and their fair value is discussed in Note 19 – Fair Value of Financial Instruments in the 2022 audited consolidated financial statements of the Company.

The fair value of the financial instruments was as follows:

(in thousands of U.S. dollars)	**2022**	2021
	$	$
Indexed deposit agreement	**5,517**	4,819
Investment in equity instruments	**2,000**	2,000
Restricted investment	**620**	713
Interest rate swap agreement	**-**	(109)

Financial Risk Management

For a detailed description of the nature and extent of risks arising from financial instruments, and their related risk management, refer to Note 27 of the 2022 audited consolidated financial statements of the Company.

Interest Rate

Interest rate risk refers to the risk that future cash flows will fluctuate as a result of changes in market interest rates. The Company's policy is to limit its exposure to interest rate risk fluctuation by ensuring that a reasonable portion of its long-term debt is made of subordinated debts at fixed rate. The Company is exposed to interest rate fluctuations on its revolving credit facility, which bears a floating interest rate. A 1% increase/decrease in interest rates would have an impact of approximately $1.0 million on the Company's net earnings on a twelve-month horizon based on the balance outstanding on December 31, 2022.

Foreign Currency

The Company's sales are primarily denominated in U.S. dollars whereas a portion of its operating costs are realized in local currencies, such as euros and Canadian dollars. Even though the purchases of raw materials are denominated in U.S. dollars, which reduce to some extent exchange rate fluctuations, we are subject to currency translation risk which can negatively impact our results. Management has implemented a policy for managing foreign exchange risk against the relevant functional currency.

In addition, the Company will occasionally enter into foreign exchange forward contracts to sell U.S. dollars in exchange for Canadian dollars and euros. These contracts would hedge a portion of ongoing foreign exchange risk on the Company's cash flows since much of its non-US dollar expenses are incurred in Canadian dollars and euros. The Company may also enter into foreign exchange contracts to sell euros for U.S. dollars. As at December 31, 2022, the Company had no foreign exchange contracts outstanding.

The following table summarizes in U.S. dollar equivalents the Company's major currency exposures as at December 31, 2022:

(in thousands of U.S. dollars)	CA$	EUR	GBP	HKD	MYR	Other
	$	$	$	$	$	$
Cash and cash equivalents	686	4,164	14	21	156	9
Accounts receivable	513	4,707	-	-	1	128
Other current assets	5,517	10,613	-	-	-	-
Other non-current assets	-	620	-	-	-	-
Trade and accrued liabilities	(10,834)	(16,175)	(317)	(199)	(219)	(149)
Lease liabilities	(6,033)	(339)	-	(171)	-	-
Net financial assets (liabilities)	(10,151)	3,590	(303)	(349)	(62)	(12)

For the Company's subsidiaries with a functional currency other than the U.S. dollar, their exposures of financial assets and financial liabilities denominated in U.S. dollars are $6.8 million and $0.6 million, respectively, with a net position of $6.3 million. A strengthening or weakening in the exchange rate between the functional currencies of these subsidiaries and the U.S. dollar of five-percentage points results in a decrease or increase of $0.3 million to earnings before income tax.

The following table shows the impact on earnings before income tax of a five-percentage point strengthening or weakening of foreign currencies against the U.S. dollar as at December 31, 2022 for the Company's financial instruments denominated in non-functional currencies:

(in thousands of U.S. dollars)	CA$	EUR	GBP	HKD	MYR	Other
	$	$	$	$	$	$
5% Strengthening	(508)	179	(15)	(17)	(3)	(1)
5% Weakening	508	(179)	15	17	3	1

Credit

Credit risk refers to the possibility that a customer or counterparty will fail to fulfill its obligations under a contract and, as a result, create a financial loss for the Company. The Company has a credit policy that defines standard credit practice. This policy dictates that all new customer accounts be reviewed prior to approval and establishes the maximum amount of credit exposure per customer. The creditworthiness and financial well-being of the customer are monitored on an ongoing basis.

The Company applies the IFRS 9 simplified approach to measuring expected credit losses using a lifetime expected credit loss allowance for trade receivables. The expected loss rates are based on the Company's historical credit losses experienced over the three-year period prior to the period end. The historical loss rates are then adjusted for current and forward-looking information on macroeconomic factors affecting the Company's customers. Historically, the Company has not incurred any significant losses in respect of its trade receivables. Therefore, the loss allowance at the end of each period and the change recorded for each period is insignificant.

As at December 31, 2022 and 2021, the Company had a loss allowance of $0.1 million. The loss allowance is included in selling, general and administrative expenses in the consolidated statement of (loss) earnings and is net of any recoveries that were provided for in prior periods.

Liquidity

Liquidity risk is the risk that the Company will not be able to meet its financial obligations as they come due. The Company manages liquidity risk through the management of its capital structure. It also manages liquidity risk by continually monitoring actual and projected cash flows, taking into account the Company's sales and receipts and matching the maturity profile of financial assets and financial liabilities. The Board of Directors reviews and approves the Company's annual operating and capital budgets as well as any material transactions out of the ordinary course of business, including proposals on acquisitions and other major investments. Under the terms of its credit facility, the Company is required to satisfy certain restrictive covenants. In order to comply with these covenants, the Company will need to execute on its EBITDA[1] and cash flow estimates. Management believes that the assumptions used by the Company in preparing its estimates are reasonable. However, risk remains. Successful achievement of these estimates results is dependent on stability in the price of metals and other raw materials, the reduction of debt due to the optimization of the Company's working capital and the continued viability and support of the Company's banks.

Risk and Uncertainties

In the normal course of business, we are subject to a number of risk factors which may limit our ability to execute our strategy and achieve our long-term growth objectives. We identify these risks and implement strategies in order to minimize their impact on the Company's performance. The Audit Committee together with the Corporate Internal Audit and site leadership teams have the mandate to review all business risks semi-annually. The risks and risk reduction measures are presented to the Audit Committee and the Board of Directors on an ongoing basis. The realization of the risks described in any of the following risk factors could have a material adverse effect on the Company's business, results of operations and financial condition.

Risks and uncertainties not presently known to the Company or that the Company currently considers as not material could become material in the future or impair its business operations or cause a decline in the price of shares.

Global Economic Conditions

Current global economic conditions, which have been subject to increased volatility, may impact the Company's access to public financing and its ability to obtain equity or debt financing on favourable terms. The Company operates in a volatile economic environment. As a result, if unemployment, interest or inflation rates fluctuate substantially or increase to significant levels, they could have an impact on the Company's operating activities, financial position and profitability. In addition, the Company is exposed to market risk related to the current global inflationary situation, as the various environmental, social, political, economic and health factors had significant consequences on the world economy. In order to reduce inflation, several central banks are now tightening their monetary policies, which has an impact on interest rates, foreign currency exchange rates and economic development. The risks of recession in one or several of the countries where the Company operates are growing and could have an adverse impact on the Company's net earnings, financial position or cash flows.

Crisis and Climate Change Management

Unexpected events including geopolitical crises, pandemic and epidemic outbreaks, catastrophes, and natural disasters, such as extreme and increasingly frequent weather-related disasters linked to climate change, could have a negative impact on the continuation of the Company's operations as well as its suppliers.

International Operations

We operate in several countries, including China and Laos, and as such, face risks associated with international business activities. We could be significantly affected by such risks, which include, but are not limited to, the integration of international operations, challenges associated with dealing with numerous legal and tax systems, the potential for volatile economic and labor conditions, political instability, foreign exchange, expropriation, changes in taxes, and other regulatory costs. Although we operate primarily in countries with relatively stable economic and political climates, there can be no assurance that our business will not be adversely affected by the risks inherent in international operations.

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[1] See Non-IRFS Measures

The following conditions or events could disrupt our supply chain, interrupt production at our facilities or those of our suppliers or customers, increase our cost of sales and other operating expenses, result in material asset losses, or require additional capital expenditures to be incurred:

- fires, pandemics (including regional and global infectious diseases), extraordinary weather conditions, or natural disasters, such as hurricanes, tornadoes, floods, tsunamis, typhoons, and earthquakes;
- political instability, social and labor unrest, war, or terrorism;
- disruptions in port activities, shipping and freight forwarding services;
- interruptions in the availability of basic services and infrastructure, including power and water shortages;
- changes in a specific country's or region's economic conditions, such as a recession;
- new certification requirements; significant fluctuations in currency exchange rates;
- the invasion of Ukraine by Russia;
- new trade barriers; and
- change to legal, political, social, cultural, tax or other regulatory requirements.

Our insurance programs do not cover every potential loss associated with our operations, including potential damage to assets, lost profits, and liability that could result from the aforementioned conditions or events. In addition, our insurance may not fully cover the consequences resulting from a loss event, due to insurance limits, sub-limits, or policy exclusions. Any occurrence not fully covered by insurance could have a negative effect on our business.

Risks Related to China

The legal system in mainland China is a civil law system based on written statutes. Unlike common law systems, it is a system in which decided legal cases have little precedential value. The legal system in mainland China evolves rapidly, and the interpretations of many laws, regulations and rules may contain inconsistencies and their interpretation and enforcement involve uncertainties. These uncertainties could limit the legal protections available to us. In addition, the Company cannot predict the effect of future developments in the mainland Chinese legal system, including the promulgation of new laws, changes to existing laws or the interpretation or enforcement thereof, or the pre-emption of local regulations by national laws. Such unpredictability towards the Company's contractual, property (including intellectual property) and procedural rights could adversely affect the Company's business and impede its ability to continue operations. Furthermore, any litigation in mainland China may be protracted and result in substantial costs and diversion of resources and management attention.

The mainland Chinese government exercises significant control over mainland China's economic growth through strategically allocating resources, controlling the payment of foreign currency-denominated obligations, setting monetary policy and providing preferential treatment to particular industries or companies. Any growth in the Chinese economy may not continue and any slowdown may have a negative effect on our business. Any adverse changes in economic conditions in mainland China, in the policies of the mainland Chinese government, or in the laws and regulations in mainland China, could have a material adverse effect on the overall economic growth of mainland China. Such developments could adversely affect the Company's business, lead to reduction in demand for its products and adversely affect the Company's competitive position.

Environmental Regulations

Our operations involve the use, handling, generation, processing, storage, transportation, recycling and disposal of hazardous materials and are subject to extensive environmental laws and regulations at the national, provincial, local and international level. These environmental laws and regulations include those governing the discharge of pollutants into the air and water, the use, management and disposal of hazardous materials and wastes, the clean-up of contaminated sites and occupational health and safety. Failure to comply with such laws, regulations and permits can have serious consequences, including damage to our reputation; stopping us from pursuing operations at one of our facilities; being subject to substantial fines, penalties, criminal proceedings, third party property damage or personal injury claims, clean-up costs or other costs; increasing the costs of development or production and litigation or regulatory action against us, and materially adversely affecting our business, results of operations or financial condition. Future changes in applicable environmental and health and safety laws and regulations could substantially increase costs and burdens to achieve compliance or otherwise have an adverse impact on our business, results of operations or financial condition.

We have incurred and will continue to incur capital expenditures in order to comply with environmental laws and regulations. Exceedances in wastewater and air emissions generated by some Company facilities over the limits prescribed in applicable laws and permits have been registered in the past. At such facilities, the Company is collaborating with governmental authorities and implementing various measures including upgrading equipment to ensure compliance. Management believes that dealing with these environmental compliance issues will not have a material effect on the Company's earnings or competitive position during fiscal 2023. Future developments such as more aggressive enforcement policies, the implementation of new, more stringent laws and regulations, or the discovery of currently unknown environmental conditions may require expenditures that could have a material adverse effect on our business, results of operations and financial condition.

Environmental, Social and Governance (ESG) Considerations

The Company could be subject to growing stakeholder expectations as it relates to ESG factors, including from investors, who are increasingly placing a greater emphasis on ESG factors when assessing investment options. Future investments made in the Company, or future partnerships or business relations made with the Company may depend on various ESG standards.

Safety Risks and Hazards

The Company's health, safety and wellbeing systems, processes and policies are aimed at reducing risks to employees, subconsultants and others; however, work sites can put employees and others in proximity with large equipment, moving vehicles, dangerous processes or highly regulated materials in challenging or remote locations which may increase the risk to health and safety. Failure to implement or follow appropriate safety procedures by the Company or others could result in personal injury, illness or loss of life to people, or environmental and other damage to the Company's property or the property of others.

Prolonged Armed Conflict in Ukraine

In February 2022, Russian military forces invaded Ukraine; the invasion is being actively resisted by Ukrainian military personnel and the people of Ukraine, and the outcome of the ongoing conflict is uncertain at this time. Although AZUR had sales in Russia in the past, the amount of such sales is not material to the Company as a whole. A prolonged armed conflict in Ukraine or an expansion of the armed conflict to other European countries could have a negative effect on the European and global economies. As well, Russia is a major exporter of oil and natural gas. Any disruption of supplies of oil and natural gas from Russia could have a significant adverse effect on the European and world economies. All the foregoing factors could potentially have a negative impact on the Company's sales and results of operations.

COVID-19

The worldwide outbreak of a disease, a virus including the COVID-19 pandemic or any other contagious disease could have an adverse impact on the Company's operations, operating results and financial position. While it is sudden, its impact on economic cycles can give rise to unfavourable temporary disruptions in the market where the Company operates as well as on its internal structure, such as plant closures, shortages of raw materials and labour, and in supply chains and distribution channels.

Availability and Retention of Qualified Employees

We rely on the expertise and know-how of our personnel to conduct our operations. The loss of any member of our team could have a material adverse effect on us. Our future success also depends on our ability to execute succession plans, attract and retain key employees, train, retain and successfully integrate new talent into our management and technical teams. Recruiting and retaining talented personnel, particularly those with expertise in the specialty metals industry and refining technology is vital to our success and may prove difficult. We cannot provide assurance that we will be able to attract and retain qualified personnel when needed, especially in light of the current labor shortage affecting several markets in which we operate. If the Company is unable to recruit and retain additional qualified personnel in the future, its business, financial condition and operating results could be adversely affected.

Collective Agreements

A portion of our workforce is unionized, and we are party to collective agreements that are due to expire at various times in the future. If we are unable to renew these collective agreements on similar terms as they become subject to renegotiation from time to time, this could result in work stoppages or other labour disturbances, such as strikes, walkouts or lockouts, potentially affecting our performance.

Litigation Risks

We may be subject to a variety of civil or other legal proceedings, with or without merit. Although the Company establishes provisions for such litigation, there can be no assurance that the provisions for all claims correspond to the settlement amount. A significant judgment against the Company or the imposition of a significant fine or penalty could have a material adverse effect on its business, financial condition and results of operations.

Risks Associated with our Growth Strategy

5N Plus' strategic plan is designed to enhance profitability while reducing earnings volatility, delivering quality growth from both existing growth initiatives and future M&A opportunities. There is a risk that some of the expected benefits will fail to materialize or may not occur within the time periods anticipated by management. The realization of such benefits may be affected by a number of factors, many of which are beyond our control.

Competition

We are a leading producer of specialty semiconductors and performance materials with a limited number of competitors, few of which are as fully integrated as we are or have a similar range of products. Accordingly, they have limitations to provide the same comprehensive set of services and products as we do. However, there can be no guarantee that this situation will continue in the future and competition could arise from new low-cost metal refiners or from certain of our customers who could decide to backward integrate. Greater competition could have an adverse effect on our revenues and operating margins if our competitors gain market share and we are unable to compensate for the volume lost to our competition.

Commodity Price

The price we pay for, and availability of, various inputs fluctuate due to numerous factors beyond our control, including political and economic conditions, currency exchange rates, inflation or deflation, global supply and demand for metal products, fluctuations in the value of the U.S. dollar and foreign currencies, speculative trading, trade sanctions, tariffs, labor costs, competition, over capacity of producers and price surcharges. Fluctuations in availability and cost of inputs may materially affect our business, financial condition, results of operations and cash flows. These fluctuations can be unpredictable and can occur over short periods of time. To the extent that we are not able to pass on any increases, our business, financial condition, results of operations and cash flows may be materially adversely affected.

Sources of Supply

We may not be able to secure the critical raw material feedstock on which we depend for our operations. We currently procure our raw materials from a number of suppliers with whom we have had long-term commercial relationships. The loss of any one of these suppliers or a reduction in the level of deliveries to us may reduce our production capacity and impact our deliveries to customers. This would in turn negatively impact our sales, net margins and may lead to liabilities with respect to some of our supply contracts.

In addition, supplemental supply-chain challenges created by the economic conjecture following the COVID-19 global pandemic could negatively affect the Company's general procurement through longer delays of transportation or through an increase in prices to obtain supplies. This may adversely affect the business, financial condition and operating results of the Company.

Protection of Intellectual Property

Protection of our proprietary processes, methods and other technologies is important to our business. We rely on international patents as well as trade secrets and employee confidentiality agreements to safeguard our intellectual property. We have deliberately chosen to limit our patent position for certain intellectual properties to avoid disclosing valuable information. Failure to protect and monitor the use of our existing intellectual property rights could result in the loss of valuable technologies and processes. There can be no assurance that our confidentiality agreements will provide meaningful protection for our intellectual property rights or other proprietary information in the event of any unauthorized use or disclosure or that we will be able to meaningfully protect our trade secrets.

Inventory Price

We monitor the risks associated with the value of our inventories in relation to the market price of such inventories. Because of the highly illiquid nature of many of our inventories, we rely on a combination of standard risk measurement techniques, such as value at risk as well as a more empirical assessment of the market conditions. Decisions on appropriate physical stock levels are taken by considering both the value at risk calculations and the market conditions.

Business Interruptions

We may incur losses resulting from business interruptions. In many instances, especially those related to our long-term contracts, we have contractual obligations to deliver product in a timely manner. Any disruption in our activities which leads to a business interruption could harm our customers' confidence level and lead to the cancellation of our contracts and legal recourse against us. Although we believe that we have taken the necessary precautions to avoid business interruptions and carry business interruption insurance, we could still experience interruptions which would adversely impact our financial results.

Changes to Backlog

The Company cannot guarantee that the revenues projected in its backlog will be realized. In addition, contract delays, suspensions, terminations, cancellations, reductions in scope or other adjustments may occur from time to time due to considerations beyond the Company's control and may have an impact on the value of reported backlog with a corresponding adverse impact on future revenues and profitability.

Acquisition Risk

The Company completed the acquisition of AZUR in November 2021 and may from time to time acquire or propose to acquire other companies. The Company's inability to properly integrate acquired companies, unanticipated acquisition costs, unforeseen delays and unknown liabilities associated with acquisitions, the potential loss of key employees following acquisitions, challenges with the integration of new operations and new personnel, the diversion of management's time and focus from other business concerns, opportunities and operational matters to work on acquisitions or integrate acquisitions, the loss of momentum in ongoing operations and disruptions to operations, possible inconsistencies in procedures and policies among the combined companies, and the need to implement new accounting, information technology, human resources or other administrative systems, may each materially and adversely affect the Company's business, results of operations or financial condition.

Systems, Network Infrastructure and Data Failure, Interruption and Breach

Our operations rely on information systems, communications technology, business and other technology applications, including global and regional networks, complex server infrastructure and operating systems, in order to operate properly. If we are unable to continually maintain our software and hardware, effectively upgrade our systems and network infrastructure, and take other steps to improve the efficiency and protect our systems, the Company's operation systems could be interrupted or delayed. The same applies if our network, communication and operations systems are damaged or interrupted by natural disasters, telecommunications failures, acts of war or terrorism, computer viruses, sabotage, human errors, physical or electronic security breaches, or similar events or disruptions. The Company also faces the threat of unauthorized system access, computer hackers, malicious code and organized cyber-attacks. The COVID-19 pandemic context with a significant number of employees working remotely contributes to an increase in cyber-attack attempts.

Executive Management consultations are held regularly to monitor the progress of various cybersecurity projects, review significant incidents and review various security-related performance indicators. Executive Management reports on its work to the members of the Board of Directors on a biannual basis. The Corporate IT function sets up and coordinates prevention, detection, and remediation measures in the area of cybersecurity. Cybersecurity measures include, among others, setting up strong controls with respect to systems access, implementing information security awareness programs, and hiring specialized firms to carry out occasional intrusion tests.

Although the Company has not experienced any material losses relating to cyberattacks or other information security breaches in the past, there can be no assurance that the Company will not experience such losses in the future due to the evolving nature of these threats.

Market Price of Common Shares

The common shares of the Company are traded on the Toronto Stock Exchange under the symbol ''VNP''. The market price of securities of many companies experiences wide fluctuations from time to time that are not necessarily related to the operating performance, underlying asset values or future growth prospects of such companies. There can be no assurance that fluctuations in the price of the common shares of the Company will not occur.

Non-IFRS Measures

In this Management's Report, certain non-IFRS measures are used. The Company's management believes that these non-IFRS measures provide useful information to investors regarding the Company's financial condition and results of operations as they provide additional key metrics of its performance. These non-IFRS measures are not recognized under IFRS, do not have any standardized meaning prescribed under IFRS and may differ from similarly named measures as reported by other issuers, and accordingly may not be comparable. These measures should not be viewed as a substitute for the related financial information prepared in accordance with IFRS.

Backlog represents the expected orders the Company has received, but has not yet executed, and that are expected to translate into sales within the next twelve months, expressed in number of days. Bookings represent orders received during the period considered, expressed in number of days, and calculated by adding revenues to the increase or decrease in backlog for the period considered, divided by annualized year revenues. 5N Plus uses backlog to provide an indication of expected future revenues in days, and bookings to determine its ability to sustain and increase its revenues.

EBITDA means net earnings (loss) before interest expenses, income taxes, depreciation and amortization. 5N Plus uses EBITDA because it believes it is a meaningful measure of the operating performance of its ongoing business, without the effects of certain expenses. The definition of this non-IFRS measure used by the Company may differ from that used by other companies.

EBITDA is reconciled to the most comparable IFRS measure:

(in thousands of U.S. dollars)	**Q4 2022**	Q4 2021	**FY 2022**	FY 2021
	$	$	**$**	$
Net (loss) earnings	**(8,146)**	980	**(22,999)**	3,110
Interest on long-term debt, imputed interest and other interest expense	**716**	1,164	**5,192**	3,713
Income taxes (recovery) expense	**(292)**	1,314	**4,711**	5,630
Depreciation and amortization	**4,051**	4,364	**17,732**	12,535
EBITDA	**(3,671)**	7,822	**4,636**	24,988

EBITDA margin is defined as EBITDA divided by revenues.

Adjusted EBITDA means Operating earnings (loss) as defined before the effect of impairment of inventories, share-based compensation expense (recovery), litigation and restructuring costs, impairment of non-current assets, loss on divestiture of subsidiary, loss on disposal of assets held for sale and depreciation and amortization. 5N Plus uses adjusted EBITDA because it believes it is a meaningful measure of the operating performance of its ongoing business without the effects of certain expenses. The definition of this non-IFRS measure used by the Company may differ from that used by other companies.

Adjusted EBITDA margin is defined as Adjusted EBITDA divided by revenues.

Adjusted EBITDA and Adjusted EBITDA margin are reconciled to the most comparable IFRS measure:

(in thousands of U.S. dollars)	Q4 2022	Q4 2021	FY 2022	FY 2021
	$	$	**$**	$
Revenues	**61,042**	64,556	**264,223**	209,990
Operating expenses	**(69,261)**	(60,018)	**(277,277)**	(197,119)
Operating (loss) earnings	**(8,219)**	4,538	**(13,054)**	12,871
Share-based compensation (recovery) expense	**(171)**	(460)	**999**	689
Litigation and restructuring costs	**3,210**	1,644	**3,823**	2,144
Impairment of non-current assets	**-**	-	**12,478**	-
Loss on divestiture of subsidiary	**7,834**	-	**7,834**	-
Loss on disposal of assets held for sale	**-**	-	**216**	-
Depreciation and amortization	**4,051**	4,364	**17,732**	12,535
Adjusted EBITDA	**6,705**	10,086	**30,028**	28,239
Adjusted EBITDA margin	**11.0%**	15.6%	**11.4%**	13.4%

Adjusted operating expenses means operating expenses before impairment of inventories, share-based compensation expense (recovery), litigation and restructuring costs, impairment of non-current assets, loss on divestiture of subsidiary, loss on disposal of assets held for sale and depreciation and amortization. 5N Plus uses adjusted operating expenses to calculate Adjusted EBITDA. 5N Plus believes it is a meaningful measure of the operating performance of its ongoing business. The definition of this non-IFRS measure used by the Company may differ from that used by other companies.

Adjusted operating expenses are reconciled to the most comparable IFRS measure:

(in thousands of U.S. dollars)	Q4 2022	Q4 2021	FY 2022	FY 2021
	$	$	**$**	$
Operating expenses	**69,261**	60,018	**277,277**	197,119
Share-based compensation recovery (expense)	**171**	460	**(999)**	(689)
Litigation and restructuring costs	**(3,210)**	(1,644)	**(3,823)**	(2,144)
Impairment of non-current assets	**-**	-	**(12,478)**	-
Loss on divestiture of subsidiary	**(7,834)**	-	**(7,834)**	-
Loss on disposal of assets held for sale	**-**	-	**(216)**	-
Depreciation and amortization	**(4,051)**	(4,364)	**(17,732)**	(12,535)
Adjusted operating expenses	**54,337**	54,470	**234,195**	181,751

Adjusted net earnings (loss) means the net earnings (loss) before the effect of impairment of inventory, share-based compensation expense (recovery), litigation and restructuring costs, impairment of non-current assets, loss on divestiture of subsidiary and loss on disposal of assets held for sale, net of the related income tax. 5N Plus uses adjusted net earnings (loss) because it believes it is a meaningful measure of the operating performance of its ongoing business without the effects of unusual expenses or income. The definition of this non-IFRS measure used by the Company may differ from that used by other companies.

Basic adjusted net earnings (loss) per share means adjusted net earnings (loss) divided by the weighted average number of outstanding shares. 5N Plus uses basic adjusted net earnings (loss) per share because it believes it is a meaningful measure of the operating performance of its ongoing business without the effects of unusual expenses or income. The definition of this non-IFRS measure used by the Company may differ from that used by other companies.

Adjusted net earnings (loss) and Basic adjusted net earnings (loss) are reconciled to the most comparable IFRS measures:

(in thousands of U.S. dollars, except per share amounts and number of shares)	**Q4 2022**	Q4 2021	**FY 2022**	FY 2021
	$	$	**$**	$
Net (loss) earnings	**(8,146)**	980	**(22,999)**	3,110
Basic (loss) earnings per share	**($0.09)**	$0.01	**($0.26)**	$0.04
Reconciling items:				
Share-based compensation (recovery) expense	**(171)**	(460)	**999**	689
Litigation and restructuring costs	**3,210**	1,644	**3,823**	2,144
Impairment of non-current assets	**-**	-	**12,478**	-
Loss on divestiture of subsidiary	**7,834**	-	**7,834**	-
Loss on disposal of assets held for sale	**-**	-	**216**	-
Income tax recovery on taxable items above	**(595)**	(285)	**(2,618)**	(589)
Adjusted net earnings (loss)	**2,132**	1,879	**(267)**	5,354
Basic weighted average number of shares	**88,330,236**	88,330,236	**88,330,236**	88,330,236
Basic adjusted net earnings per share	**$0.02**	$0.02	**$-**	$0.06

Adjusted gross margin is a measure used to monitor the sales contribution after paying cost of sales, excluding depreciation and inventory impairment charges. 5N Plus also expressed this measure in percentage of revenues by dividing the gross margin value by the total revenue.

Adjusted Gross margin is reconciled to the most comparable IFRS measure:

(in thousands of U.S. dollars)	**Q4 2022**	Q4 2021	**FY 2022**	FY 2021
	$	$	**$**	$
Total revenue	**61,042**	64,556	**264,223**	209,990
Cost of sales	**(47,909)**	(53,090)	**(215,715)**	(171,214)
Gross margin	**13,133**	11,466	**48,508**	38,776
Depreciation included in cost of sales	**3,155**	3,515	**14,208**	10,539
Adjusted Gross margin	**16,288**	14,981	**62,716**	49,315
Adjusted Gross margin percentage	**26.7%**	23.2%	**23.7%**	23.5%

Net debt is calculated as total debt less cash and cash equivalents. Any introduced IFRS 16 reporting measures in reference to lease liabilities are excluded from the calculation. 5N Plus uses this measure as an indicator of its overall financial position.

Total debt and Net debt are reconciled to the most comparable IFRS measure:

(in thousands of U.S. dollars)	**As at December 31, 2022**	As at December 31, 2021
	$	$
Bank indebtedness	**-**	-
Long-term debt including current portion	**121,000**	116,000
Lease liabilities including current portion	**30,402**	32,640
Subtotal Debt	**151,402**	148,640
Lease liabilities including current portion	**(30,402)**	(32,640)
Total Debt	**121,000**	116,000
Cash and cash equivalents	**(42,691)**	(35,940)
Net Debt	**78,309**	80,060

Working capital is a measure of liquid assets that is calculated by taking current assets and subtracting current liabilities. Given that the Company is currently indebted, it uses it as an indicator of its financial efficiency and aims to maintain it at the lowest possible level.

Working capital ratio is calculated by dividing current assets by current liabilities.

Working capital is reconciled to the most comparable IFRS measure:

(in thousands of U.S. dollars)	**As at December 31, 2022**	As at December 31, 2021
	$	$
Inventories	**86,254**	95,526
Other current assets excluding inventories	**100,908**	99,996
Current assets	**187,162**	195,522
Current liabilities	**(62,846)**	(65,059)
Working capital	**124,316**	130,463
Working capital current ratio	**2.98**	3.01

Additional Information

5N Plus' common shares trade on the Toronto Stock Exchange (TSX) under the ticker symbol VNP. Additional information relating to the Company, including the Company's annual information form, is available under the Company's profile on SEDAR at www.sedar.com.

Selected Quarterly Financial Information

(in thousands of U.S. dollars, except per share amounts)	**Dec 31, 2022**	Sept 30, 2022	June 30, 2022	March 31, 2022	Dec 31, 2021	Sept 30, 2021	June 30, 2021	March 31, 2021
			$	$	$	$	$	$
Revenue	**61,042**	66,372	72,388	64,421	64,556	50,839	47,719	46,876
EBITDA[1]	**(3,671)**	1,751	6,739	(183)	7,822	5,105	6,318	5,743
Adjusted EBITDA[1]	**6,705**	9,114	8,583	5,626	10,086	5,537	6,336	6,280
Net (loss) earnings	**(8,146)**	(6,968)	(2,130)	(5,755)	980	(792)	2,159	763
Basic (loss) earnings per share	**($0.09)**	($0.08)	($0.02)	($0.07)	$0.01	($0.01)	$0.03	$0.01
Diluted (loss) earnings per share	**($0.09)**	($0.08)	($0.02)	($0.07)	$0.01	($0.01)	$0.03	$0.01
Adjusted net earnings (loss)[1]	**2,132**	520	(997)	(1,922)	1,879	(246)	1,932	1,789
Basic adjusted net earnings (loss) per share[1]	**$0.02**	$-	($0.01)	($0.02)	$0.02	$-	$0.02	$0.02
Funds from operations	**5,478**	2,055	3,165	2,800	5,604	2,394	3,656	4,899
Backlog[1]	**253 days**	192 days	140 days	196 days	221 days	174 days	199 days	195 days

Net (loss) earnings are completely attributable to equity holders of 5N Plus Inc.

Selected Yearly Financial Information

As at and for the years ended December 31 (in thousands of U.S. dollars except per share amounts)	**2022**	2021	2020
	$	$	$
Revenue	**264,223**	209,990	177,192
EBITDA	**4,636**	24,988	22,424
Adjusted EBITDA	**30,028**	28,239	28,791
Net (loss) earnings	**(22,999)**	3,110	2,186
Basic (loss) earnings per share	**($0.26)**	$0.04	$0.03
Diluted (loss) earnings per share	**($0.26)**	$0.04	$0.03
Adjusted net (loss) earnings	**(267)**	5,354	4,980
Basic adjusted net earnings per share	**$-**	$0.06	$0.06
Funds from operations	**13,498**	16,553	25,830
Backlog	**253 days**	221 days	189 days
Balance Sheet			
Total assets	**347,985**	373,590	226,678
Total non-current liabilities	**172,363**	172,284	71,752
Net debt[1]	**78,309**	80,060	10,159
Shareholders' equity	**112,776**	136,247	118,376

Net (loss) earnings are completely attributable to equity holders of 5N Plus Inc.

[1] See Non-IFRS Measures

MANAGEMENT'S RESPONSIBILITY FOR FINANCIAL REPORTING

The consolidated financial statements and related notes have been prepared by management in conformity with generally accepted accounting principles in Canada which incorporate International Financial Reporting Standards as issued by the IASB (IFRS). Management is responsible for the selection of accounting policies and making significant accounting judgements and estimates.

Management is also responsible for all other information included in the management's discussion and analysis and for ensuring that this information is consistent with the information contained in the consolidated financial statements.

Management is responsible for establishing and maintaining adequate internal control over financial reporting which includes those policies and procedures that provide reasonable assurance over the safeguarding of assets and over the completeness, fairness and accuracy of the consolidated financial statements.

The Audit and Risk Management Committee, which is comprised entirely of independent directors, reviews the quality and integrity of the Company's financial reporting and provides its recommendations, in respect of the approval of the financial statements, to the Board of Directors; oversees management's responsibilities as to the adequacy of the supporting systems of internal controls; provides oversight of the independence, qualifications, and appointment of the external auditor; and reviews audit, audit-related, and non-audit fees and expenses. The Board of Directors approves the Company's consolidated financial statements and management's discussion and analysis disclosures prior to their release. The Audit and Risk Management Committee meets with management, the internal auditor and external auditors at least four times each year to review and discuss financial reporting, disclosures, auditing and other matters.

The external auditors, PricewaterhouseCoopers LLP, conduct an independent audit of the consolidated financial statements in accordance with Canadian generally accepted auditing standards and express their opinion thereon. Those standards require that the audit is planned and performed to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. The external auditors have unlimited access to the Audit and Risk Management Committee and meet with the Committee on a regular basis.

(signed) Gervais Jacques
Gervais Jacques
President and Chief Executive Officer

(signed) Richard Perron
Richard Perron
Chief Financial Officer

Montreal, Canada
February 21, 2023

Independent auditor’s report

To the Shareholders of 5N Plus Inc.

Our opinion

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the financial position of 5N Plus Inc. and its subsidiaries (together, the Company) as at December 31, 2022 and 2021, and its financial performance and its cash flows for the years then ended in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board (IFRS).

What we have audited
The Company’s consolidated financial statements comprise:

- the consolidated statements of financial position as at December 31, 2022 and 2021;
- the consolidated statements of (loss) earnings for the years then ended;
- the consolidated statements of comprehensive (loss) income for the years then ended;
- the consolidated statements of changes in equity for the years then ended;
- the consolidated statements of cash flows for the years then ended; and
- the notes to the consolidated financial statements, which include significant accounting policies and other explanatory information.

Basis for opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the *Auditor’s responsibilities for the audit of the consolidated financial statements* section of our report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence
We are independent of the Company in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in Canada. We have fulfilled our other ethical responsibilities in accordance with these requirements.

PricewaterhouseCoopers LLP
1250 René-Lévesque Boulevard West, Suite 2500, Montréal, Quebec, Canada H3B 4Y1
T: +1 514 205 5000, F: +1 514 876 1502

“PwC” refers to PricewaterhouseCoopers LLP, an Ontario limited liability partnership.

Key audit matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements for the year ended December 31, 2022. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Key audit matter	How our audit addressed the key audit matter
Valuation *of inventories* *Refer to note 2 – Summary of principal accounting policies and note 6 – Inventories to the consolidated financial statements.* The carrying value of inventories on the Company's consolidated financial statements was $86.2 million as at December 31, 2022. Inventories are carried at the lower of cost and net realizable value. In estimating net realizable value, management takes into account the most reliable evidence available at the time the estimates are made. The Company's core business is subject to changes in foreign policies and internationally accepted metal prices, which may cause future selling prices to change rapidly. Management applied judgment in estimating the net realizable value of inventories, which involved the use of significant assumptions, including the consideration of prices of similar products in the market at the time the estimates are made and expected future selling prices. We considered this a key audit matter due to the magnitude of the inventory balance, the various types of inventory items and the judgment made by management in determining the net realizable value of inventories, which in turn led to increased audit effort in performing audit procedures.	Our approach to addressing the matter included the following procedures, among others: • Tested how management estimated the net realizable value of inventories, which included the following: – Tested the data used by management in determining the net realizable value. – Evaluated the appropriateness of the method of estimating net realizable value. – Evaluated the reasonableness of significant assumptions used by management in the calculation of net realizable value of inventories, by comparing them to: ○ prices of similar products in the market at the time the estimates are made; and ○ expected future selling prices. • For a sample of inventory items, compared the prior year estimates of inventory prices to their actual selling prices during the year.

Other information

Management is responsible for the other information. The other information comprises the Management's Discussion and Analysis, which we obtained prior to the date of this auditor's report and the information, other than the consolidated financial statements and our auditor's report thereon, included in the annual report, which is expected to be made available to us after that date.

Our opinion on the consolidated financial statements does not cover the other information and we do not and will not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated.

If, based on the work we have performed on the other information that we obtained prior to the date of this auditor's report, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard. When we read the information, other than the consolidated financial statements and our auditor's report thereon, included in the annual report, if we conclude that there is a material misstatement therein, we are required to communicate the matter to those charged with governance.

Responsibilities of management and those charged with governance for the consolidated financial statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with IFRS, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Company's financial reporting process.

Auditor’s responsibilities for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor’s report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company’s internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management’s use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company’s ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor’s report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor’s report. However, future events or conditions may cause the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Company to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partner on the audit resulting in this independent auditor's report is Marc-Stéphane Pennee.

/s/PricewaterhouseCoopers LLP[1]

Montréal, Quebec, Canada
February 21, 2023

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[1] CPA auditor, public accountancy permit No. A123642

Consolidated Statements of Financial Position

(in thousands of United States dollars)

	Notes	December 31 2022	December 31 2021
		$	$
Assets			
Current			
Cash and cash equivalents		**42,691**	35,940
Accounts receivable	5	**32,872**	42,098
Inventories	6	**86,254**	95,526
Income tax receivable	18	**5,488**	5,054
Other current assets	7	**19,857**	16,904
Total current assets		**187,162**	195,522
Property, plant and equipment	8	**77,951**	81,526
Right-of-use assets	9	**30,082**	32,198
Intangible assets	10	**31,563**	40,474
Goodwill	11	**11,825**	13,841
Deferred tax assets	18	**6,002**	7,007
Other assets	12	**3,400**	3,022
Total non-current assets		**160,823**	178,068
Total assets		**347,985**	373,590
Liabilities			
Current			
Trade and accrued liabilities	13	**40,200**	46,454
Income tax payable	18	**8,780**	5,615
Derivative financial liabilities	19	**-**	109
Current portion of deferred revenue	16	**11,730**	10,394
Current portion of lease liabilities	9	**2,136**	2,487
Total current liabilities		**62,846**	65,059
Long-term debt	14	**121,000**	116,000
Deferred tax liabilities	18	**6,959**	7,645
Employee benefit plan obligations	15	**11,643**	17,231
Lease liabilities	9	**28,266**	30,153
Deferred revenue	16	**2,354**	-
Other liabilities	17	**2,141**	1,255
Total non-current liabilities		**172,363**	172,284
Total liabilities		**235,209**	237,343
Equity		**112,776**	136,247
Total liabilities and equity		**347,985**	373,590

Commitments and contingencies (Note 25)

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of (Loss) Earnings

Years ended December 31
(in thousands of United States dollars, except per share information)

	Notes	2022	2021
		$	$
Revenue		**264,223**	209,990
Cost of sales	29	**215,715**	171,214
Selling, general and administrative expenses	29	**28,565**	21,883
Other expenses (income), net	29	**32,997**	4,022
		277,277	197,119
Operating (loss) earnings		**(13,054)**	12,871
Financial expenses			
Interest on long-term debt	14	**5,466**	2,865
Imputed interest and other interest (income) expense		**(274)**	848
Foreign exchange and derivative loss		**42**	418
		5,234	4,131
(Loss) earnings before income taxes		**(18,288)**	8,740
Income tax expense (recovery)			
Current	18	**6,865**	5,580
Deferred	18	**(2,154)**	50
		4,711	5,630
Net (loss) earnings		**(22,999)**	3,110
(Loss) earnings per share	23	**(0.26)**	0.04
Basic (loss) earnings per share	23	**(0.26)**	0.04
Diluted (loss) earnings per share	23	**(0.26)**	0.04

Net (loss) earnings are completely attributable to equity holders of 5N Plus Inc.

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Comprehensive (Loss) Income

Years ended December 31
(in thousands of United States dollars)

	Notes	2022	2021
		$	$
Net (loss) earnings		**(22,999)**	3,110
Other comprehensive (loss) income			
Items that may be reclassified subsequently to net (loss) earnings			
Currency translation adjustment		**(3,657)**	(31)
		(3,657)	(31)
Items that will not be reclassified subsequently to net (loss) earnings			
Remeasurement of employee benefit plan obligations	15	**4,159**	814
Income taxes		**(1,300)**	(256)
		2,859	558
Other comprehensive (loss) income		**(798)**	527
Comprehensive (loss) income		**(23,797)**	3,637

Comprehensive (loss) income is completely attributable to equity holders of 5N Plus Inc.

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Changes In Equity

Years ended December 31
(in thousands of United States dollars, except per share information)

2022	Number of shares	Share capital	Contributed surplus	Accumulated other comprehensive loss	Deficit	Total equity
		$	$	$	$	$
Balances at beginning of year	**88,330,236**	**21,004**	**342,659**	**(5,189)**	**(222,227)**	**136,247**
Net loss for the year	-	-	-	-	**(22,999)**	**(22,999)**
Other comprehensive loss	-	-	-	**(798)**	-	**(798)**
Comprehensive loss	-	-	-	**(798)**	**(22,999)**	**(23,797)**
Share-based compensation (Note 24)	-	-	**326**	-	-	**326**
Balances at end of year	**88,330,236**	**21,004**	**342,985**	**(5,987)**	**(245,226)**	**112,776**

2021	Number of shares	Share capital	Contributed surplus	Accumulated other comprehensive loss	Deficit	Total equity
		$	$	$	$	$
Balances at beginning of year	81,651,130	5,835	342,802	(5,716)	(224,545)	118,376
Net earnings for the year	-	-	-	-	3,110	3,110
Other comprehensive income	-	-	-	527	-	527
Comprehensive income	-	-	-	527	3,110	3,637
Issuance of shares (Notes 21 and 22)	6,500,000	14,249	-	-	-	14,249
Common shares repurchased and cancelled (Note 22)	(249,572)	(17)	-	-	(792)	(809)
Exercise of stock options	428,678	937	(291)	-	-	646
Share-based compensation (Note 24)	-	-	148	-	-	148
Balances at end of year	88,330,236	21,004	342,659	(5,189)	(222,227)	136,247

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Cash Flows

Years ended December 31
(in thousands of United States dollars)

	Notes	**2022**	2021
		$	$
Operating activities			
Net (loss) earnings		**(22,999)**	3,110
Adjustments to reconcile net (loss) earnings to cash flows			
Depreciation of property, plant and equipment	8	**11,717**	8,969
Depreciation of right-of-use assets	9	**2,702**	1,764
Amortization of intangible assets	10	**3,313**	1,802
Amortization of other assets	12	**260**	253
Impairment of non-current assets	4, 8, 10, 29	**12,478**	-
Increase on loss allowance	5, 27	**3**	3
Loss on divestiture of a subsidiary	4	**7,834**	-
Share-based compensation expense (recovery)	24	**1,893**	(623)
Deferred income taxes	18	**(2,154)**	50
Imputed interest	9	**605**	336
Employee benefit plan obligations	15	**(403)**	(481)
Loss on disposal of assets held for sale	29	**216**	-
(Gain) loss on disposal of property, plant and equipment		**(13)**	171
Unrealized (gain) loss on non-hedge financial instruments		**(1,003)**	982
Unrealized foreign exchange (gain) loss on assets and liabilities		**(951)**	217
Funds from operations before the following :		**13,498**	16,553
Net change in non-cash working capital balances	21	**10,243**	(6,283)
Cash from operating activities		**23,741**	10,270
Investing activities			
Acquisition of subsidiary, net of cash acquired	4	**-**	(33,284)
Divestiture of a subsidiary, net of cash divested	4	**(2,652)**	-
Cash outflows to cash held in escrow	4	**(2,123)**	(9,004)
Additions to property, plant and equipment	8, 21	**(16,062)**	(5,385)
Additions of intangible assets	10	**(993)**	(541)
Acquisition of investment in equity instruments	12	**-**	(2,000)
Proceeds on disposal of assets held for sale	29	**2,816**	-
Proceeds on disposal of property, plant and equipment	8	**20**	285
Cash used in investing activities		**(18,994)**	(49,929)
Financing activities			
Repayment of long-term debt	4, 14	**(5,000)**	(32,505)
Proceeds from issuance of long term debt	14	**10,000**	71,000
Deferred costs related to long-term debt	12	**(732)**	(260)
Common shares repurchased	22	**-**	(809)
Issuance of common shares	22	**-**	646
Principal elements of lease payments	21	**(2,999)**	(1,872)
Increase in other liabilities	17	**1,140**	19
Cash from financing activities		**2,409**	36,219
Effect of foreign exchange rate changes on cash and cash equivalents		**(405)**	(570)
Net increase (decrease) in cash and cash equivalents		**6,751**	(4,010)
Cash and cash equivalents, beginning of year		**35,940**	39,950
Cash and cash equivalents, end of year		**42,691**	35,940
Supplemental information[1]			
Income tax paid		**3,745**	2,493
Interest paid		**5,360**	2,790

[1] Amounts paid for income tax and interest were reflected as cash flows from operating activities in the consolidated statements of cash flows.

The accompanying notes are an integral part of these consolidated financial statements.

1. Nature of Activities

5N Plus Inc. ("5N Plus" or the "Company") is a Canadian-based international company. 5N Plus is a leading global producer of specialty semiconductors and performance materials. The Company's ultra-pure materials often form the core element of its customer products. These customers rely on 5N Plus's products to enable performance and sustainability in their own products. 5N Plus deploys a range of proprietary and proven technologies to develop and manufacture its products. The Company's products enable various applications in a number of key industries including renewable energy, security, space, pharmaceutical, medical imaging, and industrial. The Company is headquartered at 4385 Garand Street, Montreal, Quebec (Canada) H4R 2B4. The Company operates R&D, manufacturing and commercial centers in strategically located facilities around the world including Europe, North America and Asia. The Company's mission is to be critical to its customers, valued by its employees and trusted by its shareholders. The Company's core values focus on integrity, commitment and customer development along with emphasis on sustainable development, continuous improvement, health and safety. The Company's shares are listed on the Toronto Stock Exchange ("TSX"). 5N Plus and its subsidiaries represent the "Company" mentioned throughout these consolidated financial statements. The Company has two reportable business segments, namely Specialty Semiconductors and Performance Materials.

These consolidated financial statements were approved by the Board of Directors on February 21, 2023.

In February 2022, Russian military forces invaded Ukraine; the invasion is being actively resisted by Ukrainian military personnel and the people of Ukraine, and the outcome of the ongoing conflict remains uncertain at this time. Although AZUR SPACE Solar Power GmbH (AZUR), a subsidiary of the Company, had sales in Russia in the past, the amount of such sales is not material to the Company as a whole. A prolonged armed conflict in Ukraine or an expansion of the armed conflict to other European countries could have a negative effect on the European and global economies. As well, Russia is a major exporter of oil and natural gas. Any disruption of supplies of oil and natural gas from Russia could have a significant adverse effect on the European and world economies. All of the foregoing factors could potentially have a negative impact on the Company's sales and results of operations.

2. Summary of Principal Accounting Policies

The principal accounting policies applied in the preparation of these consolidated financial statements are set out below. These policies have been consistently applied to all periods presented, unless otherwise stated.

Basis of preparation

The consolidated financial statements have been prepared in accordance with International Financial Reporting Standards as issued by the IASB (IFRS). The consolidated financial statements have been prepared under the historical cost convention, except for derivative financial instruments which are recorded at fair value.

The preparation of consolidated financial statements in conformity with IFRS requires the use of certain critical accounting estimates. It also requires management to exercise its judgment in the process of applying the Company's accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements, are also further disclosed in this note, in the "Significant management estimation and judgment in applying accounting policies" section.

Subsidiaries

Subsidiaries are all entities (including structured entities) over which the Company has control. Control exists when the Company is exposed to, or has the rights to, variable returns from its involvement with the entity and has the ability to affect those returns through the power over the entity.

The subsidiaries are fully consolidated from the date on which control is transferred to the Company. They are deconsolidated from the date that control ceases.

The following table includes the principal entities which significantly impact the results or assets of the Company:

	Country of incorporation	% Equity interest 2022	2021
5N Plus Inc.	Canada	100%	100%
5N PV GmbH	Germany	100%	100%
AZUR SPACE Solar Power GmbH (Note 4)	Germany	100%	100%
5N Plus Lübeck GmbH	Germany	100%	100%
5N Plus Belgium SA[1]	Belgium	-	100%
5N Plus Asia Limited	Hong Kong	100%	100%
5N Plus Wisconsin Inc.	United States	100%	100%

(1) On December 19, 2022, the Company divested its investment in 5N Plus Belgium SA. The revenues and expenses of this investment from January 1, 2022 until the date of disposition have been included within the Company's consolidated statement of (loss) earnings. See note 4 for additional information.

Intercompany transactions, balances, income and expenses on transactions between group companies are eliminated. Profits and losses resulting from intercompany transactions that are recognized in assets are also eliminated. Accounting policies of subsidiaries have been changed where necessary to ensure consistency with the policies adopted by the Company.

Foreign currency translation

a) Functional and presentation currency

The Company's functional and presentation currency is the US dollar. Functional currency is determined for each of the Company's entities, and items included in the financial statements of each entity are measured using that functional currency.

b) Transactions and balances

Monetary assets and liabilities denominated in foreign currencies are translated at the prevailing exchange rate at the reporting date. Non-monetary assets and liabilities, and revenue and expense items denominated in foreign currencies are translated into the functional currency using the exchange rate prevailing at the date of the respective transactions. Foreign exchange gains and losses resulting from the settlement of such transactions are recognized in the consolidated statement of (loss) earnings.

Foreign exchange gains and losses are presented in the consolidated statement of (loss) earnings within "foreign exchange and derivative loss".

c) Foreign operations

Assets and liabilities of subsidiaries that have a functional currency other than US dollar are translated from their functional currency to US dollars at exchange rates in effect at the reporting date. The resulting translation adjustments are included in the currency translation adjustment in other comprehensive (loss) income. Revenue and expenses are translated at the average exchange rates for the period.

Business combination

Business combinations are accounted for using the acquisition method. Under this method, the identifiable assets acquired and liabilities assumed, including contingent liabilities, are recorded at their fair value at the date of acquisition. The acquisition date is the date at which the Company obtains control over the acquiree, which is generally the date that consideration is transferred and the Company acquires the assets and assumes the liabilities of the acquiree.

The consideration transferred in a business combination is measured at fair value, which is calculated as the sum of the fair values of the assets at the acquisition date transferred by the Company, the liabilities incurred or assumed, including contingent liabilities, and equity instruments issued by the Company in exchange for control of the acquiree. The excess of the consideration transferred over the fair value of the net identifiable assets acquired is recorded as goodwill. Any negative goodwill is recognized directly in the consolidated statement of (loss) earnings. Acquisition costs are expensed as incurred in the consolidated statement of (loss) earnings.

Segment reporting

Following the acquisition of AZUR and the subsequent integration of its activities within the Company's operations, the Company repositioned certain products and applications between its two reportable segments, effective in the fourth quarter of 2021. For the two new principal segments, Specialty Semiconductors and Performance Materials, corresponding operations and activities are managed accordingly by the Company's key decision makers. Segmented operating, financial information and labelled key performance indicators are available and used to manage these business segments, review performance and allocate resources.

The Specialty Semiconductors segment operates in North America and Europe and is similar to the former Electronic Materials segment, and now integrating the products and operations of AZUR since November 5, 2021. The segment manufactures and sells products used in several applications such as renewable energy, space satellites and imaging. Typical end markets include photovoltaics (terrestrial and spatial solar energy), medical imaging, infrared imaging, optoelectronics and advanced electronics. These products are sold either in semiconductor compounds, semiconductor wafers, ultra high purity metals, epitaxial semiconductor substrates and solar cells. Revenues and earnings associated with recycling services and activities provided to Specialty Semiconductors customers are captured in this segment.

The Performance Materials segment operates in North America, Europe and Asia, and is similar to the former Eco-Friendly Materials segment. The segment manufactures and sells products that are used in several applications in pharmaceutical & healthcare, industrial, and catalytic and extractive. Main products are sold as active pharmaceutical ingredients, animal feed additives, specialized chemicals, commercial grade metals, alloys, and engineered powders. All commercial grade metal and engineered powder sales have been regrouped under Performance Materials. Revenues and earnings associated with recycling services and activities provided to Performance Materials customers are captured in this segment.

Corporate expenses associated with the head office and unallocated selling, general and administrative expenses, together with financing expenses have been regrouped under the heading "Corporate and unallocated".

Each operating segment is managed separately as each of these service lines requires different technologies, resources and marketing approaches. The financial information of the recycling and trading of complex material is allocated to the two main segments. All intersegment transactions between the Specialty Semiconductors and the Performance Materials segments have been eliminated on consolidation.

Revenue recognition

Revenue comprises the sale of manufactured products and the rendering of services and is measured at the amounts specified in the customer's arrangement.

Sales of manufactured products are recognized when products are delivered to the customer, which is also the moment when control of the products is transferred, and when there is no unfulfilled obligation that could affect the customer's acceptance of the products. Delivery occurs when the products have been shipped to the specified location, the risks of loss have been transferred to the customer and the customer has accepted the products in accordance with the sales contract. Revenue from custom refining activities, often referred to as tolling, is recognized when services are rendered, at a point in time.

Accounts receivable are recognized when the products are delivered or services are rendered, as this is the point in time that the consideration is unconditional because only the passage of time is required before the payment is due. The Company does not expect to have any contracts where the period between the transfer of the promised products or services to the customer and payment by the customer exceeds one year. As a consequence, the Company does not adjust any of the transaction prices for the time value of money.

Deferred revenue is recognized by the company as a non-current liability in relation to long-term revenue contracts with customers which involve performance obligations which are satisfied over time rather than at a point in time. The amount of which is expected to be realized within one year is recorded within the heading “Current portion of deferred revenue”. Cash payments received or advances due pursuant to contractual arrangements related to the sale of goods are also recorded as deferred revenue until all of the foregoing conditions of revenue recognition have been met. The Company does not expect to have any contractual arrangements whereby the cash payment or advance is received more than one year before the underlying goods are delivered and therefore these advances are also presented within the heading “Current portion of deferred revenue”.

Government grants

Grants from the government are recognized at their fair value where there is a reasonable assurance that the grant will be received and the Company will comply with all attached conditions.

Grants that compensate the Company for a specific expense incurred are recognized in the consolidated statement of (loss) earnings against the expenses.

Grants that are related to assets are recognized by deducting the grant from the carrying amount of the specific asset. The grant is recognized in the consolidated statement of (loss) earnings over the life of a depreciable asset as a reduced depreciation expense.

Property, plant and equipment

Property, plant and equipment are recorded at cost, net of accumulated depreciation, accumulated impairment losses and subsequent reversals, if applicable. Property, plant and equipment are depreciated using the straight-line method over their estimated useful lives, taking into account any residual values. Useful lives are as follows:

	Period
Land	Not depreciated
Building	25 years
Production equipment	Up to 15 years
Furniture	3 to 10 years
Office equipment	3 to 10 years
Rolling stock	3 to 10 years
Leasehold improvements	Over the term of the lease

Major overhaul and replacement are capitalized in the consolidated statement of financial position as a separate component, with the replaced part or previous overhaul derecognized from the consolidated statement. Maintenance and repairs are charged to expense as incurred.

Construction in progress is not depreciated until the assets are put into use. Costs are only capitalized if they are directly attributable to the construction or development of the assets.

Residual values, method of depreciation and useful life of the assets are reviewed annually and adjusted if appropriate.

Leases

Leases are recognized as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the Company. Assets and liabilities arising from a lease are initially measured on a present value basis.

Right-of-use assets

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of lease liability;
- any lease payments made at or before the commencement date less any lease incentives received;
- any initial direct costs; and
- estimated restoration costs.

The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis.

Lease liabilities

Lease liabilities include the net present value of the following lease payments:

- fixed payments (including in-substance fixed payments), less any lease incentives receivable;
- variable lease payment that are based on an index or a rate;
- amounts expected to be payable by the lessee under residual value guarantees;
- the exercise price of a purchase option if the lessee is reasonably certain to exercise that option; and
- payments of penalties for terminating the lease, if the lease term reflects the lessee exercising that option.

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, the lessee’s incremental borrowing rate is used, being the rate that the lessee would have to pay to borrow the funds necessary to obtain an asset of similar value in a similar economic environment with similar terms and conditions.

Each lease payment is allocated between the liability and finance cost. The finance cost is charged to the consolidated statement of (loss) earnings over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period.

Payments associated with short-term leases and leases of low-value assets are recognized on a straight-line basis as an expense in the consolidated statement of (loss) earnings. Short-term leases are leases with a lease term of 12 months or less. Low-value assets comprise IT-equipment and small items of office furniture.

Extension options are included in a number of property and equipment leases across the Company. These terms are used to maximise operational flexibility in terms of managing contracts. The majority of extension options held are exercisable only by the Company and not by the respective lessor.

Intangible assets

Intangible assets acquired separately are recorded at cost, net of accumulated amortization, accumulated impairment losses and reversals, if applicable. Intangible assets acquired through a business combination are recognized at fair value at the date of acquisition.

Intangible assets are amortized on a straight-line basis over their useful lives according to the following annual terms:

	Period
Customer relationships	15 years
Technology	Not exceeding 15 years
Trade name	10 years
Software	5 years
Development costs	Not exceeding 10 years
Backlog	3 years

Goodwill

Goodwill represents the excess of the consideration transferred over the fair value of the identifiable net assets acquired in a business combination and is initially measured at the acquisition date. Goodwill is subsequently carried at cost less any accumulated impairment losses.

At the date of acquisition, goodwill is assigned to the cash-generating unit (CGU) or group of CGUs that is expected to benefit from the synergies of the business combination. For the purposes of impairment testing, goodwill is allocated to the Company's operating segments, which is the level at which the chief operating decision maker monitors goodwill. The CGU is tested for impairment annually, or more frequently when there is indication that the CGU may be impaired. If the recoverable amount of the CGU is less than its carrying amount, the impairment loss is allocated first to reduce the goodwill allocated to the CGU and then, to reduce the carrying amounts of the other assets in the CGU on a pro-rata basis. Any impairment loss is recognized in the consolidated statement of (loss) earnings. An impairment loss recognized for goodwill is not reversed in subsequent periods.

Impairment of non-financial assets

The carrying amounts of the Company's non-financial assets that have an indefinite useful life, such as goodwill, are not subject to amortization and are tested annually for impairment or whenever indicators of impairment exist. Assets that are subject to amortization are tested for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. Assets that are not yet available for use are tested for impairment annually or at any time if an indicator of impairment exists.

An impairment loss is recognized if the carrying amount of an asset or a cash-generating unit (CGU) exceeds its recoverable amount. The recoverable amount of an asset or CGU is the greater of its value in use and its fair value less cost of disposal. The recoverable amount is determined for an individual asset; unless the asset does not generate cash inflows that are largely independent of those from other assets or groups of assets. In such case, the CGU to which the asset belongs is used to determine the recoverable amount. Impairment losses are recognized in the consolidated statement of (loss) earnings.

The Company evaluates impairment losses for potential reversals at each reporting date. An impairment loss is reversed if there is any indication that the loss has decreased or no longer exists due to changes in the estimates used to determine the recoverable amount. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortization, if no impairment loss had been recognized. Such reversal is recognized in the consolidated statement of (loss) earnings.

Financial instruments

Financial assets and liabilities are recognized when the Company becomes a party to the contractual provisions of the instrument. Financial assets are derecognized when the rights to receive cash flows from the assets have expired or have been transferred and the Company has transferred substantially all risks and rewards of ownership.

Financial assets and liabilities are offset and the net amount is reported in the consolidated statement of financial position when there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis, or realize the asset and settle the liability simultaneously.

Measurement

At initial recognition, the Company measures a financial asset or financial liability at its fair value plus or minus, in the case of a financial asset or financial liability not at fair value through profit or loss (FVPL), transaction costs that are directly attributable to the acquisition or issue of the financial asset or financial liability. Transaction costs of financial assets or financial liabilities carried at FVPL are expensed in the consolidated statement of (loss) earnings.

Financial assets with embedded derivatives are considered in their entirety when determining whether their cash flows are solely payment of principal and interest.

Measurement in subsequent periods depends on the classification of the financial instrument. The Company has classified its financial instruments in the following categories depending on the purpose for which the instruments were acquired and their characteristics.

Financial assets

Debt instruments
For the subsequent measurement, there are two measurement categories into which the Company classifies its debt instruments:

- Amortized cost: Assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortized cost. Interest income from these financial assets is included in finance income using the effective interest rate method. Any gain or loss arising on derecognition is recognized directly in the consolidated statement of (loss) earnings and presented in other gains (losses), together with foreign exchange gains and losses. Impairment losses are presented as separate line item in the consolidated statement of (loss) earnings.
- Fair value through profit or loss (FVPL): Assets that do not meet the criteria for amortized cost or fair value through other comprehensive (loss) income (FVOCI) are measured at FVPL. A gain or loss on a debt investment that is subsequently measured at FVPL is recognized in the consolidated statement of (loss) earnings and presented net within other gains (losses) in the period in which it arises.

Investment in equity instruments
For the subsequent measurement, investments in equity instruments which the Company did not make an irrevocable election to present in FVOCI are measured at FVPL. A gain or loss on an investment in equity instruments that is subsequently measured at FVPL is recognized in the consolidated statement of (loss) earnings and presented net within “Other expenses (income), net” in the period in which it arises.

Financial liabilities

Financial liabilities are subsequently measured at amortized cost using the effective interest method, except for financial liabilities at FVPL. Such liabilities, including derivatives that are liabilities, shall be subsequently measured at fair value.

The Company has classified its financial instruments as follows:

Category	Financial instrument
Financial assets and liabilities at fair value through profit and loss	Indexed deposit agreement (Note 7)
	Derivative financial assets
	Investment in equity instrument (Note 12)
	Restricted investment (Note 12)
	Derivative financial liabilities
Financial assets and liabilities at amortized cost	Cash and cash equivalents
	Accounts receivable
	Cash held in escrow (Note 7)
	Trade and accrued liabilities
	Long-term debt

Impairment

At each reporting date, the Company assesses, on a forward-looking basis, the expected credit losses associated with its debt instruments carried at amortized cost. The impairment methodology applied depends on whether there has been a significant increase in credit risk.

For trade receivables, the Company applies the simplified approach permitted by IFRS 9, which requires expected lifetime losses to be recognized from initial recognition of the receivables (Note 27). The Company assumes that there is no significant increase in credit risk for instruments that have a low credit risk.

Derivative financial instruments and hedging activities

Derivatives are initially recognized at fair value on the date a derivative contract is entered into and are subsequently remeasured at their fair value. The method of recognizing the resulting gain or loss depends on whether the derivative is designated as a hedging instrument and, if so, the nature of the item being hedged. The Company designates certain derivatives as hedges of a particular risk associated with a recognized asset or liability or a highly probable forecast transaction (cash flow hedge).

The Company will apply cash flow hedge accounting to certain foreign exchange forward contracts entered into to hedge forecasted transactions. In a cash flow hedge relationship, the portion of gains or losses on the hedging item that is determined to be an effective hedge is recognized in other comprehensive (loss) income, while the ineffective portion is recorded in the consolidated statement of (loss) earnings. The amounts recognized in other comprehensive (loss) income are reclassified in the consolidated statement of (loss) earnings as a reclassification adjustment when the hedged item affects net earnings.

For the year ended December 31, 2022 and 2021, the Company has no derivative financial instruments designated as a hedging instrument.

Embedded financial liabilities derivatives

Embedded derivatives are recorded at fair value separately from the host contract when their economic characteristics and risks are not clearly and closely related to those of the host contract. Subsequent changes in fair value are recorded in financial expenses in the consolidated statement of (loss) earnings. For the year ended December 31, 2022 and 2021, the Company has no embedded derivative.

Cash and cash equivalents

Cash and cash equivalents comprise cash on hand.

Cash held in escrow

Cash held in escrow represents cash which is restricted pursuant to a contractual arrangement and is held in a separate bank account. Cash held in escrow is presented within "Other current assets".

Inventories

Inventories are carried at the lower of cost and net realizable value. Cost includes all expenditures directly attributable to the manufacturing process as well as suitable portions of related production overheads based on normal operating capacity. Costs of ordinarily interchangeable items are assigned using weighted average cost. Net realizable value is the estimated selling price in the ordinary course of business less costs of completion and any applicable selling expenses. When the circumstances that previously caused inventories to be written down below cost no longer exist or when there is clear evidence of an increase in net realizable value because of changed economic circumstances, the amount of the impairment is reversed (i.e. the reversal is limited to the amount of the original impairment) so that the new carrying amount is the lower of the cost and the revised net realizable value.

From time to time, when substantially all required raw materials are in inventory, the Company may choose to enter into long-term fixed-price sales contracts. The quantity of raw materials required to fulfill these contracts is specifically assigned, and the average cost of these raw materials is accounted for separately throughout the duration of the contract.

Income taxes

The tax expense for the year which comprises current and deferred tax is recognized in the consolidated statement of (loss) earnings, except to the extent that it relates to items recognized in other comprehensive (loss) income or directly in equity. In which case, the tax expense is also recognized in other comprehensive (loss) income or directly in equity, respectively.

a) Current tax

The current income tax charge is calculated on the basis of the tax laws enacted or substantively enacted at the date of the consolidated statement of financial position in the countries where the Company and its subsidiaries operate and generate taxable income. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. It establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

b) Deferred tax

Deferred income tax is recognized using the liability method on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. However, deferred tax liabilities are not recognized if they arise from the initial recognition of goodwill; deferred income tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss. Deferred income tax is determined using tax rates (and laws) that are enacted or substantively enacted at the date of the consolidated statement of financial position and are expected to apply when the related deferred income tax asset is realized or the deferred income tax liability is settled.

Deferred income tax assets are recognized only to the extent that it is probable that future taxable profit will be available against which the temporary differences can be used.

Deferred income tax is presented to provide impact of temporary differences arising on investments in subsidiaries, except for deferred income tax liability where the timing of the reversal of the temporary difference is controlled by the Company and it is probable that the temporary difference will not be reversed in the foreseeable future.

Deferred income tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities, and when the deferred income tax assets and liabilities relate to income taxes levied by the same taxation authority, on either the same taxable entity or different taxable entities where there is an intention to settle the balances on a net basis.

Provisions

A provision is recognized when the Company has a present legal or constructive obligation as a result of past events; it is probable that an outflow of resources will be required to settle the obligation; and the amount has been reliably estimated. Restructuring provisions comprise mainly employee termination payments. Provisions are not recognized for future operating losses.

Where there are a number of similar obligations, the likelihood that an outflow will be required in settlement is determined by considering the class of obligations as a whole. A provision is recognized even if the likelihood of an outflow with respect to any one item included in the same class of obligations may be small.

Provisions are measured at the present value of the expenditures expected to be required to settle the obligation using a pre-tax rate that reflects current market assessment of the time value of money and the risks specific to the obligation. The increase in the provision due to passage of time is recognized as interest expense.

Restructuring provisions, consisting of severance and other related costs to sites closure, are recognized when a detailed formal plan identifies the business or part of the business concerned, the location and number of employees affected, detailed estimates of the associated costs, and an appropriate timelines which has been communicated to those affected by it.

Research and development expenses

Research expenses are charged to the consolidated statement of (loss) earnings in the period they are incurred and are included under “Other expenses (income), net”. Development expenses which are directly attributable expenses, either internal or external, are charged to the consolidated statement of (loss) earnings, except if the Company can demonstrate all of the following (in that case capitalised as an intangible assets – development costs):

- The technical feasibility of completing the intangible asset so that it will be available for use or sale;
- Its intention to complete the intangible asset and use or sell it;
- Its ability to use or sell the intangible asset;
- How the intangible asset will generate probable future economic benefits. Among other things, the Company can demonstrate the existence of a market for the output of the intangible asset or the intangible asset itself or, if it is to be used internally, the usefulness of the intangible asset;
- The availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset; and
- Its ability to measure reliably the expenditure attributable to the intangible asset during its development.

Employee future benefits

The Company contributes to two defined benefit pension plans. The significant policies related to employee future benefits are as follows:

- The cost of pension and other post-retirement benefits earned by employees is actuarially determined using the projected benefit method prorated on service, market interest rates and management’s best estimate of expected plan investment performance, retirement age of employees and expected health care costs;
- Fair value is used to value the plan assets for the purpose of calculating the expected return on plan assets; and
- Actuarial gains and losses arising from experience adjustment and change in actuarial assumptions are charged or credited to equity in other comprehensive (loss) income in the period in which they arise.

Share-based payments

The fair value of the equity-settled share-based payment plan is determined using the Black-Scholes model on the grant date. Measurement inputs include the share price on the measurement date, the exercise price of the instrument, expected volatility, weighted average expected life of the instrument, expected dividends, expected forfeiture rate, and the risk-free interest rate. The impact of service and non-market vesting conditions is not taken into account in determining fair value. The compensation expense of the equity-settled awards is recognized in the consolidated statement of (loss) earnings over the graded vesting period, where the fair value of each tranche is recognized over its respective vesting period.

For cash-settled share-based payment plans, the compensation expense is determined based on the fair value of the liability incurred at each reporting date until the award is settled. The fair value of compensation expense is calculated by multiplying the number of units expected to vest with the fair value of one unit as of grant date based on the market price of the Company's common shares. Until the liability is settled, the Company re-mesures the fair value of the liability at the end of each reporting period and at the date of settlement, with any changes in fair value recognized in the consolidated statement of (loss) earnings.

Earnings per share

Basic (loss) earnings per share is calculated by dividing net (loss) earnings for the year by the weighted average number of common shares outstanding during the year.

Diluted (loss) earnings per share assume the conversion, exercise or contingent issuance of securities only when such conversion, exercise or issuance would have a dilutive effect on the income per share. The treasury stock method is used to determine the dilutive effect of share options.

Significant management estimation and judgment in applying accounting policies

The following are significant management judgments used in applying the accounting policies of the Company that have the most significant effect on the consolidated financial statements.

Estimation uncertainty
When preparing the consolidated financial statements, management undertakes a number of judgments, estimates and assumptions about recognition and measurement of assets, liabilities, revenues and expenses. Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected.

Information about the significant judgments, estimates and assumptions that have the most significant effect on the recognition and measurement of assets, liabilities, revenues and expenses are discussed below.

Impairment of non-financial assets
Non-financial assets are reviewed for an indication of impairment at each consolidated statement of financial position date upon the occurrence of events or changes in circumstances indicating that the carrying value of the assets may not be recoverable, which requires significant judgement.

An impairment loss is recognized for the amount by which an asset's or CGU's carrying amount exceeds its recoverable amount, which is the higher of fair value less cost of disposal and value in use.

An intangible asset and related equipment that are not yet available for their intended use and CGUs to which goodwill is allocated are tested for impairment at least annually, which also requires significant judgement. To determine the recoverable amount (value in use or fair value less cost to dispose of these assets), management estimates expected future cash flows from the asset or CGU and determines a suitable interest rate in order to calculate the present value of those cash flows. In the process of measuring expected future cash flows for intangible and tangible assets not yet available for their intended use and CGUs to which goodwill is allocated, management makes assumptions about future operating results using the estimated forecasted prices obtained from various market sources. These key assumptions relate to future events and circumstances. The actual results will vary and may cause adjustments to the Company's assets in future periods. In most cases, determining the applicable discount rate involves estimating the appropriate adjustment to market risk and to asset-specific risk factors.

Inventories

Inventories are carried at the lower of cost and net realizable value, with cost determined using the average cost method. In estimating net realizable values, management takes into account the most reliable evidence available at the time the estimates are made. The Company's core business is subject to changes in foreign policies and internationally accepted metal prices which may cause future selling prices to change rapidly. The Company evaluates its inventories using a group of similar items basis and considers expected future prices as well as events that have occurred between the consolidated statement of financial position date and the date of the completion of the consolidated financial statements. Net realizable value for inventory to satisfy a specific sales contract is measured at the contract price.

Business Combination

The Company must make assumptions and estimates to determine the fair value of identifiable assets acquired and liabilities assumed. These estimates are based on future events, forecasts of future cash flows, future operating costs, future capital expenditures and estimated discount rates. Changes to the preliminary measurements of assets and liabilities acquired may be retrospectively adjusted when new information is obtained until the final measurements are determined within one year of the acquisition date.

Income taxes

The Company is subject to income taxes in numerous jurisdictions. Significant judgment is required in determining the worldwide provision for income taxes. There are many transactions and calculations for which the ultimate tax determination is uncertain. The Company recognizes liabilities for anticipated tax audit issues based on estimates of whether additional taxes will be due. Where the final tax outcome of these matters is different from the amounts that were initially recorded, such differences will impact the current and deferred income tax assets and liabilities in the period in which such determination is made.

The Company has deferred income tax assets that are subject to periodic recoverability assessments. Realization of the Company's deferred income tax assets is largely dependent on its achievement of projected future taxable income and the continued applicability of ongoing tax planning strategies. The Company's judgments regarding future profitability may change due to future market conditions, changes in tax legislation and other factors that could adversely affect the ongoing value of the deferred income tax assets. These changes, if any, may require a material adjustment of these deferred income tax asset balances through an adjustment to the carrying value thereon in the future. This adjustment would reduce the deferred income tax asset to the amount that is considered to be more likely than not to be realized and would be recorded in the period such a determination was to be made (Note 18).

3. Adoption of New Accounting Standards and Future Changes in Accounting Policies

Adoption of new accounting standards

IFRS 3 – Business combinations
On January 1, 2022, the Company adopted the amendments to IFRS 3 regarding its reference to the Conceptual Framework. With this amendment, IFRS 3 will reference the current version of the Conceptual Framework rather than the Conceptual Framework in effect at the time of IFRS 3's development. The amendments to IFRS 3 also indicate that for the purposes of identifying certain liabilities within the context of a business combination, the definition of a liability as per IAS 37 – Provisions Contingent Liabilities and Contingent assets, shall supersede the definition within the Conceptual Framework. The amendments are effective for annual periods beginning on or after January 1, 2022, with earlier application permitted. In adopting the amendments, there has been no significant impact to the financial statements for the year ended December 31, 2022.

IAS 16 – Property, plant and equipment
On January 1, 2022, the Company adopted the amendments to IAS 16 regarding the accounting of Proceeds before Intended Use. Proceeds received from the sale of items produced by property, plant and equipment (PPE) which is still being prepared for its intended use cannot be deducted from the PPE's cost. Instead proceeds must be immediately recognized in the consolidated statement of earnings. The amendments are effective for annual periods beginning on or after January 1, 2022, with earlier application permitted. In adopting the amendments, there has been no significant impact to the financial statements for the year ended December 31, 2022.

IFRS 9 – Financial Instruments
On January 1, 2022, the Company adopted the amendment to IFRS 9 which clarifies which fees should be considered for the purpose of applying the derecognition test to a modified financial liability. The IASB clarified that only fees paid or received between the borrower and the lender should be considered. The amendment is effective for annual periods beginning on or after January 1, 2022, with earlier application permitted. In adopting the amendments, there has been no significant impact to the financial statements for the year ended December 31, 2022.

Future Changes in accounting policies

The following standards have been issued but not yet effective:

IAS 1 – Presentation of Financial Statements
In January 2020, the IASB issued amendments to IAS 1 to clarify its requirements for the presentation of liabilities in the statement of financial position. The amendments are effective for annual reporting periods beginning on or after January 1, 2024. The Company is currently evaluating the impact of the amendments on its consolidated financial statements.

4. Business Combination and Divestiture of Subsidiary

Business Combination
On November 5, 2021, the Company acquired all of the issued and outstanding shares of AZUR SPACE Solar Power GmbH (AZUR) for a purchase price of 50.1 million euros, subject to post-closing adjustments. The consideration transferred was comprised of 6.5 million shares of 5N Plus, which were issued from the treasury at 12.4 million euros, along with a cash payment of 37.7 million euros. Furthermore, the Company financed the working capital and equipment loans for an amount of 23.8 million euros. The cash portion and the working capital of the transaction were funded through the Company's liquidity and senior debt facility. Transaction fees for an amount of $266 for 2022 (2021 - $666 and 2020 - $490) were expensed as incurred in the consolidated statement of earnings.

Located in Heilbronn, Germany, AZUR develops and manufactures multi-junction solar cells based on III-V compound semiconductor materials. The integration of AZUR has not only expanded the Company's position within renewable energy, but, through Canada's membership in the European Space Agency (ESA), has also established 5N Plus as a supplier to the European and U.S. space programs.

To estimate the fair value of the intangible assets, management used the excess earnings method to value customer relationships and the royalty relief method to value technology and trade names using discounted cash flow models. Management developed significant assumptions related to revenue and gross margin forecasts, customer retention rates, royalty rates and discount rates.

The tables below present the consideration paid and the Company's final assessment of the fair values of the assets acquired and the liabilities assumed. As a result of finalizing its assessment, the Company has not restated the consolidated statement of financial position as at December 31, 2021 as the adjustments were deemed not material. The Company also determined that the net impact on the net earnings as a result of these adjustments was not material for the year ended December 31, 2021, and as such, they were accounted for in the consolidated statement of (loss) earnings for the year ended December 31, 2022.

Consideration transferred	
	$
Cash and cash equivalents	**34,301**
Consideration payable[1]	**9,158**
Common shares issued	**14,249**
	57,708

[1] This amount of 7,950 euros, held in escrow and recorded in Other current assets, is expected to be released within 12 months in accordance with the terms of the Share Purchase Agreement (Notes 7 and 13).

Identified assets acquired and liabilities assumed	**Preliminary**	**Adjustments**	**Final**
	$	**$**	**$**
Cash and cash equivalents	1,017	-	1,017
Accounts receivable	8,342	1,057	9,399
Inventories	21,394	(1,057)	20,337
Other current assets	256	-	256
Property, plant and equipment	31,128	4,993	36,121
Right-of-use assets	21,626	(938)	20,688
Intangible assets	32,144	(973)	31,171
Other assets	5	-	5
Goodwill	13,841	(2,016)	11,825
Total assets acquired	129,753	1,066	130,819
Trade and accrued liabilities	7,291	-	7,291
Current portion of deferred revenue	4,906	(1,294)	3,612
Long-term debt[1]	27,396	-	27,396
Employee benefit plan obligations	2,673	-	2,673
Lease liabilities	21,626	(938)	20,688
Deferred revenue	-	2,011	2,011
Other liabilities	1,059	216	1,275
Deferred tax liabilities	7,094	1,071	8,165
Total liabilities assumed	72,045	1,066	73,111
Total net assets	57,708	-	57,708

[1] The long-term debt acquired was repaid in full on November 5, 2021.

For the 57-day period ended December 31, 2021, AZUR contributed $17,034 of revenue and $2,342 of net earnings to the Company's consolidated statement of earnings based on operations after the acquisition date. If the acquisition of AZUR had been completed as of January 1, 2021, the Company estimates that its consolidated revenues and net earnings for the year ended December 31, 2021 would have totalled $260,990 and $nil respectively, inclusive of the additional depreciation and amortization expenses recorded in reference to the preliminary purchased price allocation. Azur delivers products to its customers on a project basis creating an unequal distribution of revenue and profitability from one period to another.

The amount recorded for goodwill Is not deductible for tax purposes. The accounts receivable are presented net of a loss allowance of $28.

Divestiture of Subsidiary

On December 19, 2022, the Company divested its 100% interest in 5N Plus Belgium SA, previously included within its Performance Materials segment, and recognized a loss on divestiture of $7,834. The decision to cease the production of lower margin products used in catalytic and extractive applications was made following a strategic review of the Company's legacy operations. As part of the transaction, a provision of $2,594 was recorded under Litigation and Restructuring to support the new owners to ensure site compliance with most recent environmental standards and for other related costs, of which 2.0 million euros or $2,133 is held in escrow. Prior to the divestiture, the Company recorded an impairment charge of $7,092 on Property, plant, and equipment (Note 7) following the intention to halt production at its manufacturing facility in Tilly, Belgium.

These expenses are presented within the consolidated statement of (loss) earnings within Other expenses (income), net.

5. Accounts Receivable

	2022	2021
	$	$
Gross trade receivables	**26,255**	35,014
Loss allowance (Note 27)	**(152)**	(149)
Trade receivables	**26,103**	34,865
Sales taxes receivable	**3,265**	3,508
Other receivables	**3,504**	3,725
Total accounts receivable	**32,872**	42,098

All of the Company's accounts receivable are short term. The net carrying value of accounts receivable is considered a reasonable approximation of fair value.

The Company's exposure to credit risks and the calculation of the loss allowance related to accounts receivable are disclosed in Note 27.

Most of the accounts receivable are pledged as security for the revolving credit facility (Note 14).

6. Inventories

	2022	2021
	$	$
Raw materials	**28,436**	30,845
Finished goods	**57,818**	64,681
Total inventories	**86,254**	95,526

For the year ended December 31, 2022, a total of $118,643 of inventories was included as an expense in cost of sales (2021 – $94,881).

For the year ended December 31, 2022, a total of $1,464 previously written down was recognized as a reduction of expenses in cost of sales concurrently with the related inventories being sold ($22 for the Specialty Semiconductors segment and $1,442 for the Performance Materials segment). For the year ended December 31, 2021, a total of $815 previously written down was recognized as a reduction of expenses in cost of sales concurrently with the related inventories being sold ($169 for the Specialty Semiconductors segment and $646 for the Performance Materials segment).

The majority of inventories are pledged as security for the revolving credit facility (Note 14).

7. Other current assets

	2022	2021
	$	$
Cash held in escrow (Note 4)	**10,613**	9,004
Indexed deposit agreement	**5,517**	4,819
Prepaids and others	**3,727**	3,081
Total other current assets	**19,857**	16,904

In June 2017, the Company entered into an indexed deposit agreement with a major Canadian financial institution to reduce its income exposure to fluctuations in its share price relating to the DSU, PSU, RSU and SAR programs. Pursuant to the agreement, the Company receives the economic benefit of the share price appreciation while providing payments to the financial institution for the institution's cost of funds and any share price depreciation. The net effect of the indexed deposit partly offset movements in the Company's share price impacting the cost of the DSU, PSU, RSU and SAR programs. As at December 31, 2022, the indexed deposit agreement covered 2,571,569 common shares of the Company.

8. Property, Plant and Equipment

	Land and buildings	Construction in progress and production equipment	Furniture, office equipment and rolling stock	Leasehold improvements	Total
	$	$	$	$	$
Net book value as at December 31, 2020	16,203	33,261	2,518	1,209	53,191
Business combination (Note 4)	-	28,874	472	1,782	31,128
Additions	290	6,971	429	15	7,705
Disposals	-	(456)	-	-	(456)
Depreciation	(951)	(6,334)	(1,263)	(421)	(8,969)
Transfer between categories	-	(402)	376	26	-
Effect of foreign exchange	43	(1,058)	(26)	(32)	(1,073)
Net book value as at December 31, 2021	15,585	60,856	2,506	2,579	81,526
Business combination (Note 4)	**-**	**4,638**	**-**	**355**	**4,993**
Additions	**86**	**14,818**	**378**	**14**	**15,296**
Disposals	**(4)**	**(3)**	**-**	**-**	**(7)**
Reclassification to assets held for sale (Note 29)	**(3,032)**	**-**	**-**	**-**	**(3,032)**
Depreciation	**(764)**	**(8,940)**	**(1,304)**	**(709)**	**(11,717)**
Impairment	**(2,374)**	**(4,599)**	**(119)**	**-**	**(7,092)**
Transfer between categories	**1,597**	**(2,363)**	**10**	**756**	**-**
Effect of foreign exchange	**(150)**	**(1,735)**	**(52)**	**(79)**	**(2,016)**
Net book value as at December 31, 2022	**10,944**	**62,672**	**1,419**	**2,916**	**77,951**
As at December 31, 2021					
Cost	23,916	100,973	5,116	5,244	135,249
Accumulated depreciation	(8,331)	(40,117)	(2,610)	(2,665)	(53,723)
Net book value	15,585	60,856	2,506	2,579	81,526
As at December 31, 2022					
Cost	**18,823**	**110,068**	**5,135**	**6,275**	**140,301**
Accumulated depreciation	**(7,879)**	**(47,396)**	**(3,716)**	**(3,359)**	**(62,350)**
Net book value	**10,944**	**62,672**	**1,419**	**2,916**	**77,951**

During the third quarter of 2022, the Company recorded an impairment of non-current assets of $7,092, included in the Performance Materials segment, to reflect the assessment of the carrying value of property, plant and equipment following the intention to halt production at its manufacturing facility in Tilly, Belgium. Consequently, the Company's projections regarding the future cashflows from the property, plant and equipment of Tilly were minimal. The impairment charges are recognized under Other expenses within the consolidated statement of (loss) earnings (Note 4).

As at December 31, 2022, property, plant and equipment that were not depreciated until ready for their intended use amounted to $19,911 (2021 – $14,418) (mainly production equipment).

Most of the property, plant and equipment are pledged as security for the revolving credit facility (Note 14).

9. Leases

Right-of-use assets

	Buildings	Production equipment	Office equipment and rolling stock	Total
	$	$	$	$
Net book value as at December 31, 2020	4,356	356	335	5,047
Business combination (Note 4)	21,559	-	67	21,626
Additions	-	27	217	244
Modification to lease contracts	7,402	-	5	7,407
Depreciation	(1,413)	(145)	(206)	(1,764)
Effect of foreign exchange and others	(361)	-	(1)	(362)
Net book value as at December 31, 2021	31,543	238	417	32,198
Business combination (Note 4)	**(938)**	**-**	**-**	**(938)**
Additions	**2,300**	**107**	**290**	**2,697**
Modification to lease contracts	**198**	**-**	**-**	**198**
Divestiture of subsidiary (Note 4)	**-**	**(55)**	**(140)**	**(195)**
Depreciation	**(2,364)**	**(128)**	**(210)**	**(2,702)**
Effect of foreign exchange and others	**(1,167)**	**(4)**	**(5)**	**(1,176)**
Net book value as at December 31, 2022	**29,572**	**158**	**352**	**30,082**
As at December 31, 2021				
Cost	34,923	619	790	36,332
Accumulated depreciation	(3,380)	(381)	(373)	(4,134)
Net book value	31,543	238	417	32,198
As at December 31, 2022				
Cost	**35,319**	**305**	**509**	**36,133**
Accumulated depreciation	**(5,747)**	**(147)**	**(157)**	**(6,051)**
Net book value	**29,572**	**158**	**352**	**30,082**

Lease liabilities

	2022	2021
	$	$
Current portion	**2,136**	2,487
Non-current portion	**28,266**	30,153
Total lease liabilities	**30,402**	32,640

Amounts recognized in the consolidated statements of earnings:

	2022	2021
	$	$
Imputed interest[(1)]	**605**	336
Income from sub-leasing right-of-use assets[(2)]	**(123)**	(33)
Expenses relating to short-term leases[(3)]	**188**	251
Expenses relating to leases of low-value assets, excluding short-term leases of low-value assets[(3)]	**312**	284

(1) Included in financial expenses.

(2) Included in other expenses (income), net.

(3) Included in cost of sales and selling, general and administrative expenses.

10. Intangible Assets

	Customer relationship	Technology	Trade name, software, development costs and others	Total
	$	$	$	$
Net book value as at December 31, 2020	-	1,532	8,136	9,668
Business combination (Note 4)	15,971	9,899	6,274	32,144
Additions	-	-	541	541
Amortization	(166)	(348)	(1,288)	(1,802)
Effect of foreign exchange	-	(11)	(66)	(77)
Net book value as at December 31, 2021	15,805	11,072	13,597	40,474
Business combination (Note 4)	**(423)**	**2,984**	**(3,534)**	**(973)**
Additions	**-**	**-**	**993**	**993**
Divestiture of subsidiary (Note 4)	**-**	**-**	**(66)**	**(66)**
Amortization	**(742)**	**(1,251)**	**(1,320)**	**(3,313)**
Impairment	**(5,123)**	**-**	**(263)**	**(5,386)**
Effect of foreign exchange	**-**	**(37)**	**(129)**	**(166)**
Net book value as at December 31, 2022	**9,517**	**12,768**	**9,278**	**31,563**
As at December 31, 2021				
Cost	15,971	12,077	19,799	47,847
Accumulated amortization	(166)	(1,005)	(6,202)	(7,373)
Net book value	15,805	11,072	13,597	40,474
As at December 31, 2022				
Cost	**10,425**	**15,023**	**15,465**	**40,913**
Accumulated amortization	**(908)**	**(2,255)**	**(6,187)**	**(9,350)**
Net book value	**9,517**	**12,768**	**9,278**	**31,563**

In 2022, the Company recorded an impairment of non-current assets of $5,386, included in the Specialty Semiconductors segment, to reflect the assessment of the carrying value of intangible assets impacted by the invasion of Ukraine by Russia, more precisely in reference to Russia based customers. The Company's initial assumptions regarding the timing of future cashflows from these customers can no longer be supported given the uncertainty associated with recent international sanctions against Russia, and the unknown duration of the conflict. The impairment charges are recognized under Other expenses within the consolidated statement of (loss) earnings.

As at December 31, 2022, intangible assets that were not depreciated until ready for their intended use amounted to $812 (2021 – $1,963). The category of development costs which includes capitalized costs of $10,798 (2021 - $14,367), primarily consists of internally generated intangible assets.

11. Goodwill

	2022	2021
	$	$
Net book value as at December 31, 2021	13,841	-
Business combination (Note 4)	(2,016)	13,841
Net book value as at December 31, 2022	**11,825**	13,841

Goodwill recognized as part of the acquisition of AZUR on November 5, 2021 is allocated to the Specialty Semiconductor segment. For the purposes of the Company's annual goodwill impairment test, AZUR is considered as its own CGU. Based on the result of this test, no impairment charges are required. The recoverable amount was determined based on the CGU's value in use which was calculated by using a discounted cash flow (DCF) approach.

The key assumptions used for the purposes of the DCF are outlined below:

- Cash flows: Estimated cash flows were projected based on actual operating results from internal sources as well as industry and market trends. The first three years of the five-year projection period was forecasted by Management. The extended two-year period was calculated using the 2017-2022 Compound Annual Growth Rate for the revenues;
- Terminal growth rate: A terminal growth rate of 5.0% is used to extrapolate the Company's projection and it was determined using the industry expectation and market trends; and
- Discount rate: Cash flows are discounted using pre-tax discount rate which is estimated based on the historical industry average weighted-average cost of capital. The discount rate used is 9.9%.

12. Other assets

	2022	2021
	$	$
Deferred costs	777	305
Investment in equity instruments	2,000	2,000
Restricted investment and other	623	717
Total other assets	**3,400**	3,022

In January 2021, the Company acquired a minority equity stake in Microbion Corporation (Microbion) for an amount of $2,000.

The Company also owns a restricted investment of $620 (2021 - $713) which is valued at fair value through profit or loss.

13. Trade and Accrued Liabilities

	2022	2021
	$	$
Trade payables	14,281	22,116
Accrued liabilities(1)	17,440	15,334
Consideration payable (Note 4)	8,479	9,004
Total trade and accrued liabilities	**40,200**	46,454

(1) As at December 31, 2022, an amount of $nil was still outstanding with respect to the provision of $258 outstanding as at December 31, 2021. Provisions of $2,869 were taken in 2022, of which $2,675 was still outstanding as at December 31, 2022.

14. Long-Term Debt

	2022	2021
	$	$
Senior secured revolving facility of $124,000 with a syndicate of banks, maturing in April 2026	**96,000**	91,000
Subordinated term loan, maturing in March 2024	**25,000**	25,000
	121,000	116,000
Less current portion of long-term debt	**-**	-
	121,000	116,000

Senior secured revolving facility

In June 2022, the Company signed a senior secured multi-currency revolving credit facility of $124,000 maturing in April 2026 to replace its existing $124,000 senior secured revolving facility maturing in April 2023. At any time, the Company has the option to request that the credit facility be expanded through the exercise of an additional $30,000 accordion feature, subject to review and approval by the lenders. This revolving credit facility can be drawn in US dollars, Canadian dollars or Hong Kong dollars (up to $4,000). Drawings bear interest at either the Canadian prime rate, US base rate, Hong Kong base rate or SOFR, plus a margin based on the Company's senior net debt to consolidated EBITDA ratio. Under the terms of its credit facility, the Company is required to satisfy certain restrictive covenants as to financial ratios. As at December 31, 2022, the Company had met all covenants.

Subordinated term loan

In February 2019, the Company signed a five-year subordinated term loan with Investissement Québec. The loan was disbursed in two tranches: the first tranche of $5,000 on February 6, 2019 and the second tranche of $20,000 on March 22, 2019. The two tranches of the term loan bear interest equivalent to the 5-year US dollar swap rate plus a margin of 4.19%, which equals to 6.82% and 6.64% respectively. Under the terms of the loan, the Company is required to satisfy certain restrictive covenants as to financial ratios. As at December 31, 2022, the Company has met all covenants.

15. Employee Benefit Plan Obligations

The Company operates two defined pension plans in Germany based on employee pensionable earnings and length of service.

Unfunded defined benefit plan

Former general and senior managers had been provided with direct benefit commitments. Employees had been provided with indirect benefit commitments via the Unterstützungseinrichtung der HEK GmbH e.V. Such promises had been made for employees with an entry date of December 31, 1993 or earlier.

Funded defined benefit plan

The pension obligations are via a pension fund with commitments to old-age, disability and survivors' pension to managers as well as employees. Such promises had been made for employees with an entry date of December 31, 2007 or earlier. Vesting of benefits is being determined by the employers' pension-plan act (Gesetz über die Verbesserung der betrieblichen Altersversorgung). The pension scheme is fully funded by two absolute return strategies funds at Generali Pensionsfond AG. These investment funds have quoted prices in active markets.

	2022	2021
	$	$
Fair value of plan assets	**2,363**	3,069
Present value of funded obligation	**3,425**	5,575
Present value of net obligation for funded obligation	**1,062**	2,506
Present value of unfunded obligation	**10,581**	14,725
Present value of net obligations	**11,643**	17,231

Movement in the defined benefit obligations is as follows:

			2022			2021
	Unfunded	**Funded**	**Total**	Unfunded	Funded	Total
	$	**$**	**$**	$	$	$
Beginning of year	**14,725**	**5,575**	**20,300**	17,202	-	17,202
Business combination (Note 4)	**-**	**-**	**-**	-	5,782	5,782
Current service cost	**58**	**-**	**58**	89	-	89
Interest cost	**165**	**63**	**228**	147	10	157
Effect of foreign exchange	**(862)**	**(350)**	**(1,212)**	(1,308)	(93)	(1,401)
Benefits paid	**(655)**	**(177)**	**(832)**	(722)	(34)	(756)
Actuarial gains	**(2,850)**	**(1,686)**	**(4,536)**	(683)	(90)	(773)
End of year	**10,581**	**3,425**	**14,006**	14,725	5,575	20,300

Movement in plan assets is as follows:

	2022	2021
	$	$
Beginning of year	**3,069**	-
Business combination (Note 4)	**-**	3,109
Interest income	**34**	5
Return on plan assets, excluding amounts included in interest income	**(377)**	41
Pension benefits paid	**(177)**	(34)
Effect of foreign exchange	**(186)**	(52)
End of year	**2,363**	3,069

The principal actuarial assumptions as at December 31 were as follows:

		2022		2021
	Unfunded	**Funded**	Unfunded	Funded
Discount rate	**4.2%**	**4.2%**	1.2%	1.2%
Salary growth rate	**2.5%**	**2.5%**	2.0%	2.0%
Pension growth rate	**2.3%**	**2.0%**	1.8%	2.0%

Assumptions regarding mortality are based on mortality tables “Richttafeln 2018 G” by Prof. Dr. Klaus Heubeck as biometrical basis in accordance with age of earliest retirement by law RV-Altersgrenzenanpassungsgesetz, dated April 20, 2007 for the unfunded defined benefit plan and with age of earliest retirement by 65 years for the funded defined benefit plan.

The sensitivity of the defined benefit obligations to changes in assumptions is set out below. The effects on each plan of a change in an assumption are weighted proportionately to the total plan obligations to determine the total impact for each assumption presented.

	Impact on defined benefit obligations					
	Change in assumption		**Increase in assumption**		**Decrease in assumption**	
	Unfunded	**Funded**	**Unfunded**	**Funded**	**Unfunded**	**Funded**
Discount rate	0.50%	0.50%	(4.93%)	(5.77%)	5.40%	6.39%
Salary growth rate	0.50%	0.50%	0.26%	-%	(0.26%)	-%
Pension growth rate	0.50%	0.50%	4.38%	5.12%	(4.07%)	(4.74%)

	Increase by 1 year in assumption		**Decrease by 1 year in assumption**	
	Unfunded	**Funded**	**Unfunded**	**Funded**
Life expectancy	3.77%	3.21%	(3.35%)	(2.88%)

The weighted average duration of the unfunded and funded defined benefit obligations are 10.29 years and 12.10 years (2021 – 13.03 years and 16.13 years).

Though its defined benefit pension plans, the Company is exposed to a number of risks, the most significant of which are detailed below:

Specific to employee benefit obligations, the Company is mainly exposed to economic and demographic risks such as salary inflation and changes in life expectancy. The plans' obligations are to provide benefits for the duration of the life of its members, therefore, increases in life expectancy will result in an increase in the plans' liabilities. In addition, the obligations are impacted by the discount rate.

Defined benefit pension plan assets are invested in order to meet funded pension obligations. The ability of the Company's fund assets to meet employee benefit obligations is subject to market risk such as foreign currency risk, interest rate risk, and other price risk. Credit risk also affects plan assets, as they are partially comprised of investments in bonds. The default of a bond issuer would decrease plan assets and the Company's corresponding ability to meet employee benefit obligations.

Expected maturity analysis of undiscounted pension liability:

			2022			2021
	Unfunded	**Funded**	**Total**	Unfunded	Funded	Total
	$	**$**	**$**	$	$	$
Less than a year	**676**	**186**	**862**	693	189	882
Between 1 and 5 years	**2,796**	**786**	**3,582**	2,794	806	3,600
Over 5 years	**14,140**	**5,378**	**19,518**	13,954	5,887	19,841
Total	**17,612**	**6,350**	**23,962**	17,441	6,882	24,323

Expected contributions to pension benefit plans for the year ending December 31, 2023 are $862.

16. Deferred revenue

	2022	2021
	$	$
Current portion of deferred revenue	**11,730**	10,394
Non-current portion of deferred revenue	**2,354**	-
Total deferred revenue	**14,084**	10,394

For the year ended December 31, 2022, $5,605 (2021 - $2,016) of revenue was realized in relation to the deferred revenue balance outstanding at the beginning of the year.

17. Other Liabilities

	2022	2021
	$	$
Beginning of year	**1,255**	195
Business combination (Note 4)	**-**	1,059
Divestiture of subsidiary (Note 4)	**(195)**	-
Increase in liabilities	**1,140**	19
Effect of foreign exchange	**(59)**	(18)
End of year	**2,141**	1,255

18. Income Taxes

	2022	2021
	$	$
Current tax:		
Current tax for the year	**7,213**	5,309
Adjustment in respect of prior years' estimates	**(348)**	271
Total current tax	**6,865**	5,580
Deferred tax:		
Recognition and reversal of temporary differences	**(2,446)**	826
Adjustment in respect of prior years' estimates	**292**	(776)
Total deferred tax	**(2,154)**	50
Income tax expense	**4,711**	5,630

A reconciliation of income taxes at Canadian statutory rates with the reported income taxes is as follows:

	2022	2021
	$	$
(Loss) earnings before income tax	**(18,288)**	8,740
Canadian statutory income tax rates	**26.5%**	26.5%
Income tax on (losses) earnings at Canadian statutory rate	**(4,846)**	2,316
Increase (decrease) resulting from:		
Unrecorded losses carried forward	**3,268**	553
Non-deductible expense (non-taxable gain) for tax purposes	**3,670**	622
Non-deductible (non-taxable) foreign exchange	**1,868**	1,599
Effect of difference of foreign tax rates compared to Canadian tax rates	**299**	1,048
Withholding tax on group dividend	**522**	-
Adjustment in respect of prior years' estimates	**(56)**	(505)
Other	**(14)**	(3)
Income tax expense	**4,711**	5,630

The Company's applicable tax rate is the Canadian combined rates applicable in the jurisdiction in which the Company operates.

Movement in the deferred income tax amounts is as follows:

	2022	2021
	$	$
Beginning of year	**(638)**	6,789
Business combination	**(1,071)**	(7,094)
Tax charge relating to components of other comprehensive income (loss)	**(1,300)**	(256)
Credited (charged) to consolidated statement of earnings	**2,154**	(50)
Impact of foreign exchange	**(102)**	(27)
End of year	**(957)**	(638)

The movement in deferred income tax assets and liabilities during the year, without taking into consideration the offsetting of balances within the same jurisdiction, is as follows:

Deferred tax assets	Property, plant and equipment	Inventories	Intangible assets	Loss carry forward	Retirement benefit obligation	Others	Total	Offset by jurisdiction	Total
	$	$	$	$	$	$	$	$	$
As at December 31, 2020	1,675	1,058	307	35	4,360	1,105	8,540	(1,751)	6,789
Business combination (Note 4)	-	-	-	1,660	816	-	2,476		
(Charged) credited to consolidated statements of earnings	(767)	(634)	-	2,181	(461)	(245)	74		
Credited to comprehensive income	-	-	-	-	(256)	-	(256)		
Effect of foreign exchange	-	-	-	-	-	(27)	(27)		
As at December 31, 2021	908	424	307	3,876	4,459	833	10,807	(3,800)	7,007
Divestiture of subsidiary (Note 4)	**-**	**-**	**-**	**(274)**	**-**	**(49)**	**(323)**		
(Charged) credited to consolidated statements of earnings	**(120)**	**969**	**-**	**(789)**	**(379)**	**264**	**(55)**		
Credited to comprehensive income	**-**	**-**	**-**	**-**	**(1,300)**	**-**	**(1,300)**		
Effect of foreign exchange	**-**	**-**	**-**	**-**	**-**	**(102)**	**(102)**		
As at December 31, 2022	**788**	**1,393**	**307**	**2,813**	**2,780**	**946**	**9,027**	**(3,025)**	**6,002**

Deferred tax liabilities	Property, plant and equipment	Inventories	Intangible assets	Others	Total	Offset by jurisdiction	Total
	$	$	$	$	$	$	$
As at December 31, 2020	1,145	-	566	40	1,751	(1,751)	-
Business combination (Note 4)	-	-	9,570	-	9,570		
Charged (credited) to consolidated statements of earnings	(260)	426	(68)	26	124		
As at December 31, 2021	885	426	10,068	66	11,445	(3,800)	7,645
Business combination (Note 4)	**-**	**-**	**1,071**	**-**	**1,071**		
Divestiture of subsidiary (Note 4)	**(257)**	**(66)**	**-**	**-**	**(323)**		
Charged (credited) to consolidated statements of earnings	**198**	**(347)**	**(2,155)**	**95**	**(2,209)**		
As at December 31, 2022	**826**	**13**	**8,984**	**161**	**9,984**	**(3,025)**	**6,959**

Deferred tax assets of $nil (2021 – $3,161), included in the consolidated statements of financial position, are dependent on projection of future taxable profits for entities that have suffered a loss in the current period.

Deferred income tax liabilities have not been recognized for the withholding tax and taxes that would be payable on the unremitted earnings of certain subsidiaries. Such amounts are permanently reinvested. Unremitted earnings totalled $43,260 as at December 31, 2022 (2021 - $41,329).

As at December 31, 2022, the Company had the following operating tax losses available for carry forward for which no deferred tax benefit has been recorded in the accounts:

	$	Expiry
Belgium	14,956	No limit
United States	35,193	No limit
Hong Kong	8,992	No limit
China	713	2023-2027

As at December 31, 2022, the Company had other deductible temporary differences of $440 for which no deferred tax benefit has been recorded (2021 – $375).

19. Fair Value of Financial Instruments

The fair value of a financial instrument is determined by reference to the available market information at the reporting date. When no active market exists for a financial instrument, the Company determines the fair value of that instrument based on valuation methodologies as discussed below. In determining assumptions required under a valuation model, the Company primarily uses external, readily observable market data inputs. Assumptions or inputs that are not based on observable market data incorporate the Company's best estimates of market participant assumptions, and are used when external data is not available. Counterparty credit risk and the Company's own credit risk are taken into account in estimating the fair value of all financial assets and financial liabilities.

The following assumptions and valuation methodologies have been used to measure fair value of financial instruments:

- The fair value of its short-term financial assets and financial liabilities, including cash and cash equivalents, accounts receivable, cash held in escrow and trade and accrued liabilities approximates their carrying value due to the short-term maturities of these instruments;
- The fair value of its investment in equity is determined using significant unobservable inputs such as the best information available.
- The fair value of its restricted investment is determined using the expected mortality of life, present value of the estimated future cash flows and estimated discount rates. Assumptions are based on market conditions prevailing at each reporting date.
- The fair value of derivative instruments, which include the indexed deposit agreement and the interest rate swap, is calculated as the present value of the estimated future cash flows using an appropriate interest rate yield curve, foreign exchange rate and the stock price. Assumptions are based on market conditions prevailing at each reporting date. Derivative instrument reflect the estimated amount that the Company would receive or pay to settle the contracts at the reporting date; and
- The fair value of long-term debt is estimated based on discounted cash flows using current interest rate for instruments with similar terms and remaining maturities.

The carrying values which approximate the fair values of financial instruments, by class, are as follows as at December 31, 2022 and 2021:

As at December 31, 2022				**Carrying value**
	At fair value through profit or loss	**At amortized cost**	**Financial liabilities at amortized cost**	**Total**
	$	**$**	**$**	**$**
Financial assets				
Cash and cash equivalents	**-**	**42,691**	**-**	**42,691**
Accounts receivable	**-**	**32,872**	**-**	**32,872**
Other current assets	**5,517**	**10,613**	**-**	**16,130**
Other non-current assets	**2,620**	**-**	**-**	**2,620**
Total	**8,137**	**86,176**	**-**	**94,313**
Financial liabilities				
Trade and accrued liabilities	**-**	**-**	**40,200**	**40,200**
Long-term debt	**-**	**-**	**121,000**	**121,000**
Total	**-**	**-**	**161,200**	**161,200**

As at December 31, 2021				Carrying value
	At fair value through profit or loss	At amortized cost	Financial liabilities at amortized cost	Total
	$	$	$	$
Financial assets				
Cash and cash equivalents	-	35,940	-	35,940
Accounts receivable	-	42,098	-	42,098
Other current assets	4,819	9,004	-	13,823
Other non-current assets	2,713	-	-	2,713
Total	7,532	87,042	-	94,574
Financial liabilities				
Trade and accrued liabilities	-	-	46,454	46,454
Long-term debt	-	-	116,000	116,000
Derivative financial liabilities	109	-	-	109
Total	109	-	162,454	162,563

Fair value hierarchy

The fair value hierarchy reflects the significance of the inputs used in making the measurements and has the following levels:

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices); and
- Level 3: Inputs for the asset or liability that are not based on observable market data (unobservable inputs).

The following table presents the financial instruments, by level, which are recognized at fair value in the consolidated statements of financial position:

As at December 31, 2022	**Level 1**	**Level 2**	**Level 3**
	$	**$**	**$**
Financial assets			
At fair value through profit or loss			
Indexed deposit agreement (Note 7)	**-**	**5,517**	**-**
Investment in equity instruments (Note 12)	**-**	**-**	**2,000**
Restricted investment (Note 12)	**-**	**-**	**620**
Total	**-**	**5,517**	**2,620**

As at December 31, 2021	Level 1	Level 2	Level 3
	$	$	$
Financial assets (liabilities)			
At fair value through profit or loss			
Indexed deposit agreement (Note 7)	-	4,819	-
Investment in equity instruments (Note 12)	-	-	2,000
Restricted investment (Note 12)	-	-	713
Interest rate swap agreement (Note 14) [1]	-	(109)	-
Total	-	4,710	2,713

[1] In February 2020, the Company entered into an interest rate swap agreement, which matured in April 2022, with a major Canadian financial institution to reduce its financial expense fluctuations on Libor rate on a portion of its credit facility (Note 14). Under this interest rate swap, the Company exchanged interest payments. The terms were such that on each interest payment date, the Company received or paid the net difference between the fixed rate of 1.435% and its Libor rate on a notional amount of $25,000.

20. Operating Segments

The following tables summarize the information reviewed by the entity's chief operating decision maker when measuring performance:

	2022	2021
	$	$
Specialty Semiconductors	**121,918**	70,655
Performance Materials	**142,305**	139,335
Total revenue	**264,223**	209,990
Specialty Semiconductors	**24,318**	18,817
Performance Materials	**17,277**	18,957
Corporate and unallocated	**(11,567)**	(9,535)
Adjusted EBITDA[(1)]	**30,028**	28,239
Interest on long-term debt, imputed interest and other interest expense	**5,192**	3,713
Share-based compensation expense	**999**	689
Litigation and restructuring costs (Note 29)	**3,823**	2,144
Foreign exchange and derivative loss	**42**	418
Impairment of non-current assets (Note 29)	**12,478**	-
Loss on divestiture of subsidiary (Notes 4 and 29)	**7,834**	-
Loss on disposal of assets held for sale (Note 8)	**216**	-
Depreciation and amortization	**17,732**	12,535
(Loss) earnings before income tax	**(18,288)**	8,740

(1) (Loss) earnings before income tax, depreciation and amortization, impairment of non-current assets, share-based compensation expense, loss on disposal of assets held for sale, loss on divestiture of subsidiary, litigation and restructuring costs and financial expense.

Capital expenditures	2022	2021
	$	$
Specialty Semiconductors	**10,038**	595
Performance Materials	**5,944**	4,790
Corporate and unallocated	**80**	-
Total	**16,062**	5,385

Assets excluding the deferred tax assets	2022	2021
	$	$
Specialty Semiconductors	**180,473**	189,022
Performance Materials	**129,901**	146,111
Corporate and unallocated	**31,609**	31,450
Total	**341,983**	366,583

The geographic distribution of the Company's revenues based on the location of the customers for the years ended December 31, 2022 and 2021, and the identifiable non-current assets as at December 31, 2022 and 2021 are summarized as follows:

Revenues	**2022**	2021
	$	$
Asia		
China	**10,815**	10,531
Japan	**4,453**	4,545
Other[1]	**27,139**	24,056
Americas		
United States	**95,517**	66,077
Other	**19,911**	19,206
Europe		
Germany	**41,314**	29,738
Belgium	**7,276**	11,229
Netherlands	**9,604**	9,945
France	**13,831**	6,285
Other[1]	**29,587**	23,931
Other	**4,776**	4,447
Total	**264,223**	209,990

[1] None exceeding 10%

Non-current assets (other than deferred tax assets)	**2022**	2021
	$	$
Asia	**3,411**	7,850
United States	**13,590**	12,836
Canada	**29,156**	25,176
Europe		
Belgium	**-**	8,631
Germany	**108,664**	116,568
Total	**154,821**	171,061

For the year ended December 31, 2022, one customer represented approximately 17% (2021 – 19%) of revenues of which 14% (2021 – 13%) is within the Specialty Semiconductors segment and 3% (2021 – 6%) is within the Performance Materials Segment.

21. Supplemental Cash Flow Information

a) Net change in non-cash working capital balances related to operations consists of the following:

	2022	2021
	$	$
Decrease (increase) in assets:		
Accounts receivable	**5,364**	(3,649)
Inventories	**2,435**	(6,993)
Income tax receivable	**(437)**	386
Other current assets	**(427)**	(9,560)
(Decrease) increase in liabilities:		
Trade and accrued liabilities	**(1,691)**	6,604
Income tax payable	**3,169**	2,287
Deferred revenue	**1,830**	4,642
Net change	**10,243**	(6,283)

b) The reconciliation of assets/liabilities arising from financing activities consists of the following:

	December 31 2021	Cash flows	Non-Cash changes: Imputed interest	Foreign exchange movement	Fair value changes	Non-cash working capital	**December 31 2022**
	$	$	$	$	$	$	**$**
Long-term debt	116,000	5,000	-	-	-	-	**121,000**
Interest rate swap	109	-	-	-	(109)	-	**-**
Lease liabilities	32,640	(2,999)	605	(1,617)	-	1,773[1]	**30,402**
Total net liabilities from financing liabilities	148,749	2,001	605	(1,617)	(109)	1,773	**151,402**

	December 31 2020	Cash flows	Non-Cash changes: Imputed interest	Foreign exchange movement	Fair value changes	Non-cash working capital	December 31 2021
	$	$	$	$	$	$	$
Long-term debt	50,109	38,495[1]	-	-	-	27,396[2]	116,000
Interest rate swap	439	-	-	-	(330)	-	109
Lease liabilities	5,358	(1,872)	336	(459)	-	29,277[1]	32,640
Total net liabilities from financing liabilities	55,906	36,623	336	(459)	(330)	56,673	148,749

(1) Includes an amount of ($938) in 2022 and an amount of $21,626 in 2021 following the acquisition of AZUR (Note 4).

(2) Includes an amount of $27,396 following the acquisition of AZUR which was repaid in full on November 5, 2021 (Note 4).

c) The consolidated statements of cash flows exclude or include the following transactions:

	2022	2021
	$	$
Excluded additions unpaid at end of the year: Additions to property, plant and equipment	**2,329**	3,095
Included additions unpaid at beginning of year: Additions to property, plant and equipment	**3,095**	775
Excluded share issuance related to the acquisition of AZUR (Note 4)	**-**	14,249

22. Share Capital

Authorized:

- An unlimited number of common shares, participating, with no par value, entitling the holder to one vote per share; and
- An unlimited number of preferred shares, issuable in one or more series with specific terms, privileges and restrictions to be determined for each class by the Board of Directors. As at December 31, 2022 and 2021, no preferred shares were issued.

On November 5, 2021, in connection with the acquisition of AZUR (Note 4), the Company issued 6,500,000 common shares at an average price of $1.90 to finance the purchase.

On March 5, 2020, the TSX approved the Company's normal course issuer bid (NCIB). Under this NCIB, the Company had the right to purchase for cancellation, from March 9, 2020 to March 8, 2021, a maximum of 2,000,000 common shares.

In 2021, the Company repurchased and cancelled 249,572 common shares at an average price of $3.24 for a total amount of $809. An amount of $17 has been applied against share capital, and an amount of $792 has been applied against the deficit.

23. Earnings per Share

The following table reconciles the numerators and denominators used for the computation of basic and diluted (loss) earnings per share:

Numerators	**2022**	2021
	$	$
Net (loss) earnings for the year	**(22,999)**	3,110

Denominators	**2022**	2021
Basic weighted average number of shares	**88,330,236**	82,636,023
Dilutive effect:		
Stock options	-	151,297
Diluted weighted average number of shares	**88,330,236**	82,787,320

As at December 31, 2022, a total number of 1,598,938 stock options was excluded from the diluted weighted average number of shares due to their anti-dilutive effect due to net loss for the year.

As at December 31, 2021, a total number of 79,152 stock options was excluded from the diluted weighted average number of shares due to their anti-dilutive effect because of the Company's stock price.

24. Share-Based Compensation

Restricted Share Unit and Performance Share Unit Plan

On November 4, 2015, the Company adopted a new Restricted Share Unit ("RSU") and Performance Share Unit ("PSU") Plan (the "RSU & PSU Plan") to replace the previous RSU Plan, for the purpose of enhancing the Company's ability to attract and retain talented individuals to serve as employees, officers and executives of the Company and its affiliates and promoting a greater alignment of interests between such employees, officers and executives and the shareholders of the Company. The RSU & PSU Plan enables the Company to award eligible participants: (i) phantom RSUs that vest no later than three years following the grant date; and (ii) phantom PSUs that vest after certain periods of time, not exceeding three years, and subject to the achievement of certain performance criteria as determined by the Board of Directors. Such plan provides for the settlement of RSUs and PSUs through either cash or the issuance of common shares of the Company from treasury, for an amount equivalent to the volume weighted average of the trading price of the common shares of the Company on the TSX for the five trading days immediately preceding the applicable RSU vesting determination date or PSU vesting determination date.

In the case of a participant's termination by the Company for cause or as a result of a voluntary resignation by the participant before the end of a performance cycle, all RSUs and PSUs will be forfeited immediately as of the date on which the participant is advised of his termination or resigns.

In the case of a participant's termination by the Company other than for cause, if such participant is deemed to be on long-term disability or if such participant retires before the end of a performance cycle, the number of RSUs which will vest at such event will be prorated based on the number of months worked at the end of the performance cycle and all PSUs will be forfeited immediately.

In the case of a participant's death before the end of a performance cycle, the number of RSUs which will vest will be prorated based on the number of months worked at the end of the fiscal year preceding the participant's death and all PSUs will be forfeited immediately.

The maximum number of common shares which may be issued under the RSU & PSU Plan is 5,000,000. Common shares in respect of RSUs or PSUs to be settled through the issuance of common shares but that have been forfeited, cancelled or settled in cash shall be available for RSUs or PSUs to be granted thereafter pursuant to this plan. No RSUs or PSUs to be settled through the issuance of common shares may be granted to any participant unless the number of common shares: (a) issued to "Insiders" within any one-year period; and (b) issuable to "Insiders" at any time, under the plan, or when combined with all of the Company's other security-based compensation arrangements, could not exceed 10% of the total number of issued and outstanding common shares, respectively.

For the year ended December 31, 2022, the Company granted 95,881 RSUs (2021 – 164,412), 146,549 RSUs were paid (2021 – 413,710) and 13,110 RSUs were forfeited (2021 – 143,851). As at December 31, 2022, 278,481 RSUs were outstanding (2021 – 342,259).

For the year ended December 31, 2022, the Company granted nil PSUs (2021 – nil), nil PSUs were paid (2021 – 166,700) and 200,000 were cancelled (2021 – 230,000). As at December 31, 2022, nil PSUs were outstanding (2021 – 200,000).

Stock Appreciation Rights Plan

On June 7, 2010, the Company adopted a Restricted Share Unit for Foreign Employees Plan (the “RSUFE Plan”) which was slightly amended on November 7, 2012 by the Company to become the Stock Appreciation Rights plan (the “SAR Plan”) which replaced the RSUFE Plan. The SAR Plan enables the Company to award eligible participants phantom stock options to foreign directors, officers and employees. SARs usually have a six-year term and vest equally over a four-year period at an annual rate of 25% per year beginning one year following the SARs grant date. The amount of cash payout is equal to the sum of the positive differences between the volume weighted average trading price of the common shares of the Company on the TSX in the last twenty (20) trading days immediately preceding the exercise date and the grant price of each SAR redeemed.

At the end of each financial period, changes in the Company’s payment obligations due to changes in the market value of the common shares on the TSX are recorded as an expense. For the year ended December 31, 2022, the Company granted 171,025 SARs (2021 – 1,116,244), 200,000 SARs were paid (2021 – 364,499) and 377,500 SARs were forfeited (2021 – 678,813). As at December 31, 2022, 924,157 SARs were outstanding (2021 – 1,330,632).

Deferred Share Unit Plan

On May 7, 2014, the Company adopted a Deferred Share Unit (“DSU”) Plan (the “DSU Plan”) which enables the Company to provide Board directors and key officers and employees designated by the Board with phantom share units to enhance the Company's ability to attract and retain individuals with the right combination of skills and experience to serve on the Company’s Board or as Company’s executives. Unless the Board of Directors decides otherwise at its sole discretion, DSUs vest entirely at their date of grant and become payable in cash upon termination of services of a director, or termination of employment of an officer or employee. The amount of cash payout is equal to the volume weighted average trading price of the common shares of the Company on the TSX of the twenty (20) trading days immediately preceding the date of payment of the DSU.

For the year ended December 31, 2022, the Company granted 476,152 DSUs (2021 – 220,073) and 348,277 DSUs were paid (2021 – 650,000). As at December 31, 2022, 1,702,843 DSUs were outstanding (2021 – 1,574,968).

Stock Option Plan

On April 11, 2011, the Company adopted a new stock option plan replacing the previous plan (the "Old Plan"), in place since October 2007, with the same features as the Old Plan with the exception of a maximum number of options granted which cannot exceed 5,000,000. The aggregate number of shares which could be issued upon the exercise of options granted under the Old Plan could not exceed 10% of the issued shares of the Company at the time of granting the options. Options granted under the Stock Option Plan may be exercised during a period not exceeding ten years from the date of grant. The stock options outstanding as at December 31, 2022 may be exercised during a period not exceeding six years from their date of grant. Unless the Board of Directors decides otherwise at its sole discretion, options vest at a rate of 25% (100% for directors) per year, beginning one year following the grant date of the options. Any unexercised options will expire one month after the date a beneficiary ceases to be an employee, director or officer and one year for retired directors.

The following table presents information concerning all outstanding stock options:

		2022		2021
	Number of options	**Weighted average exercise price**	Number of options	Weighted average Exercise price
		CA$		CA$
Outstanding, beginning of year	**825,968**	**2.46**	672,600	2.09
Granted	**772,970**	**1.33**	648,212	2.49
Exercised	**-**	**-**	(428,678)	1.88
Forfeited	**-**	**-**	(66,166)	2.78
Outstanding, end of year	**1,598,938**	**1.91**	825,968	2.46
Exercisable, end of year	**457,749**	**2.41**	267,007	2.33

The outstanding stock options as at December 31, 2022 are as follows:

	Exercise price		Number of options	
	Low	High	Exercisable	Outstanding
	CA$	CA$		
February 2023	1.75	1.75	63,000	63,000
February 2024	2.71	2.71	35,165	35,165
March 2025	3.43	3.43	23,205	30,940
March 2026	2.10	2.10	24,326	48,651
May 2027	3.38	3.38	12,053	48,212
December 2027	2.42	2.42	300,000	600,000
March 2028	2.27	2.27	-	72,970
May 2028	1.23	1.23	-	700,000
			457,749	1,598,938

The fair value of stock options at the grant date was measured using the Black-Scholes option pricing model. The historical share price of the Company's common shares is used to estimate expected volatility, and government bond rates are used to estimate the risk-free interest rate.

The following table illustrates the inputs used in the average measurement of the fair values of the stock options at the grant date granted during the years ended December 31, 2022 and 2021:

	2022	2021
Expected stock price volatility	**53%**	48%
Dividend	**None**	None
Risk-free interest rate	**2.59%**	1.24%
Expected option life	**4 years**	4 years
Fair value – weighted average of options issued	**CA$0.57**	CA$0.96

The following table shows the share-based compensation expense recorded in the consolidated statements of earnings for the years ended December 31, 2022 and 2021:

Expense	2022	2021
	$	$
RSUs	202	432
PSUs	-	(552)
SARs	244	(331)
DSUs	1,121	(320)
Stock options	326	148
Indexed deposit agreement (Note 7)	(894)	1,312
Total	999	689

The following amounts were recorded:

Liability	2022	2021
	$	$
RSUs	375	433
SARs	562	455
DSUs	3,906	2,957
Total	4,843	3,845
Intrinsic value of vested units	4,015	4,469

25. Commitments and Contingencies

Commitments

As at December 31, 2022, in the normal course of business, the Company contracted letters of credit for an amount of $883 (2021 – $953).

Contingencies

In the normal course of operations, the Company is exposed to events that could give rise to contingent liabilities or assets. As at the date of issue of the consolidated financial statements, the Company was not aware of any significant events that would have a material effect on its consolidated financial statements.

26. Related Party Transactions

The Company's related parties are its directors and executive members.

Unless otherwise stated, none of the transactions incorporated special terms and conditions and no guarantees were given or received. Outstanding balances are settled in cash.

Key management compensation

Key management includes directors (executive and non-executive) and certain senior management. The compensation expense paid or payable to key management for employee services is as follows:

	2022	2021
	$	$
Wages and salaries	1,995	3,597
Share-based compensation and others (Note 24)	1,677	(914)
Total	3,672	2,683

27. Financial Risk Management

In the normal course of operations, the Company is exposed to various financial risks. These risk factors include market risk (foreign currency risk, interest rate risk and other price risk), credit risk and liquidity risk.

Market risk

Market risk is the risk that changes in market price, such as foreign exchange rates, equity prices and interest rates, will affect the Company's net earnings or the value of financial instruments.

The objective of market risk management is to mitigate exposures within acceptable limits, while maximizing returns.

a) Foreign currency risk

Foreign currency risk is defined as the Company's exposure to a gain or a loss in the value of its financial instruments as a result of fluctuations in foreign exchange rates. The Company is exposed to foreign exchange rate variability primarily in relation to certain sales commitments, expected purchase transactions, certain local operating expenses and debt denominated in a foreign currency. In addition, these operations have exposure to foreign exchange rates primarily through cash and cash equivalents and other working capital accounts denominated in currencies other than their functional currencies.

The following table summarizes in US dollar equivalents the Company's major currency exposures as at December 31, 2022:

						2022
	CA$	EUR	GBP	HKD	MYR	Other
	$	$	$	$	$	$
Cash and cash equivalents	686	4,164	14	21	156	9
Accounts receivable	513	4,707	-	-	1	128
Other current assets	5,517	10,613	-	-	-	-
Other non current assets	-	620	-	-	-	-
Trade and accrued liabilities	(10,834)	(16,175)	(317)	(199)	(219)	(149)
Lease liabilities	(6,033)	(339)	-	(171)	-	-
Net financial assets (liabilities)	(10,151)	3,590	(303)	(349)	(62)	(12)

For the Company's subsidiaries with a functional currency other than the US dollar, their exposures of financial assets and financial liabilities denominated in US dollars are $6,848 and $597 respectively with a net position of $6,251. A strengthening or weakening in the exchange rate between the functional currencies of these subsidiaries and the US dollar of five-percentage points results in a decrease or increase of $313 to earnings before income tax.

The following table shows the impact on earnings before income tax of a five-percentage point strengthening or weakening of foreign currencies against the US dollar as at December 31, 2022 for the Company's financial instruments denominated in non-functional currencies:

	CA$	EUR	GBP	HKD	MYR	Other
	$	$	$	$	$	$
5% Strengthening	(508)	179	(15)	(17)	(3)	(1)
5% Weakening	508	(179)	15	17	3	1

The Company will occasionally enter into foreign exchange forward contracts to sell US dollars in exchange for Canadian dollars and Euros. These contracts would hedge a portion of ongoing foreign exchange risk on the Company's cash flows since much of its non-US dollar expenses are incurred in Canadian dollars and Euros. The Company may also enter into foreign exchange contracts to sell Euros for US dollars. As at December 31, 2022, the Company has no foreign exchange contracts outstanding.

b) Interest rate risk

Interest rate risk refers to the risk that future cash flows will fluctuate as a result of changes in market interest rates. The Company's policy is to limit its exposure to interest rate risk fluctuation by ensuring that a reasonable portion of its long-term debt is made of subordinated debts at fixed rate. The Company is exposed to interest rate fluctuations on its revolving credit facility, which bears a floating interest rate. A 1% increase/decrease in interest rates would have an impact of approximately $960 on the Company's net earnings on a twelve-month horizon based on the balance outstanding on December 31, 2022.

c) Other price risk

Other price risk is the risk that fair value or future cash flows will fluctuate because of changes in market prices, other than those arising from interest rate risk or currency risk.

Credit risk

Credit risk refers to the possibility that a customer or counterparty will fail to fulfill its obligations under a contract and, as a result, create a financial loss for the Company. The Company has a credit policy that defines standard credit practice. This policy dictates that all new customer accounts be reviewed prior to approval and establishes the maximum amount of credit exposure per customer. The creditworthiness and financial well-being of the customer are monitored on an ongoing basis.

The Company applies the IFRS 9 simplified approach to measuring expected credit losses using a lifetime expected credit loss allowance for trade receivables.

The expected loss rates are based on the Company's historical credit losses experienced over the three-year period prior to the period end. The historical loss rates are then adjusted for current and forward-looking information on macroeconomic factors affecting the Company's customers. Historically, the Company has not incurred any significant losses in respect of its trade receivables. Therefore, the loss allowance at the end of each period and the change recorded for each period is insignificant.

The past due receivables are as follows:

	2022	2021
	$	$
Current	**24,152**	33,838
More than 30 days past due	**192**	413
More than 60 days past due	**1,911**	763
Gross carrying amount	**26,255**	35,014
Loss allowance	**(152)**	(149)
Total trade receivables	**26,103**	34,865

The following table summarizes the changes in the loss allowance for trade receivables:

	2022	2021
	$	$
Beginning of year	**149**	146
Increase during the year	**3**	119
Trade receivables written off during the year as uncollectible	**-**	-
Unused amounts reversed	**-**	(116)
End of year	**152**	149

The loss allowance is included in selling, general and administrative expenses in the consolidated statement of earnings, and is net of any recoveries that were provided for in prior periods.

Amounts charged to the loss allowance account are generally written off when there is no reasonable expectation of recovery.

Counterparties to financial instruments may also expose the Company to credit losses in the event of non-performance. Counterparties for derivative and cash transactions are limited to high credit quality financial institutions, which are monitored on an ongoing basis. Counterparty credit assessments are based on the financial health of the institutions and their credit ratings from external agencies, therefore no impairment loss was identified as at December 31, 2022.

Liquidity risk

Liquidity risk is the risk that the Company will not be able to meet its financial obligations as they come due. The Company manages liquidity risk through the management of its capital structure. It also manages liquidity risk by continually monitoring actual and projected cash flows, taking into account the Company's sales and receipts and matching the maturity profile of financial assets and financial liabilities. The Board of Directors reviews and approves the Company's annual operating and capital budgets as well as any material transactions out of the ordinary course of business, including proposals on acquisitions and other major investments.

The following table reflects the contractual cash flows of the Company's financial liabilities as at December 31, 2022:

							2022
	Carrying amount	**1 year**	**2 years**	**3 years**	**4 years**	**Over 5 years**	**Total**
	$	**$**	**$**	**$**	**$**	**$**	**$**
Trade and accrued liabilities	**40,200**	**40,200**	**-**	**-**	**-**	**-**	**40,200**
Long-term debt	**121,000**	**7,836**	**31,584**	**6,166**	**98,055**	**-**	**143,641**
Lease liabilities	**30,402**	**2,770**	**2,601**	**2,494**	**2,451**	**24,834**	**35,150**
Total	**191,602**	**50,806**	**34,185**	**8,660**	**100,506**	**24,834**	**218,991**

28. Capital Management

The Company's objective when managing capital is to safeguard its ability to continue as a going concern in order to provide returns for shareholders and benefits for other stakeholders and to maintain an optimal capital structure to reduce the cost of capital.

The Company requires the approval of its lenders on some of the capital transactions such as the payment of dividends and capital expenditures over a certain level.

The Company monitors capital on the basis of the debt-to-equity ratio. This ratio is calculated as net debt divided by total equity. Net debt is calculated as total borrowings (comprising long-term debt in the consolidated statement of financial position) less cash and cash equivalents. Any introduced IFRS 16 reporting measures in reference to lease liabilities are excluded from the calculation.

Debt-to-equity ratios as at December 31, 2022 and 2021 are as follows:

	2022	2021
	$	$
Long-term debt including current portion	**121,000**	116,000
Total debt	**121,000**	116,000
Less: Cash and cash equivalents	**(42,691)**	(35,940)
Net debt	**78,309**	80,060
Shareholders' equity	**112,776**	136,247
Debt-to-equity ratio	**69%**	59%

29. Expenses by Nature

Expenses by nature include the following:

	2022	2021
	$	$
Wages and salaries	**55,107**	40,353
Depreciation of property, plant and equipment (Note 8)	**11,717**	8,969
Depreciation of right-of-use assets (Note 9)	**2,702**	1,764
Amortization of other assets (Note 12)	**260**	253
Other expenses (income), net		
Amortization of intangible assets (Note 10)	**3,313**	1,802
Share-based compensation expense (Note 24)	**999**	689
Loss (gain) on disposal of property, plant and equipment	**(13)**	171
Loss on disposal of assets held for sale (Note 8)[1]	**216**	-
Loss on divestiture of subsidiary (Note 4)	**7,834**	-
Impairment of non-current assets (Notes 4, 8 and 10)	**12,478**	-
Research and development, net of tax credit[2]	**4,638**	736
Litigation and restructuring costs (income), net[3]	**3,823**	2,144
Other income	**(291)**	(1,520)

(1) A loss of $216 on the disposal of assets held for sale was recorded in 2022 within "Other expenses (income), net" within the consolidated statement of (loss) earnings. The asset, which was previously presented as held for sale within the Specialty Semiconductors segment, pertains to a reclassification from buildings for an amount of $3,032 in 2022. The reclassification relates to the planned relocation of operations from Canada of one of the Company's subsidiaries situated in Asia, announced in the third quarter of 2020.

(2) Reduced research and development, net of tax credit by an amount of $3,667 for the year ended December 31, 2022 resulting from research and development subsidies. There is an outstanding receivable related to this grant as at December 31, 2022 for an amount of $1,460 included within Accounts receivable.

Reduced research and development, net of tax credit by an amount of $1,590 for the year ended December 31, 2021 resulting from research and development subsidies. There is no outstanding balance of deferred income or receivable related to this grant as at December 31, 2021.

(3) In 2022, the Company recorded litigation and restructuring costs. The main costs are as follows:
- Costs related to the divestiture of a subsidiary of $2,594 (Note 4);
- Change in senior executive management for an amount of $241;
- Settlement of a contract by mutual agreement for an amount of $372; and
- Costs related to site closure in Asia for an amount of $358.

During 2021, the Company recorded a charge of $1,534 following the announcement of a change to its senior executive management for which a balance of $94 was outstanding as at December 31, 2021. In addition, a provision for restructuring costs was recorded for an amount of $610 during 2021. This provision consisted of severances and other related costs to site closure.

Board of Directors

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Chair of the Board

Jean-Marie Bourassa
Chair of the Audit and
Risk Management Committee

Blair Dickerson
Director

Gervais Jacques
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Nathalie Le Prohon
Chair of the Governance and
Compensation Committee

Executive Committee

Roland Dubois
Chief Commercial Officer
and Executive Vice President,
Specialty Semiconductors

Gervais Jacques
President and Chief Executive Officer

Richard Perron
Chief Financial Officer

Paul Tancell
Executive Vice President,
Performance Materials

Corporate Information

Stock Exchange

5N Plus is listed on the Toronto Stock Exchange, under the symbol VNP.

Transfer Agent and Registrar

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