

PROCUREMENT DEPARTMENT
Rm 120 Municipal Services Building
Philadelphia, PA 19102-1685
FAX: (215) 686-4716

CITY OF PHILADELPHIA

Hugh Ortman
Procurement Commissioner

July 18, 2012

BID NUMBER: S3TW2630
TITLE: SWIMMING POOL CHEMICALS FOR RECREATION
DEPARTMENT/FAIRMOUNT PARK COMMISSION
DEPARTMENT: RECREATION DEPARTMENT-PROGRAM DIVISION
DATE TO OPEN: August 03, 2012 at 10:30 AM

ADDENDUM # 1

TO ALL BIDDERS:

You are hereby notified of the following changes to the above mentioned bid:

DELETE : 1.2 Contract Term 01/01/2013 to 12/13/2013

REPLACE WITH: 1.2 Contract Term 01/01/2013 to 12/31/2013

Page 10, Paragraph 2.62

The following sentence is included:

Deliveries shall be made to the Fairmount Park Warehouse, located at Montgomery Ave & Martin Luther King Drive.

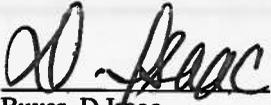
Page 11, Paragraph 2.7

Paragraph 2.7 Delivery: is hereby deleted in its entirety.

Specification Attachment:

Attached is City of Philadelphia Procurement Department specification #5-C-9L:07 previously omitted from subject Bid No. #S3TW2630

Please sign, date and return this addendum with your bid to the Procurement Department, 1401 J.F.K Boulevard, Bid Room 170A, Philadelphia, PA 19102-1685 as it now becomes a part of the proposal.


Buyer, D. Isaac

AUTHORIZED SIGNATURE

FIRM NAME (PRINT)

DATE

D./s.r

Attachments

CITY OF PHILADELPHIA

PROCUREMENT DEPARTMENT

SPECIFICITON # 5-C-9L:07



WATER TREATMENT CHEMICALS

1. CLASSIFICATION

This specification covers a series of chemicals to be used by the Water Department of the City of Philadelphia for the treating of the municipal water supply as follows:

1. Activated Carbon – Powdered
2. Aluminum Sulfate – Liquid
3. Ammonium Hydroxide – Liquid
4. Calcium Hypochlorite (Technical)
5. Calcium Oxide
6. Chlorine, Liquid
7. Dechlorination Agent
8. Ferric Chloride – Liquid
9. Ferric Sulfate - Liquid
10. Fluorosilicic Acid
11. Hydrated Lime
12. Phosphoric Acid – Liquid
13. Polymer, Liquid Anionic
14. Polymer, Liquid Cationic
15. Sodium Permanganate
16. Potassium Permanganate
17. Sodium Hydroxide – Liquid
18. Sodium Hypochlorite
19. Sodium Phosphate - Blended
20. Sulfuric Acid
21. Zinc Phosphate

2. APPLICABLE SPECIFICATIONS:

The following specifications or publications of the latest issue in effect on the date of the Invitation to Bid shall form a part of this specification, when and as indicated in Section 3.

- Applicable Standards of the American Water Works Association
- Applicable Federal Specifications
- Water Chemicals Codex
- Copies of Methods of Analysis for the following materials will be furnished on request:

Activated Carbon - Powdered

3. REQUIREMENTS:

3.1 ACTIVATED CARBON - POWDERED

The material furnished shall be an activated carbon, in powdered form. The trade name and brand identification of material offered shall be stated in the bid.

The better activated carbons for water treatment are produced by activation of lignite or charred wood pulp, sometimes called "Woodchar". Carbon is also manufactured from "Barkchar", the principal raw material for which is slabwood, which contains abnormal proportions of bark. The bark has a high content of acid insoluble ash (sand). The density of bark carbon is far greater, and the pore sizes are much smaller.

Taste and odor producing materials in water are varied, and characteristics of the molecules vary greatly. Large, or long-chain molecules cannot be absorbed in small pores. However, the smaller pore carbon may show good results with smaller molecules. The numerous materials in natural waters may vary in their molecular sizes, over many orders of magnitude. Therefore, the carbon pores must be able to accommodate a wide range of sizes.

Iodine molecules are relatively small, and phenols have moderately sized molecules. On the other hand, the amines that generally cause musty taste and odors, have long-chain molecules, which are typical of our major problem, musty odors.

The iodine value can be considered as a measure of the total pore area, the phenol value as measure of the effectiveness for removal of moderate-chain molecules, and the "Geosmin Test" for long-chain or large sized molecules such as the amines. Performance will be evaluated by these three tests.

The "Geosmin Test" will be performed by the Philadelphia Water Department's Bureau of Laboratory Services Organic Laboratory. Samples of powdered activated carbons must be submitted to the Water Department before time of bid in order to be tested by the Department and determined acceptable. Test procedures are available upon request for specified parameters.

Material must conform to AWWA Standard B600- 05, Water Chemicals Codex, and Philadelphia Water Department Geosmin Test criteria in order to be awarded.

The quality of activated carbon in each carload will be determined from the analysis of a sample collected at the time of delivery at the designated plant.

Analysis will be performed by the Water Department's Bureau of Laboratory Services in accordance with the properties listed below.

Properties:

Material shall conform to the following specifications when tested by Philadelphia Water Department's methods:

SPECIFICATIONS

- | | | |
|----|---|---|
| 1. | Impurities | Shall comply with Water Chemicals Codex (max. dosage 50mg/l.) |
| 2. | Apparent Density (g/ml) | 0.75 maximum
0.20 minimum |
| 3. | Phenol Value (g/l) | 3.5 maximum |
| 4. | Iodine Number | 550 minimum |
| 5. | Moisture, % (when shipped) | 8 maximum |
| 6. | Fineness: | % through #100 sieve 99 minimum
% through #200 sieve 95 minimum
% through #325 sieve 90 minimum |
| 7. | Material must readily wet down to produce a suspension, and when applied in treatment it: | a) must not float
b) must not settle rapidly |
| 8. | Philadelphia Geosmin Removal Test: | |

In a specially prepared synthetic "challenge" water adjusted to simulate the competitive absorptions of

Philadelphia's two surface water sources, the carbon must be able to lower the Geosmin level from 25 ppt to below 5 ppt with a dosage not more than 12 ppm (100 lbs./MG).

NOTE: Testing methods for items 2 through 6 are as specified in AWWA Standard for Powdered Activated Carbon (B600-05).

Testing methods for Philadelphia Geosmin Removal Test are available upon request.

Vendor must submit a manufacturer's Material Safety Data Sheet (MSDS) before or accompanying the first delivery made under this contract. Vendor must submit a new MSDS prior to or accompanying the first shipment subsequent to any revision to the manufacturer's MSDS or change in manufacturers made during the duration of this contract.

3.2 ALUMINUM SULFATE - LIQUID

The material supplied, known commercially, as "Liquid Alum" shall contain not less than 8.0% of water soluble alumina (Al_2O_3). It shall contain not less than 0.025% by weight of Al_2O_3 in excess of the amount required to combine with the sulfur trioxide (SO_3) present. It shall contain no substances deleterious or injurious to water treatment. Iron (Fe_2O_3) content shall not exceed 0.35%.

The material shall comply with the American Water Works Association Standard for Aluminum Sulfate. B403-03

Quality and test procedures shall conform to the American Water Works Association Standard for Aluminum Sulfate B403-03.

Aluminum Sulfate is a direct additive used in the treatment of potable water. This material shall be certified as suitable for contact with or treatment of drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 60, Drinking Water Treatment Chemicals – Health Effects.

Each bulk delivery shall be accompanied by a certification of the manufacturing company as to the brand and analysis of the material, also a weight certificate signed by a certified weigher.

Vendor must submit a manufacturer's Materials Safety Data Sheet (MSDS) prior to or accompanying the first delivery to each of the delivery points. Vendor must submit a new MSDS subsequent to any revision or change during the duration of this contract.

3.3 AMMONIUM HYDROXIDE - AQUA AMMONIA:

The material furnished shall be technical grade liquid Ammonia, Type II of Federal Specification O-A-451f of December 10, 1975. This is a colorless transparent commercial liquid also known as Aqua Ammonia, weighing approximately 7.75 pounds per gallon, and containing nineteen percent (19%) of Ammonia (NH_3). The bid price shall be on tons of Ammonia (NH_3). It shall contain no extraneous materials deleterious or injurious to consumers of water treated with it in appropriate dosages. It shall contain no sediment that could clog or interfere with proper operation of feed pumps or other equipment used by the Water Department.

Ammonium Hydroxide is a direct additive used in the treatment of potable water. This material shall be certified as suitable for contact with or treatment of drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 60, Drinking Water Treatment Chemicals – Health Effects.

Vendor must supply a manufacturer's Materials Safety Data Sheet (MSDS) prior to or accompanying the first delivery to each delivery point. Vendor must submit a new MSDS subsequent to any revision or change during the duration of the contract.

3.4 CALCIUM HYPOCHLORITE (TECHNICAL):

Not less than 65% available chlorine as calcium hypochlorite. White granular powder only, in 100 lb. non-returnable drums. Material must comply with AWWA Standard B300-04 and Water Chemicals Codex (max. dosage 15 mg/l). Inert materials: 35% max., including sodium chlorite, calcium chlorite, and traces of oxides of heavy metals. Moisture content: 8% min. Materials shall not readily ignite and shall not propagate flame under test conditions.

Vendor must supply a Materials Safety Data Sheet before or accompanying the first delivery to each of the delivery points. Vendor must submit a new MSDS subsequent to any revision during the duration of the contract.

3.5 CALCIUM OXIDE: HIGH CALCIUM QUICKLIME

The calcium oxide material shall be a high calcium, continuous flow kiln Oxide of Lime, containing ninety percent (90%) of Calcium Oxide (CaO). It shall contain no mineral or organic substances in quantities capable of producing deleterious or injurious affects upon the health of those consuming the water, which has been treated with it.

The quicklime shall have a reactive quality classified as high-reactive lime when tested in accordance with Section 5 of AWWA Standard B202-02: the quicklime shall produce 40 oF rise in temperature in 3 min and shall reach the maximum temperature in 10 minutes.

The quicklime shall slake satisfactorily, readily disintegrating into a suspension of finely divided material without the production of objectionable amounts of undissolved or unslaked material in the slaker.

Quick lime supplied under this standard shall be freshly burned and shall be substantially free from carbonate solids and siliceous residue. It shall be substantially free of core, ash and dirt, or extraneous materials.

Material must comply with AWWA Standard B202-02.

Quicklime is a direct additive used in the treatment of potable water. This material shall be certified as suitable for contact with or treatment of drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 60, Drinking Water Treatment Chemicals – Health Effects.

Material shall not contain iron or aluminum, which is soluble in Hydrochloric Acid, in excess of the following amounts:

Iron in terms of Fe_2O_3	-	0.25%
Aluminum in terms of Al_2O_3	-	0.70%

Available calcium oxide shall be determined by test method shown in Section 5 of AWWA Standard B202-02

Material shall be 3/8" x 1/8" in size and none shall be retained on a 5/8" screen.

Bids shall state quoted prices on materials crushed, screened, and delivered.

Vendor must supply a manufacturer's Materials Safety Data Sheet (MSDS) prior to or accompanying the first delivery to each delivery point specified in the bid. Vendor must supply a new MSDS subsequent to any revision made during the duration of this contract.

3.6 CHLORINE - LIQUID:

The liquid chlorine material supplied shall contain no soluble mineral or organic substances in quantities that would be deleterious or injurious to anyone consuming any water treated with acceptable quantities of the chlorine. This includes, but is not limited to, chloroform, carbon tetrachloride, hexachlorobenzene, hexachloroethane, nitrogen trichloride, silicon tetrachloride, and ferric chloride.

The liquid shall be substantially free of impurities causing residues that clog lines or interfere with feeding of the chlorine.

The material shall comply with AWWA Standard B301-99. Quality and test procedures shall be in accordance with AWWA Standard for Liquid Chlorine, B301-99.

Liquid Chlorine is a direct additive used in the treatment of potable water. This material shall be certified as suitable for contact with or treatment of drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 60, Drinking Water Treatment Chemicals – Health Effects.

Vendor must submit a manufacturer's Materials Safety Data Sheet (MSDS) prior to our accompanying the first delivery to each delivery point specified in the bid. Vendor must submit a new MSDS subsequent to any revision or change during the contract.

3.7 DECHLORINATION AGENT

The material supplied shall be a dechlorinating agent suitable for use in water treatment. This material shall be a Vitamin C based agent that fully neutralizes both chlorine and chloramines. It shall contain no mineral or organic substances deleterious or injurious to the water quality and aquatic life of receiving streams. This material shall be certified as suitable for use as a dechlorinating agent.

The material supplied shall come in both granular and tablet form. This product may contain a buffering agent to stabilize pH.

Material is to be either Vita – D- Chlor, Vita –D- Chlor Neutral or approved equal. Bidder shall certify that the material supplied is of similar percent activities, solids, viscosity, and molecular weight as Vita – D- Chlor, Vita –D-

Chlor Neutral.

Vendor must submit a manufacturer's Materials Safety Data Sheet (MSDS) prior to or accompanying the first delivery to each delivery point specified in the bid. Vendor must submit a new MSDS subsequent to any revision or change during the contract.

3.8 FERRIC CHLORIDE - LIQUID:

Ferric Chloride (Liquid) suitable for use in water treatment: It shall contain no mineral or organic substances deleterious or injurious to the health of consumers of the water treated.

The material shall comply with AWWA Standard B407-05.

Liquid Ferric Chloride is a direct additive used in the treatment of potable water. This material shall be certified as suitable for contact with or treatment of drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 60, Drinking Water Treatment Chemicals – Health Effects.

Before starting deliveries the vendor shall state the percentage concentration that will be delivered and shall deliver a consistent concentration, plus or minus one percent (1.0%) FeCl_3 , unless change is agreed upon between vendor and the Water Department of the City. Frequent changes will not be accepted. Content shall be in accordance with the following:

- A. Liquid ferric chloride shall contain not less than 28% FeCl_3 by weight.
- B. The free acid, expressed as HCl, shall not exceed 0.5 %.
- C. No more than 2% of the total iron shall be in the ferrous state
- D. The solution shall not contain more than 0.5% total insoluble matter by weight.
- E. Combined weight of heavy metals shall not exceed 0.2%.
- F. Hexachlorobenzene concentration shall not exceed 0.5 mg/L

Payment shall be made at the price bid on the basis of tonnage of trivalent iron (Fe) contained in the liquid delivered. Delivery shall be accompanied by certificate of analysis that shall include percent ferric chloride (FeCl_3) and the percent free acid. Shipment shall also be accompanied by certified weight slip showing net weight delivered.

Vendor shall supply a manufacturer's Materials Safety Data Sheet (MSDS) prior to or accompanying the first delivery to each delivery point. The vendor must submit a new MSDS subsequent to any revision or change during the duration of the contract.

3.9 FERRIC SULFATE - LIQUID:

The material supplied shall be a liquid ferric sulfate solution suitable for use in the treatment of potable water. It shall contain no substances, either organic or inorganic that can be deleterious or injurious to consumers of the water treated with acceptable quantities.

The material shall conform to AWWA Standard B406-97.

Ferric Sulfate is a direct additive used in the treatment of potable water. This material shall be certified as suitable for contact with or treatment of drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 60, Drinking Water Treatment Chemicals – Health Effects.

Content of the liquid shall be in accordance with the following:

1. Total soluble iron content must be equal to or greater than 12.0 % in solution.
2. Total suspended solids shall not exceed 0.9%. The material shall contain not more than 3.0% of free sulfuric acid
4. The material shall contain no organic sulfides or other objectionable odor-producing matter that could affect the quality of the water.
5. The material shall contain no additives or detergents.

Ferric Sulfate supplied shall not contain any substances in quantities that will result in treated sludges that will be designated as hazardous wastes by local, state, or federal authorities.

Price will be based on tons of trivalent iron (Fe).

Before starting deliveries, the vendor must state the percentage concentration of iron in the deliveries for the length of the contract, and shall deliver a consistent concentration, plus or minus 0.5% iron unless agreed upon between the vendor and the Philadelphia Water Department.

Analysis of the material in each shipment shall accompany each delivery and shall include the concentration of iron, the percent of free acid, and the specific gravity.

Methods of analysis used by the Philadelphia Water Department are those of AWWA Standard B406-97.

Vendor must submit a manufacturer's Materials Safety Data Sheet (MSDS) prior to or accompanying the first delivery to each delivery point. Vendor must submit a new MSDS subsequent to any revision or change during the duration of the contract.

3.10 FLUROSILICIC ACID:

The fluorosilicic acid material furnished under this specification shall be a liquid containing not less than twenty (20) or more than thirty (30) percent of H_2SiF_6 .

Before starting deliveries the vendor must state the percentage concentration in the deliveries for the length of the contract, and shall deliver a consistent concentration, plus or minus one percent (1.0%) H_2SiF_6 throughout the contract term unless change is agreed upon between the vendor and the Water Department of the City.

Material shall comply with AWWA Standard B703-00.

Fluorosilicic acid is a direct additive used in the treatment of potable water. This material shall be certified as suitable for contact with or treatment of drinking water by an accredited certification organization in accordance with ANSI/NSF

Standard 60, Drinking Water Treatment Chemicals – Health Effects.

The material shall contain no mineral, or organic substance, or substances in quantities capable of producing deleterious or injurious effects on the health of the persons consuming water treated with Fluorosilicic acid. The material shall be free of suspended matter and shall be from colorless to no more than straw yellow in color. Straw yellow shall be determined as a material with maximum 100 units in accordance with method 2120B, visual comparison method.

Hydrofluoric acid content in Fluorosilicic acid shall not exceed 1%.

Content of Fluorosilicic acid (H_2SiF_6) in material delivered shall be determined by method designated in Section 5 of the B703-00 "Standard for Fluorosilicic Acid" (H_2SiF_6) by the American Water Work Association.

Analysis of the material shall accompany delivery stating specific gravity and percent (%) acid.

Payment for material shall be at the bid price, on amount of H_2SiF_6 determined from the total weight of material delivered and analysis of the above methods. Total weight delivered may be determined from certified weighing, or from volume delivered and the determined specific gravity.

Vendor must supply a manufacturer's Materials Safety Data Sheet (MSDS) prior to or accompanying the first delivery to each delivery point specified in bid. The vendor must supply a new MSDS subsequent to any revision or change in manufacturer made during the duration of this contract.

3.11 HYDRATED LIME:

The hydrated lime material shall be high calcium, hydrated product of a continuous-flow kiln Oxide of Lime, containing sixty-eight percent (68%) of available Calcium Oxide (CaO). It shall contain no mineral or organic substances in quantities capable of producing deleterious or injurious effects upon the health of those consuming the water, which has been treated with it.

It shall be white, dry, finely powdered and free from lumps or any foreign materials, which may interfere with the operation of dry feed equipment.

Material shall comply with AWWA Standard B202-02.

Hydrated lime is a direct additive used in the treatment of potable water. This material shall be certified as suitable for contact with or treatment of drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 60, Drinking Water Treatment Chemicals – Health Effects.

The material shall not contain iron or aluminum, which is soluble in Hydrochloric Acid, in excess of the following amounts:

Iron in terms of Fe_2O_3	-	0.25%
Aluminum in terms of Al_2O_3	-	0.70%

Available Calcium Oxide shall be determined by test method shown in Section 5 of AWWA Standard B202-02.

Vendor must submit a manufacturer's Materials Safety Data Sheet (MSDS) prior to or accompanying the first delivery to each delivery point specified in the bid. Vendor must supply a new MSDS subsequent to any revision made during the duration of this contract.

3.12 PHOSPHORIC ACID – LIQUID, Technical Grade

Material shall be clear colorless liquid phosphoric acid with no foreign odor complying with Federal Specification 0-0-670C. Material shall be 75% H₃PO₄. Vendor is required to deliver a consistent strength product throughout the contract.

Material shall not exceed 140 degrees F at time of delivery.

Analysis of material shall accompany delivery stating specific gravity, percent ortho-phosphate, chloride (ppm), Iron (ppm) and mg/kg of arsenic, lead and heavy metals (as Pb).

Vendor must supply a new Materials Safety Data Sheet (MSDS) prior to or accompanying the first delivery to each delivery point. The vendor must supply a new MSDS subsequent to any revision or change in manufacturer made during the duration of this contract.

3.13 POLYMER, LIQUID NONIONIC:

Material shall be a high molecular weight, nonionic charge, water-soluble polymer complying with American Water Works Association (AWWA) Standard B451-98 or latest revision. Material shall be effective as a filter aid and flocculent aid in various liquid / solid separation applications. Material is to be either **Calgon POL EZ 652** or approved equal. Bidder shall certify that the liquid polymer is of similar percent activities, solids, viscosity, and molecular weight as Calgon's POL EZ 652.

Liquid nonionic polymer is a direct additive used in the treatment of potable water. This material shall be certified as suitable for contact with or treatment of drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 60,

Drinking Water Treatment Chemicals – Health Effects.

Product is to have a minimum shelf life of one (1) year. It shall not gel, crystallize, or lose effectiveness during storage.

3.14 POLYMER, LIQUID CATIONIC:

Material shall be a poly (Diallyl dimethylammonium chloride) polymer complying with American Water Works Association (AWWA) Standard B451-98 or latest revision. Material shall be twenty percent (20%) plus or minus one percent (1%) poly (Diallyl dimethylammonium Chloride) as determined by

AWWA Standard

B451-96, Section 5. Cationic polymer shall be low monomer.

Material is to be either Calgon Cat-Floc-TL or approved equal. Bidder shall certify that the liquid polymer is of similar percent activities, solids, viscosity, and molecular weight as Calgon's Cat-Floc-TL.

Liquid cationic polymer is a direct additive used in the treatment of potable water. This material shall be certified as suitable for contact with or treatment of drinking water by an accredited certification organization in accordance with ANSI/N SF Standard 60,

Drinking Water Treatment Chemicals – Health Effects.

Product is to have a minimum shelf life of one (1) year. It shall not gel, crystallize, or lose effectiveness during storage.

3.15 SODIUM PERMANGANATE

The material shall be liquid grade sodium permanganate (NaMnO_4). It shall contain no impurities, organic or inorganic, that can be deleterious or injurious to the health of consumers of the water treated with it in acceptable quantities.

Sodium permanganate is a direct additive used in the treatment of wastewater. This material shall be certified as suitable for contact with or treatment of wastewater.

Material furnished shall not be less than 40% percent NaMnO_4 with specific gravity of 1.36 – 1.39 g/cm^3 with a pH between 6.0 – 9.0 and a freezing point no greater than 5 degrees fahrenheit. The product should be miscible with water in all proportions and be stable for no less than eighteen months.. This product shall be Carus Chemical PLP4 or approved equal.

Vendor shall submit a manufacturer's Materials Safety Data Sheet (MSDS) prior to or accompanying the first delivery to each delivery point. Vendor must submit a new MSDS subsequent to any revision or change during the duration of the contract.

3.15 POTASSIUM PERMANGANATE

The material shall be free-flowing grade potassium permanganate (KMnO_4), also called permanganate of potash. It shall contain no impurities, organic or inorganic, that can be deleterious or injurious to the health of consumers of the water treated with it in acceptable quantities.

Material supplied must conform to AWWA Standard B603-03.

Potassium permanganate is a direct additive used in the treatment of potable water. This material shall be certified as suitable for contact with or treatment of drinking water by an accredited certification organization in accordance with

ANSI/NSF Standard 60, Drinking Water Treatment Chemicals – Health Effects.

Material furnished shall not be less than 97 percent $KMnO_4$ by weight with specific gravity of 2.7 g/cm³. Bulk density should be 100lb/ft³.

Material supplied shall not form lumps in the package lumps that cannot be easily broken up by rubbing between the fingers with minimal pressure and shall have no other characteristics that will prevent its use in dry-type chemical feeders. The potassium permanganate may be treated with an additive to cause free-flowing without sacrifice in other properties. The particle size of the material shall be such as that no more than 7% by weight shall pass through a US #200 (75) sieve and no more than 20% by weight shall be retained on a US #40 (425) sieve.

Vendor shall submit a manufacturer's Materials Safety Data Sheet (MSDS) prior to or accompanying the first delivery to each delivery point. Vendor must submit a new MSDS subsequent to any revision or change during the duration of the contract.

TEST METHODS: Test methods used by the Philadelphia Water Department will be those of AWWA Standard B603-03.

3.15.1 Potassium Permanganate, Granular

The material shall be a granular form of potassium permanganate ($KMnO_4$), also called permanganate of potash. Material will be used for the purposes of odor control at the City's wastewater treatment plants

Material supplied shall be certified as to not to affect sludge quality when added at the maximum application rate, published by the manufacturer.

Material furnished shall not be less than 96.5 percent $KMnO_4$ by weight.

The potassium permanganate may be treated with an additive to cause free-flowing without sacrifice in other properties. The particle size of the material shall be such as that no less than 20% by weight shall pass through a US #850 sieve (formerly #20).

Granular potassium permanganate should have following characteristics:

Bulk Density – 70 lb/ft³

Solubility – 54 lb/100gal at 20oC

Settling Rate – 1 foot/second

Dissolution rate in water – 1 gram/hour

Vendor shall submit a manufacturer's Materials Safety Data Sheet (MSDS) prior to or accompanying the first delivery to each delivery point. Vendor must submit a new MSDS subsequent to any revision or change during the duration of the contract.

3.16 SODIUM HYDROXIDE - LIQUID:

The liquid sodium hydroxide furnished, known commercially as "Caustic Soda", shall be suitable for the use in treating potable water. Either Rayon or Diaphragm grade is acceptable. Liquid sodium hydroxide supplied shall contain 25 % NaOH. The concentration of sodium hydroxide must be consistent plus or minus 1% throughout this contract. The material shall contain no minerals or organics that can be deleterious or injurious to consumers of the water treated in acceptable dosages.

Material shall meet AWWA Standard B501-03

Sodium hydroxide is a direct additive used in the treatment of potable water. This material shall be certified as suitable for contact with or treatment of drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 60, Drinking Water Treatment Chemicals – Health Effects.

The product shall contain no contaminants which results in any corrosion or negative impact to chemical storage tanks or chemical feed equipment. Moreover the product shall contain no contaminants which result in a change to the products inherent "basic" characteristics, e.g. contamination by a chlorine product as an example. In the event of product contamination, the vendor shall be liable for all costs associated with damages and remediation. Vendor must supply a manufacturer's Materials Safety Data Sheet (MSDS) prior to or accompanying the first delivery to each delivery point. Vendor must supply a new MSDS subsequent to any change or revision during the duration of the contract.

3.17 SODIUM HYPOCHLORITE - LIQUID

The material supplied shall be a solution containing a 12% minimum concentration of available chlorine by weight, unless otherwise specified in the bid requirements. Material shall meet AWWA Standard for Hypochlorites B300-04. Material shall be a clear liquid containing not more than the following:

- Less than 0.15% insoluble material by weight
- the total free alkali (as sodium hydroxide) in sodium hypochlorite shall not exceed ~~1.5%~~ 0.4 % excess caustic ~~by weight~~.
- Less than 1500 mg/L ClO₃
- Less than 0.5 mg/L iron
- Less than 0.05 mg/L nickel and copper

The Chlorine and caustic soda used for the manufacture of sodium hypochlorite shall meet the requirements of AWWA Standards for each.

Sodium hypochlorite is a direct additive used in the treatment of potable water.

This material shall be certified as suitable for contact with or treatment of drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 60, Drinking Water Treatment Chemicals – Health Effects.

The material shall not contain organic or inorganic substance in quantities that would be deleterious or injurious to anyone consuming any water treated by acceptable quantities of the sodium hypochlorite.

The concentration of available chlorine must be consistent plus or minus 1% throughout this contract.

Vendor must supply a chemical analysis with each shipment, including available chlorine by weight, free alkalinity, chlorine weight per gallon, pH, and sodium hypochlorite by weight.

Vendor must submit a Materials Safety Data Sheet (MSDS) prior to or accompanying the first delivery to each delivery point. Vendor must submit a new MSDS subsequent to any revision or change during the duration of the contract.

3.18.1 Sodium Polyphosphate - Blended Sodium Polyphosphate Lime Dispersant

Sodium Phosphate blend should contain 34% of total phosphate including both ortho and polyphosphate in a 30/70 ratio.

Material should be a clear liquid with a specific gravity of 1.36 +/- 0.03, pH of 5.0 +/- 0.3 and density of 11.4 pounds per gallon.

Material components shall conform to the American Water Works Association Standards quality and test procedures.

Blended sodium polyphosphate will be used as a direct additive in treatment of potable water. This material shall be certified as suitable for contact with or treatment of drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 60, Drinking Water Treatment Chemicals – Health Effects.

A certification of the manufacturing company as to the brand and analysis of the material shall accompany each delivery.

Vendor must submit a manufacturer's Materials Safety Data Sheet (MSDS) prior to or accompanying the first delivery to each of the delivery points. Vendor must submit a new MSDS subsequent to any revision or change during the duration of this contract.

3.19 SULFURIC ACID:

The sulfuric acid (oil of vitriol) to be supplied must be technical grade. Material must conform to Water Chemicals Codex (max. dosage 50 mg/l). The material must be suitable for use in treating potable water and contain nothing deleterious or injurious to the health of consumers of the water treated with it.

Specific gravity must be a minimum of 1.84 and the percent sulfuric acid a minimum of 93%.

Sulfuric Acid is a direct additive used in the treatment of potable water. This material shall be certified as suitable for contact with or treatment of drinking

water by an accredited certification organization in accordance with ANSI/NSF Standard 60, Drinking Water Treatment Chemicals – Health Effects.

3.20 ZINC ORTHOPHOSPHATE - CORROSION INHIBITOR

Material shall be liquid containing food grade chemicals which provide dissociated zinc and phosphate ions specifically produced for use in potable water to control corrosion of distribution lines and other contacted metal surfaces and shall be harmless to non-metallic materials. Vendor should be able to prove material is produced for use in potable water by supplying a list of water suppliers and contact persons who have used or are using product, or a listing of all raw materials and certification by the manufacturer that each is of food grade quality, if the Water Department requests such.

Additionally, the following shall be met:

- Material shall contain one part zinc to 12.5 parts ortho-phosphate (1:12.5) by weight
- Material must be certified against NSF Standard 60 for use in drinking water by approved laboratory.
- Material shall be harmless to non-metallic materials and shall not corrode in any way 304 stainless steel.
- Material shall contain no mineral or organic substances deleterious or injurious to consumers of water treated with material at appropriate dosages.
- Material shall not contain any insoluble material upon delivery, nor shall the product generate precipitated salts during storage.
- Material shall have the following physical and chemical properties:
 - Appearance: Clear, colorless
 - Odor: None
 - Specific Gravity: 1.3 to 1.6 at 70 degrees F.
 - pH: 0.8 min.
 - Freeze-Thaw Recovery: complete at 60 degrees F.
 - Zinc content: Should not exceed 4% by weight

Vendor must supply a manufacturer's Material Safety Data Sheet (MSDS) prior to or accompanying the first delivery to each delivery point. Vendor must supply a new MSDS subsequent to any revision or change during the duration of the contract.

Vendor must obtain prior Water Department approval to any change in

manufacturer or chemical before making delivery of new material. City reserves the right to terminate this contract for failure to abide by this specification.

3.20.1 ALTERNATE #1 TO ZINC PHOSPHATE - CORROSION INHIBITOR:

Bidders have an option to supply material which is free of extraneous salts that do not provide corrosion protection, as follows:

- Chloride contents: <1% by weight
- Sulfate contents: <1% by weight
- Insolubles: <0.2 % by weight

Alternate must comply with all other pertinent specifications of 3.18.

4. SAMPLING, INSPECTION, AND TESTS:

Certificates of analysis and/or other information shall be furnished for those items where specified in Section 3 above.

Tests shall be conducted according to methods indicated herein. Most tests methods are those specified in applicable AWWA Standards, however, for those chemicals that have no associated AWWA Standard or when other tests methods are referenced in Section 3 above, copies of Methods of Analysis will be furnished upon request.

5. ORDERING AND DELIVERY:

- 5.1 All chemicals will be ordered by the Chief Operator or each delivery point specified in the bid. Deliveries are to be made only after receipt of such orders.
- 5.2 Unless otherwise stated in the Invitation to Bid, or under Section 3 above, all chemicals are to be delivered to the plant designated within five days after receipt of order.
- 5.3 All deliveries shall be made between 8 AM and 4 PM Monday through Friday, except legal holidays, unless otherwise agreed to between the supplier and Manager of the delivery point.
- 5.4 The City shall not be held responsible for demurrage charges, therefore, the vendor shall make allowances for the unloading time required at each of the delivery points in the bid price.