



IBC Advanced Alloys

IBC ADVANCED ALLOYS CORP.

MANAGEMENT'S DISCUSSION AND ANALYSIS

SIX MONTHS ENDED DECEMBER 31, 2019

FISCAL SECOND QUARTER OF 2020

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The following is management's discussion and analysis ("MD&A") of IBC Advanced Alloys Corp. and its subsidiaries, prepared as of February 26, 2020. 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 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; uncertainties in the market price for minerals and metals, such as copper and beryllium; and currency exchange rate fluctuations. 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 as 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 December 31, 2019 have been prepared in accordance with IAS34 – 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, including our most recent Annual Information Form, is available for view on SEDAR at www.sedar.com.

EXECUTIVE SUMMARY

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

- **Higher Q/Q and Y/Y Sales:** We generated \$5.4 million in consolidated sales in the quarter ended December 31, 2019, a 38% increase over sales of \$3.9 million in the prior-year period. In the six-month period ended December 31, 2019, consolidated sales of \$10.3 million were 20% higher than consolidated sales of \$8.6 million in the prior-year period.
- **Loss Narrows:** We recorded a comprehensive loss of \$770,000 in the quarter ended December 31, 2019, or (\$0.02) per share. That compared favorably to a loss

of \$1,088,000, or (\$0.03) in the prior-year period. Likewise, we recorded a comprehensive loss of \$1,320,000 in the six-month period ended December 31, 2019, which compared favorably to a loss of \$1,854,000 in the prior-year period.

- **Positive Year-to-date Adjusted EBITDA¹:** Our adjusted earnings before interest, taxes, depreciation, and amortization ("Adjusted EBITDA") for the quarter was (\$53,000), which compared favorably to Adjusted EBITDA of (\$606,000) for the prior-year period. However, except for a one-time charge of \$140,000 in the quarter (see further details below), the Company's fiscal 2020 Q2 Adjusted EBITDA would have been \$87,000. Adjusted EBITDA for the six-month period ended December 31, 2019 was \$67,000, as compared to (\$723,000) in the prior-year period. Both operating divisions posted positive year-to-date Adjusted EBITDA.
- **Gross Margin Improves Sharply:** Comprehensive gross margin strengthened in the quarter and year-to-date, improving to 15.6% in the quarter ended December 31, 2019, from 6.8% in the prior-year period, and rising to 13.3% year-to-date, as compared to 9.0% in the comparable period of fiscal 2019.
- **Q2 Copper Alloys Sales 37% Higher, as Division Narrows Year-to-Date Loss:** Our Copper Alloys division posted a loss of \$366,000 in the Company's fiscal second quarter of 2020, which compared to a loss of \$548,000 in the prior-year period. The division posted a loss of \$304,000 in the six-month period ended December 31, 2019, which compared to a loss of \$574,000 in prior year-to-date period.
 - Copper Alloys division sales in the quarter of \$3.6 million were 31% higher than sales of \$2.7 million in fiscal Q2 of 2019. Division sales in the six-month period ended December 31, 2019 increased 20% to \$7.4 million, from \$6.2 million in the same prior year-to-date period.
 - Adjusted EBITDA for the division was (\$120,000) in the quarter, which compares to Adjusted EBITDA of (\$362,000) in the prior-year period. In the six-month period ended December 31, 2019, Adjusted EBITDA flipped to a positive \$181,000, compared to Adjusted EBITDA of (\$171,000) in the prior

¹ 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.

year-to-date period. In the second quarter of fiscal year 2020, the Company booked a one-time charge of \$140,000 reimbursing a customer for out of spec. material that was supplied to IBC by another company. Except for the one-time charge in SGA noted above, Copper Alloy's Adjusted EBITDA would have been \$20,000 for the quarter instead of (\$120,000).

- **Engineered Materials Division Posts Profitable Quarter on Higher Y/Y Sales:** In our Engineered Materials ("EMC") division, sales in the quarter rose by 55% to \$1.8 million, compared to sales in the prior-year period of \$1.2 million. Sales in the six-month period ended December 31, 2019 were \$2.9 million, a 20.8% increase over sales of \$2.4 million in the prior-year period. Increased sales in these periods were due largely to higher demand for beryllium-aluminum ("BeAl") products by semiconductor equipment manufacturers.
 - The EMC division posted net income of \$49,000 in the quarter ended December 31, 2019, reversing a loss in the prior-year period of \$154,000. Net loss in the six-month period ended December 31, 2019 was \$209,000, as compared to a loss of \$455,000 in the prior year period.
 - Adjusted EBITDA for the EMC division was \$302,000 in the quarter, which compared favorably to Adjusted EBITDA of (\$52,000) in the prior-year period. For the six months ended December 31, 2019, Adjusted EBITDA for the division was \$289,000, as compared to Adjusted EBITDA of (\$221,000) in the prior-year period.
- **Demand for BeAl Products Used in Commercial Applications:** Demand for BeAl products 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.
- **Higher Demand Also 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.

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 of 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".

RECENT CORPORATE DEVELOPMENTS, BUSINESS INITIATIVES, AND SUBSEQUENT EVENTS

- The Company raised C\$2.28 million in tranches of non-brokered 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 approximately C\$2.0 million. There was no minimum offering amount. This private placement closed on December 13, 2019, at which time a second non-brokered private placement was announced for an additional 2.1 million common shares at a price of C\$0.135 per common share, for gross proceeds of approximately C\$284,000. The second private placement closed on December 23, 2019.

MANUFACTURING OPERATIONS

We currently have four manufacturing operations in the U.S. that, in total, employ 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 billets and slabs 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 EMC 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®.

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.

IBC Advanced Alloys Corp.
Management's Discussion and Analysis
Six Months Ended December 31, 2019

Recent indicative copper prices per pound are shown below:

	2019	2018
December 31	\$2.83	\$2.65
September 30	\$2.57	\$2.80
June 30	\$2.73	\$2.99
March 31	\$2.94	\$3.09

Source: COMEX

Results of Operations: Fiscal Q2 2020

We incurred a comprehensive loss of \$770,000 for the three months ended December 31, 2019, compared to a comprehensive loss of \$1,088,000 in the comparative 2018 period. A summary of results of operations to Adjusted EBITDA follows:

	Three Months Ended December 31, 2019				Three Months Ended December 31, 2018			
	Copper Alloys (\$000s)	Eng. Mat. (\$000s)	Corp. (\$000s)	Consol- idated (\$000s)	Copper Alloys (\$000s)	Eng. Mat. (\$000s)	Corp. (\$000s)	Consol- idated (\$000s)
Revenue	3,564	1,822	-	5,386	2,728	1,176	-	3,904
Cost of revenue								
Materials	1,905	448	-	2,353	1,498	40	-	1,538
Labor	563	297	-	860	575	434	-	1,009
Subcontract	40	49	-	89	48	79	-	127
Overhead	489	89	-	578	464	388	-	852
Depreciation	101	215	-	316	98	87	-	185
Change in finished goods	64	285	-	349	(45)	(26)	-	(71)
	3,162	1,383	-	4,545	2,638	1,002	-	3,640
Gross (loss) profit	402	439	-	841	90	174	-	264
Gross margin	11.3%	24.1%		15.6%	3.3%	14.8%		6.8%
SG&A expenses	675	403	208	1,286	562	326	290	1,178
Income (loss) before other items	(273)	36	(208)	(445)	(472)	(152)	(290)	(914)
Total comprehensive income (loss)	(366)	49	(453)	(770)	(548)	(154)	(386)	(1,088)
Adjusted EBITDA:								
Add back (deduct):								
Tax expense	-	-	-	-	-	-	-	-
Interest expense	92	(10)	188	270	75	8	132	215
Depreciation, amortization, & impairment	150	260	-	410	100	87	-	187
Stock-based compensation expense (non-cash)	4	3	30	37	11	7	62	80
Adjusted EBITDA	(120)	302	(235)	(53)	(362)	(52)	(192)	(606)

Segment Analysis: Fiscal Q2 2020

Factors affecting our financial performance in the quarter ended December 31, 2019:

- **Copper Alloys Sales Division Results:**
 - The division posted a comprehensive loss of \$366,000 in the quarter, which narrowed a comprehensive loss of \$548,000 in the prior-year period.
 - Copper Alloys division sales of \$3.6 million in the quarter were 31% higher than sales of \$2.7 million in fiscal Q2 of 2019.
 - Averaged gross margin of 11.3% in the quarter grew by 242%, from a 3.3% averaged gross margin in the prior-year period.
 - Adjusted EBITDA for the division was (\$120,000) in the quarter, which compared favorably to Adjusted EBITDA of (\$362,000) in the prior-year period. The Company booked a one-time charge of \$140,000 reimbursing a customer for out of spec. material that was supplied to IBC by another company. If it were not for the \$140,000 one-time charge, then adjusted EBITDA would have been \$20,000.
 - Demand for copper alloy products continues to improve following the sector-wide decline seen in the second half of calendar year 2018. This growth has been driven primarily by strong demand in electronics and marine defense markets. Growth has also accelerated due in part to the division's ability to produce more value-added products as a result of several strategic capital equipment upgrades made in fiscal year 2019.

- **Engineered Materials Division Results:**
 - In our EMC division, sales in the quarter of \$1.8 million rose by 55% over sales of \$1.2 million in the prior-year period. This increase was due largely to increased demand for BeAl products by semiconductor equipment manufacturers.
 - The EMC division posted comprehensive income of \$49,000 in the quarter, which reversed a comprehensive loss of \$154,000 in the prior-year period.

- Adjusted EBITDA for the division was \$302,000 in the quarter, which reversed Adjusted EBITDA of (\$362,000) in the prior-year period.
- Demand for BeAl products used in defense applications remained steady in calendar year 2019 but is expected to strengthen as rates of production for F-35 Lightning II aircraft begin to accelerate beyond Low Rates of Initial Production ("LRIP"). For example, according to data released publicly by 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.
- Demand for BeAl products used in commercial applications also 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.
- Our EMC 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 ("SG&A") Expenses

SG&A expenses were 9% higher in the quarter ended December 31, 2019 than such expenses in the prior-year period. The change was mostly due to the one-time charge of \$140,000 reimbursing a customer for out of spec. material that was supplied to IBC by another company. SG&A expenses would be 2% less than the prior-year period if it were not for the one time-time charge noted above.

Other Income (Expense)

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

RESULTS OF OPERATIONS – FISCAL 2020 YEAR-TO-DATE

The Company incurred a loss (net of tax) of \$1,321,000 for the six months ended December 31, 2019, compared to a loss (net of tax) of \$1,854,000 in the comparative period ended December 31, 2018. A summary of results of the operations to adjusted EBITDA follows:

	Six Months Ended December 31, 2019				Six Months Ended December 31, 2018			
	Copper Alloys (\$000s)	Eng. Mat. (\$000s)	Corp. (\$000s)	Consol- idated (\$000s)	Copper Alloys (\$000s)	Eng. Mat. (\$000s)	Corp. (\$000s)	Consol- idated (\$000s)
Revenue	7,431	2,911	-	10,342	6,188	2,409	-	8,597
Cost of revenue								
Materials	3,850	706	-	4,556	3,486	113	-	3,599
Labor	1,160	598	-	1,758	1,109	801	-	1,910
Subcontract	151	127	-	278	123	163	-	286
Overhead	1,002	337	-	1,339	833	796	-	1,629
Depreciation	249	419	-	668	194	187	-	381
Change in finished goods	61	302	-	363	(195)	209	-	14
	6,473	2,489	-	8,962	5,550	2,269	-	7,819
Gross (loss) profit	958	422	-	1,380	638	140	-	778
Gross margin	12.9%	14.5%		13.3%	10.3%	5.8%		9.0%
SG&A expenses	1,081	608	460	2,149	1,050	588	545	2,183
Income (loss) before other items (loss)	(123)	(186)	(460)	(769)	(412)	(448)	(545)	(1,405)
Adjusted EBITDA:								
Add back (deduct):								
Tax expense	(2)	(3)	(1)	(6)	-	(3)	-	(3)
Interest expense	178	29	346	553	154	16	327	497
Depreciation, amortization, & impairment	300	466	-	766	197	187	-	384
Stock-based compensation expense (non-cash)	9	6	60	75	52	34	167	253
Adjusted EBITDA	181	289	(403)	67	(171)	(221)	(331)	(723)

Segment Analysis: Six Months Ended December 31, 2019:

- Copper Alloys Sales Division Results:
 - Our Copper Alloys division posted a comprehensive loss of \$304,000 in the six-month period ended December 31, 2019, compared to a comprehensive loss of \$574,000 in the prior year-to-date period.
 - Year-to-date Copper Alloys division sales were \$7.4 million, a 20% increase over sales of \$6.2 million in the prior year-to-date period.
 - Adjusted EBITDA was \$181,000 for the period, which compared to Adjusted EBITDA of (\$171,000) in the prior year-to-date period.

As we noted above, demand for copper alloy products continues to improve following the sector-wide decline seen in the second half of calendar year 2018. This growth has been driven primarily by strong demand in electronics and marine defense markets. Growth has also accelerated due in part to the division's ability to produce more value-added products as a result of several strategic capital equipment upgrades made in fiscal year 2019.

- Engineered Materials Division Results:
 - The EMC division posted a comprehensive loss of \$209,000 in the six-month period ended December 31, 2019, which compared favorably to a comprehensive loss of \$455,000 in the prior year-to-date period.
 - EMC sales grew to \$2.9 million, a 21% increase over \$2.4 million in sales in the prior year-to-date period. This change was largely driven by increased demand for BeAl product by semiconductor equipment manufacturers.
 - As noted above, demand for BeAl products used in defense applications remained steady in calendar year 2019 but is expected to strengthen as rates of production for F-35 Lightning II aircraft begin to accelerate beyond LRIP production rates.
 - Demand for BeAl products used in commercial applications is strengthening per the aforementioned Company's signing in October 2019 of a two-year

supply agreement with a leading global manufacturer of semiconductor and electronics assembly equipment.

- Our EMC 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 goods sold and capture higher margins.

Selling, General and Administrative Expenses

SG&A expenses are 2% less in the current year-to-date period than in the prior year-to-date period due to reduction in headcount and consulting fees and education 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. In addition:

- With the adoption of IFRS 16, on July 1, 2019, we recorded a right of use asset of \$931,000 and a corresponding lease liability of \$931,000.
- In November and December 2019, we complete two private placements that raised gross proceeds of C\$2.285 million.

SELECTED QUARTERLY INFORMATION

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

Quarter Ended	Revenue	Income (loss) for the period (net of tax)	Basic and diluted loss per share ¹
	(\$000s)	(\$000s)	\$
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	(543)	(0.01)
December 31, 2019	5,386	(770)	(0.02)

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

LIQUIDITY AND CAPITAL RESOURCES

At December 31, 2019, we had working capital deficiency of \$425,000 including cash and short-term investments of \$853,000 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.
- Under the terms of our loan agreement with Lind Partners, we must make monthly payments of C\$45,000. Lind has the 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* below.

- 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 EMC 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 sales are 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 the Company's cash only in obligations of Canada or the U.S. or their respective agencies or 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 December 31, 2019 prices, an aggregate of \$4.0 million in raw materials prior to December 31, 2021.
- We have entered into commercial property and equipment leases. These leases have an average remaining life of 1.3 years, with no renewal options. The future minimum rental payments under non-cancellable operating leases are \$566,000 for the 2020 calendar year and \$98,000 for the 2021 calendar year.

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 flow through the

use of equity markets for raising capital, in addition to adjusting spending, disposing of assets and obtaining other non-equity sources of financing. However, there can be no assurance that we will be successful in obtaining such funds.

COMMITMENTS

At December 31, 2019, we had commitments to lease premises and equipment over the next two years with an aggregate payment obligation of \$701,000. We are also committed to raw materials purchases over the next year aggregating \$4.0 million. We may need to raise additional funds to meet our long-term commitments in the same manner as noted above to meet our working capital needs and additional growth initiatives.

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. For the six months period ended December 31, 2019, non-executive directors' compensation of \$78,000 was not paid but has been accrued.

For additional information on related party transactions among the Company and certain of its directors, see *Shareholders' Equity* below.

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, aluminium, 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 \$931,000 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 second quarter loss and the six-month period ended December 31, 2019 loss to operating income follows:

IBC Advanced Alloys Corp.
Management's Discussion and Analysis
Six Months Ended December 31, 2019

Quarter ended December 31	2019	2018
	(\$000s)	(\$000s)
Loss for the period	(770)	(1,088)
Foreign exchange (gain) loss	58	(33)
Interest expense	271	214
Loss on disposal of assets	-	-
Interest income	(0)	(3)
Other income	(5)	(5)
Arbitration award liability	-	-
Income taxes	1	-
Operating loss	(446)	(915)

Six months ended December 31	2019	2018
	(\$000s)	(\$000s)
Loss for the period	(1,320)	(1,854)
Foreign exchange (gain) loss	0	(37)
Interest expense	554	497
Loss on disposal of assets	-	-
Interest income	(0)	(7)
Other income	(11)	(7)
Arbitration award liability	-	-
Income taxes	7	3
Operating loss	(771)	(1,405)

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:

IBC Advanced Alloys Corp.
Management's Discussion and Analysis
Six Months Ended December 31, 2019

Quarter ended December 31	2019	2018
	(\$000s)	(\$000s)
Loss for the period	(770)	(1,088)
Tax expense	(1)	-
Interest expense	271	215
Depreciation, amortization, & impairment	410	187
Stock-based compensation expense (non-cash)	37	80
Adjusted EBITDA	(53)	(606)

Six months ended December 31	2019	2018
	(\$000s)	(\$000s)
Loss for the period	(1,320)	(1,854)
Tax expense	(7)	(3)
Interest expense	554	497
Depreciation, amortization, & impairment	766	384
Stock-based compensation expense (non-cash)	74	253
Adjusted EBITDA	67	(723)

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.

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 those from Ulba, 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 Relocate Royersford Foundry

The landlord has indicated that it will not renew the lease and so we are investigating (1) relocation of the foundry or its production equipment, (2) consolidation of its production capacity into one or more of our current production facilities, and/or (3) other options to secure the alloy material made in Royersford. If we are not able to maintain this production capacity or to find other supply options in a timely basis, it will have a material adverse impact on our ability to produce sufficient alloy material for current customer demand.

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.

LEGAL MATTERS

In the normal course of business operations, the Company and its 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 from time to time 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 U.S. District Court for the District Massachusetts affirming the September 8, 2017

arbitration award made in favor of Gerald Hoolahan. We appealed this decision. Subsequently, on January 22, 2020, the U.S. Court of Appeals for the First Circuit affirmed the judgment of the U.S. District Court for the District of Massachusetts, which found in favor of Gerald Hoolahan. The Company is evaluating its payment options with respect to the award granted to Gerald Hoolahan.

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. ("Chemetco") 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 Product was identified as PRP due to the EPA's review of Chemetco's records indicating that Nonferrous Products shipped more than 150,000 pounds of material to the Superfund Site. Nonferrous Products has joined a defense group of other PRPs ("Chemetco PRP Group"). The presumed amount of shipped material from Nonferrous Products classifies it as a Tier 3 Group member of four tiers, with Tier 1 consisting of PRP's that shipped the highest volume of material to Chemetco. By joining the PRP Group, Nonferrous Products entered into an Amended Cost Sharing Agreement which requires certain assessments based on an interim allocation according to the Tier Group. 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. On September 27, 2017, it was brought to the attention of IBC Counsel that the EPA Special Notice Letter was delivered to the Company's subsidiary, Specialloy Copper, LLC, identifying Specialloy Metals Company as a Potentially Responsible Party to the Chemetco Superfund Site. The entity noticed (Specialloy Metals Company) sold assets to Company's subsidiary and was subsequently dissolved. Company's subsidiary is covered under Nonferrous' Insurance policies, and other than the asset purchase transaction has no connection to the entity that was noticed. The Company is evaluating its options regarding notifying its insurers of potentially increased liability should the EPA and/or Chemetco PRP Group contribution lawsuit's attempt to name the Company's subsidiary, Nonferrous Products 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 Products. Should the EPA and/or

Chemetco PRP Group contribution lawsuit pursue alter ego theories and name the Company's subsidiary Company, Nonferrous Products, as a defendant, then IBC potentially faces 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' motion for summary judgment was granted. The plaintiffs had until June 17, 2019 to appeal the grant of summary judgment in favor of Freedom Alloys. On September 12, 2019, the Court entered a final judgment in favor of Freedom Alloys and ordered the plaintiffs to pay the legal costs incurred by Freedom Alloys in the matter.

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.

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

approximately C\$2.0 million. There was no minimum offering amount. This private placement was closed on December 13, 2019, at which time a second non-brokered private placement was announced for an additional 2.1 million common shares at a price of C\$0.135 per common share for gross proceeds of approximately C\$284,000. The second private placement was closed on December 23, 2019.

In April 2019, we completed a non-brokered private placement for gross proceeds of C\$545,000. In connection with the closing of the private placement, 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 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 private placement for gross proceeds of C\$151,000.

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 July 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 July 2019, 16,129 common shares were issued upon the conversion of C\$5,000 of the 8.25% convertible debentures to common stock.

In October 2019, 36,013 common shares and 230,000 warrants were returned to treasury upon the cancellation of C\$100,000 8.25% convertible debentures.

In December 2019, 17,094,010 and 2,104,540 common shares were issued respectively with the closure of the first and second tranches of the non-brokered private placements closed in December 2019.

In December 2019, 873,023 common shares were issued to debentures with an issue-date value of C\$157,000 in satisfaction of the December 31, 2019 interest payment in lieu of cash.

In December 2019, 633,827 common shares were issued upon the exercise of options and 169,408 common shares upon the exercise of financing warrants.

Subsequently in January 2020, 161,290 common shares were issued upon the conversion of C\$100,000 of the 8.25% convertible debentures to common stock.

OUTSTANDING SHARE DATA

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

- A total of 61,016,841 common shares.
- Warrants to purchase 37,233,141 common shares.
- Share options to purchase 2,510,750 common shares.

The maximum number of shares potentially issuable together with the issued shares is therefore 100,760,732.