

## **Phosphoric Acid (70% H<sub>3</sub>PO<sub>4</sub>)**

**NOTE: THIS SPECIFICATION AND ANY ACCOMPANYING SPECIFICATIONS OR BID CAN BE APPEALED.**

YOUR APPEAL MUST BE SUBMITTED IN WRITING TO THE CITY PURCHASING DIRECTOR FOR ALL BIDS NO LATER THAN FIVE (5) WORKING DAYS PRIOR TO BID OPENING.

YOUR APPEAL MUST NOT ONLY IDENTIFY THE PROVISION, TERM OR CONDITION THAT IS CAUSING PROBLEMS, BUT ALSO YOUR PROPOSED ALTERNATE POSITION, TERM OR CONDITION AND BE SUPPORTED BY TECHNICAL DATA, TEST RESULTS AND OTHER INFORMATION.

CONTACT THE APPROPRIATE PURCHASING AGENT OR THE PROCUREMENT SPECIALIST FOR APPEAL FILING INSTRUCTIONS.

APPEAL RECEIVED LATER THAN FIVE (5) WORKING DAYS PRIOR TO BID OPENING OR WITHOUT SUFFICIENT DETAILS **WILL NOT BE CONSIDERED.**

### **NOTICE**

**AN APPEAL FEE (CHECK OR MONEY ORDER) WHICH IS 1% OF THE ESTIMATED DOLLAR AMOUNT OF THIS CONTRACT IS REQUIRED WITH A BID SPECIFICATION APPEAL. THIS FEE IS A PREREQUISITE FOR PURSUING THE APPEAL AND MUST ACCOMPANY THE APPEAL. THE APPEAL FEE WILL BE RETURNED IF THE APPEAL IS UPHELD.**

**CAUTION: A BID THAT DOES NOT FULLY COMPLY WITH ALL OF THE PROVISIONS, TERMS, AND CONDITIONS OF THIS OR ANY ACCOMPANYING SPECIFICATION AND BID, MAY BE DETERMINED AS A COUNTEROFFER AND MAY RESULT IN THE BID BEING REJECTED FOR NON-RESPONSIVENESS.**

#### **I. TECHNICAL REQUIREMENTS:**

- A. **DESCRIPTION:** The chemical furnished to the Milwaukee Water Works (MWW) under this specification shall be 70 percent Phosphoric Acid suitable for addition to potable water for reducing lead and copper corrosion in the distribution system.
- B. **STANDARDS:**
  1. The Phosphoric Acid furnished under this specification shall conform to the American Water Association's (AWWA) Standard B507-16, or latest version, for Phosphoric Acid, except as modified or supplemented herein.
  2. The Phosphoric Acid supplied shall be tested and certified as meeting the specifications of the American National Standards Institute/National Sanitation Foundation Standard 60 (ANSI/NSF Standard 60) Drinking Water Treatment Chemical-Health Effects.  
**Documentation of ANSI/NSF certification shall be furnished with the bid.**
  3. The vendor shall have the capability to produce and distribute NSF Approved product from multiple locations to ensure uninterrupted supply in the event of a plant shutdown

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or other disruption in manufacturing or distribution. **Documentation of the supplier's multiple ANSI/NSF approved locations shall be furnished with the bid.**

- 4. If bidder is not the supplier, the bidder must provide the manufacturer/suppliers name and product number with the bid. All suppliers must meet the bid and specification requirements.**
- 5. The most current Safety Data Sheet (SDS) for 70% Phosphoric Acid must be furnished with the bid and be included with each shipment.**
6. The vendor understands that the product specified will be used in the treatment of potable water supplied to customers of the Milwaukee Water Works. As such, time is of the essence in the performance of this contract. Moreover, the failure on the part of the vendor to comply with this specification, including those portions of the specification relating to product quality, timing and execution of deliveries, and required manufacturer certifications, with respect to any one delivery, shall frustrate the purpose of this contract and will constitute sufficient grounds to terminate this contract in its entirety. This termination provision shall supersede any contrary provision located elsewhere in this contract.

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7. The Phosphoric Acid shall be food grade (FCC) and meet the following chemical and physical characteristics and Quality Verification Levels:

H <sub>3</sub> PO <sub>4</sub>	not less than	<u>70.0%</u>
Phosphate as (PO <sub>4</sub> )	not less than	<u>67.8%</u>

PROPERTIES	ACCEPTABLE VALUES
1. Arsenic	3.0 mg/L max
2. Antimony	1.5 mg/L max
3. Barium	450.0 mg/L max
4. Beryllium	1.0 mg/L max
5. Cadmium	3.0 mg/L max
6. Chromium	25.0 mg/L max
7. Copper	300.0 mg/L max
8. Cyanide	4.5 mg/L max
9. Fluoride, as F	10 mg/L max
10. Iron	5.0 mg/L max
11. Lead	3.5 mg/L max
12. Mercury	0.5 mg/L max
13. Nickel	25.0 mg/L max
14. Nitrate	5.0 mg/L max as (NO <sub>3</sub> )
15. Selenium	25.0 mg/L max
16. Zinc	450.0 mg/L max
17. Specific gravity @ 15.5°C	not less than <u>1.52</u>
18. Color	clear, colorless liquid
19. Odor	No objectionable odor
20. Clarity	clear
21. Turbidity, NTU	less than <u>1</u>
22. Insoluble Matter	< 0.15% by wt (Max.)
23. Hydrogen sulfide (H <sub>2</sub> S) ppm	less than <u>0.15</u>
24. Freezing point, °C	0
25. Viscosity, centistokes at 25°C	9.2

8. **The bidder must provide the analytical test results with the bid. The test results should be for the phosphoric acid being provided and meets the required properties as identified in Specification 10a-K-1**
9. Upon award of the contract, the vendor must provide to the Milwaukee Water Works on a quarterly basis the analytical test results certifying that the phosphoric acid being provided meets the required properties as identified in Specification 10a-K-1, item #7. If the supplier changes source of phosphoric acid during any quarter year increment, a new certified test results will be required.

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10. The chemical vendor shall comply with all Wisconsin Occupational Safety and Health Act requirements, where applicable and in effect at the time of delivery.
11. The chemical shall meet the approval for the treatment process for drinking/potable water by the Wisconsin Department of Natural Resources.

Will you comply with these requirements?

Yes  No

C. SHIPMENT:

1. Liquid Phosphoric Acid shall be shipped in bulk acid resistant lined tank trucks with tight closures to avoid contamination. Shipping shall conform to current U.S. Department of Transportation and intrastate regulations. The tanker truck shall be constructed, inspected, cleaned, maintained, and loaded in strict accordance with the latest American National Standards Institute K61.1- 81 requirements for the Storage and Handling of Phosphoric Acid. The contractor shall furnish certified weight tickets to the purchaser upon delivery. The Phosphoric Acid shall be packed and shipped to comply with current hazardous materials regulations of the Department of Transportation and Applicable Intrastate Requirements.
2. The Vendor must supply a verification of training letter to the MWW summarizing that all delivery drivers who deliver to the MWW facilities have completed the training requirements listed in U.S. Department of Transportation 49 CFR 172.704. **This document must be included with the bid and (updated) annually on the anniversary of the contract.**
3. The Vendor shall make deliveries of Phosphoric Acid between the hours of 7:00 a.m. and 2:30 p.m. Monday through Friday. If the Vendor, for any reason, cannot make the delivery during the stated hours, the Vendor shall notify the City and an alternate time may be arranged at the discretion of the City. Vendor shall make deliveries within 72 hours of request by City.
4. All cargo trailers, pumps, hoses and appurtenant valves used for the delivery of the Phosphoric Acid under this agreement shall be in good mechanical order, clean and free from contaminating material, and shall be in full compliance with the applicable regulations of the Department of Transportation. If off-loading equipment is not properly cleaned and in good working order this will constitute a reason for rejection of the load.
5. For all deliveries of Phosphoric Acid to MWW facilities, the tanker truck driver unloading the delivery must place a container (bucket) underneath each of the two chemical unloading connection locations (tanker connection and storage tank fill line) to collect

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any dripping Phosphoric Acid. The tanker delivery driver will be responsible for proper disposal of this Phosphoric Acid waste dripping. Dumping the waste drippings into any MWW bulk storage container is not allowed.

**6. Vendor shall supply a “Certificate of Washout” for each bulk shipment of water treatment chemical, unless the Vendor verifies in writing that all bulk shipments are supplied & transported in dedicated tankers that are used solely & exclusively to transport the specific chemical supplied. The “Certificate of Washout” for each bulk shipment contain at a minimum:**

- i. Date of wash
- ii. Tanker/trailer number
- iii. Material last transported
- iv. Type of wash
- v. Initials/sign off by Vendor Representative

**Will you comply with these requirements?**

**Yes**     **No**

### **D. SPILLAGE:**

1. The Vendor shall provide equipment and training of truck drivers to minimize the chance of spillage during connection and disconnection of hoses, and during the transfer of chemical.
2. In the event of leakage or spillage during unloading, it shall be the Vendor's responsibility to effect immediate containment, cleanup, disposal, and restoration activities in accordance with applicable laws and regulations and subject to the City's satisfaction. All material associated with cleanup operations such as spent absorbent, shall be removed by the Vendor.
3. The Vendor shall be notified promptly of any spillage during unloading, which, in the opinion of the City, is inadequately cleaned up by the Vendor's personnel. Any spillage during unloading inadequately cleaned up within four (4) hours of notification that requires immediate cleanup exceeding the abilities/equipment of the driver will be cleaned up by the City. The Vendor shall be responsible for reimbursing the City for the costs incurred, including fines or penalties, which may be imposed by regulating authorities.

**Will you comply with these requirements?**

**Yes**     **No**

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E. DELIVERY:

1. The Phosphoric Acid shall be delivered from bulk storage trucks to the two locations listed below:

Linnwood Water Purification Plant  
3000 North Lincoln Memorial Drive  
Milwaukee, WI 53211-3462

Howard Water Purification Plant  
3929 S. 6<sup>th</sup> Street  
Milwaukee, WI 53221

2. Each site is equipped with Phosphoric Acid storage vessels owned by the City of Milwaukee Water Works with the following specifications:

3. Tank Specifications	<u>Linnwood</u>	<u>Howard Ave.</u>
Number @ each site	1	1
Nominal capacity (gallons)	5,464	5,000

4. The Vendor will provide a billing of lading, certificate of analysis, and a certificate of washout at the time of delivery.
5. The supplier of Phosphoric Acid shall make the required delivery to the respective plant within **72 hours** of placement of the order.
6. At least 8 hours before the delivery, the chemical Vendor shall provide the necessary information to the water plant placing the order. (**See attached "Delivery Information" form**) Any incorrect information or failure to meet this requirement will delay or deny plant access.
7. The Driver delivering the product will have to present a valid photo identification to Milwaukee Water Works designated security agent at the time of delivery before access to the plant will be granted.
8. Those deliveries that do not meet these requirements will not be allowed onto the plant grounds and will be sufficient cause for rejection of the load.

Will you comply with these requirements?

Yes  No

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### F. ESTIMATED QUANTITIES:

1. The following quantities of Phosphoric Acid are estimated:

#### Estimated Average Annual Usage (as liquid H<sub>3</sub>PO<sub>4</sub>)

<u>Plant</u>	<u>Pounds</u>	<u>Gallons</u>
Linnwood Plant	460,000	36,000
Howard Plant	310,000	25,000

NOTE: Daily usage during maximum months (June through August) may be approximately 60% to 70% higher.

2. The estimated requirements for Phosphoric Acid, as listed above, will vary with the actual demands of the City.
3. The estimated requirements are given for informational purposes only and shall not be deemed to guarantee either a minimum amount or restrict the maximum amount to be furnished.
4. It is the intent of this agreement to require the vendor to furnish ALL the Milwaukee Water Work's Phosphoric Acid requirements.
5. The vendor shall provide a letter verifying that the product can be produced and shipped to the Milwaukee Water Works in the event of any regional power outages or other events that impact the electrical power grid (multiple producers, emergency power generation capabilities, etc.). **This document must be included with the bid.**
6. The vendor must pay the difference if unable to meet a delivery and Milwaukee Water Works has to buy the treatment chemical on the open market.

**Will you comply with these requirements?**

**Yes**     **No**

### G. CERTIFICATION BY MANUFACTURER:

1. It shall be the Vendor's responsibility to perform all tests and inspections required by this specification and to identify the source of the submitted chemical and physical compositions.
2. **The contractor shall submit to the City on a quarterly basis the manufacturer's certified test report showing the Phosphoric Acid meets each of the physical and chemical requirements in the specification.** The testing methods shall conform to applicable ASTM, Food Chemicals Codex and Water Chemicals Codex methods.

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- 3. A Certificate of Analysis shall be submitted for each Phosphoric Acid delivery to the City. The certificate can be delivered with the shipment or faxed before unloading begins. This report shall contain the following:**
- a. Production lot number
  - b. Equivalent H<sub>3</sub>PO<sub>4</sub>, % wt.
  - c. Specific Gravity
  - d. Date of analysis
  - e. Date of manufacture
4. No deliveries will be accepted by the City unless accompanied by said Certificate of Analysis for the specific batch or lot of chemical delivered and the quality specifications are met.
5. Charges for the Certificate of Analysis shall be included in the bid price.
6. Failure to supply the required Certificate of Analysis shall be sufficient cause for rejection of the load.

**Will you comply with these requirements?**

**Yes**       **No**

### **II. INSPECTION BY MILWAUKEE WATER WORKS:**

1. The Superintendent of Milwaukee Water Works or a duly authorized representative reserves the right to perform any of the tests and inspection requirements where such tests and inspections are needed to further determine compliance with this specification.
2. Samples: The City of Milwaukee reserves the right to sample and test each shipment of Phosphoric Acid upon delivery and to reject shipments which do not conform to these specifications. Phosphoric Acid not meeting the specifications will be returned to the supplier at supplier's expense.
3. Rejection: If the Product in any delivery fails to meet the requirements of this specification, the entire contents of the delivery will be rejected and the cause for rejection stated. If the Vendor desires a retest, the vendor shall notify the Superintendent of Milwaukee Water Works or a duly authorized representative within three (3) days. A portion of the sample taken by the City will then be forwarded for a retest at a laboratory agreed upon by both parties. The results of the retest shall be accepted as final. All expenses attached to the retest shall be borne by the Vendor. Product rejected shall be removed by the Vendor immediately when so ordered by the Superintendent of Milwaukee Water Works or a duly authorized representative, at the Vendors expense. Any product found not conforming to this specification will be rejected.



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4. Phosphoric Acid Quality Assurance - The Phosphoric Acid supplier shall have the ability to provide periodic Quality Assurance services. Specifically, the ability to analyze the Phosphoric Acid for stability, assay (% ingredient), metals and other parameters related to product integrity.

**Will you comply with these requirements?**

**Yes**       **No**

### III. SUPPLIER SERVICES

1. Emergency Response - The Phosphoric Acid supplier shall provide a list of emergency phone numbers and names of response personnel.
2. Safety Training - The Phosphoric Acid supplier shall provide on-site safety training to customer personnel, contractors, consultants, and other appropriate staff. This training will address chemical and physical properties of Phosphoric Acid, personal protective equipment and emergency response procedures. The vendor shall provide a minimum of four (4) sessions, each on different days, of two (2) hours per session of classroom instruction at the City's facility. Safety training will be done during initial startup of Phosphoric Acid use. Subsequent training can also be done at the customer's request. Additional Phosphoric Acid safety literature, INISIDS, etc. shall be provided to the customer's Safety Department for reference purposes.
3. The vendor shall provide written instructions regarding the recommended methods for cleaning up the chemical. Such instructions shall include any recommended absorbents or chemicals to be used for neutralization, if applicable, and recommended tests to be performed, such as pH, to ascertain the effectiveness of the neutralization. These instructions are for use by the City staff in cleaning up small spills associated with leaks in pumps, valves, and other appurtenances.

**Will you comply with these requirements?**

**Yes**       **No**

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**Signature**

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**Date**

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**DELIVERY INFORMATION FORM FOR MILWAUKEE WATER WORKS**

**LINNWOOD WATER PURIFICATION PLANT  
3000 N LINCOLN MEMORIAL DRIVE  
MILWAUKEE, WI. 53211  
(414) 286-2880  
Fax (414) 286-0824**

**HOWARD WATER PURIFICATION PLANT  
3929 S. 6<sup>TH</sup> STREET  
MILWAUKEE, WI 53221  
414-286-2890  
FAX (414) 286-8005**

**EMAIL (for delivery information):  
martin.moyer@milwaukee.gov  
john.bielinski@milwaukee.gov  
adrian.wencka@milwaukee.gov  
daniel.welk@milwaukee.gov**

**EMAIL (for delivery information):  
Same as Linnwood Plant**

PRODUCT (COMMODITY):

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DATE OF DELIVERY:

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DELIVERY COMPANY (CARRIER):

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DRIVER NAME:

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PASSENGER NAME (IF APPLICABLE):

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TRACTOR (TRUCK) NUMBER:

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TRAILER NUMBER:

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ESTIMATED TIME OF ARRIVAL  
(ETA):

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**NOTE:**

THE ABOVE INFORMATION SHOULD BE FAXED OR EMAILED TO THE PLANT AT THE NUMBER ABOVE AT LEAST 8 HOURS BEFORE ANTICIPATED DELIVERY TIME

ANY INCORRECT INFORMATION STATED ABOVE WILL DELAY OR DENY PLANT ACCESS.

**DRIVER (AND ANY PASSENGERS) MUST PROVIDE A VALID PHOTO ID TO THE SECURITY OFFICER BEFORE ALLOWED ENTRY**