

**MICROMEM TECHNOLOGIES INC.
2020 DIRECTORS, OFFICERS AND EMPLOYEES
STOCK OPTION PLAN**

1. PURPOSE OF THE PLAN

1.1 The purpose of the Plan is to attract, retain and motivate persons with the required training, experience and leadership as directors, officers, employees and key service providers of the Corporation and its Subsidiaries and to advance the interests of the Corporation by providing such persons with the opportunity, through share options, to acquire an increased proprietary interest in the Corporation. This Plan shall serve to amend and restate the Corporation's 2014 Stock Option Plan which was approved by shareholders on January 30, 2015.

2. DEFINED TERMS

Where used herein, the following terms shall have the following meanings, respectively:

2.1 "**Board**" shall mean the board of directors of the Corporation;

2.2 "**Corporation**" means Micromem Technologies Inc.;

2.3 "**Eligible Person**" means:

(i) any director, officer or employee of the Corporation or any Subsidiary, or any other Service Provider (an "**Eligible Individual**"); or

(ii) a corporation of which an Eligible Individual is an employee or shareholder (an "**Employee Corporation**");

2.4 "**Insider**" means any insider, as such term is defined in Subsection 1(1) of the *Securities Act* (Ontario), of the Corporation;

2.5 "**Market Price**" at any date in respect of the Shares means the closing sale price of the Shares on the Canadian Securities Exchange (or other stock exchange on which the Shares are listed and posted for trading from time to time as may be selected for such purpose by the Board) on the trading day immediately preceding such date. In the event that the Shares did not trade on such trading day, the Market Price shall be the average of the bid and ask prices in respect of the Shares at the close of trading on such trading day. In the event that the Shares are not listed and posted for trading on any stock exchange or quotation system, the Market Price shall be the fair market value of the Shares as determined by the Board in its sole discretion;

2.6 "**Option**" means an option to purchase Shares granted to an Eligible Person under the Plan;

2.7 "**Option Price**" means the price per Share at which Shares may be purchased under an Option, as the same may be adjusted from time to time in accordance with Article 8 hereof;

2.8 "**Optioned Shares**" means the Shares issuable pursuant to an exercise of Options;

2.9 "**Optionee**" means an Eligible Person to whom an Option has been granted and who continues to hold such Option;

2.10 "**Plan**" means this Micromem Technologies Inc. Stock Option Plan, as the same may be further amended or varied from time to time;

2.11 "**Service Provider**" means:

- (i) an employee or Insider of the Corporation or any Subsidiary; or
 - (ii) any other person or company engaged to provide ongoing management or consulting services for the Corporation or for any entity controlled by the Corporation;
- 2.12 "Shares" means the common shares of the Corporation or, in the event of an adjustment contemplated by Article 8 hereof, such other shares or securities to which an Optionee may be entitled upon the exercise of an Option as a result of such adjustment; and
- 2.13 "Subsidiary" means any corporation which is a subsidiary, as such term is defined in Subsection 1(2) of the *Business Corporations Act* (Ontario), of the Corporation.

3. ADMINISTRATION OF THE PLAN

- 3.1 The Plan shall be administered by the Board.
- 3.2 The Board shall have the power, where consistent with the general purpose and intent of the Plan and subject to the specific provisions of the Plan:
- (a) to establish policies and to adopt rules and regulations for carrying out the purposes, provisions and administration of the Plan;
 - (b) to interpret and construe the Plan and to determine all questions arising out of the Plan or any Option, and any such interpretation, construction or determination made by the Board shall be final, binding and conclusive for all purposes;
 - (c) to determine the number of Shares covered by each Option;
 - (d) to determine the Option Price of each Option;
 - (e) to determine the time or times when Options will be granted and exercisable;
 - (f) to determine if the Shares which are issuable on the exercise of an Option will be subject to any restrictions upon the exercise of such Option; and
 - (g) to prescribe the form of the instruments relating to the grant, exercise and other terms of the Options.
- 3.3 The Board may, in its discretion, require as conditions to the grant or exercise of any Option that the Optionee shall have:
- (a) represented, warranted and agreed in form and substance satisfactory to the Corporation that he or she is acquiring and will acquire such Option and the Shares to be issued upon the exercise thereof or, as the case may be, is acquiring such Shares, for his or her own account, for investment and not with a view to or in connection with any distribution, that he or she has had access to such information as is necessary to enable him or her to evaluate the merits and risks of such investment and that he or she is able to bear the economic risk of holding such Shares for an indefinite period;
 - (b) agreed to restrictions on transfer in form and substance satisfactory to the Corporation and to an endorsement on any option agreement or certificate representing the Shares making appropriate reference to such restrictions (including any notation required by any securities regulatory authority, stock exchange or trading facility having jurisdiction); and
 - (c) agreed to indemnify the Corporation in connection with the foregoing.

3.4 Any Option granted under the Plan shall be subject to the requirement that, if at any time counsel to the Corporation shall determine that the listing, registration or qualification of the Shares subject to such Option upon any securities exchange or under any law or regulation of any jurisdiction, or the consent or approval of any securities exchange or any governmental or regulatory body, is necessary as a condition of, or in connection with, the grant or exercise of such Option or the issuance or purchase of Shares thereunder, such Option may not be accepted or exercised in whole or in part unless such listing, registration, qualification, consent or approval shall have been effected or obtained on conditions acceptable to the Board. Nothing herein shall be deemed to require the Corporation to apply for or to obtain such listing, registration, qualification, consent or approval.

3.5 This Plan shall be read and interpreted consistently with all applicable laws, rules, regulations and policies of any securities regulatory authority, stock exchange or trading facility having jurisdiction and, to the extent of any inconsistency between the terms of this Plan and the provisions of such laws, rules, regulations and policies, the provisions of such laws, rules, regulations and policies shall prevail.

4. SHARES SUBJECT TO THE PLAN

Options may be granted in respect of authorized and unissued Shares, provided that the aggregate number of Shares reserved for issuance upon the exercise of all Options granted under the Plan, subject to any adjustment of such number pursuant to the provisions of Article 8 hereof, shall not exceed 27,500,000 or such greater number of Shares as may be determined by the Board and approved, if required, by the shareholders of the Corporation and by any relevant stock exchange or other regulatory authority (including shares issuable pursuant to options previously granted and that are outstanding under the 2014 Stock Option Plan). Optioned Shares in respect of which Options are not exercised shall be available for subsequent Options. No fractional Shares may be purchased or issued under the Plan.

5. ELIGIBILITY; GRANT; TERMS OF OPTIONS

5.1 Options may be granted to any Eligible Person in accordance with this Article 5; provided, however, that:

5.1.1. the maximum number of securities, calculated on a fully-diluted basis, reserved for issuance under the Plan to any one Eligible Person shall not exceed 5% of the Corporation's outstanding securities;

5.1.2. the maximum number of securities, calculated on a fully-diluted basis, that are issued within 12 months to Eligible Persons shall not exceed 10% of the Corporation's outstanding securities; and

5.1.3. the maximum number of securities, calculated on a fully-diluted basis, that are issued within 12 months to any one Eligible Person and such Eligible Person's associates (as that term is defined in National Instrument 45-106) shall not exceed 5% of the Corporation's outstanding securities.

5.2 Options may be granted by the Corporation to the extent that they have been approved by the Board.

5.3 Subject as herein and otherwise specifically provided in this Article 5, the number of Shares subject to each Option, the Option Price of each Option, the expiration date of each Option, the extent to which each Option is exercisable from time to time during the term of the Option and other terms and conditions relating to each such Option shall be determined by the Board or a director or officer of the Corporation designated by the Board to make such determination.

5.4 Each Option granted under this Plan shall be exercisable for a maximum period of ten (10) years from the date the Option is granted to the Optionee. Subject to this section 5.4, the Board shall, at the time of granting an Option, determine the time or times when an Option or a part of an Option shall be exercisable.

5.5 Subject to any adjustments pursuant to the provisions of Article 8 hereof, the Option Price of any Option shall in no circumstances be lower than the Market Price on the date on which the grant of the Option is approved by the Board unless otherwise permitted under applicable laws, rules and regulations and the rules of any stock exchange or trading facility through which the Shares may be traded from time to time. If, as and when any Shares have been duly purchased and paid for under the terms of an Option, such Shares shall be conclusively deemed allotted and issued as fully paid non-assessable Shares at the price

paid therefore.

- 5.6 An Option is personal to the Optionee and non-assignable (whether by operation of law or otherwise), except as provided for herein. Upon any attempt to transfer, assign, pledge, hypothecate or otherwise dispose of an Option contrary to the provisions of the Plan, or upon the levy of any attachment or similar process upon an Option, the Option shall, at the election of the Corporation, cease and terminate and be of no further force or effect whatsoever.

6. TERMINATION OF EMPLOYMENT, DEATH

- 6.1 Subject to Sections 6.2 and 6.3 hereof and to any express resolution passed by the Board with respect to an Option, an Option and all rights to purchase Shares pursuant thereto shall expire and terminate immediately upon the Optionee who holds such Option ceasing to be an Eligible Person.

- 6.2 If, before the expiry of an Option in accordance with the terms thereof, an Optionee shall cease to be an Eligible Person (an "Event of Termination") for any reason other than the termination for "cause" of his or her employment with the Corporation or any Subsidiary then the Optionee may:

- (a) exercise the Option to the extent that he or she was entitled to do so at the time of such Event of Termination, at any time up to and including, but not after, the forty-fifth (45th) day after the date of such Event of Termination, or prior to the close of business on the expiration date of the Option, whichever is earlier; and
- (b) with the prior written consent of the Board, which consent may be withheld arbitrarily in the Corporation's sole discretion, exercise any part of the Option which was not exercisable at the time of the occurrence of the Event of Termination at any time up to and including, but not after, the ninetieth (90th) day after the date of such Event of Termination, or prior to the close of business on the expiration date of the Option, whichever is earlier, to purchase all or any of the Optioned Shares as the Board may designate but not exceeding the number of Optioned Shares the Optionee would have otherwise been entitled to purchase pursuant to the Option had the Optionee's status as an Eligible Person been maintained for the term of the Option.

- 6.3 If an Optionee dies before the expiry of an Option in accordance with the terms thereof, the Optionee's legal representative(s) may, subject to the terms of the Option and the Plan:

- (a) exercise the Option to the extent that the Optionee was entitled to do so at the date of his or her death at any time up to and including, but not after, the date which is one year after the date of death of the Optionee, or prior to the close of business on the expiration date of the Option, whichever is earlier; and
- (b) with the prior written consent of the Board, exercise at any time up to and including, but not after, the date which is one year after the date of death of the Optionee, or prior to the close of business on the expiration date of the Option, whichever is earlier, any part of the Option which was not exercisable at the time of the Optionee's death to purchase all or any of the Optioned Shares as the Board may designate but not exceeding the number of Optioned Shares the Optionee would have otherwise been entitled to purchase had the Optionee survived.

- 6.4 For greater certainty, Options shall not be affected by any change of employment of the Optionee or by the Optionee ceasing to be a director of the Corporation provided that the Optionee continues to be an Eligible Person.

- 6.5 For the purposes of this Article 6, a determination by the Corporation that an Optionee was discharged for "cause" shall be binding on the Optionee; provided, however, that such determination shall not be conclusive of the Optionee's potential entitlement to damages for the loss of the right to exercise an Option in the event that a court of competent jurisdiction ultimately determines that the discharge was without "cause".

- 6.6 If the Optionee is an Employee Corporation, the references to the Optionee in this Article 6 shall be deemed to refer to the Eligible Individual associated with the Employee Corporation.
- 6.7 If an Optionee has been terminated "for cause" or does not exercise his or her options in accordance with the provisions of sections 6.2 or 6.3 as the case may be, the number of options not exercised shall be added to the number of options remaining available to be granted under the Plan.

7. EXERCISE OF OPTIONS

- 7.1 Subject to the provisions of the Plan, an Option may be exercised from time to time by delivery to the Corporation at its registered office of a written notice of exercise addressed to the Secretary of the Corporation specifying the number of Shares with respect to which the Option is being exercised and accompanied by payment in full, by cash or certified cheque, of the Option Price of the Shares then being purchased, plus applicable taxes, if any. Certificates for such Shares shall be issued and delivered to the Optionee within a reasonable time following the receipt of such notice and payment.
- 7.2 Notwithstanding any of the provisions contained in the Plan or in any Option, the Corporation's obligation to issue Shares to an Optionee pursuant to the exercise of any Option shall be subject to:
- (a) completion of such registration or other qualification of such Shares or obtaining approval of such governmental or regulatory authority as the Corporation shall determine to be necessary or advisable in connection with the authorization, issuance or sale thereof;
 - (b) the admission of such Shares to listing on any stock exchange on which the Shares may then be listed;
 - (c) the receipt from the Optionee of such representations, warranties, agreements and undertakings, as the Corporation determines to be necessary or advisable in order to safeguard against the violation of the securities laws of any jurisdiction; and
 - (d) the satisfaction of any conditions on exercise prescribed pursuant to Section 3.4 hereof.
- 7.3 Options shall be evidenced by a share option agreement, instrument or certificate in such form not inconsistent with this plan as the Board may from time to time determine as provided for under Subsection 3.2 (g), provided that the substance of Article 5 be included therein.

8. CERTAIN ADJUSTMENTS

- 8.1 In the event of any subdivision or redivision of the Shares into a greater number of Shares at any time after the grant of an Option to any Optionee and prior to the expiration of the term of such Option, the Corporation shall deliver to such Optionee at the time of any subsequent exercise of his or her Option in accordance with the terms hereof, in lieu of the number of Shares to which he or she was theretofore entitled upon such exercise, but for the same aggregate consideration payable therefor, such number of Shares as such Optionee would have held as a result of such subdivision or redivision if, on the record date thereof, the Optionee had been the registered holder of the number of Shares to which he or she was theretofore entitled upon such exercise.
- 8.2 In the event of any consolidation of the Shares into a lesser number of Shares at any time after the grant of an Option to any Optionee and prior to the expiration of the term of such Option, the Corporation shall deliver to such Optionee at the time of any subsequent exercise of his or her Option in accordance with the terms hereof, in lieu of the number of Shares to which he or she was theretofore entitled upon such exercise, but for the same aggregate consideration payable therefor, such number of Shares as such Optionee would have held as a result of such consolidation if, on the record date thereof, the Optionee had been the registered holder of the number of Shares to which he or she was theretofore entitled upon such exercise.

- 8.3 If at any time after the grant of an Option to any Optionee and prior to the expiration of the term of such Option, the Shares shall be reclassified, reorganized or otherwise changed, otherwise than as specified in Sections 8.1 and 8.2 or, subject to the provisions of Subsection 9.2(a) hereof, the Corporation shall consolidate, merge or amalgamate with or into another corporation (the corporation resulting or continuing from such consolidation, merger or amalgamation being herein called the "Successor Corporation"), or the Corporation shall pay a stock dividend (other than any dividends in the ordinary course), the Optionee shall be entitled to receive upon the subsequent exercise of his or her Option in accordance with the terms hereof and shall accept in lieu of the number of Shares to which he or she was theretofore entitled upon such exercise but for the same aggregate consideration payable therefor, the aggregate number of shares of the appropriate class and/or other securities of the Corporation or the Successor Corporation (as the case may be) and/or other consideration from the Corporation or the Successor Corporation (as the case may be) that the Optionee would have been entitled to receive as a result of such reclassification, reorganization or other change or, subject to the provisions of Subsection 9.2(a) hereof, as a result of such consolidation, merger, amalgamation, or stock dividend, if on the record date of such reclassification, reorganization, other change or stock dividend, or the effective date of such consolidation, merger or amalgamation or dividend payment, as the case may be, he or she had been the registered holder of the number of Shares to which he or she was theretofore entitled upon such exercise.
- 8.4 In the event the Corporation should declare and pay a special cash dividend or other distribution out of the ordinary course, a special dividend in specie on the Shares, or a stock dividend other than in the ordinary course, the Option Price of all Options outstanding on the record date of such dividend or other distribution shall be reduced by an amount equal to the cash payment or other distribution or the fair market value of the dividend in specie or stock dividend or other distribution, as determined by the Board in its sole discretion. Any such reduction in the Option Price shall be subject to regulatory approval.

9. AMENDMENT OR DISCONTINUANCE OF THE PLAN

- 9.1 The Board may amend or discontinue the Plan at any time, provided, however, that no such amendment may materially and adversely affect any Option previously granted to an Optionee without the consent of the Optionee, except to the extent required by law. Any such amendment shall, if required, be subject to the prior approval of, or acceptance by, any stock exchange on which the Shares are listed and posted for trading. For greater certainty, the Board may, by resolution duly passed, amend this Plan to reduce the number of shares in respect of which options have not been granted at the date of such resolution and that are subject to this Plan, to meet the requirements of any stock exchange or regulatory authority.
- 9.2 Notwithstanding anything contained to the contrary in this Plan or in any resolution of the Board in implementation thereof:
- (a) in the event the Corporation proposes to amalgamate, merge or consolidate with any other corporation (other than a wholly-owned Subsidiary) or to liquidate, dissolve or wind-up, or in the event an offer to purchase or repurchase the Shares of the Corporation or any part thereof shall be made to all or substantially all holders of Shares of the Corporation, the Corporation shall have the right, upon written notice thereof to each Optionee holding Options under the Plan, to permit the exercise of all such Options within the 20 day period next following the date of such notice and to determine that upon the expiration of such 20 day period, all rights of the Optionees to such Options or to exercise same (to the extent not theretofore exercised) shall *ipso facto* terminate and cease to have further force or effect whatsoever;
 - (b) in the event of the sale by the Corporation of all or substantially all of the assets of the Corporation as an entirety or substantially as an entirety so that the Corporation shall cease to operate as an active business, any outstanding Option may be exercised as to all or any part of the Optioned Shares in respect of which the Optionee would have been entitled to exercise the Option in accordance with the provisions of the Plan at the date of completion of any such sale at any time up to and including, but not after the earlier of: (i) the close of business on that date which is thirty (30) days following the date of completion of such sale; and (ii) the close of business on the

expiration date of the Option; but the Optionee shall not be entitled to exercise the Option with respect to any other Optioned Shares;

- (c) subject to the rules of any relevant stock exchange or other regulatory authority, the Board may, by resolution, advance the date on which any Option may be exercised or extend the expiration date of any Option. The Board shall not, in the event of any such advancement or extension, be under any obligation to advance or extend the date on or by which Options may be exercised by any other Optionee; and
- (d) the Board may, by resolution, but subject to applicable regulatory requirements, decide that any of the provisions hereof concerning the effect of termination of the Optionee's employment shall not apply to any Optionee for any reason acceptable to the Board.

Notwithstanding the provisions of this Article 9, should changes be required to the Plan by any securities commission, stock exchange or other governmental or regulatory body of any jurisdiction to which the Plan or the Corporation now is or hereafter becomes subject, such changes shall be made to the Plan as are necessary to conform with such requirements and, if such changes are approved by the Board, the Plan as amended, shall be filed with the records of the Corporation and shall remain in full force and effect in its amended form as of and from the date of its adoption by the Board.

10. MISCELLANEOUS PROVISIONS

- 10.1 An Optionee shall not have any rights as a shareholder of the Corporation with respect to any of the Shares covered by such Option until the date of issuance of a certificate for Shares upon the exercise of such Option, in full or in part, and then only with respect to the Shares represented by such certificate or certificates. Without in any way limiting the generality of the foregoing, no adjustment shall be made for dividends or other rights for which the record date is prior to the date such share certificate is issued.
- 10.2 Nothing in the Plan or any Option shall confer upon an Optionee any right to continue or be re-elected as a director of the Corporation or any right to continue in the employ of the Corporation or any Subsidiary, or affect in any way the right of the Corporation or any Subsidiary to terminate his or her employment at any time; nor shall anything in the Plan or any Option be deemed or construed to constitute an agreement, or an expression of intent, on the part of the Corporation or any Subsidiary to extend the employment of any Optionee beyond the time which he or she would normally be retired pursuant to the provisions of any present or future retirement plan of the Corporation or any Subsidiary, or beyond the time at which he or she would otherwise be retired pursuant to the provisions of any contract of employment with the Corporation or any Subsidiary.
- 10.3 Notwithstanding Section 5.8 hereof, Options may be transferred or assigned between an Eligible Individual and the related Employee Corporation provided the assignor delivers notice to the Corporation prior to the assignment.
- 10.4 The Plan and all matters to which reference is made herein shall be governed by and interpreted in accordance with the laws of the Province of Ontario, the laws of Canada and the laws of the United States of America applicable therein.

11. SHAREHOLDER AND REGULATORY APPROVAL

- 11.1 The Plan shall be subject to ratification by the shareholders of the Corporation to be effected by a resolution passed at a meeting of the shareholders of the Corporation, and to acceptance by any other relevant regulatory authority. Any Options granted prior to such ratification and acceptance shall be conditional upon such ratification and acceptance being given and no such Options may be exercised unless and until such ratification and acceptance are given.

DATED this 8th day of September, 2020.