



IBC Advanced Alloys

**IBC ADVANCED ALLOYS CORP.**

**MANAGEMENT'S DISCUSSION AND ANALYSIS**

**THREE MONTHS ENDED SEPTEMBER 30, 2019**

**FISCAL FIRST QUARTER OF 2020**

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## **Table of Contents**

Executive Summary .....	2
Our Business .....	4
Recent Corporate Developments, Business Initiatives, and Subsequent Events .....	4
Manufacturing Operations .....	5
Copper Alloys .....	6
Engineered Materials .....	7
Financial Results and Outlook .....	8
Commodity Pricing for Copper .....	8
Results of Operations .....	9
Changes in Financial Condition .....	11
Selected Quarterly Information .....	12
Liquidity and Capital Resources .....	12
Commitments .....	14
Related Party Transactions .....	14
Financial Instruments and Other Instruments .....	14
Non-IFRS Measures .....	16
Research Initiatives .....	18
Business Risks .....	18
Legal Matters .....	19
Environmental and Occupational Safety Issues .....	21
Shareholders' Equity .....	22
Private Placement .....	22
Share Issuance .....	23
Outstanding Share Data .....	23

*The following is management's discussion and analysis ("MD&A") of IBC Advanced Alloys Corp., and its subsidiaries, prepared as of November 27, 2019. This MD&A should be read together with the audited consolidated financial statements and related notes for the year ended June 30, 2019. Financial amounts, other than amounts per share or per pound, are presented in thousands of United States dollars ("\$") unless indicated otherwise. Canadian dollar amounts are denoted by "C\$". The terms "IBC", "we", "us" and "our" refer to IBC Advanced Alloys Corp. and its subsidiaries, unless the context otherwise requires.*

*This MD&A contains "forward-looking information" or "forward-looking statements" within the meaning of applicable securities legislation, concerning future financial or operating performance of IBC and its business and operations. Forward-looking statements consist of statements that are not purely historical, including any statements regarding beliefs, plans, expectations or intentions regarding the future. Often, but not always, forward-looking statements can be identified by the use of words such as "plans", "expects", "budget", "scheduled", "estimates", "forecasts", "intends", "anticipates", or "believes" or variations (including negative and grammatical variations) of such words and phrases or statements that certain actions, events or results "may", "could", "would", "should", "might" or "will" be taken, occur or be achieved. No assurance can be given that any of the events anticipated by the forward-looking statements will occur or, if they do occur, what benefits we will obtain from them. These forward-looking statements reflect management's current views and are based on certain assumptions and are effective only as of the date of this MD&A. These assumptions, which include management's current expectations, estimates and assumptions about certain projects and the markets we operate in, the global economic environment, interest rates, exchange rates and, our business strategy, plans, outlook and shareholder value, projections, targets and expectations and our ability to manage our assets and operating costs, may prove to be incorrect.*

*Forward-looking statements are subject to known and unknown risks, uncertainties and other factors that may cause our actual results, level of activity, performance or achievements to be materially different from those expressed or implied by such forward-looking statements, including: our estimates regarding capital requirements; future production, future cash and total costs of production for our manufacturing operations; our expectations with respect to transactions with third parties; changes in general economic conditions, the financial markets and the demand of our products; changes in, and the effects of, the laws, regulations and government policies affecting operations, particularly laws, regulations and policies; and uncertainties in the market price for minerals and metals, such as copper and beryllium, and exchange rates. Although we have attempted to identify factors that would cause actual actions, events or results to differ materially from those disclosed in the forward-looking*

*statements or information, there may be other factors that cause actual results, performances, achievements or events not to be anticipated, estimated or intended. Other factors that could cause actual results to differ materially include, but are not limited to, those set forth in our most recent Annual Information Form under "Risk Factors". Also, many of the factors are beyond our control. Accordingly, readers should not place undue reliance on forward-looking statements or information. We undertake no obligation to reissue or update forward-looking statements or information as a result of new information or events after the date hereof except as may be required by applicable securities laws. All forward-looking information and statements made in this MD&A are qualified by this cautionary statement.*

*Certain information in this MD&A may be considered a "financial outlook" within the meaning of applicable securities legislation. Any financial outlook set out in this MD&A is based on a number of significant assumptions. The purpose of this financial outlook is to provide readers with disclosure regarding the Company's reasonable expectations as to the anticipated results of its proposed business activities for the periods indicated. Readers are cautioned that the financial outlook may not be appropriate for other purposes.*

*The Company's financial statements for the period ended September 30, 2019 have been prepared in accordance with IAS32 – Interim Financial Reporting using accounting policies consistent with International Financial Reporting Standards ("IFRS"), as issued by the International Accounting Standards Board ("IASB") using accounting policies consistent with IFRS as issued by the IASB and interpretations of the International Financial Reporting Interpretations Committee. Additional information relating to us is available for view on SEDAR at [www.sedar.com](http://www.sedar.com).*

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## **EXECUTIVE SUMMARY**

*Except as noted, all financial amounts are determined in accordance with IFRS.*

- **Higher YoY Sales:** We generated \$5.0 million in consolidated sales in the quarter ended September 30, 2019, which was a 5.6% increase over sales of \$4.7 million in the prior-year period and a 1.8% sequential increase over sales of \$4.9 million in the quarter ended June 30, 2019.
- **Loss Narrows:** We recorded a comprehensive loss, net of tax, of \$550,000 in the quarter, or (\$0.01) per share. That compared favorably to a loss of \$767,000, or (\$0.02) in prior-year period, and to a loss of \$1.6 million in the quarter ended June 30, 2019.

- **Adjusted EBITDA<sup>1</sup>:** Adjusted earnings before interest, taxes, depreciation, and amortization ("Adjusted EBITDA") for the quarter was \$127,000, which compared favorably to Adjusted EBITDA of (\$114,000) for the prior-year period and Adjusted EBITDA of (\$1.0 million) in the quarter ended June 30, 2019.
  
- **Higher Copper Alloys Sales Lifts Division to Profitability:** Our Copper Alloys division swung to net profitability in the Company's fiscal first quarter of 2020, posting divisional income of \$62,000. That compared to a loss of \$260,000 in the prior-year period and to a loss of \$582,000 in the quarter ended June 30, 2019.
  - Copper division sales in the quarter of \$3.9 million were 11.8% higher than sales of \$3.5 million in fiscal Q1 of 2019. Fiscal Q1 2020 sales represented the division's highest sales performance of the past five quarters.
  - Copper Alloys' operating income<sup>1</sup> in the quarter of \$149,000 represented a 154% increase over operating income of \$59,000 in the prior-year period, and contrasted favorably with an operating loss of \$510,000 in the quarter ended June 30, 2019.
  - Adjusted EBITDA<sup>1</sup> for the division was \$302,000 in the quarter, a 58% increase over Adjusted EBITDA<sup>1</sup> of \$191,000 in the prior-year period. The division posted a negative Adjusted EBITDA of \$366,000 in the quarter ended June 30, 2019.
  - Demand for copper alloy products has continued to rebound since the industry-wide reduction in demand in copper alloy products experienced in calendar Q4 of 2018. Growth for the division has been accelerating in part due to its ability to produce more value-added products, which was made possible by several strategic capital equipment upgrades made in 2019.
  
- **Engineered Materials Division Results:** In our Engineered Materials division, sales in the quarter of \$1.1 million, compared to sales in the prior-year period of \$1.2 million. The change was due largely to lower-than-normal demand for

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<sup>1</sup> We report non-IFRS measures such as "Adjusted EBITDA" and "Operating Income". Please see information on this and other non-IFRS measures in the "Non-IFRS Measures" section of this MD&A

beryllium-aluminum ("BeAl") products by semiconductor equipment manufacturers, which followed several consecutive record-breaking years of sales to that sector. Demand for BeAl products used in commercial applications is strengthening, as underscored by the Company's signing in October 2019 of a two-year supply agreement with a leading global manufacturer of semiconductor and electronics assembly equipment. The division posted an operating loss of \$222,000 which compared favorably with an operating loss on the prior year period of \$294,000 and an operating loss of \$574,000 in the quarter ended June 30, 2019.

- **Higher Demand Expected for BeAl Alloy Products in Defense Markets:** Demand for BeAl products used in defense applications remained steady in calendar year 2019 but is expected to strengthen as rates of production for defense programs such as the F-35 Lightning II aircraft begin to accelerate beyond low rates of initial production. For example, according to our customer Lockheed-Martin, the annual rate of production of the F-35 aircraft is expected to nearly double by 2022 from 2018 production levels. We are continuing to pursue additional contracts for high-performance BeAl products in other defense-sector platforms.
- **Recycling of Scrap Beryllium Metal:** Our Engineered Materials division continues to recycle BeAl scrap material into useful feedstock for both aerospace and commercial BeAl casting products, which helps to reduce our cost of cost of goods sold and capture higher margins.

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## **OUR BUSINESS**

We are primarily engaged in developing and manufacturing advanced alloys, such as beryllium-aluminum alloys and specialty copper alloys, for a variety of customers in the defense and non-defense sectors, including those in aerospace, automotive, marine defense, electronics, industrial equipment, oil and gas, among others. With our headquarters in Franklin, Indiana, we operate four plants in the United States ("U.S.") that manufacture, heat-treat, machine, or market copper-beryllium, beryllium-aluminum, copper-based master alloys, and similar specialty alloy products including beryllium-aluminum castings.

Our manufacturing operations currently employ 67 people and comprise two divisions: Copper Alloys and Engineered Materials.

- **Copper Alloys** manufactures and distributes a wide variety of copper alloys as castings and forgings: beryllium copper; chrome copper; oxygen-free high conductivity copper and aluminum bronze as plate, block, bar, rings; and specialty copper alloy forgings. The industries we serve with these products include the industrial welding, oil and gas, plastic mold, metal melting, marine defense, electronic and industrial equipment markets.
- **Engineered Materials** manufactures and supplies high-performance, precision-cast beryllium-aluminum components to the aerospace and high-tech manufacturing sectors.

At present, we are engaged in research and development of scandium-containing alloys and their potential applications, and we are monitoring developments related to the potential use of beryllium oxide ("BeO") in enhanced nuclear fuels, which has been the subject of previous research by us.

We were formed by an amalgamation under the laws of British Columbia on November 23, 2007 and our common shares are listed on the TSX Venture Exchange (the "TSX-V") under the symbol "IB" and on the OTCQB market under "IAALF".

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## **RECENT CORPORATE DEVELOPMENTS, BUSINESS INITIATIVES, AND SUBSEQUENT EVENTS**

On November 25, 2019, we announced a non-brokered private placement to issue up to 17.1 million common shares at a price of C\$0.117 per common share for gross proceeds of up to C\$2.0 million. There is no minimum offering amount. We expect that the private placement will close on or soon after November 29, 2019. The private placement is subject to the completion of formal documentation, receipt of all necessary regulatory approvals, including the approval of the TSX-V, and other customary conditions.

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## **MANUFACTURING OPERATIONS**

We currently have four manufacturing operations in the U.S. that, in total, employ a total of 67 people. These facilities are located in Franklin, IN; Royersford, PA; Wilmington, MA; and New Madrid, MO. Most of our management and administration are based at the Franklin, IN facility.

### *COPPER ALLOYS*

We manufacture and distribute a wide variety of copper alloys as castings and forgings, including beryllium copper, chrome copper, oxygen-free high conductivity copper, and aluminum bronze as plate, block, bar, rings and specialty copper alloy forgings for various markets and applications. We sell directly to end users and serve various markets through a network of established dealers and distributors. The Copper Alloys' Division's operations are based in Franklin, IN, where we maintain forging (hammer, press and ring rolling), heat-treating, and machining operations. We cast billets at plants in Royersford, PA and New Madrid, MO. The Franklin plant sits on 4.8 hectares (12.0 acres) of land that has considerable room for expansion should economic conditions and business plans call for such expansion.

We source copper alloys as cast billet, slab, or ingot from mills in North America, Europe, and Asia, and we convert these into usable industrial products serving the industrial welding, oil and gas, plastic mold, metal melting, marine defense, electronic, and industrial equipment markets. We also provide tooling components for the North American automotive industry, the European and North American consumer plastic tooling producers, the global oil and gas service industry, the prime North American submarine and aircraft carrier producers and repair facilities including the U.S. Navy, electronics industries, and general equipment manufacturers.

We produce material at two IBC-owned foundries and buy other billet and slab from independent third-party foundries and mills. We have expertise in melting and casting beryllium-copper and other beryllium-containing alloys. Our casting operations are a primary producer/supplier of beryllium copper casting and master alloy ingot products in North America and markets around the world. We offer customers a full range of manufacturing and support services, including casting and master alloy products, cast and forged billet products, semi-continuous cast input billets, and wrought products. We also manufacture beryllium alloys utilizing certified beryllium-copper master alloy.

Our Royersford, PA facility has three furnaces that have been adapted to meet the specialized requirements of copper alloy manufacturing. We have strong technical and manufacturing engineering resources in the highly specialized copper alloy industry, including in the production of beryllium copper alloys. This gives us the capability of manufacturing large 21-inch diameter copper alloy billets weighing up to two tons.

Our New Madrid, MO plant is located on a 2.4-hectare (6.0 acres) site that is 265 kilometers (165 miles) south of St. Louis, MO. It has two furnaces and is capable of producing billets in



a range of sizes and compositions. Because this facility is currently underutilized, there is room for significant expansion of plant operations at this location should economic conditions and business plans call for such expansion.

### *ENGINEERED MATERIALS*

Our Engineered Materials Division supplies high-performance beryllium-aluminum components to defense, aerospace, high-tech manufacturing, and other sectors. It currently manufactures the Beralcast® family of metal matrices that are used in commercial and defense applications that require complex, lightweight, and high-stiffness parts. The division has additional, higher-performance products in development. Using our proprietary manufacturing techniques, our EMC Division's objective is to make precision-cast beryllium-aluminum components more accessible and cost-effective for a wide range of industries and applications.

In general, Beralcast® alloys serve as a higher-performance or lower-cost replacement materials for cast aluminum, magnesium, titanium, metal matrix composites, non-metallic composites, and pure beryllium or powder metallurgy beryllium-aluminum. Some of their varied applications include automotive braking and structural components and aerospace and satellite system components.

The principal Beralcast® metal matrix is more than three times stiffer than aluminum, with 22% less weight, and it can be precision cast to both simple and complex configurations. This material is very lightweight, can be precision cast for three-dimensional stability, and delivers a high modulus of elasticity. As such, Beralcast® is ideally suited for certain demanding semiconductor manufacturing equipment, computer components, and other commercial and aerospace applications. Our ability to cast Beralcast® products in a near-net shape allows for manufacturing cost efficiencies.

Binary beryllium-aluminum composites were developed by a U.S. corporation, which was originally a metallurgical laboratory affiliated with the Massachusetts Institute of Technology (MIT), in cooperation with Lockheed Martin. We own the intellectual property relating to the more advanced development of this technology, which is a proprietary castable metal matrix composite beryllium-aluminum alloy now manufactured as Beralcast®. We believe that a competitor has sought to develop an alternative cast beryllium-aluminum product, which, if commercially viable, would be a direct competitor to Beralcast®.

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## **FINANCIAL RESULTS AND OUTLOOK**

### *COMMODITY PRICING FOR COPPER*

We aim to pass the cost of copper through to our customers, and we do not hold large inventories of copper. Accordingly, profitability should not be affected by the price of copper in the long term, except to the extent that high copper prices discourage consumption or that competitors lower their margins to obtain business. In the short term, price fluctuations can have a bearing on our profitability as we realize gains or losses on inventories. Since copper is a significant component of products that we sell, the price of copper does materially affect revenues.

Recent indicative copper prices per pound are shown below:

	<b>2018</b>	<b>2017</b>
September 30	\$2.80	\$2.95
December 31	\$2.65	\$3.35

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	<b>2019</b>	<b>2018</b>
June 30	\$2.73	\$2.99
September 30	\$2.57	\$2.80

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*Source: COMEX*

**IBC Advanced Alloys Corp.**  
**Management's Discussion and Analysis**  
Period Ended September 30, 2019

*RESULTS OF OPERATIONS*

We incurred a loss (net of tax) of \$550,000 for the three months ended September 30, 2019, compared to a loss (net of tax) of \$767,000 in the comparative 2018 period. A summary of results of operations to operating income (loss) follows:

	Three Months Ended September 30, 2019				Three Months Ended September 30, 2018			
	Copper Alloys \$000s	Eng. Mat. \$000s	Corp. \$000s	Consol- idated \$000s	Copper Alloys \$000s	Eng. Mat. \$000s	Corp. \$000s	Consol- idated \$000s
Revenue	3,867	1,089	-	4,955	3,460	1,233	-	4,693
Cost of revenue								
Materials	1,945	194	-	2,138	1,988	73	-	2,061
Labor	597	301	-	899	534	367	-	901
Subcontract	111	78	-	189	74	78	-	152
Overhead	556	248	-	804	418	416	-	834
Depreciation	148	204	-	352	96	100	-	196
Change in finished goods	(3)	81	-	78	(150)	232	-	82
	3,354	1,107	-	4,460	2,960	1,266	-	4,226
Gross (loss) profit	513	(18)	-	495	500	(33)	-	467
Gross margin	13%	(2%)		10%	14%	(3%)	-	10%
SG&A expenses	364	204	252	820	440	262	255	957
Operating income (loss) before other items	149	(222)	(252)	(325)	60	(295)	(255)	(490)
Total comprehensive income (loss)	62	(258)	(355)	(550)	(26)	(301)	(440)	(767)
Adjusted EBITDA:								
Add back (deduct):								
Interest expense	86	39	158	283	79	8	195	283
Depreciation, amortization, & impairment	150	206	-	356	97	100	-	197
Stock-based compensation expense (non-cash)	5	3	30	38	41	27	105	173
Adjusted EBITDA	302	(10)	(166)	127	191	(165)	(140)	(114)

*SEGMENT ANALYSIS: FISCAL Q1 YEAR 2020*

Factors affecting our financial performance in the quarter ended September 30, 2020:

- **Higher Copper Alloys Sales Lifts Division to Profitability:** Our Copper Alloys division swung to net profitability in the Company's fiscal first quarter of 2020, posting divisional income of \$62,000. That compared to a loss of \$26,000 in the prior-year period and to a loss of \$582,000 in the quarter ended June 30, 2019.
  - Copper division sales in the quarter of \$3.9 million were 11.8% higher than sales of \$3.5 million in fiscal Q1 of 2019. Fiscal Q1 2020 sales represented the division's highest sales performance of the past five quarters.
  - Copper Alloys' operating income<sup>1</sup> in the quarter of \$149,000 represented a 154% increase over operating income of \$59,000 in the prior-year period, and contrasted favorably with an operating loss of \$510,000 in the quarter ended June 30, 2019.
  - Adjusted EDITDA<sup>1</sup> for the division was \$302,000 in the quarter, a 58% increase over Adjusted EBITDA<sup>1</sup> of \$191,000 in the prior-year period. The division posted a negative Adjusted EBITDA of \$366,000 in the quarter ended June 30, 2019.
  - Demand for copper alloy products has continued to rebound since the industry-wide reduction in demand in copper alloy products that was experienced in calendar Q4 of 2018. Growth for the division has been accelerated in part due to its ability to produce more value-added products as a result of several strategic capital equipment upgrades made in 2019.
- **Engineered Materials Division Results:** In our Engineered Materials division, sales in the quarter of \$1.1 million compared to sales in the prior-year period of \$1.2 million. The change was due largely to lower-than-normal demand for BeAl products by semiconductor equipment manufacturers, which followed several consecutive record-breaking years of sales to that sector. Demand for BeAl products used in commercial applications is strengthening, as underscored by the Company's signing in October 2019 of a two-year supply agreement with a leading global manufacturer of semiconductor and electronics assembly equipment. The division posted an operating loss of \$222,000 which compared favorably with an operating

loss on the prior year period of \$294,000 and an operating loss of \$574,000 in the quarter ended June 30, 2019.

- **Higher Demand Expected for BeAl Alloy Products in Defense Markets:** Demand for BeAl products used in defense applications remained steady in calendar year 2019 but is expected to strengthen as rates of production for defense programs such as the F-35 Lightning II aircraft begin to accelerate beyond low rates of initial production. For example, according to our customer Lockheed-Martin, the annual rate of production of the F-35 aircraft is expected to nearly double by 2022 from 2018 production levels. We are continuing to pursue additional contracts for high-performance BeAl products in other defense-sector platforms.
- **Recycling of Scrap Beryllium Metal:** Our Engineered Materials division continues to recycle BeAl scrap material into useful feedstock for both aerospace and commercial BeAl casting products, which helps to reduce our cost of cost of goods sold and capture higher margins.

#### *Selling General and Administrative Expenses*

SG&A expenses 14% lower in 2020 when compared to the same period in 2019 due to reduction in headcount, consulting fees, and educational fees.

#### *Other Income (Expense)*

The main component of other income (expense) is interest expense.

#### *CHANGES IN FINANCIAL CONDITION*

Changes in our financial condition since June 30, 2019 are related to operations in the normal course of business.

*SELECTED QUARTERLY INFORMATION*

During the most recent eight quarters, we have not incurred any loss from discontinued operations.

Quarter Ended	Revenue \$000	Income (loss) for the period (net of tax) \$000	Basic and diluted loss per share <sup>1</sup> \$
December 31, 2017	4,728	(402)	(0.01)
March 31, 2018	5,149	62	0.00
June 30, 2018	5,224	240	0.01
September 30, 2018	4,693	(766)	(0.02)
December 31, 2018	3,904	(1,088)	(0.03)
March 31, 2019	5,202	(639)	(0.02)
June 30, 2019	4,869	(1,552)	(0.04)
September 30, 2019	4,955	(550)	(0.01)

<sup>1</sup> The sum of quarterly loss per share may not add to year-to-date totals due to rounding

*LIQUIDITY AND CAPITAL RESOURCES*

At September 30, 2019, we had working capital deficiency of \$1.3 million including cash and short-term investments of \$597,000 as compared to working capital deficiency of \$1.3 million including cash and short-term investments of \$720,000 at June 30, 2019. Factors affecting liquidity include: We have not yet achieved sustained profitable operations.

- On November 25, 2019 we announced a non-brokered private placement basis to raise gross proceeds of up to C\$2.0 million (approximately \$1.5 million) for working capital and general corporate purposes. There can be no assurance however that this private placement will close as planned or at all.
- Under the terms of our loan agreement with Lind Partners, we must make monthly payments of C\$45,000. Lind has to option to require the issuance of common shares in lieu of cash.
- We successfully renewed our credit facility with BMO Harris in October, 2019, but may have to seek further financing.

- Current liabilities include an accrual of \$1.4 million related to the arbitration award discussed in *Legal Matters* above. We are appealing the award.
- The Company must repay notes payable: principal and interest of \$50,000 are due February 4, 2020, principal and interest of \$101,000 are due March 27, 2020, and principal and interest of \$51,000 are due February 28, 2020. These notes are secured by accounts receivable and inventory of our Engineered Materials Division.
- We have the option of settling interest on convertible debentures through the issuance of common shares. In fiscal 2019, doing so benefited our cash flow by C\$341,000.
- Resource prices, particularly for copper, have a bearing on our manufacturing costs and selling prices, as copper is a large component of most of its products.
- We may be obliged to incur material expenditures on purchases of and repairs to property, plant and equipment to maintain productive capacity or to service customers.
- We manage liquidity risk associated with trade receivables by trading with recognized creditworthy third parties and insuring trade receivables. All revenue is conducted in U.S. dollars. In addition, receivable balances are monitored on an on-going basis with the result that the Company's exposure to impaired receivables is not significant.
- We also manage liquidity risk by investing its cash only in obligations of Canada or the U.S. or their respective agencies, obligations of enterprises sponsored by any of the above governments; bankers' acceptances purchased in the secondary market and having received the highest credit rating from a recognized rating agency in Canada or the U.S., with a term of less than 180 days; and bank term deposits and bearer deposit notes, with a term of less than 180 days.
- We are contractually committed to purchase, at June 30, 2019 prices, an aggregate of \$1.8 million in raw materials prior to June 30, 2020.
- We have entered into commercial property leases. These leases have an average remaining life of 1.7 years, with no renewal options. The future minimum rental payments under non-cancellable operating leases are \$573,000 for fiscal 2020 and \$408,000 for subsequent fiscal years.

We may need to raise additional funds in the short-term to finance working capital and additional growth initiatives. We may be able to generate additional cash through short-term debt or by issuing shares, but there can be no assurance that we will be successful in obtaining such funds.

#### *COMMITMENTS*

At September 30, 2019, we had commitments to lease premises over the next three years with an aggregate payment obligation of \$870,000. We are also committed to raw materials purchases over next year aggregating \$3.6 million.

#### *RELATED PARTY TRANSACTIONS*

Except as described below, we do not have any contractual relationships with directors or officers other than employment contracts in the ordinary course of business. The employment contracts are not financially material to its business.

Non-executive directors are paid \$36,000 per year but the directors have agreed to receive the bulk of this amount in common shares. In fiscal 2020, we issued 406,228 common shares for services to the non-executive directors and paid \$13,000 in cash. As of the end of the first quarter of fiscal 2020, non-executive directors' compensation of \$39,000 was not paid but has been accrued or recorded in payables.

#### *FINANCIAL INSTRUMENTS AND OTHER INSTRUMENTS*

Our activities expose us to a variety of financial risks, including foreign exchange risk, interest rate risk, commodity price risk, and credit risk. We do not have a practice of trading derivatives, and we attempt to employ a natural hedge for foreign currency by holding funds in the currency in which it expects to spend the monies.

#### *Foreign Exchange Risk*

While the majority of our administrative and manufacturing activities occur in the U.S., we incur some corporate administration costs in Canada and raise equity proceeds in Canadian dollars. We manage exchange risk on equity capital by converting expected U.S. expenditures to U.S. dollars at the time the money is raised.



### *Interest Rate Risk*

Our interest rate risk mainly arises from interest expense on the BMO Harris Bank line of credit. The term loan has a fixed interest rate and is not exposed to short-term interest rate risk.

### *Commodity Price Risk*

Our profitability and long-term viability depend, in some measure, on the market prices of copper, aluminum, and beryllium. The prices for metals can be volatile and are affected by factors beyond our control, including the following: global or regional consumption patterns; the supply of, and demand for, these metals; speculative activities; the availability and costs of metal substitutes; expectations for inflation; and political and economic conditions, including interest rates and currency values. We cannot predict the effect of these factors on metal prices. We do not engage in hedging but, where possible, structure selling arrangements in a way that passes commodity price risk through to our customer.

### *Credit Risk*

We manage credit risk by trading with recognized creditworthy third parties and by insuring all trade receivables. In addition, we monitor receivable balances with the result that our exposure to impaired receivables is generally not significant.

### *Adoption of New Accounting Pronouncements and Recent Developments*

Certain pronouncements, issued by the IASB or the IFRS Interpretations Committee, were adopted during the year, or were mandatory for the Company's fiscal years beginning on or after July 1, 2019 or are required to be adopted in future periods. The following pronouncement is relevant to the condensed consolidated interim financial statements:

#### *IFRS 16 - Leases*

- IFRS 16 - Leases specifies how to recognize, measure, present and disclose leases. The standard provides a single lessee accounting model, requiring that lessees recognize assets and liabilities for all leases unless the lease term is 12 months or less or the underlying asset has an insignificant value. Lessors continue to classify leases as operating or finance, with IFRS 16's approach to lessor accounting substantially unchanged from its predecessor, IAS 17. IFRS 16 was issued in January 2016 and is applicable to our fiscal year that began on July 1, 2019. Adoption of IFRS 16 resulted in our recording a right-of-use asset and a corresponding lease liability

of \$2.6 million in our statement of financial position. Although the related interest and depreciation expenses will not be the same as the monthly lease payments, the differences are not material.

There are no other pending IFRSs or IFRIC interpretations that are expected to be relevant to our financial statements.

#### *NON-IFRS MEASURES*

To supplement our consolidated financial statements, which are prepared and presented in accordance with IFRS, we use "operating income (loss)" and "Adjusted EBITDA", which are a non-IFRS financial measure.

We believe that operating income (loss) help identify underlying trends in our business that could otherwise be distorted by the effect of certain income or expenses that we include in loss for the period. We further believe that operating income (loss) provides useful information about core operating results, enhances the overall understanding of our past performance and future prospects, and allows for greater visibility with respect to key metrics used by management in our financial and operational decision-making.

We believe that Adjusted EBITDA is a useful indicator for cash flow generated by our business that is independent of our capital structure.

Operating income (loss) and Adjusted EBITDA should not be considered in isolation or construed as an alternative to loss for the period or any other measure of performance or as an indicator of our operating performance. Operating income (loss) and Adjusted EBITDA presented here may not be comparable to similarly titled measures presented by other companies. Other companies may calculate similarly titled measures differently, limiting their usefulness as comparative measures to our data.

#### *Operating income (loss)*

Operating income (loss) represents loss for the period, excluding foreign exchange loss, interest expense, interest income, other income (expense) and income taxes that we do not believe are reflective of our core operating performance during the periods presented. A reconciliation of our first quarter loss to operating income follows:

**IBC Advanced Alloys Corp.**  
**Management's Discussion and Analysis**  
Period Ended September 30, 2019

Quarter ended ended September 30	2019	2018
	\$000s	\$000s
Loss for the period	(550)	(766)
Foreign exchange (gain) loss	(57)	(4)
Interest expense	283	283
Loss on disposal of assets	-	-
Interest income	(0)	(4)
Other income	(6)	(2)
Income taxes	6	3
Operating income (loss) before other items	(325)	(490)

*Adjusted EBITDA*

Adjusted EBITDA represents our income (loss) for the period before interest, income taxes, depreciation, amortization and share-based compensation. A reconciliation of our first quarter loss to Adjusted EBITDA follows:

Quarter ended ended September 30	2019	2018
	\$000s	\$000s
Loss for the period	(550)	(766)
Tax expense	-	-
Interest expense	283	283
Depreciation, amortization, & impairment	356	197
Stock-based compensation expense (non-cash)	38	173
Adjusted EBITDA	127	(113)

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## **RESEARCH INITIATIVES**

From time to time, we sponsor and assist in research and development ("R&D") initiatives to create new market opportunities. Our current R&D focus is on developing scandium-doped aluminum alloys.

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## **BUSINESS RISKS**

Some of the risks that the Company faces, which are specific to our operations, include the following:

### *Dependence on Ulba Metallurgical Plant and sole-source suppliers*

Our proprietary Beralcast® castings and many of our copper alloys use beryllium, which is a specialty metal that produced by a limited number of companies globally. We are able to purchase beryllium from a U.S. producer, from the U.S. National Defense Stockpile, and from Ulba Metallurgical Plant ("Ulba"), owned by Kazatomprom of Kazakhstan. We currently source our vacuum-cast beryllium and beryllium copper master alloy from Ulba, and we have entered into long-term beryllium and beryllium copper master alloy supply agreements with Ulba lasting through 2021. Ulba's ability to honor its supply obligations will depend on its ability to source raw materials. We understand that production uses long-term stockpiles; however, any disruptions in Ulba's ability to manufacture beryllium or CTMA (Carbothermic Master Alloy) to our specifications would have a materially adverse effect on our business. Our ability to purchase those supplies also is contingent upon a continuation of current U.S. laws and regulation governing such purchases.

We are dependent upon several suppliers of base materials and alloying agents as sole-source suppliers. Approximately 80% of materials purchased, including Ulba Metallurgical Plant as described above, are primarily from these sole-source suppliers. Any disruptions in these suppliers' ability to manufacture base materials and alloying agents needed by us could have a materially adverse effect on short-term revenue, while we seek to engage alternative sources.

### *Disruptions of Manufacturing Operations*

From time to time, our operations are adversely affected by disruptions caused by such things as water line failures, power outages, labor turnover, equipment failures, and adverse weather. These issues normally only cause short-term interruptions but can affect our ability to meet quarterly revenue and profitability objectives.

### *Need to Meet Product Specifications*

Most of the products that we manufacture are required to conform to a specification. Some of these specifications are very exacting. Small variations in process can cause our products to fall short of the required standards. In addition, customer requirements can change from time to time. If we are unable to address these specification issues in a timely manner, we are at risk of losing short-term revenue and even long-term production contracts.

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## **LEGAL MATTERS**

In the normal course of business operations, we and our subsidiaries are parties, from time to time, to various civil and administrative proceedings. These may include product liability claims, health and safety claims, environmental claims and employee-related matters.

As more fully discussed below, we are involved in a variety of claims, lawsuits, investigations and proceedings concerning securities law, intellectual property law, environmental law, employment law and the Employee Retirement Income Security Act ("ERISA"). We determine whether an estimated loss from a contingency should be accrued by assessing whether a loss is deemed probable and can be reasonably estimated. We assess our potential liability by analyzing our litigation and regulatory matters using available information. We develop our views on estimated losses in consultation with outside counsel handling our defense in these matters, which involves an analysis of potential results, assuming a combination of litigation and settlement strategies. Should developments in any of these matters cause a change in our determination as to an unfavorable outcome and result in the need to recognize a material accrual, or should any of these matters result in a final adverse judgment or be settled for significant amounts, they could have a material adverse effect on our results of operations, cash flows and financial position in the period or periods in which such change in determination, judgment or settlement occurs.

On September 8, 2017, an Award was issued in favor of Claimant Gerald Hoolahan against IBC Advanced Alloys Corp. The Award, in the amount of \$1.2 million plus attorney's fees, costs, and expenses in the amount of \$155,000 was granted by the American Arbitration Association's International Centre for Dispute Resolution. The amount has been accrued and the matter was under appeal. On March 27, 2019, the Company received notice of the Court affirming the September 8, 2017 arbitration award made in favor of Gerald R. Hoolahan. We have filed an appeal of the District Court's decision.

On January 21, 2014, a subsidiary in the Copper Alloys Division, Nonferrous Products, Inc. ("Nonferrous Products") received a "Special Notice Letter of Potential Liability" from the U.S. Environmental Protection Agency ("EPA"). The letter references the EPA's determination that a release of hazardous materials had occurred at the Chemetco Superfund Site located in Hartford, Illinois. Chemetco, Inc. operated a secondary smelting operation for recycling and after-market processing of copper-bearing scrap and manufacturing by-products. The EPA has identified Nonferrous Products as a potentially responsible party ("PRP") under the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"). Nonferrous Products has joined a defense group of other PRPs. To date, Nonferrous Products has paid immaterial amounts related to these assessments and member fees. These assessments will be used to fund further site investigation to determine the amount of materials sent to Chemetco by each party and the best clean-up method. The Company is evaluating its options regarding notifying its insurers of potentially increased liability should the EPA and/or Chemetco PRP Group contribution lawsuit attempt to name Company's subsidiary as a Defendant. Specialloy Metals Company was allocated with over 4 million pounds of material shipped to the Chemetco site, or more than ten times the amount allocated to Nonferrous. Should the EPA and/or PRP Group contribution lawsuit pursue alter ego theories and allege the Company's subsidiary Company, then we potentially face significantly more liability requiring further defensive action.

On April 7, 2015, a subsidiary in the Copper Alloys Division, Freedom Alloys, Inc. ("Freedom Alloys") was named as a defendant in a suit filed in the Superior Court of the State of California, Los Angeles County entitled Godoy et al. v The Argen Corporation et al. BC578085. This Complaint for Survival and Wrongful Death from Toxic Injuries alleges Freedom Alloys, along with five other defendants, supplied beryllium-containing materials causing fatal chronic beryllium disease to the plaintiffs' deceased father. The claim was dismissed in September 2015 but was reinstated on the plaintiffs' appeal in June 2016. A trial date was set in the matter for April 2019; however, prior to the trial date all parties filed Motions for Summary Judgment, which were heard by the Court on February 6, 2019. The Court entered its ruling on Summary Judgment on February 7, 2019, and Freedom Alloys Inc.'s motion for summary judgment was granted. Plaintiffs had until June 17, 2019 to appeal the grant of Summary Judgment in favor of Freedom. On September 12, 2019, the Court entered a final judgment in favor of Freedom Alloys and ordered plaintiffs to pay legal costs incurred by Freedom Alloys in the matter.

On March 7, 2016, Maxum Indemnity Company filed a Complaint for Declaratory Judgment against Freedom Alloys in the U.S. District Court for the Eastern District of Pennsylvania,

seeking a judgment that it owes Freedom Alloys no duty to defend or indemnify Freedom Alloys for the underlying Godoy et al. v The Argen Corporation et al. lawsuit described above. The matter was stayed by agreement based on the status of Godoy et al. v The Argen Corporation et al. However, because Godoy et al. v The Argen Corporation et al. has resumed proceedings in the trial court in California, Maxum's counsel has threatened to lift the Stay of Proceedings if Freedom Alloys does not commit to giving up its claim for indemnity if it does not prevail in its defense of the matter. The Court issued a ruling granting Defendants' Summary Judgment Motion on the survival claims. At this point, the remaining claims are the wrongful death claims of decedent's heirs for which defense counsel has asked Plaintiff counsel to voluntarily dismiss Freedom Alloys from the case, emphasizing that Plaintiffs have not produced any evidence that Freedom supplied any beryllium that came into contact with the decedent.

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## **ENVIRONMENTAL AND OCCUPATIONAL SAFETY ISSUES**

We melt and machine materials that have the potential, if not controlled and handled appropriately, to have a negative effect on an individual's health and the environment. In addition, our operations use materials such as cutting and hydraulic fluids, which have the capacity to cause environmental contamination if left uncontained.

To mitigate these potential risks, we:

- employ a full-time health and safety manager to administer and monitor our safety programs;
- employ manufacturing practices to minimize and eliminate dispersal of fumes and dust;
- use trap basins and fluid reservoirs to capture and retrieve possible overages;
- use active exhaust vents and hoods located in equipment areas to capture and filter air;
- regularly schedule assessments and maintenance of in-house ventilation systems;
- require our employees to use appropriate personal protective equipment (such as respirators, outer garments, gloves, etc.) selected to limit and protect them from any potential exposures;

- conduct beryllium lymphocyte proliferation tests (BeLPT) to determine employees' potential for sensitivity to beryllium prior to possible exposure;
- undertake ongoing air quality monitoring and perform periodic employee health exams as per occupational health guidelines; and
- limit access to areas that may have a potential exposure to beryllium dust particles.

Despite these procedures, we remain subject to risk in this regard.

As with all industry, we are subject to periodic inspection by state and local safety, health and environmental authorities. If during an inspection a failing was noted in our systems, the potential for the temporary or permanent closure of the facilities could exist. If during the periodic employee health screening, an employee displays elevated exposure to metals, it could require us to place the employee on sick leave, which would have the potential to impact both direct and indirect costs and cause a disruption of production. There is also the potential that an inherent safety or environmental exposure, if uncontrolled, could initialize legal action by employees, neighbors or those who visit our facilities.

To minimize the risks arising from pre-acquisition activities, we commissioned phase one environmental reviews prior to acquiring our copper alloys businesses. It is possible that environmental problems remain at our facilities that these phase-one assessments did not uncover.

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## **SHAREHOLDERS' EQUITY**

### *PRIVATE PLACEMENTS*

On November 25, 2019, we announced a non-brokered private placement to issue up to 17.1 million common shares at a price of C\$0.117 per common share for gross proceeds of up to C\$2.0 million. There is no minimum offering amount. We expect that the private placement will close on or soon after November 29, 2019. The private placement is subject to the completion of formal documentation, receipt of all necessary regulatory approvals, including the approval of the TSX-V, and other customary conditions.

In April 2019, we completed a non-brokered private placement for gross proceeds of C\$545,000. In connection with the closing of the offering, we issued 2,477,080 units at a price of C\$0.22 per unit for gross proceeds of C\$545,000. Each Unit consists of one common share and a one common share purchase warrant. Each warrant entitles the holder to



acquire one common share at a price of C\$0.28 until April 29, 2022. All of the securities issued pursuant to the offering are subject to a four-month hold period in accordance with applicable Canadian securities laws. Certain of our directors subscribed for an aggregate of 682,047 Units in the offering for gross proceeds of C\$151,000. The Offering constitutes a related party transaction under *Multilateral Instrument 61-101 - Protection of Minority Security Holders in Special Transactions* ("MI 61-101"). The transaction is exempt from the formal valuation and minority shareholder approval requirements of MI 61-101 pursuant to sections 5.5(a) and 5.7(1)(a) of MI 61-101 as neither the fair market value of any securities issued to nor the consideration paid by such persons would exceed 25% of the Company's market capitalization.

#### *SHARE ISSUANCE*

In July 2019, we issued 304,671 common shares for services to our directors, 101,557 common shares for services to a consultant, and 185,000 common shares for options exercised by a director.

In June 2019, we issued 737,059 common shares to debentures holders with an issue-date value of C\$161,000 in satisfaction of the June 30, 2019 interest payment in lieu of cash.

In June 2019, 16,129 shares were issued upon C\$5.0 million of the 8.25% convertible debentures conversion to common stock.

#### *OUTSTANDING SHARE DATA*

As at the date of this MD&A, we have issued:

- A total of 40,142,033 common shares.
- Warrants to purchase 35,639,296 common shares.
- Share options to purchase 2,560,750 common shares.

The maximum number of shares potentially issuable together with the issued shares is therefore 78,342,079.