

Contract # 5018/185

North Dakota Department of Transportation
INVITATION TO BID

Bid Number: 192-46-18-050	Bid Opening Date & Time: August 8, 2:00PM CST
Items: De-Icer, Potassium Acetate	Buyer: Sean Lackner
Bid Mailing Address: 608 East Boulevard Ave	Telephone Number: (701) 328-2571
City, State, Zip: Bismarck, ND 58505	Email: selackner@nd.gov
Contract Period: August 15, 2018 TO August 31, 2019	Date Prepared: July 25, 2018

BID RESPONSE

Please submit your bid response on the attached forms in conformance with the instructions and specifications in the NDAC 04-12-01 – 04-12-16. One copy of your bid response must be returned to the North Dakota Department of Transportation (NDDOT) prior to the time and date specified for the bid opening. Bid responses received after the time and day specified for the bid opening will be rejected. Mark envelope with word "BID" and the opening time and date. **If your bid response is accepted by NDDOT, then your bid response will constitute a binding contract.**

CONTRACT

This contract is made and entered into by and between NDDOT for the state of North Dakota (hereinafter state) and

Vendor Name Two Rivers Terminal LLC	Vendor Address PO Box 2327 Pasco, WA 99302
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(hereinafter vendor). In consideration of and for the acceptance by the state of the offer made by the vendor pursuant to the bid response, the vendor agrees and promises to sell, furnish, and deliver to the state, at the time, places, and prices specified in the bid response, all goods, merchandise, supplies, commodities, equipment, or other items contained in the bid response and for which the vendor has been awarded this contract by the state. The vendor shall fully perform this contract in accordance with the terms and conditions contained in the bid response including all specifications, rules, or regulations mentioned therein, and shall comply with all applicable provisions of the NDAC 04-12-01 – 04-12-16 promulgated by the State Purchasing Division; such manual being made a part of this contract by reference. The Risk Management Appendix and Appendices A and E of the Title VI Assurances, attached, are hereby incorporated into and made a part of this agreement.

The following must be completed by the vendor; failure to do so may result in the rejection of the vendors bid proposal.

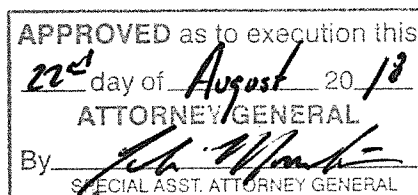
Vendor Name Two Rivers Terminal LLC		
Mailing Address PO Box 2327 Pasco, WA 99302		
Telephone Number 509-547-7776	Fax Number 509-546-9508	E-mail Address industrial@tworiversterminal.com

Steve Peot GENERAL MGR / OWNER
 Name & Title (Type or Print)
Steve Peot
 Signature
8/7/18
 Date

To be signed by Owner; Partner; Corp. Pres., Vice Pres., or other authorized Corp. Officer or bid may be rejected. (if signed by other authorized Corp. Officer, please attach copy of Power of Attorney or other documentation showing authority to sign.)

FOR ND DEPARTMENT OF TRANSPORTATION USE ONLY Accepted by the state according to provisions of award.

Authorized Signature <u>RONALD J. HENKE</u>	Date <u>8/23/18</u>
Recommended for approval <u>Brad</u>	Date <u>8-22-18</u>
Approximate contract amount \$	



CLA 7480 (Div. 50)

MAILING INSTRUCTIONS

Mail only one completed and signed request for bid document per envelope, unless instructed otherwise. Request for bid documents not signed or received after the date and time specified in the request for bid will be rejected.

BID IS: ☒ SEALED ☐ NOT SEALED

Address the envelope containing your response in the following manner:

BID NUMBER – 192-46-18-050
BID OPENING DATE/TIME – August 8, 2018; 2:00 PM CST
N. D. DEPT. OF TRANSPORTATION
PROCUREMENT SECTION
608 E BOULEVARD AVE
BISMARCK ND 58505-0700

BIDDERS INSTRUCTIONS

1. **Assistance to Bidders with a Disability.** Bidders with a disability and/or language assistance, contact Civil Rights Division, NDDOT, 701-328-2978 or civilrights@nd.gov or TTY 711, as soon as possible so that reasonable accommodations can be made. Additionally, the Request for Reasonable Accommodations form (SFN 60135) can be accessed at the following NDDOT website location: <http://www.dot.nd.gov/forms/sfn60135.pdf>.
 2. **Award.** Award will be made to a responsive, responsible bidder with the lowest price considering conformity with specifications, terms of delivery, quality, and serviceability. NDDOT reserves the right to consider bids varying in minor respects from any specific requirements herein, but judged to meet the intent of this request.
 3. **Awards, Splitting of.** The state reserves the right to make awards by item, groups of items, or on the total low bid for all the items specified as indicated in the detailed specifications. Bidders interested only in the total low bid for all items are to state 'all or nothing' on their bid response.
 4. **Bid Bond.** Waived in this instance: however, bidder(s) failing to enter into a contract with this office, upon notification of award, may be subject to removal from the bidder's list.
 5. **Bid Held Firm.** Bids are not awarded at the bid opening. Bid responses will be firm for 30 days, unless stated otherwise.
 6. **Bid Opening.** All sealed bids received by the NDDOT Procurement Office will be opened and read at 608 East Boulevard Avenue, Bismarck, North Dakota, at the time specified in the solicitation. Interested parties are invited to attend the bid opening.
 7. **Bid Summary.** Bid summaries are available when the bid has been awarded. When bids are issued using the State's electronic bidding system, the bid summary will be posted and available for download from:
<http://www.nd.gov/spo/>.
- Bid summaries will be mailed to those bidders who supply a self-addressed, stamped envelope with their bid response. A copy of the bid summary may also be obtained by visiting the NDDOT Procurement Office during normal working hours.
8. **Bidder Checklist.** HAVE YOU REMEMBERED TO:
 - Review all instructions, terms and conditions, and specifications to ensure your bid response complies?
 - Prepare your price in the specified unit of measure, F.O.B. Destination, Freight Prepaid to the delivery location listed on the cover sheet?
 - Indicate whether you can meet the delivery date indicated on the cover sheet?
 - Sign your bid response on the cover sheet?
 - Initial all changes and corrections?
 - Submit any required samples or enclosures, if applicable?
 - Mark the envelope as indicated above?
 - Review and complete all requirements contained in this solicitation to ensure compliance.

9. **Clarifications, Bid Changes and Questions Deadline.** The Procurement Officer is the point of contact. Any irregularities, lack of clarity, requested bid changes and all questions regarding this bid and the procurement process must be addressed to the Procurement Officer referenced on the first page of this document not later than end of business August 1, 2018. (Contact information is indicated on cover page). If a bid amendment is required, it will generally be issued after this date.

The bidder is cautioned that the requirement of this solicitation can be altered only by written amendments and that verbal communications from whatever source are of no effect.

10. **Corrections.** The bidder's authorized representative must initial any corrections and alterations (i.e. erasures, whiteouts, correction tape, etc.) made to the bid response. Those bid responses with corrections and alterations that are not initialed are subject to confirmation by the Procurement Officer.

11. **Definitions.**

- Bidder - any person or firm submitting a competitive bid in response to a solicitation.
- Bid summary - a summary of all bid responses received by the NDDOT Procurement Office.
- Bid response - the executed document submitted by a bidder in response to a solicitation.
- Contract - a deliberate written agreement between two or more competent persons to perform specific act or acts.
- Contractor - any person or firm having a contract with a governmental body.
- Solicitation - the process of notifying prospective bidders that the State wishes to receive bids for furnishing goods or services.

12. **Electronic & Facsimile Bids.** Bid responses are not to be email attached or faxed to the NDDOT unless this transmittal method has been authorized by the Procurement Officer or bid document. (Contact the Procurement officer regarding additional requirements and exceptions.) Bid responses electronically submitted or faxed may be rejected as non-responsive. Bids may be faxed to a third party who will put it in a properly-addressed envelope and deliver it to the NDDOT Procurement Office before the date and time specified in the solicitation.

13. **Freight/F.O.B. Destination.** Freight and transportation charges are to be included in the price of the products, unless otherwise specified in the solicitation. (F.O.B. - Free On Board).

14. **Indemnification.** Bidders must review the attached Risk Management Appendix for indemnification and insurance requirements. The indemnification and insurance provisions are incorporated and made part of this solicitation and the resultant final contract. Objections to any of the provisions of the indemnification and insurance requirements must be made in writing to the attention of the Procurement Officer by the time and date set for receipt of questions. No alteration of these provisions will be permitted without prior written approval from the Purchasing Agency or Entity in consultation with the North Dakota Risk Management Division. Upon receipt of the Notice of Award, the successful bidder must obtain the required insurance coverage and provide the Procurement Officer with proof of coverage prior to contract approval. The coverage must be satisfactory to the Purchasing Agency or Entity, in consultation with the North Dakota Risk Management Division. A bidder's failure to provide evidence of insurance coverage is a material breach and grounds for withdrawal of the award or termination of the contract.

15. **Late Bids.** It is the bidder's responsibility to ensure that a bid response is physically deposited with the NDDOT Procurement Office prior to the date and time specified for the opening. Late bid responses will not be opened and will be rejected and returned regardless of the degree of lateness or the reasons.

16. **Minor Informalities.** The State reserves the right to waive minor informalities in bid responses in accordance with N.D.A.C. 4-12-10. Minor informalities are insignificant omissions or nonjudgmental mistakes that are matters of form rather than substance, evident from the bid document, with a negligible effect on price, quantity, quality, delivery, or contractual conditions that can be waived or corrected without prejudice to other bidders.

17. **Multiple Bid(s).** Bidders may submit more than one bid response(s) for the item(s) specified in the solicitation. Each bid submitted must comply in all aspects with the bid requirements and these instructions.

18. **Negotiation.** NDDOT reserves the right to negotiate with the successful bidder to ensure the best possible consideration is afforded to all concerned.

19. **New Equipment and Materials.** Unless otherwise indicated in the detailed specifications of this solicitation, all equipment and materials shall be new and under current production for use in the United States.

20. **Open Records.** After the bid opening, bid documents will be subject to the North Dakota open records law. Records are closed or confidential only if specifically stated in law. If a request for public information is received, the procurement officer will determine whether the information is an exception to the North Dakota open records law, and the information will be processed appropriately. Those interested in reviewing the bid file are to make arrangements with the NDDOT Procurement Office. The NDDOT Procurement Office hours are 8:00 a.m. - 12:00 p.m. and 1:00 p.m. - 5:00 p.m. Monday through Friday.

21. **Packaging.** All shipments are to be packaged according to accepted commercial practices to avoid damage in shipment.

22. **Performance Bond.** Successful bidders will not be required to furnish a performance bond; however, failure to perform satisfactorily will result in the immediate termination of the contract(s) and bidders may be subject to removal from the bidder's list.

23. **Preparation of Bid.** Bids will be accepted on NDDOT forms only. If the document is located on the State Procurement Office website, then bidder is to download the document and type or write their responses as indicated by the bid document. Alteration of the bid document may be cause for bid rejection. Bidders are cautioned to examine specifications and all instructions. Failure to do so will be at the bidder's risk.

24. **Pricing.** Unit prices are to be stated in United States currency and based on the unit of measurement specified in the solicitation, F.O.B. Destination, to the NDDOT delivery locations specified herein.

In the event of mathematical differences between the unit price and extended total, the unit price will prevail.

25. **Protest of Award.** An interested party may protest the award within seven days after receiving notice in accordance with N.D.C.C. 54-44.4-12 and N.D.A.C. 4-12-14. Notice of award will be issued only to those bidders who submitted responses to this IFB. Seven calendar days after award or issuance of the Notice of Intent to Award; it will be assumed that all interested parties knew or should have known all the facts surrounding the award.

26. **Rejection.** Bid responses may be rejected if:

- The bid response is not legible.
- The bid response is not completed as requested.
- The bid response is faxed to the procurement office.
- The bid response is not responsive to the specifications or other requirements of the solicitation.
- The bid response is received after the time and date specified.
- The bidder has not met Vendor Registration requirements or is suspended or debarred.
- The bid document has been altered by the bidder.
- The bidder is determined to be not responsible (N.D.A.C. 4-12-11-04).

27. **Signature.** The bid must be signed manually in ink. The name and title of the person signing the bid response must be typed or printed above the signature. The bid must be signed by **Owner, Partner, Corp. Pres., Vice Pres., or other authorized Corp. Officer** or the bid may be rejected. If signed by other authorized Corp. Officer or representative, please attach a letter signed by the Owner, Partner, Corp. Pres., or Vice Pres. indicating the individual has authority to enter into a contract on behalf of the company (or a Power of Attorney).

28. **Specifications, Brand Name or Equivalent.** Unless otherwise indicated in the detailed specifications of this solicitation, the use of a specific brand name or make/model is for illustrative purposes only, and the State will consider equivalent products. If a commodity or service put forth by a bidder is rejected as not being equivalent, the Procurement Officer will notify the bidder of the rejection.

29. **Specifications, Compliance.** All bids submitted in response to this Invitation for Bid must comply with the specifications contained herein, and the successful bidder will be held responsible. Noncompliance with specifications is grounds for rejection of the bid response. Bidders who desire to submit commodities or services

that deviate from these specifications or have any objections to the specifications stated herein must be clearly pointed out PRIOR TO THE DEADLINE FOR RECEIPT OF QUESTIONS; otherwise, it will be considered that the items offered are in strict compliance with these specifications, and the bidder will be held responsible.

30. **Supplemental Terms and Conditions.** Bids including supplemental terms and conditions will be accepted, but supplemental conditions that conflict with any conditions contained in this ITB or that diminish the State's rights will be considered null and void. The State is not responsible for identifying conflicting supplemental terms and conditions before issuing a contract award.

After award of contract:

- a) If a conflict arises between a supplemental term or condition included in the bid and a term or condition of the ITB, the term or condition of the ITB will prevail, and,
- b) If the State's rights would be diminished as a result of application of a supplemental term or condition included in the bid, the supplemental term or condition will be considered null and void.

Changes, modifications, additions, or alterations to the bid document could be cause for rejection of the submitted bid at the sole discretion of the NDDOT. Contact the Procurement Officer in writing prior to the deadline for clarifications.

31. **Taxes.** The State does not pay sales tax or federal excise tax. The state sales tax exemption number is E-2001. The federal tax-free transaction number is 45-70-0010K. The Purchasing Agency will furnish a tax exempt certificate upon request.

32. **Vendor Registration.** Bids will be accepted from bidders who are not currently Approved Bidders for the State of North Dakota; however, the successful bidder may be required to become approved prior to award, in accordance with N.D.C.C. 54-44.4-09. To become an Approved Bidder, you must: 1) register with the North Dakota Secretary of State (fees apply), and 2) submit a completed Bidder List Application to the ND State Procurement Office. Registration instructions and forms are available on-line at: www.nd.gov/spo/vendor. Contact the ND State Procurement Office at 701-328-2683 or infospo@nd.gov for assistance.

Placement on the bidders list does not guarantee a bidder will receive notice of every formal solicitation. Bidders must maintain current information by submitting a Notice of Change form to the State Procurement Office (Fax 701-328-1615). Visit the website for forms: www.nd.gov/spo/vendor.

33. **Withdrawal or changes to a bid response prior to the bid opening date and time.** A bidder may withdraw or make a change to his bid response prior to the bid opening date and time. The request to make a change or withdraw must be in writing by a representative of the firm. The request to withdraw or change must be signed by the bidder or his designated representatives.

34. **Withdrawals after the bid opening date and time.** After the bid opening, no changes may be made to the bid response. The bidder may make a written request to withdraw the bid response, subject to approval by the NDDOT Procurement Office. Vendors continually withdrawing bids after the bid opening may be removed from the Vendor Database.

GENERAL CONTRACT TERMS AND CONDITIONS

1. **Affirmative Action.** The contractor will take affirmative action in complying with all Federal and State requirements concerning fair employment and employment of individuals with disabilities, and concerning the treatment of all employees without regard to discrimination by reason of race, color, religion, sex, national origin, or disability.

2. **Applicable Law and Venue.** Any dispute arising out of this agreement will be resolved under the laws of the State of North Dakota.

3. **Billing and Payment Procedures.** Purchase orders will be issued by NDDOT district offices to the awarded contractor.

Invoices are to be submitted as indicated on the purchase orders unless otherwise instructed. Failure to submit correct invoices to the appropriate NDDOT office may delay contractor payment.

Payment will normally be made within thirty days after delivery and acceptance of commodities or services under this contract and receipt of a correct invoice. All invoice and payment inquiries must be directed to the purchasing agency.

4. **Binding Contract.** The acceptance of a bid response in writing by the purchasing agency constitutes a contract between the bidder and the State. Written acceptance from the purchasing agency will be in the form of a purchase order, notification of award, or contract. Any oral agreement or arrangement by a bidder with a State employee or purchasing agency will have no force or effect unless reduced to writing.

5. **Compliance with Laws.** The contractor must, in performance of work under this contract, fully comply with all applicable federal, state or local laws, rules, regulations and policies, including those relating to nondiscrimination, affirmative action, accessibility and civil rights including Title VI of the Civil Rights Act of 1964. The contractor agrees to file all required reports on time, to make required payroll deductions, and to pay all taxes and premiums owed on time, including sales and use taxes and unemployment compensation and workers' compensation premiums. The contractor shall have and keep current at all times during the term of this contract all licenses and permits required by law.

6. **Contract Amendments, Waivers.** After a binding contract has been entered into, no changes (i.e. additions, substitutions, subcontracting or a price adjustment) may be made, unless prior approval has been obtained from the purchasing agency and Procurement Officer.

The terms of this contract shall not be waived, altered, modified, supplemented, or amended, in any manner whatsoever, except by written instrument signed by the parties. No waiver consent, modification or change of terms of this agreement shall bind either party unless in writing and signed by both parties. Such waiver, consent, modification, or change, if made shall be effective only in the specific instance and for the specific purpose given. There are no understandings, agreements, or representations, oral or written, not specified herein regarding this agreement.

7. **Contract Price Adjustment.** The Contract Unit Prices shall be firm for the twelve (12) months of the contract period. On an annual basis, all unit prices may be subject to price adjustment (increase / decrease). The request for a price adjustment shall be submitted to the Procurement Office at least forty five (45) days before the scheduled contract expiration date and must include justification for the proposed change. The Procurement Officer will respond as follows:

- 1) The request may be granted,
- 2) The contract may be cancelled and solicitation may be re-advertised, or
- 3) The contract may be continued without change.

If a price increase is approved by the NDDOT, the date the increase will be effective along with the new unit prices will be included in an amendment document. Approval of any price increase renews the twelve month firm price period.

The State shall also be advised of and receive the benefit of any price decrease. The same notification and review process will apply to a decrease in cost.

8. **Contract Term and Renewal Option.** The NDDOT will enter into a contract with an effective date **beginning August 16, 2018, and ending August 31, 2019**, inclusive. This contract may be renewed upon satisfactory completion of the initial contract term. The NDDOT reserves the right to execute up to two options to renew this contract for a period of twelve (12) months each, not to exceed thirty-six (36) months total. Renewals will be documented by amendment.

The NDDOT reserves the right to renegotiate price and terms provided that such negotiated price and terms fall within the original scope of work for this bid. Negotiations may be conducted annually or at such times that additional and unexpected services falling within the scope of the contract may occur. Such changes will be documented by amendment to the contract.

9. **Contract Termination.**

- a. **Termination without Cause.** This contract may be terminated by mutual consent of both parties, or by either party upon 30 days' written notice.
- b. **Termination for Lack of Funding or Authority.** The State may terminate this contract effective upon delivery of written notice to the contractor, or on any later date stated in the notice, under any of the following conditions:
 - i. If funding from federal, state, or other sources is not obtained and continued at levels sufficient to allow for purchase of the services or supplies in the indicated quantities or term. The contract may be modified by agreement of the parties in writing to accommodate a reduction in funds.
 - ii. If federal or state regulations or guidelines are modified, changed or interpreted in such a way that the services are no longer allowable or appropriate for purchase under this contract or are no longer eligible for the funding proposed for payments authorized by this contract.
 - iii. If any license or certificate required by law or regulation to be held by the contractor to provide the services required by the contract is for any reason denied, revoked or not renewed.Any such termination of this contract under (i), (ii), or (iii), above, shall be without prejudice to any obligations or liabilities of either party already accrued prior to such termination.
- c. **Termination for Cause.** The State by written notice to the contractor may terminate the whole or any part of this contract:
 - i. If the contractor fails to provide services required by this contract within the time specified herein or any extension thereof; or
 - ii. If the contractor fails to perform any of the other provisions of this contract, or so fails to pursue the work as to endanger performance of this contract in accordance with its terms and after receipt of written notice from the State, fails to correct such failures within ten days or such longer period as NDDOT may authorize.
 - iii. The rights and remedies of the State provided in the above clause related to defaults by the contractor are not exclusive and are in addition to any other rights and remedies provided by law or under this contract.
- d. **Termination, Deliveries.** If the contract is terminated for any reason, the contractor is responsible for delivery of all commodities and services ordered prior to the termination, unless those orders had been canceled by the Purchasing Agency or Entity.

10. **Inspection and Investigations.** The State reserves the right to conduct inspections and investigations related to the bidder and offered commodities or services, including but not limited to the firm, its facility, personnel, qualifications, and the commodities and/or services offered to make determinations regarding compliance with the bid requirements and responsibility of the bidder.

11. **Materials and Workmanship.** All material and workmanship shall be subject to inspection and testing at the discretion of the purchasing agency either at the point of manufacturer, place of storage, or upon receipt.

12. **Receiving.** Deliveries must arrive at the designated destination(s) during normal business hours unless other shipping/receiving instructions are issued by NDDOT personnel. The contractor shall contact the NDDOT to schedule delivery dates and times at least 24 hours in advance of delivery.

All NDDOT offices will be closed in recognition of State holidays. Any day declared a holiday by the President or Governor will also be recognized by office closure.

13. **Subcontracts, Assignment.** The contractor shall not subcontract, assign or transfer the contractor's interests or duties under this contract without express written consent of the purchasing agency. However, the contractor may enter into subcontracts provided that any such subcontractor acknowledges the binding nature of this contract and incorporates this contract, including any attachments. The contractor is solely responsible for the performance of any subcontractor. The contractor shall not have the authority to contract for or incur obligations on behalf of the State.

14. **Successors in Interest.** The provisions of this agreement shall be binding upon and shall inure to the benefit of the parties hereto, and their respective successors and assigns.

15. **Service Representative.** The contractor must provide a dedicated customer service representative to provide support for this contract. The contractor shall notify the Procurement Officer in the event the representative is changed.

NAME: J. Travis Owens, Sr.
(Name of person servicing this contract)

BUSINESS NAME: Two Rivers Terminal LLC

MAILING ADDRESS: PO Box 2327

CITY & STATE: Pasco, WA ZIP CODE: 99302

PHONE NUMBER: (509) 412-9000 TOLL FREE: _____

FAX NUMBER: (509) 546-9508 E-MAIL: traviso@tworiversterminal.com

Potassium Acetate De-Icer Specifications

Similar or equal to Cryotech CF7 or Alpine Ice-Melt.

Properties	NDDOT Spec
Solids (Potassium Acetate)	50%
Moisture	50%
Corrosion Inhibitor	< 1%
pH	9.5-11.5
Specific Gravity	1.28
Pounds per Gallon	10.65
Water Miscibility	Complete
Viscosity (20 C)	60.-6.5 cPs
Freezing Point	-75 F
BOD (5-day)	g/g 0.25
COD	g/g 0.35

Potassium Acetate is used by NDDOT almost extensively on bridge decks and in automated bridge deck sprayer systems. Product must be non-corrosive, non-toxic, and chloride free.

BID RESPONSE

Potassium acetate will be ordered by the tanker-load, approximately 9,000 gallons

ITEM NO.	QTY.	UNIT	DETAILED SPECIFICATIONS	UNIT PRICE	TOTAL PRICE
1	De-Icer, Potassium Acetate				
	9000	GALLONS	FOB: BISMARCK DISTRICT SHOP 218 S. Airport Rd. Bismarck, ND 58504-6003 Delivery days ARO: <u>3</u>	\$ 4.49	\$ 40,410.00
2	De-icer, Potassium Acetate				
	9000	GALLONS	FOB: FARGO DISTRICT Hillsboro Section Hillsboro, ND 58045 Delivery days ARO: <u>3</u>	\$ 4.43	\$ 39,870.00
3	De-icer, Potassium Acetate				
	Unknown	GALLONS	FOB: ANY NDDOT DISTRICT LOCATION LESS FREIGHT Freight will be determined at time of purchase. Delivery days ARO: <u>3</u>	\$ 3.95	\$ N/A

ANY ALTERATIONS OR CORRECTIONS MADE TO THE UNIT OR TOTAL PRICE MUST BE INITIALED BY THE BIDDER. FAILURE TO DO SO MAY BE CAUSE FOR BID REJECTION.

THE QUANTITIES TO BE PURCHASED AS INDICATED HEREIN ARE BEST ESTIMATES.

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
APPENDIX A OF THE TITLE VI ASSURANCES**

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the Contractor) agrees as follows:

1. Compliance with Regulations: The Contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, the Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. Non-discrimination: The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the Contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.
4. Information and Reports: The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the Recipient or the Federal Highway Administration as appropriate, and will set forth what efforts it has made to obtain the information.
5. Sanctions for Noncompliance: In the event of a contractor's noncompliance with the Nondiscrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
 - a. withholding payments to the Contractor under the contract until the Contractor complies; and/or
 - b. cancelling, terminating, or suspending a contract, in whole or in part.
6. Incorporation of Provisions: The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.



**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
APPENDIX E OF THE TITLE VI ASSURANCES**

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the Contractor) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

Pertinent Non-Discrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 *et seq.*).



SMI, Inc.

12219 SW 131 Avenue
Miami, Florida 33186-6401 USA

Phone: (305) 971-7047
Fax: (305) 971-7048

Attn: Trevor Idler
Two Rivers Terminal
3300C North Glade Rd
Pasco, WA 99301

Date: 26-Jan-2018

SMI/REF: 1710-270

Product: **POTASSIUM ACETATE (50% Potassium Acetate Runway Deicer)**
(received 06-Nov-2017)

Dilution: As received

Page 1 of 5

Periodic testing in accordance with
AMS 1435C
FLUID, GENERIC, DEICING/ANTI-ICING
Runways and Taxiways

4.2.2 Periodic Tests

3.2.4	Freezing Point	<u>Conforms</u>
3.2.5	Effect on Aircraft Metals	
3.2.5.1	Sandwich Corrosion	<u>Conforms</u>
3.2.5.2	Total Immersion Corrosion	<u>Conforms</u>
3.2.5.3	Low Embrittling Cadmium Plate	<u>Conforms</u>
3.2.5.3.1	Cyclic Immersion Corrosion of Cadmium Plate	<u>Informational</u>
3.2.5.4	Hydrogen Embrittlement	<u>Conforms</u>
3.2.5.5	Stress-Corrosion Resistance	
	AMS 4911	<u>Conforms</u>
	AMS 4916	<u>Informational</u>
3.2.6	Effect on Transparent Plastics	
	MIL-P-25690 (Type C)	<u>Conforms</u>
	MIL-P-83310 (Polycarbonate)	<u>Conforms</u>
3.2.7	Effect on Painted Surfaces	<u>Conforms</u>
3.2.8	Effect on Unpainted Surfaces	<u>Conforms</u>
3.2.9	Rinsibility	<u>Conforms</u>
3.2.10	Effect on Runway Pavements	
3.2.10.1	Runway Concrete Scaling Resistance	<u>Conforms</u>
3.2.10.2	Asphalt Concrete Degradation Resistance	<u>*Not performed by SMI</u>

***Testing required for deicer /anti-icer products used in Europe. This test is not performed by SMI.**

Respectfully submitted,



Patricia D. Viani, SMI Inc.

Client: Two Rivers Terminal Date: 26-Jan-2018
 Product: POTASSIUM ACETATE (50% Potassium Acetate Runway Deicer)
 Dilution: As received SMI/REF: 1710-270
 AMS 1435C Periodic Tests Page 2 of 5

4.2.2 Periodic Tests: Freezing point (3.2.4), effect on aircraft metals (3.2.5), effect on transparent plastic (3.2.6), effect on painted surfaces (3.2.7), effect on unpainted surfaces (3.2.8), rinsability (3.2.9), and runway concrete scaling resistance (3.2.10) are periodic tests and shall be performed at a frequency selected by the vendor unless frequency of testing is specified by purchaser, but in no case less than once every two years.

3.2.4 Freezing Point:

3.2.4.1 Freeze point of fluid diluted 1:1 by weight with ASTM D 1193 Type IV water shall be reported and shall be lower than -14.5°C (+6°F) determined in accordance with ASTM D 1177.

Freezing point (fluid diluted 1:1): -15 °C

Result Conforms

3.2.4.2 Shall be reported and shall be within 4°C (7°F) of the preproduction value established in 4.2.3, determined in accordance with ASTM D 1177.

Freezing point (fluid diluted 1:1): -15 °C

Result Informational

3.2.5 Effect on Aircraft Metals:

3.2.5.1 Sandwich Corrosion: Specimens, after testing in accordance with ASTM F 1110, shall not show corrosion worse than control panels run using ASTM D 1193, type IV, water.

	2024-T3 Bare Anodized	2024-T3 Alclad	7075-T6 Bare Anodized	7075-T6 Alclad
DEICER FLUID	1	1	1	1
CONTROL	1	1	1	1

Result Conforms

3.2.5.2 Total Immersion Corrosion: The fluid, tested in accordance with ASTM F 483 except that panels of AMS 4376 shall be tested for 24 hours, shall neither show evidence of corrosion of panels nor cause a weight change of any test panel greater than shown in Table 1:

TEST PANEL	WEIGHT CHANGE (mg/cm ² /24hrs)	
	ALLOWABLE	RESULTS
AMS 4037 Aluminum Alloy, anodized as in AMS 2470	0.3	0.02
AMS 4041 Aluminum Alloy	0.3	< 0.01
AMS 4049 Aluminum Alloy	0.3	< 0.01
AMS 4376 Mg Alloy, dichromate treated as in AMS 2475	0.2	+ 0.05
AMS 4911 or MAM 4911 Titanium Alloy	0.1	0.01
AMS 5045 Carbon Steel	0.8	< 0.01

"+" indicates weight gain

Result Conforms

Client: Two Rivers Terminal Date: 26-Jan-2018
 Product: POTASSIUM ACETATE (50% Potassium Acetate Runway Deicer)
 Dilution: As received SMI/REF: 1710-270
 AMS 1435C Periodic Tests Page 3 of 5

3.2.5.3 Low-Embrittling Cadmium Plate: Test panels, coated with low-embrittling cadmium plate, shall not show a weight change greater than 0.3 mg/cm²/24hrs, determined in accordance with ASTM F 1111.

As received: 0.08 mg/cm²/24hrs

Result Conforms

3.2.5.3.1 The fluid shall be tested for cyclic immersion corrosion of cadmium plate in accordance with AIR6130 and the results reported as specified in Section 4 of AIR6130A.

Initial pH of solution: 11.2 Final pH of solution: 11.5

PANEL WEIGHTS	REPLICATE #	Weight (g)		
		Initial	Final	Weight change
	1	12.6300	12.6113	0.0187
	2	12.6412	12.6214	0.0198
	3	12.7187	12.6866	0.0321
Average weight change = 0.0235				

AIR6130A: A runway deicing fluid or solid compound tested in accordance with this document that exhibits a weight loss of more than 0.3 mg/cm² may cause undesirable corrosion effects to airplane equipment and/or airport equipment.

Average weight change = 0.83 mg/cm²

Note: "+" indicates weight gain

Result: **Informational**

see separate report for complete data tables

3.2.5.4 Hydrogen Embrittlement: The fluid shall be nonembrittling, determined in accordance with ASTM F 519, Type 1a, 1c, or 2a.

Specimens: Type 1c, cadmium-plated per MIL-STD-870.

Parameters: 45% load, notch immersed in fluid for duration (150 hours)

As received: No failures occurred within 150 hours.

Result Conforms

Client: Two Rivers Terminal Date: 26-Jan-2018
Product: POTASSIUM ACETATE (50% Potassium Acetate Runway Deicer)
Dilution: As received SMI/REF: 1710-270
AMS 1435C Periodic Tests Page 4 of 5

3.2.5.5 Stress-Corrosion Resistance: The fluid shall not cause cracks in AMS 4911 or MAM 4911 titanium alloy specimens, determined in accordance with ASTM F 945, Method A. (3% salt control: cracking evident)

As received: No cracking evident.

Result Conforms

3.2.5.5.1 The fluid shall be tested in accordance with ASTM F 945, Method A using AMS 4916 specimens. Report shall detail the effect of the fluid and the effect of control solution. The results shall be reported for informational purposes only. (100 ppm salt control: cracking evident)

As received: Cracking evident.

Result Informational

3.2.6 Effect on Transparent Plastics:

3.2.6.1 The fluid, at $25^{\circ}\text{C} \pm 2$ ($77^{\circ}\text{F} \pm 4$), shall not craze, stain, or discolor MIL-P-25690 stretched acrylic plastic, determined in accordance with ASTM F 484.

MIL-P-25690: No craze, stain, or discolor

Result Conforms

3.2.6.2 The fluid, at $25^{\circ}\text{C} \pm 2$ ($77^{\circ}\text{F} \pm 4$), shall not craze, stain, or discolor MIL-P-83310 polycarbonate plastic, determined in accordance with ASTM F 484, except that the specimens shall be stressed for 30 minutes ± 2 to an outer fiber stress of 13.8 MPa (2000 psi).

MIL-P-83310: No craze, stain, or discolor

Result Conforms

3.2.7 Effect on Painted Surfaces: The fluid, at $25^{\circ}\text{C} \pm 2$ ($77^{\circ}\text{F} \pm 4$), shall neither decrease the paint film hardness by more than two pencil hardness levels nor shall it produce any streaking, discoloration, or blistering of the paint film, determined in accordance with ASTM F 502.

ASTM F502: No decrease in film hardness; no detrimental effect

Result Conforms

Client: Two Rivers Terminal Date: 26-Jan-2018
Product: POTASSIUM ACETATE (50% Potassium Acetate Runway Deicer)
Dilution: As received SMI/REF: 1710-270
AMS 1435C Periodic Tests Page 5 of 5

3.2.8 Effect on Unpainted Surfaces: The fluid, tested in accordance with ASTM F 485, shall neither produce streaking nor leave any stains requiring polishing to remove.

AMS 4049: No streaking or stains

AMS 4911: No streaking or stains

Result Conforms

3.2.9 Rinsibility: The fluid shall be completely rinsible in tap water, determined in accordance with 3.2.9.1

3.2.9.1 A 75 x 200 mm panel of clear glass shall be cleaned to provide a surface free of waterbreak, dried, and coated with the deicer/anti-icer fluid by pouring the fluid over the panel while it is held in a horizontal position. The coated panel shall be inclined at an angle of approximately 45 degrees for 10 minutes ± 0.5 , then placed in a horizontal position for 24 hours ± 0.25 at room temperature. After the 24 exposure, the panel shall be rinsed in tap water for 5 to 6 minutes, followed by a rinse with ASTM D 1193, Type IV, water, allowed to air dry at ambient temperature, and examined for visible traces of deicer/anti-icer fluid.

Fluid was completely rinsible.

Result Conforms

3.2.10 Effect on Runway Pavements

3.2.10.1 Runway Concrete Scaling Resistance: The condition of the runway concrete surface shall have a rating not greater than 1 for 50 freeze-thaw cycles, determined in accordance with ASTM C 672 except that concrete shall:

- ☐ Be air-entrained with an air content as specified in ASTM C 672
- ☐ Have a minimum cement content of 510 pound per cubic yard ± 10 (302 kg/m³ ± 6)
- ☐ Have a slump, 1.5 inches ± 0.5 (38 mm ± 13)

A 25 % by volume solution of the deicer/anti-icer fluid, as supplied by the manufacturer in commercial concentration, in tap water shall be substituted for calcium chloride. Performing more than one freeze-thaw cycle per day is acceptable.

Rating after 50 cycles: 1

Result Conforms

2.10.2 Asphalt Concrete Degradation Resistance (Appendix A, valid for deicer/anti-icer products used in Europe)

Result *Not performed by SMI

***Testing required for deicer /anti-icer products used in Europe. This test is not performed by SMI.**

SMI, Inc.

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Attn: Trevor Idler
Two Rivers Terminal
3300C North Glade Rd
Pasco, WA 99301

Date: 26-Jan-2018

SMI/REF: 1710-270

Product: **POTASSIUM ACETATE (50% Potassium Acetate Runway Deicer)**
(received 06-Nov-2017)

Dilution: As received

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Testing in accordance with
SAE AIR6130A
CADMIUM PLATE CYCLIC CORROSION TEST (2017-05)

Cadmium Plate Cyclic Corrosion Test

Initial pH of solution: 11.2 Final pH of solution: 11.5

Replicate	Initial (g)	Final (g)	Weight change (grams)
1	12.6300	12.6113	0.0187
2	12.6412	12.6214	0.0198
3	12.7187	12.6866	0.0321
Average weight change = 0.0235 g (0.83 mg/cm ²) Note: "+" indicates weight gain			

AIR6130A states: A runway deicing fluid or solid compound tested in accordance with this document that exhibits a weight loss of more than 0.3 mg/cm² may cause undesirable corrosion effects to airplane equipment and/or airport equipment.

See separate report for complete data tables

Result Informational

Client: Two Rivers Terminal Date: 26-Jan-2018
Product: POTASSIUM ACETATE (50% Potassium Acetate Runway Deicer)
Dilution: As received SMI/REF: 1710-270
SAE AIR6130A, Cadmium Plate Cyclic Corrosion Test Page 2 of 5

Cadmium Plate Cyclic Corrosion Test

AMS 1431 Compound, Solid Runway and Taxiway Deicing/Anti-Icing

AMS 1435 Fluid, Generic, Deicing/Anti-Icing Runways and Taxiways

3 Test Specimen Preparation

Substrate: 4130 Steel

Size: 1" x 2" x 0.04" x 0.048" (25.40 mm x 50.80 mm x 1.22 mm)

Finish: Cadmium plating in accordance with AMS QQ-P-416., Type I Class I, (0.0005"- 0.0008" inch plating per side).

There shall be no supplementary chromate treatment.

- a. Three cadmium plated test specimens shall be used for each fluid to be tested
- b. Sample of AMS1435 Runway Deicing Fluid shall be tested as received from the supplier.
- c. Sample of AMS1431 Runway Deicing Solid Compound shall be tested in a diluted form – diluted with ASTM D 1193, Type IV, water to 15% by weight solids.
- d. Procure soft flexible brushes for test (paintbrush type, 1.5 inches (3.8 cm) wide, with synthetic bristles approx 1.5 inches (3.8 cm) long

4 Environmental Exposure Preparation

Preset humidity chamber to $90 \pm 5^{\circ}\text{F}$ and $30 \pm 5\%$ humidity. Affix plastic ties or other inert material as hangers (hangers shall be made from an inert material that will not react with the sample; plastic, plastic coated metals, monofilament fishing line or stainless steels are acceptable) in the chamber to hold specimens during the environmental exposure period.

5 Test Procedure

- a. Measure and record pH of solution(s) to be tested (record to one decimal place).
- b. Solvent clean cadmium plated specimens with acetone; wipe gently with an acetone-soaked wiper. Without allowing the acetone to evaporate, gently remove excess acetone with a dry wiper. Allow samples to dry for 10 minutes in a desiccator. Do not accelerate drying of samples with oven drying.

Note: Care should be taken not to touch the cleaned specimens with bare hands; use tweezers, clean gloves or equivalent tool.

- c. Weigh and record initial specimen weight in grams. Record all weights throughout the test to the nearest 0.0001 gram. Return specimens to desiccator until Day 3.

Monday	Tuesday	Wednesday	Thursday	Friday
				Friday Start – Day 0
Day 3	Day 4	Day 5	Day 6	Day 7
Day 10	Day 11	Day 12	Day 13	Day 14

Client: Two Rivers Terminal Date: 26-Jan-2018
Product: POTASSIUM ACETATE (50% Potassium Acetate Runway Deicer)
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SAE AIR6130A, Cadmium Plate Cyclic Corrosion Test Page 3 of 5

- d. FRIDAY START - Fill glass containers with solution to be tested, one container for each coupon. Refer to 3b or 3c for solution being used (consider filling one extra container to have extra conditioned fluid available). Container shall be large enough so the solution completely covers the specimens. Cover the container with loose fitting cover and place filled container into the humidity chamber to environmentally condition the solution for a minimum of 24 ± 1 hours before the start of test, up to 72 ± 1 hours.
- e. Day 3 - Remove the solution container from the humidity chamber and the specimens from the desiccator. Place specimens in container oriented such that the specimens are not resting flush against the bottom or side of the container. Place the container with cover back into the humidity chamber for 24 ± 1 hours.
- f. Day 4 - After the 24 hour immersion in the solution, remove the specimens, but do not rinse them. Place them into the humidity chamber by hanging for 22.5 ± 0.5 hours. Hangers shall be made from an inert material that will not react with the sample (such as plastic, plastic coated metals and stainless steels are acceptable).
- g. Day 5 /Day 10 /Day 12 - Remove the specimens from the humidity chamber. Rinse the specimens with deionized water. Lightly brush (12 strokes per side) the specimen surface with the soft flexible brush while rinsing to remove loose corrosion products. Immerse samples into acetone for 10 seconds while agitating specimen. Allow samples to dry for 10 minutes in a desiccator. Weigh and record the specimen weights. Do not accelerate drying of samples with oven drying.

Note: If multiple solutions are being tested, use different brushes for each solution to avoid cross contamination.

Immediately after weighing the specimens, return them to their test solution container to soak for 90 ± 5 minutes in the humidity chamber. Specimens shall be oriented such that they not resting flush against the bottom or side of the container. After 90 minutes, remove the specimens but do not rinse them. Place them in the humidity chamber by hanging for 22.5 ± 0.5 hours, maintaining the specimen in the initial orientation throughout the cycle.

- h. Day 6 /Day 11 /Day 13 - Return the specimen to the test solution container to soak for 90 ± 5 minutes in the humidity chamber. Specimens shall be oriented such that it is not resting flush against the bottom or side of the container. After 90 minutes, remove the specimen but do not rinse it. Replace it in the humidity chamber by hanging for 22.5 ± 0.5 hours, maintaining the specimen in the initial orientation throughout the cycle.
- i. Day 7 - Remove specimens from the humidity chamber. Rinse the specimens with deionized water. Lightly brush (12 strokes per side) the specimens surface with a soft flexible brush while rinsing to remove loose corrosion products. Immerse samples into acetone for 10 seconds while agitating specimen. Allow samples to dry for 10 minutes in a desiccator. Weigh and record the specimen weights. Do not accelerate drying of samples with oven drying.

Note: If multiple solutions are being tested, use different brushes for each solution to avoid cross contamination.

Immediately after weighing the specimens, return them to their test solution container in the humidity chamber. Specimens shall be oriented such that they are not resting flush against the bottom or side of the container. Specimens shall be left in the test solution container in the humidity chamber from DAY 7 to DAY 10.

Client: Two Rivers Terminal Date: 26-Jan-2018
 Product: POTASSIUM ACETATE (50% Potassium Acetate Runway Deicer)
 Dilution: As received SMI/REF: 1710-270
 SAE AIR6130A, Cadmium Plate Cyclic Corrosion Test Page 4 of 5

- j. Day 14 – Remove specimens from the humidity chamber. Rinse the specimens with deionized water. Lightly brush (12 strokes per side) the specimen surface with a soft flexible brush while rinsing to remove loose corrosion products. Immerse samples into acetone for 10 seconds while agitating specimen. Allow samples to dry for 10 minutes in a desiccator. Weigh and record the specimen weights. Do not accelerate drying of samples with oven drying.

Note: If multiple solutions are being tested, use different brushes for each solution to avoid cross contamination.

- k. Measure and record final pH of solution (record to one decimal place).
- l. Report the initial weight of the specimen, the weight after each periodic weighing, and the final weight. Calculate and report the value of the cumulative weight lost from each specimen after each periodic weighing procedure.

Test Data:

pH at start of test: 11.2
 pH at end of test: 11.5

INITIAL PANEL WEIGHTS	REPLICATE #	Weight (g)
	1	12.6300
	2	12.6412
	3	12.7187

WEEK #1 PANEL WEIGHTS	REPLICATE #	Weight (g)		
		Monday	Wednesday	Friday
	1	---	12.6286	12.6269
	2	---	12.6404	16.6388
	3	---	12.7229	12.7217

WEEK #2 PANEL WEIGHTS	REPLICATE #	Weight (g)		
		Monday	Wednesday	Friday
	1	12.6172	12.6174	12.6113
	2	12.6251	12.6293	12.6214
	3	12.6871	12.6943	12.6866

Client: Two Rivers Terminal Date: 26-Jan-2018
 Product: POTASSIUM ACETATE (50% Potassium Acetate Runway Deicer)
 Dilution: As received SMI/REF: 1710-270
 SAE AIR6130A, Cadmium Plate Cyclic Corrosion Test Page 5 of 5

TEST DATA (continued)

REPLICATE #1	INITIAL WEIGHT (grams)	WEEK 1 WED (grams)	WEEK 1 FRI (grams)	WEEK 2 MON (grams)	WEEK 2 WED (grams)	WEEK 2 FRI (grams)
	12.6300	12.6286	12.6269	12.6172	12.6174	12.6113
CUMULATIVE WEIGHT CHANGE ("+" indicates weight gain)	--	0.0014	0.0031	0.0128	0.0126	0.0187 (FINAL)

REPLICATE #2	INITIAL WEIGHT	WEEK 1 WED	WEEK 1 FRI	WEEK 2 MON	WEEK 2 WED	WEEK 2 FRI (FINAL WEIGHT)
	12.6412	12.6404	12.6388	12.6251	12.6293	12.6214
CUMULATIVE WEIGHT CHANGE ("+" indicates weight gain)	--	0.0008	0.0024	0.0161	0.0119	0.0198 (FINAL)

REPLICATE #3	INITIAL WEIGHT	WEEK 1 WED	WEEK 1 FRI	WEEK 2 MON	WEEK 2 WED	WEEK 2 FRI (FINAL WEIGHT)
	12.7187	12.7229	12.7217	12.6871	12.6943	12.6866
CUMULATIVE WEIGHT CHANGE ("+" indicates weight gain)	--	+ 0.0042	+ 0.0030	0.0316	0.0244	0.0321 (FINAL)

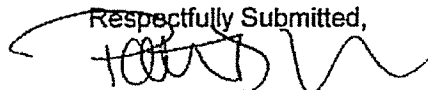
SUMMARY:

WEIGHT CHANGE	REPLICATE #	Weight Change (g)	Average Weight Change	Informational
	1	0.0187	0.83mg/cm ² (0.0235 g)	
	2	0.0198		
	3	0.0321		

Note: "+" indicates a weight gain.

AIR6130A: A runway deicing fluid or solid compound tested in accordance with this document that exhibits a weight loss of more than 0.3 mg/cm² may cause undesirable corrosion effects to airplane equipment and/or airport equipment.

Respectfully Submitted,



Patricia D. Viani, SMI Inc.



POTASSIUM ACETATE 50% RUNWAY DEICING FLUID

Meets FAA approved specification SAE AMS 1435C

Two Rivers Terminal LLC is the manufacturer and distributor of Potassium Acetate 50% Runway Deicing Fluid that has been lab-certified for use on runways, ramps, and helipads. Potassium Acetate 50% Runway Deicing Fluid is a fast-acting, environmentally friendly, non-glycol and non-urea, economical deicer for airside and landside applications.

TYPICAL PROPERTIES

Aqueous KAc by weight plus corrosion inhibitors	50%
pH	9.7-10.7
Specific Gravity (at 60°F)	1.272 to 1.302
Pounds Per Gallon (at 20°C/68°F).....	10.615-10.865
Appearance	Clear
Odor	Mild, Characteristic
Flashpoint	Nonflammable
Water Miscibility	Complete
Freezing Point	-77°F (-60°C)
BOD (5 day at 20°C / 68°F)	0.21 kg O ₂ /kg fluid
COD (5 day)	0.31 kg O ₂ /kg fluid

PRODUCT BENEFITS

- Environmentally Friendly
- Stable over long storage times
- Improved Corrosion Inhibition
- Improved traction versus glycol-based products
- Effectively applied at low temperatures

MANUFACTURED BY
TWO RIVERS TERMINAL LLC | PO BOX 2327 | PASCO WA 99302 |
www.tworiversterminal.com

HANDLING & STORAGE

- Potassium Acetate 50% Runway Deicing Fluid should not be stored or disbursed through systems that use brass, galvanized, or zinc components.
- Polyethylene or stainless steel containers are recommended and preferred.
- Carbon or Low-alloy steel may also be used as long as it is clean and does not contain rust, surface deposits, or residues.

APPLICATION RATES

Pre-treatment prior to any icing event is the most efficient use for Potassium Acetate.

- ❖ *Pre-wetting:* When pre-wetting a spreader flow rate of 1.25 gallons per 100 pounds of solid deicer (such as sodium formate) is recommended.
- ❖ *Runway Deicing:* As a runway anti-icer the rate of application is approximately 0.5 gallons per 1000 ft².
- ❖ *Landside Deicing:* Potassium acetate (KAc) can also be used as an effective deicer with a recommended application rate of 1.0 gallon per 1000 ft² for thin ice and 3.0 gallons per 1000 ft² for ice up to 1" thick.
- Re-apply to surfaces when new accumulation exhibits first indication of bonding.
- To avoid fluid dilution it is recommended to use mechanical plow and broom often.

PACKAGE SIZE

265-275 GALLON TOTE

BULK – 4000-6000 gallons delivered by tanker truck

RAIL – Can be arranged upon firm commitment and approval

AVAILABILITY

This product is non-hazardous. We can ship to anywhere in the US or Canada including Alaska. Distributor inquiries are welcome.

TO ORDER OR REQUEST PRODUCT INFORMATION CONTACT:

Ph: 1+ (509) 547-7776

Fx: 1+ (509) 546-9508

Email: industrial@tworiversterminal.com

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