

January 6, 2013

**Lexington Fayette Urban County Government
Division of Central Purchasing
Lexington, KY**

RE: INVITATION TO BID # 163-2013

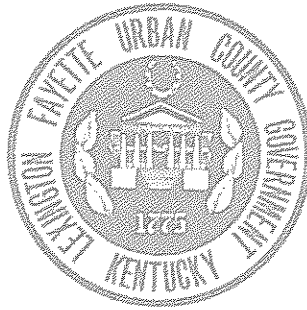
Water Treatment for Heating & Cooling Systems

**CHEM-AQUA
8401 E. 33rd Street
Indianapolis, Indiana 46226
Toll Free: 800-527-9921**

**Scott Congleton
Water Treatment Consultant/Chemist
scott.congleton@chemaqua.com
Local: 1-859-421-2881**

Lexington Fayette Urban County Government

Division of Central Purchasing



Lexington Kentucky

Horse Capital of the World

INVITATION TO BID #163-2013

Water Treatment for Heating & Cooling Systems

NOTICE TO BIDDERS

Bid Opening Date: January 6, 2014

Bid Opening Time: 2:00 PM

Address: 200 East Main Street
3rd Floor, Room 338

Pre Bid Meeting: N/A

Pre Bid Time:

Address:

INVITATION TO BID

Bid Invitation Number: #163-2013

Date of Issue: 12/23/2013

Sealed bids will be received in the office of the Division of Central Purchasing, 200 East Main Street, Lexington, Kentucky, until **2:00 PM**, prevailing local time on **01/06/2014**. Bids must be received by the above-mentioned date and time. Mailed bids should be sent to:

Division of Central Purchasing
200 East Main Street, Room 338
Lexington, KY 40507, (859) 258-3320

The Lexington-Fayette Urban County Government assumes no responsibility for bids that are not addressed and delivered as indicated above. Bids that are not delivered to the Division of Central Purchasing by the stated time and date will be rejected.

All bids must have the company name and address, bid invitation number, and the commodity/service on the outside of the envelope.

Bids are to include all shipping costs to the point of delivery located at: various locations

Bid Security Required: Yes No Performance Bond Required: Yes No
Cashier Check, Certified Check, Bid Bond (Personal checks and company checks will not be acceptable).

Quantity	Commodity/Service
Price Contract	Water Treatment for Heating & Cooling Systems

<u>Check One:</u>	<u>Proposed Delivery:</u>
<input type="checkbox"/> Bid Specifications Met	<input type="checkbox"/> days after acceptance of bid.
<input type="checkbox"/> Exceptions to Bid Specifications. <i>Exceptions shall be itemized and attached to bid proposal submitted.</i>	

<u>Procurement Card Usage</u>	
<input type="checkbox"/> Yes	The Lexington-Fayette Urban County Government will be using Procurement Cards to purchase goods and services and also to make payments. Will you accept Procurement Cards?
<input type="checkbox"/> No	

Submitted by: Chem-Agua, Inc
Firm
2727 Chemsearch Blvd.
Address
Irving, TX 75062-6454
City, State & Zip

**Bid must be signed:
(original signature)**


Signature of Authorized Company Representative – Title
Tony K. Self
Representative's Name (Typed or printed)
317-899-3667 ext 1301 972-721-6884
Area Code - Phone - Extension Fax #
tself@nch.com
E-Mail Address

The Affidavit in this bid must be completed before your firm can be considered for award of this contract.

AFFIDAVIT

Comes the Affiant, Chem Aqua, Inc., and after being first duly sworn under penalty of perjury as follows:

1. His/her name is Tony K. Self and he/she is the individual submitting the bid or is the authorized representative of

Division Manager For Chem-Aqua, Inc.
the entity submitting the bid (hereinafter referred to as "Bidder").

2. Bidder will pay all taxes and fees, which are owed to the Lexington-Fayette Urban County Government at the time the bid is submitted, prior to award of the contract and will maintain a "current" status in regard to those taxes and fees during the life of the contract.

3. Bidder will obtain a Lexington-Fayette Urban County Government business license, if applicable, prior to award of the contract.

4. Bidder has authorized the Division of Central Purchasing to verify the above-mentioned information with the Division of Revenue and to disclose to the Urban County Council that taxes and/or fees are delinquent or that a business license has not been obtained.

5. Bidder has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky within the past five (5) years and the award of a contract to the Bidder will not violate any provision of the campaign finance laws of the Commonwealth.

6. Bidder has not knowingly violated any provision of Chapter 25 of the Lexington-Fayette Urban County Government Code of Ordinances, known as "Ethics Act."

7. Bidder acknowledges that "knowingly" for purposes of this Affidavit means, with respect to conduct or to circumstances described by a statute or ordinance defining an offense, that a person is aware or should have been aware that his conduct is of that nature or that the circumstance exists.

Further, Affiant sayeth naught.

Chem-Aqua, Inc. Tony K. Self

STATE OF Indiana

COUNTY OF Marion

The foregoing instrument was subscribed, sworn to and acknowledged before me

by Tony K. Self on this the 02 day
of January, 2013⁴.

My Commission expires: December 3, 2000

[Signature]
NOTARY PUBLIC, STATE AT LARGE

Please refer to Section II. Bid Conditions, Item "U" prior to completing this form.

I. GREEN PROCUREMENT

A. ENERGY

The Lexington-Fayette Urban County Government is committed to protecting our environment and being fiscally responsible to our citizens.

The Lexington-Fayette Urban County Government mandates the use of Energy Star compliant products if they are available in the marketplace (go to www.Energystar.gov). If these products are available, but not submitted in your pricing, your bid will be rejected as non-compliant.

ENERGY STAR is a government program that offers businesses and consumers energy-efficient solutions, making it easy to save money while protecting the environment for future generations.

Key Benefits

These products use 25 to 50% less energy
Reduced energy costs without compromising quality or performance
Reduced air pollution because fewer fossil fuels are burned
Significant return on investment
Extended product life and decreased maintenance

B. GREEN SEAL CERTIFIED PRODUCTS

The Lexington-Fayette Urban County Government is also committed to using other environmentally friendly products that do not negatively impact our environment. Green Seal is a non-profit organization devoted to environmental standard setting, product certification, and public education.

Go to www.Greenseal.org to find available certified products. These products will have a reduced impact on the environment and on human health. The products to be used must be pre-approved by the LFUCG prior to commencement of any work in any LFUCG facility. If a Green Seal product is not available, the LFUCG must provide a signed waiver to use an alternate product. Please provide information on the Green Seal products being used with your bid response.

C. GREEN COMMUNITY

The Lexington-Fayette Urban County Government (LFUCG) serves as a principal, along with the University of Kentucky and Fayette County Public Schools, in the Bluegrass Partnership for a Green Community. The Purchasing Team component of the Partnership collaborates on economy of scale purchasing that promotes and enhances environmental initiatives. Specifically, when applicable, each principal is interested in obtaining best value products and/or services which promote environment initiatives via solicitations and awards from the other principals.

If your company is the successful bidder on this Invitation For Bid, do you agree to extend the same product/service pricing to the other principals of the Bluegrass Partnership for a Green Community (i.e. University of Kentucky and Fayette County Schools) if requested?

Yes _____ No _____

II. Bid Conditions

- A. No bid may be withdrawn for a period of sixty (60) days after the date and time set for opening.
- B. No bid may be altered after the date and time set for opening. In the case of obvious errors, the Division of Central Purchasing may permit the withdrawal of a bid. The decision as to whether a bid may be withdrawn shall be that of the Division of Central Purchasing.
- C. Acceptance of this proposal shall be enactment of an Ordinance by the Urban County Council.
- D. The bidder agrees that the Urban County Government reserves the right to reject any and all bids for either fiscal or technical reasons, and to award each part of the bid separately or all parts to one vendor.
- E. Minor exceptions may not eliminate the bidder. The decision as to whether any exception is minor shall be entirely that of the head of the requisitioning Department or Division and the Director of the Division of Central Purchasing. The Urban County Government may waive technicalities and informalities where such waiver would best serve the interests of the Urban County Government.
- F. Manufacturer's catalogue numbers, trade names, etc., where shown herein are for descriptive purposes and are to guide the bidder in interpreting the standard of quality, design, and performance desired, and shall not be construed to exclude proposals based on furnishing other types of materials and/or services. However, any substitution or departure proposed by the bidder must be clearly noted and described; otherwise, it will be assumed that the bidder intends to supply items specifically mentioned in this Invitation for Bids.
- G. The Urban County Government may require demonstrations of the materials proposed herein prior to acceptance of this proposal.
- H. Bids must be submitted on this form and must be signed by the bidder or his authorized representative. Unsigned bids will not be considered.
- I. Bids must be submitted prior to the date and time indicated for opening. Bids submitted after this time will not be considered.
- J. All bids mailed must be marked on the face of the envelope:

“Bid on #163-2013 Water Treatment for Heating & Cooling Systems”

and addressed to: Division of Central Purchasing
 200 East Main Street, Room 338
 Lexington, Kentucky 40507

The Lexington-Fayette Urban County Government assumes no responsibility for bids that are not addressed and delivered as indicated above. Bids that are not delivered to the Division of Central Purchasing by the stated time and date will be rejected.

- K. Bidder is requested to show both unit prices and lot prices. In the event of error, the unit price shall prevail.
- L. A certified /cashier's check or Bid Bond in the amount of N/A percent of the bid price must be attached hereto. This check must be made payable to the Lexington-Fayette Urban County Government, and will be returned when the material and/or services specified herein have been

delivered in accordance with specifications. In the event of failure to perform within the time period set forth in this bid, it is agreed the certified / cashier's check may be cashed and the funds retained by the Lexington-Fayette Urban County Government as liquidated damages. Checks of unsuccessful bidders will be returned when the bid has been awarded.

- M. The delivery dates specified by bidder may be a factor in the determination of the successful bidder.
- N. Tabulations of bids received may be mailed to bidders. Bidders requesting tabulations must enclose a stamped, self-addressed envelope with the bid.
- O. The Lexington-Fayette Urban County Government is exempt from Kentucky Sales Tax and Federal Excise Tax on materials purchased from this bid invitation. Materials purchased by the bidder for construction projects are not tax exempt and are the sole responsibility of the bidder.
- P. All material furnished hereunder must be in full compliance with OSHA regulations.
- Q. If more than one bid is offered by one party, or by any person or persons representing a party, all such bids shall be rejected.
- R. Signature on the face of this bid by the Bidder or his authorized representative shall be construed as acceptance of and compliance with all terms and conditions contained herein.
- S. The Entity (regardless of whether construction contractor, non-construction contractor or supplier) agrees to provide equal opportunity in employment for all qualified persons, to prohibit discrimination in employment because of race, color, creed, national origin, sex or age, and to promote equal employment through a positive, continuing program from itself and each of its sub-contracting agents. This program of equal employment opportunity shall apply to every aspect of its employment policies and practices.
- T. The Kentucky Equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) requires that any county, city, town, school district, water district, hospital district, or other political subdivision of the state shall include in directly or indirectly publicly funded contracts for supplies, materials, services, or equipment hereinafter entered into the following provisions:

During the performance of this contract, the contractor agrees as follows:

- (1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age or national origin;*
- (2) The contractor will state in all solicitations or advertisements for employees placed by or on behalf of the contractors that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age or national origin;*
- (3) The contractor will post notices in conspicuous places, available to employees and applicants for employment, setting forth the provisions of the non-discrimination clauses required by this section; and*
- (4) The contractor will send a notice to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding advising the labor union or workers' representative of the contractor's commitments under the nondiscrimination clauses.*

The Act further provides:

KRS 45.610. Hiring minorities - Information required

- (1) *For the length of the contract, each contractor shall hire minorities from other sources within the drawing area, should the union with which he has collective bargaining agreements be unwilling to supply sufficient minorities to satisfy the agreed upon goals and timetable.*
- (2) *Each contractor shall, for the length of the contract, furnish such information as required by KRS 45.560 to KRS 45.640 and by such rules, regulations and orders issued pursuant thereto and will permit access to all books and records pertaining to his employment practices and work sites by the contracting agency and the department for purposes of investigation to ascertain compliance with KRS 45.560 to 45.640 and such rules, regulations and orders issued pursuant thereto.*

KRS 45.620. Action against contractor - Hiring of minority contractor or subcontractor

- (1) *If any contractor is found by the department to have engaged in an unlawful practice under this chapter during the course of performing under a contract or subcontract covered under KRS 45.560 to 45.640, the department shall so certify to the contracting agency and such certification shall be binding upon the contracting agency unless it is reversed in the course of judicial review.*
- (2) *If the contractor is found to have committed an unlawful practice under KRS 45.560 to 45.640, the contracting agency may cancel or terminate the contract, conditioned upon a program for future compliance approved by the contracting agency and the department. The contracting agency may declare such a contractor ineligible to bid on further contracts with that agency until such time as the contractor complies in full with the requirements of KRS 45.560 to 45.640.*
- (3) *The equal employment provisions of KRS 45.560 to 45.640 may be met in part by a contractor by subcontracting to a minority contractor or subcontractor. For the provisions of KRS 45.560 to 45.640, a minority contractor or subcontractor shall mean a business that is owned and controlled by one or more persons disadvantaged by racial or ethnic circumstances.*

KRS 45.630 Termination of existing employee not required, when

Any provision of KRS 45.560 to 45.640 notwithstanding, no contractor shall be required to terminate an existing employee upon proof that that employee was employed prior to the date of the contract.

KRS 45.640 Minimum skills

Nothing in KRS 45.560 to 45.640 shall require a contractor to hire anyone who fails to demonstrate the minimum skills required to perform a particular job.

It is recommended that all of the provisions above quoted to be included as special conditions in each contract. In the case of a contract exceeding \$250,000, the contractor is required to furnish evidence that his work-force in Kentucky is representative of the available work-force in the area from which he draws employees, or to supply an Affirmative Action plan which will achieve such representation during the life of the contract.

- U. Any party, firm or individual submitting a proposal pursuant to this invitation must be in compliance with the requirements of the Lexington-Fayette Urban County Government regarding taxes and fees before they can be considered for award of this invitation and must maintain a "current" status with regard to those taxes and fees throughout the term of the

contract. The contractor must be in compliance with Chapter 13 from the Code of Ordinances of the Lexington-Fayette Urban County Government. The contractor must be in compliance with Ordinance 35-2000 pursuant to contractor registration with the Division of Building Inspection. If applicable, said business must have a Fayette County business license.

Pursuant to KRS 45A.343 and KRS 45A.345, the contractor shall

- (1) Reveal any final determination of a violation by the contractor within the previous five year period pursuant to KRS Chapters 136 (corporation and utility taxes), 139 (sales and use taxes), 141 (income taxes), 337 (wages and hours), 338 (occupational safety and health of employees), 341 (unemployment and compensation) and 342 (labor and human rights) that apply to the contractor; and*
- (2) Be in continuous compliance with the above-mentioned KRS provisions that apply to the contractor for the duration of the contract.*

A contractor's failure to reveal the above or to comply with such provisions for the duration of the contract shall be grounds for cancellation of the contract and disqualification of the contractor from eligibility for future contracts for a period of two (2) years.

- V. Vendors who respond to this invitation have the right to file a notice of contention associated with the bid process or to file a notice of appeal of the recommendation made by the Director of Central Purchasing resulting from this invitation.

Notice of contention with the bid process must be filed within 3 business days of the bid/proposal opening by (1) sending a written notice, including sufficient documentation to support contention, to the Director of the Division of Central Purchasing or (2) submitting a written request for a meeting with the Director of Central Purchasing to explain his/her contention with the bid process. After consulting with the Commissioner of Finance the Chief Administrative Officer and reviewing the documentation and/or hearing the vendor, the Director of Central Purchasing shall promptly respond in writing findings as to the compliance with bid processes. If, based on this review, a bid process irregularity is deemed to have occurred the Director of Central Purchasing will consult with the Commissioner of Finance, the Chief Administrative Officer and the Department of Law as to the appropriate remedy.

Notice of appeal of a bid recommendation must be filed within 3 business days of the bid recommendation by (1) sending a written notice, including sufficient documentation to support appeal, to the Director, Division of Central Purchasing or (2) submitting a written request for a meeting with the Director of Central Purchasing to explain his appeal. After reviewing the documentation and/or hearing the vendor and consulting with the Commissioner of Finance and the Chief Administrative Officer, the Director of Central Purchasing shall in writing, affirm or withdraw the recommendation.

III. Procurement Contract Bid Conditions

- A. The terms of this agreement shall be for 3 year(s) from the date of acceptance of this contract by the Lexington-Fayette Urban County Government. This agreement may be extended for an additional 2-1 year renewals upon the written agreement of the bidder and the Lexington-Fayette Urban County Government. Said agreement must be in writing and must be executed prior to the expiration of the current agreement.

- B. Price Changes **(Space Checked Applies)**
 - (XXX) 1. Prices quoted in response to the Invitation shall be firm prices for the first 90 days of the Procurement Contract. After the first 90 days, prices may be subject to revision and such changes shall be based on general industry changes. Revision may be either increases or decreases and may be requested by either party. There will be no more than one (1) price adjustment per quarter. Requests for price changes shall be received in writing at least twenty (20) days prior to the effective date and are subject to written acceptance before becoming effective. Proof of the validity of a request for revision shall be responsibility of the requesting party. The Lexington-Fayette Urban County Government shall receive the benefit of any decline that the seller shall offer his other accounts.

 - () 2. No provision for price change is made herein. Prices are to be firm for the term of this contract.

 - () 3. Procurement Level Contract

- C. If any contract item is not available from the vendor, the Lexington-Fayette Urban County Government, at its option, may permit the item to be back-ordered or may procure the item on the open market.

- D. All invoices must bear reference to the Lexington-Fayette Urban County Government Purchasing document numbers which are being billed.

- E. This contract may be canceled by either party thirty (30) days after delivery by canceling party of written notice of intent to cancel to the other contracting party.

- F. This contract may be canceled by the Lexington-Fayette Urban County Government if it is determined that the Bidder has failed to perform under the terms of this agreement, such cancellation to be effective upon receipt of written notice of cancellation by the Bidder.

- G. No substitutions for articles specified herein may be made without prior approval of the Division of Central Purchasing.

GENERAL PROVISIONS OF BID CONTRACT

By signing the below, bidder acknowledges that it understands and agrees with the following provisions related to its bid response and the provision of any goods or services to LFUCG upon selection by LFUCG pursuant to the bid request:

1. Bidder shall comply with all Federal, State & Local regulations concerning this type of service or good.
2. Failure to submit ALL forms and information required by LFUCG may be grounds for disqualification.
3. Addenda: All addenda, if any, must be considered by the bidder in making its response, and such addenda shall be made a part of the requirements of the bid contract. Before submitting a bid response, it is incumbent upon bidder to be informed as to whether any addenda have been issued, and the failure of the bidder to cover any such addenda may result in disqualification of that response.
4. Bid Reservations: LFUCG reserves the right to reject any or all bid responses, to award in whole or part, and to waive minor immaterial defects in proposals. LFUCG may consider any alternative proposal that meets its basic needs.
5. Liability: LFUCG is not responsible for any cost incurred by bidder in the preparation of its response.
6. Changes/Alterations: Bidder may change or withdraw a proposal at any time prior to the opening; however, no oral modifications will be allowed. Only letters, or other formal written requests for modifications or corrections of a previously submitted proposal which is addressed in the same manner as the bid response, and received by LFUCG prior to the scheduled closing time for receipt of bids, will be accepted. The bid response when opened, will then be corrected in accordance with such written request(s), provided that the written request is contained in a sealed envelope which is plainly marked "modifications of bid response".
7. Clarification of Submittal: LFUCG reserves the right to obtain clarification of any point in a bid or to obtain additional information from any bidder.
8. Bribery Clause: By his/her signature on its response, bidder certifies that no employee of his/hers, any affiliate or subcontractor, has bribed or attempted to bribe an officer or employee of the LFUCG.
9. Additional Information: While not necessary, the bidder may include any product brochures, software documentation, sample reports, or other documentation that may assist LFUCG in better understanding and evaluating the bid response. Additional documentation shall not serve as a substitute for other documentation which is required by the LFUCG to be submitted with the bid response.
10. Ambiguity, Conflict or other Errors: If a bidder discovers any ambiguity, conflict, discrepancy, omission or other error in the bid request of LFUCG, it shall immediately notify LFUCG of such error in writing and request modification or clarification of the document if allowable by the LFUCG.

11. Agreement to Bid Terms: In submitting its bid response, the bidder agrees that it has carefully examined the specifications and all provisions relating to LFUCG's bid request, including but not limited to the bid contract. By submission of its bid response, bidder states that it understands the meaning, intent and requirements of LFUCG's bid request and agrees to the same. The successful bidder shall warrant that it is familiar with and understands all provisions herein and shall warrant that it can comply with them. No additional compensation to bidder shall be authorized for services, expenses, or goods reasonably covered under these provisions that the bidder omits from its bid response.
12. Cancellation: LFUCG may unilaterally terminate the bid contract with the selected bidder(s) at any time, with or without cause, by providing at least thirty (30) days advance written notice unless a different advance written notice period is negotiated prior to contract approval. Payment for services or goods received prior to termination shall be made by the LFUCG provided these goods or services were provided in a manner acceptable to the LFUCG. Payment for those goods and services shall not be unreasonably withheld.
13. Assignment of Contract: The selected bidder(s) shall not assign or subcontract any portion of the bid contract with LFUCG without the express written consent of LFUCG. Any purported assignment or subcontract in violation hereof shall be void. It is expressly acknowledged that LFUCG shall never be required or obligated to consent to any request for assignment or subcontract; and further that such refusal to consent can be for any or no reason, fully within the sole discretion of LFUCG.
14. No Waiver: No failure or delay by LFUCG in exercising any right, remedy, power or privilege hereunder, nor any single or partial exercise thereof, nor the exercise of any other right, remedy, power or privilege shall operate as a waiver hereof or thereof. No failure or delay by LFUCG in exercising any right, remedy, power or privilege under or in respect of this bid proposal or bid contract shall affect the rights, remedies, powers or privileges of LFUCG hereunder or shall operate as a waiver thereof.
15. Authority to do Business: Each bidder must be authorized to do business under the laws of the Commonwealth of Kentucky and must be in good standing and have full legal capacity to provide the goods or services specified in the bid proposal. Each bidder must have all necessary right and lawful authority to submit the bid response and enter into the bid contract for the full term hereof including any necessary corporate or other action authorizing the bidder to submit the bid response and enter into this bid contract. If requested, the bidder will provide LFUCG with a copy of a corporate resolution authorizing this action and/or a letter from an attorney confirming that the proposer is authorized to do business in the Commonwealth of Kentucky. All bid responses must be signed by a duly authorized officer, agent or employee of the bidder.
16. Governing Law: This bid request and bid contract shall be governed by and construed in accordance with the laws of the Commonwealth of Kentucky. In the event of any proceedings regarding this matter, the bidder agrees that the venue shall be the Fayette County Circuit Court or the U.S. District Court for the Eastern District of Kentucky, Lexington Division and that the bidder expressly consents to personal jurisdiction and venue in such Court for the limited and sole purpose of proceedings relating to these matters or any rights or obligations arising thereunder.
17. Ability to Meet Obligations: Bidder affirmatively states that there are no actions, suits or proceedings of any kind pending against bidder or, to the knowledge of the bidder, threatened

against the bidder before or by any court, governmental body or agency or other tribunal or authority which would, if adversely determined, have a materially adverse effect on the authority or ability of bidder to perform its obligations under this bid response or bid contract, or which question the legality, validity or enforceability hereof or thereof.

18. Bidder understands and agrees that its employees, agents, or subcontractors are not employees of LFUCG for any purpose whatsoever. Bidder is an independent contractor at all times related to the bid response or bid contract.
19. If any term or provision of this bid contract shall be found to be illegal or unenforceable, the remainder of the contract shall remain in full force and such term or provision shall be deemed stricken.

Signature

Date

EQUAL OPPORTUNITY AGREEMENT

The Law

- Title VII of the Civil Rights Act of 1964 (amended 1972) states that it is unlawful for an employer to discriminate in employment because of race, color, religion, sex, age (40-70 years) or national origin.
- Executive Order No. 11246 on Nondiscrimination under Federal contract prohibits employment discrimination by contractor and sub-contractor doing business with the Federal Government or recipients of Federal funds. This order was later amended by Executive Order No. 11375 to prohibit discrimination on the basis of sex.
- Section 503 of the Rehabilitation Act of 1973 states:

The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap.

- Section 2012 of the Vietnam Era Veterans Readjustment Act of 1973 requires Affirmative Action on behalf of disabled veterans and veterans of the Vietnam Era by contractors having Federal contracts.
- Section 206(A) of Executive Order 12086, Consolidation of Contract Compliance Functions for Equal Employment Opportunity, states:

The Secretary of Labor may investigate the employment practices of any Government contractor or sub-contractor to determine whether or not the contractual provisions specified in Section 202 of this order have been violated.

The Lexington-Fayette Urban County Government practices Equal Opportunity in recruiting, hiring and promoting. It is the Government's intent to affirmatively provide employment opportunities for those individuals who have previously not been allowed to enter into the mainstream of society. Because of its importance to the local Government, this policy carries the full endorsement of the Mayor, Commissioners, Directors and all supervisory personnel. In following this commitment to Equal Employment Opportunity and because the Government is the benefactor of the Federal funds, it is both against the Urban County Government policy and illegal for the Government to let contracts to companies which knowingly or unknowingly practice discrimination in their employment practices. Violation of the above mentioned ordinances may cause a contract to be canceled and the contractors may be declared ineligible for future consideration.

Please sign this statement in the appropriate space acknowledging that you have read and understand the provisions contained herein. Return this document as part of your application packet.

Bidders

I/We agree to comply with the Civil Rights Laws listed above that govern employment rights of minorities, women, Vietnam veterans, handicapped and aged persons.

Signature

Name of Business

WORKFORCE ANALYSIS FORM

Name of Organization: _____ Date: ____ / ____ / ____

Categories	Total	White		Latino		Black		Other		Total	
		M	F	M	F	M	F	M	F	M	F
Administrators											
Professionals											
Superintendents											
Supervisors											
Foremen											
Technicians											
Protective Service											
Para-Professionals											
Office/Clerical											
Skilled Craft											
Service/Maintenance											
Total:											

Prepared by: _____
Name & Title

**DIRECTOR, DIVISION OF CENTRAL PURCHASING
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 EAST MAIN STREET
LEXINGTON, KENTUCKY 40507**

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE
EQUAL EMPLOYMENT OPPORTUNITIES AND DBE CONTRACT
PARTICIPATION**

The Lexington-Fayette Urban County Government has set a goal that not less than ten percent (10%) of the total value of this contract be subcontracted to MBE/WBE's. The goal for the utilization of certified MBE/WBE's as subcontractors are recommended goals. Contractors who fail to meet such goals will be expected to provide written explanations to the Director of the Division of Central Purchasing of efforts they have made to accomplish the recommended goals and the extent to which they are successful in accomplishing the recommended goals will be a consideration in the procurement process.

For assistance in locating MBE/WBE Subcontractors contact Marilyn Clark at 859/258-3320 or by writing the address listed below:

Marilyn Clark, Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street – Room 338
Lexington, Kentucky 40507

Lexington-Fayette Urban County Government
MWDBE PARTICIPATION GOALS

A. GENERAL

- 1) The LFUCG request all potential contractors to make a concerted effort to include Minority-Owned (MBE), Woman-Owned (WBE) and Disadvantaged (DBE) Business Enterprises as subcontractors or suppliers in their bids.
- 2) Toward that end, the LFUCG has established 10% of total procurement costs as a Goal for participation of Minority-Owned, Woman-Owned and Disadvantaged Businesses on this contract.
- 3) **It is therefore a request of each Bidder to include in its bid, the same goal (10%) for MWDBE participation and other requirements as outlined in this section.**

B. PROCEDURES

- 1) The successful bidder will be required to report to the LFUCG, the dollar amounts of all payments submitted to Minority-Owned or Woman-Owned subcontractors and suppliers for work done or materials purchased for this contract. (See Subcontractor Monthly Payment Report)
- 2) Replacement of a Minority-Owned or Woman-Owned subcontractor or supplier listed in the original submittal must be requested in writing and must be accompanied by documentation of Good Faith Efforts to replace the subcontractor / supplier with another MWDBE Firm; this is subject to approval by the LFUCG. (See LFUCG MWDBE Substitution Form)
- 3) For assistance in identifying qualified, certified businesses to solicit for potential contracting opportunities, bidders may contact:
 - a) The Lexington-Fayette Urban County Government, Division of Central Purchasing (859-258-3320)
- 4) The LFUCG will make every effort to notify interested MWDBE subcontractors and suppliers of each Bid Package, including information on the scope of work, the pre-bid meeting time and location, the bid date, and all other pertinent information regarding the project.

C. DEFINITIONS

- 1) A Minority-Owned Business Enterprise (MBE) is defined as a business which is certified as being at least 51% owned and operated by persons of African American, Hispanic, Asian, Pacific Islander, American Indian or Alaskan Native Heritage.
- 2) A Woman-Owned Business Enterprise (WBE) is defined as a business which is certified as being at least 51% owned and operated by one or more Non-Minority

Females.

- 3) A Disadvantaged Business (DBE) is defined as a business which is certified as being at least 51% owned and operated by a person(s) that are economically and socially disadvantaged.
- 4) Good Faith Efforts are efforts that, given all relevant circumstances, a bidder or proposer actively and aggressively seeking to meet the goals, can reasonably be expected to make. In evaluating good faith efforts made toward achieving the goals, whether the bidder or proposer has performed the efforts outlined in the Obligations of Bidder for Good Faith Efforts outlined in this document will be considered, along with any other relevant factors.

D. OBLIGATION OF BIDDER FOR GOOD FAITH EFFORTS

- 1) **The bidder shall make a Good Faith Effort to achieve the Participation Goal for MWDBE subcontractors/suppliers. The failure to meet the goal shall not necessarily be cause for disqualification of the bidder; however, bidders not meeting the goal are required to furnish with their bids written documentation of their Good Faith Efforts to do so.**
- 2) Award of Contract shall be conditioned upon satisfaction of the requirements set forth herein.
- 3) The Form of Proposal includes a section entitled “MWDBE Participation Form”. The applicable information must be completed and submitted as outlined below.
- 4) **Failure to submit this information as requested may be cause for rejection of bid.**

E. DOCUMENTATION REQUIRED FOR GOOD FAITH EFFORTS

- 1) Bidders reaching the Goal are required to submit only the MWDBE Participation Form.” The form must be fully completed including names and telephone number of participating MWDBE firm(s); type of work to be performed; estimated value of the contract and value expressed as a percentage of the total Lump Sum Bid Price. The form must be signed and dated, and is to be submitted with the bid.
- 2) Bidders not reaching the Goal must submit the “MWDBE Participation Form”, the “Quote Summary Form” and a written statement documenting their Good Faith Effort to do so. If bid includes no MWDBE participation, bidder shall enter “None” on the subcontractor / supplier form). In addition, the bidder must submit written proof of their Good Faith Efforts to meet the Participation Goal:
 - a. Advertised opportunities to participate in the contract in at least two (2) publications of general circulation media; trade and professional association publications; small and minority business or trade publications; and publications or trades targeting minority, women and disadvantaged businesses not less than fifteen (15) days prior to the deadline for submission of bids to allow MWDBE

firms to participate.

b. Included documentation of advertising in the above publications with the bidders good faith efforts package

c. Attended LFUCG Central Purchasing Economic Inclusion Outreach event

d. Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs of subcontracting opportunities

e. Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms

f. Requested a list of MWDBE subcontractors or suppliers from LFUCG Economic Engine and showed evidence of contacting the companies on the list(s).

g. Contacted organizations that work with MWDBE companies for assistance in finding certified MWDBE firms to work on this project. Those contacted and their responses should be a part of the bidder's good faith efforts documentation.

h. Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs soliciting their participation in the contract not less than seven (7) days prior to the deadline for submission of bids to allow them to participate effectively.

i. Followed up initial solicitations by contacting MWDBEs to determine their level of interest.

j. Provided the interested MWDBE firm with adequate and timely information about the plans, specifications, and requirements of the contract.

k. Selected portions of the work to be performed by MWDBE firms in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MWDBE participation, even when the prime contractor may otherwise perform these work items with its own workforce

l. Negotiated in good faith with interested MWDBE firms not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached.

m. Included documentation of quotations received from interested MWDBE firms which were not used due to uncompetitive pricing or were rejected as unacceptable and/or copies of responses from firms indicating that they would not be submitting a bid.

n. Bidder has to submit sound reasons why the quotations were considered unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a MWDBE quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy MWDBE goals.

o. Made an effort to offer assistance to or refer interested MWDBE firms to obtain the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal

p. Made efforts to expand the search for MWBE firms beyond the usual geographic boundaries.

q. Other--any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include MWDBE participation.

Failure to submit any of the documentation requested in this section may be cause for rejection of bid. Bidders may include any other documentation deemed relevant to this requirement. Documentation of Good Faith Efforts are to be submitted with the Bid, if the participation Goal is not met.



MINORITY BUSINESS ENTERPRISE PROGRAM

Marilyn Clark
Minority Business Enterprise Liaison
Division of Central Purchasing
Lexington-Fayette Urban County Government
200 East Main Street
Lexington, KY 40507
mclark@lexingtonky.gov
859-258-3323

OUR MISSION: The mission of the Minority Business Enterprise Program is to facilitate the full participation of minority and women owned businesses in the procurement process and to promote economic inclusion as a business imperative essential to the long term economic viability of Lexington-Fayette Urban County Government.

To that end the city council adopted and implemented resolution 167-91—Disadvantaged Business Enterprise (DBE) 10% Goal Plan in July of 1991. The resolution states in part (a full copy is available in Central Purchasing):

“A Resolution supporting adoption of the administrative plan for a ten percent (10%) Minimum goal for disadvantaged business enterprise participation in Lexington-Fayette Urban County Government construction and professional services contracts; Providing that as part of their bids on LFUCC construction contracts, general Contractors shall make a good faith effort to award at least ten percent (10%) of All subcontracts to disadvantaged business enterprises; providing that divisions of LFUCC shall make a good faith effort to award at least ten percent of their Professional services and other contracts to disadvantaged business enterprises...”

A Disadvantaged Business Enterprise is defined as a business that has been certified as being at least 51% owned, operated and managed by a U.S. Citizen of the following groups:

- African-American
- Hispanic-American
- Asian/Pacific Islander
- Native American/Native Alaskan
- Non-Minority Female
- Economically and Socially Disadvantaged

We have compiled the list below to help you locate certified MBE, WBE and DBE certified businesses. Below is a listing of contacts for LFUCG Certified MWDBEs in Economic Engine (<https://lfucg.economicengine.com>)

Business	Contact	Email Address	Phone
LFUCG	Marilyn Clark	mclark@lexingtonky.gov	859-258-3323
Commerce Lexington – Minority Business Development	Tyrone Tyra	TTYRA@commercelexington.com	859-226-1625
Tri-State Minority Supplier Diversity Council	Sonya Brown	sbrown@tsmsdc.com	502-625-0137
Small Business Development Council	Dee Dee Harbut UK SBDC	dharbut@uky.edu	
	Shiree Mack	smack@uky.edu	
Community Ventures Corporation	James Coles	jcoles@cvcky.org	859-231-0054
KY Department of Transportation	Melvin Bynes	Melvin.bynes@ky.gov	502-564-3601
	Shella Eagle	Shella.Eagle@ky.gov	502-564-3601
Ohio River Valley Women’s Business Council (WBENC)	Rea Waldon	rwaldon@gcul.org	513-487-6534
Kentucky MWBE Certification Program	Yvette Smith, Kentucky Finance Cabinet	Yvette.Smith@ky.gov	502-564-8099
National Women Business Owner’s Council (NWBOC)	Janet Harris-Lange	janet@nwbo.org	800-675-5066
Small Business Administration	Robert Coffey	robertcoffey@sba.gov	502-582-5971
LaVoz de Kentucky	Andres Cruz	lavozdeky@yahoo.com	859-621-2106
The Key News Journal	Patrice Muhammad	paatricem@keynewsjournal.com	859-373-9428



LFUCG MWDBE PARTICIPATION FORM

Bid/RFP/Quote Reference # _____

The MWDBE subcontractors listed have agreed to participate on this Bid/RFP/Quote. If any substitution is made or the total value of the work is changed prior to or after the job is in progress, it is understood that those substitutions must be submitted to Central Purchasing for approval immediately.

MWDBE Company, Name, Address, Phone, Email	Work to be Performed	Total Dollar Value of the Work	% Value of Total Contract
1.			
2.			
3.			
4.			

The undersigned company representative submits the above list of MWDBE firms to be used in accomplishing the work contained in this Bid/RFP/Quote. Any misrepresentation may result in the termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

Company

Company Representative

Date

Title



LFUCG MWDBE SUBSTITUTION FORM

Bid/RFP/Quote Reference # _____

The substituted MWDBE subcontractors listed below have agreed to participate on this Bid/RFP/Quote. These substitutions were made prior to or after the job was in progress. These substitutions were made for reasons stated below and are now being submitted to Central Purchasing for approval. By the authorized signature of a representative of our company, we understand that this information will be entered into our file for this project.

SUBSTITUTED MWDBE Company Name, Address, Phone, Email	MWDBE Formally Contracted/ Name, Address, Phone, Email	Work to Be Performed	Reason for the Substitution	Total Dollar Value of the Work	% Value of Total Contract
1.					
2.					
3.					
4.					

The undersigned acknowledges that any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

Company

Company Representative

Date

Title



MWDBE QUOTE SUMMARY FORM

Bid/RFP/Quote Reference # _____

The undersigned acknowledges that the minority subcontractors listed on this form did submit a quote to participate on this project.

Company Name	Contact Person
Address/Phone/Email	Bid Package / Bid Date

MWDBE Company Address	Contact Person	Contact Information (work phone, Email, cell)	Date Contacted	Services to be performed	Method of Communication (email, phone meeting, ad, event etc)	Total dollars \$\$ Do Not Leave Blank (Attach Documentation)	MBE * AA HA AS NA Female

(MBE designation / AA=African American / HA= Hispanic American/AS = Asian American/Pacific Islander/ NA= Native American)

The undersigned acknowledges that all information is accurate. Any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

Company

Company Representative

Date

Title



LFUCG SUBCONTRACTOR MONTHLY PAYMENT REPORT

The LFUCG has a 10% goal plan adopted by city council to increase the participation of minority and women owned businesses in the procurement process. In order to measure that goal LFUCG will track spending with MWDBE vendors on a monthly basis. By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentation may result in termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims. Please submit this form monthly to the Division of Central Purchasing/ 200 East Main Street / Room 338 / Lexington, KY 40507.

Bid/RFP/Quote # _____
Total Contract Amount Awarded to Prime Contractor for this Project _____

Project Name/ Contract #	Work Period/ From: _____ To: _____
Company Name:	Address:
Federal Tax ID:	Contact Person:

Subcontractor Vendor ID (name, address, phone, email)	Description of Work	Total Subcontract Amount	% of Total Contract Awarded to Prime for this Project	Total Amount Paid for this Period	Purchase Order number for subcontractor work (please attach PO)	Scheduled Project Start Date	Scheduled Project End Date

By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentations may result in the termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims.

Company

Company Representative

Date

Title

LFUCG STATEMENT OF GOOD FAITH EFFORTS

Bid/RFP/Quote # _____

By the signature below of an authorized company representative, we certify that we have utilized the following Good Faith Efforts to obtain the maximum participation by MWDBE business enterprises on the project and can supply the appropriate documentation.

- _____ Advertised opportunities to participate in the contract in at least two (2) publications of general circulation media; trade and professional association publications; small and minority business or trade publications; and publications or trades targeting minority, women and disadvantaged businesses not less than fifteen (15) days prior to the deadline for submission of bids to allow MWDBE firms to participate.
- _____ Included documentation of advertising in the above publications with the bidders good faith efforts package
- _____ Attended LFUCG Central Purchasing Economic Inclusion Outreach event
- _____ Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs of subcontracting opportunities
- _____ Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms
- _____ Requested a list of MWDBE subcontractors or suppliers from LFUCG Economic Engine and showed evidence of contacting the companies on the list(s).
- _____ Contacted organizations that work with MWDBE companies for assistance in finding certified MWDBE firms to work on this project. Those contacted and their responses should be a part of the bidder's good faith efforts documentation.
- _____ Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs soliciting their participation in the contract not less than seven (7) days prior to the deadline for submission of bids to allow them to participate effectively.
- _____ Followed up initial solicitations by contacting MWDBEs to determine their level of interest.
- _____ Provided the interested MWDBE firm with adequate and timely information about the plans, specifications, and requirements of the contract.

- _____ Selected portions of the work to be performed by MWDBE firms in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MWDBE participation, even when the prime contractor may otherwise perform these work items with its own workforce
- _____ Negotiated in good faith with interested MWDBE firms not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached.
- _____ Included documentation of quotations received from interested MWDBE firms which were not used due to uncompetitive pricing or were rejected as unacceptable and/or copies of responses from firms indicating that they would not be submitting a bid.
- _____ Bidder has to submit sound reasons why the quotations were considered unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a MWDBE quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy MWDBE goals.
- _____ Made an effort to offer assistance to or refer interested MWDBE firms to obtain the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal
- _____ Made efforts to expand the search for MWBE firms beyond the usual geographic boundaries.
- _____ Other - any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include MWDBE participation.

Failure to submit any of the documentation requested in this section may be cause for rejection of bid. Bidders may include any other documentation deemed relevant to this requirement. Documentation of Good Faith Efforts are to be submitted with the Bid, if the participation Goal is not met.

The undersigned acknowledges that all information is accurate. Any misrepresentations may result in termination of the contract and/or be subject to applicable Federal and State laws

concerning false statements and claims.

Company

Company Representative

Date

Title

**RISK MANAGEMENT PROVISIONS
INSURANCE AND INDEMNIFICATION**

INDEMNIFICATION AND HOLD HARMLESS PROVISION

- (1) It is understood and agreed by the parties that Vendor hereby assumes the entire responsibility and liability for any and all damages to persons or property caused by or resulting from or arising out of any act or omission on the part of Vendor or its employees, agents, servants, owners, principals, licensees, assigns or subcontractors of any tier (hereinafter "Vendor") under or in connection with this agreement and/or the provision of goods or services and the performance or failure to perform any work required thereby.
- (2) Vendor shall indemnify, save, hold harmless and defend the Lexington-Fayette Urban County Government and its elected and appointed officials, employees, agents, volunteers, and successors in interest (hereinafter "LFUCG") from and against all liability, damages, and losses, including but not limited to, demands, claims, obligations, causes of action, judgments, penalties, fines, liens, costs, expenses, interest, defense costs and reasonable attorney's fees that are in any way incidental to or connected with, or that arise or are alleged to have arisen, directly or indirectly, from or by Vendor's performance or breach of the agreement and/or the provision of goods or services provided that: (a) it is attributable to personal injury, bodily injury, sickness, or death, or to injury to or destruction of property (including the loss of use resulting therefrom), or to or from the negligent acts, errors or omissions or willful misconduct of the Vendor; and (b) not caused solely by the active negligence or willful misconduct of LFUCG.
- (3) In the event LFUCG is alleged to be liable based upon the above, Vendor shall defend such allegations and shall bear all costs, fees and expenses of such defense, including but not limited to, all reasonable attorneys' fees and expenses, court costs, and expert witness fees and expenses, using attorneys approved in writing by LFUCG, which approval shall not be unreasonably withheld.
- (4) These provisions shall in no way be limited by any financial responsibility or insurance requirements, and shall survive the termination of this agreement.

FINANCIAL RESPONSIBILITY

BIDDER/VENDOR understands and agrees that it shall, prior to final acceptance of its bid and the commencement of any work, demonstrate the ability to assure compliance with the above Indemnity provisions and these other risk management provisions.

INSURANCE REQUIREMENTS

YOUR ATTENTION IS DIRECTED TO THE INSURANCE REQUIREMENTS BELOW, AAND YOU MAY NEED TO CONFER WITH YOUR INSURANCE AGENTS, BROKERS, OR CARRIERS TO DETERMINE IN ADVANCE OF SUBMISSION OF A RESPONSE THE AVAILABILITY OF THE INSURANCE COVERAGES AND ENDORSEMENTS REQUIRED HEREIN. IF YOU FAIL TO COMPLY WITH THE INSURANCE REQUIREMENTS BELOW, YOU MAY BE DISQUALIFIED FROM AWARD OF THE CONTRACT.

Required Insurance Coverage

Vendor shall procure and maintain for the duration of this contract the following or equivalent insurance policies at no less than the limits shown below and cause its subcontractors to maintain similar insurance with limits acceptable to LFUCG in order to protect LFUCG against

claims for injuries to persons or damages to property which may arise from or in connection with the provision of equipment or goods or the performance of the work or services hereunder by Vendor. The cost of such insurance shall be included in any bid:

<u>Coverage</u>	<u>Limits</u>
General Liability (Insurance Services Office Form CG 00 01)	\$1 million per occurrence, \$2 million aggregate or \$2 million combined single limit
Commercial Automobile Liability (Insurance Services Office Form CA 0001)	combined single, \$1 million per occurrence
Worker's Compensation	Statutory
Employer's Liability	\$500,000.00

The policies above shall contain the following conditions:

- a. All Certificates of Insurance forms used by the insurance carrier shall be properly filed and approved by the Department of Insurance for the Commonwealth of Kentucky. LFUCG shall be named as an additional insured in the General Liability Policy and Commercial Automobile Liability Policy using the Kentucky DOI approved forms.
- b. The General Liability Policy shall be primary to any insurance or self-insurance retained by LFUCG.
- c. The General Liability Policy shall include a Products Liability endorsement unless deemed not to apply by LFUCG.
- d. The General Liability Policy shall include a Pollution liability and/or Environmental Casualty endorsement unless it is deemed not to apply by LFUCG.
- e. LFUCG shall be provided at least 30 days advance written notice via certified mail, return receipt requested, in the event any of the required policies are canceled or non-renewed.
- f. Said coverage shall be written by insurers acceptable to LFUCG and shall be in a form acceptable to LFUCG. Insurance placed with insurers with a rating classification of no less than Excellent (A or A-) and a financial size category of no less than VIII, as defined by the most current Best's Key Rating Guide shall be deemed automatically acceptable.

Renewals

After insurance has been approved by LFUCG, evidence of renewal of an expiring policy must be submitted to LFUCG, and may be submitted on a manually signed renewal endorsement form. If the policy or carrier has changed, however, new evidence of coverage must be submitted in accordance with these Insurance Requirements.

Deductibles and Self-Insured Programs

IF YOU INTEND TO SUBMIT A SELF-INSURANCE PLAN IT MUST BE FORWARDED TO LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT, DIVISION OF RISK MANAGEMENT, 200 EAST MAIN STREET, LEXINGTON, KENTUCKY 40507 NO LATER THAN A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO THE RESPONSE DATE. Self-insurance programs, deductibles, and self-insured retentions in insurance policies are subject to separate approval by Lexington-Fayette Urban County Government's Division of Risk Management, upon

review of evidence of Vendor's financial capacity to respond to claims. Any such programs or retentions must provide LFUCG with at least the same protection from liability and defense of suits as would be afforded by first-dollar insurance coverage. If Vendor satisfies any portion of the insurance requirements through deductibles, self-insurance programs, or self-insured retentions, Vendor agrees to provide Lexington-Fayette Urban County Government, Division of Risk Management, the following data prior to the final acceptance of bid and the commencement of any work:

- a. Latest audited financial statement, including auditor's notes.
- b. Any records of any self-insured trust fund plan or policy and related accounting statements.
- c. Actuarial funding reports or retained losses.
- d. Risk Management Manual or a description of the self-insurance and risk management program.
- e. A claim loss run summary for the previous five (5) years.
- f. Self-Insured Associations will be considered.

Safety and Loss Control

Vendor shall comply with all applicable federal, state, and local safety standards related to the performance of its works or services under this Agreement and take necessary action to protect the life, health and safety and property of all of its personnel on the job site, the public, and LFUCG.

Verification of Coverage

Vendor agrees to furnish LFUCG with all applicable Certificates of Insurance signed by a person authorized by the insurer to bind coverage on its behalf prior to final award, and if requested, shall provide LFUCG copies of all insurance policies, including all endorsements.

Right to Review, Audit and Inspect

Vendor understands and agrees that LFUCG may review, audit and inspect any and all of its records and operations to insure compliance with these Insurance Requirements.

DEFAULT

Vendor understands and agrees that the failure to comply with any of these insurance, safety, or loss control provisions shall constitute default and that LFUCG may elect at its option any single remedy or penalty or any combination of remedies and penalties, as available, including but not limited to purchasing insurance and charging Vendor for any such insurance premiums purchased, or suspending or terminating the work.

00420007

Lexington Fayette Urban County Government
Division of Facilities Management
Water Treatment for Heating & Cooling Systems

The contract for water treatment of boilers, cooling towers, and closed-loops systems will be based on two categories of pricing. First, the vendor must price out the cost of labor for treating the various systems at indicated locations. The second price schedule is for the cost of chemicals per the size/quantity sold. The cost for labor/service and pricing for chemicals must be separate. The selected vendor will be awarded contract that guarantees payment for labor/service and for the chemicals as used.

Service Requirements:

1. The selected vendor must service systems between the 1st and 5th day of each month. The vendor's service technician is required to call 859-258-3920 prior to each visit and establish contact with the Facility Manager for HVAC in the Division of Facilities Management.
2. Bid proposal must include a detailed specification sheet for the testing to be conducted with a general explanation of acceptable parameters for each test.
3. Testing and service reports must be done on site. Record results on site log book.
4. A representative from the Division of Facilities Management must sign all service records in order to verify the quality of service and to discuss any problems that might have been identified. No other LFUCG personnel are authorized to sign service records.
5. All service records shall be delivered to the Division of Facilities Management's office on the day service is provided. If this is not possible, the selected vendor shall contact the Division of Facilities Management and state when the service records will be mailed or delivered.
6. All chemicals, equipment, or other supplies needed for service shall be delivered to the various locations as stated in the bid specs at the time each service application.
7. The selected vendor must remove all empty containers, boxes, and any other non-usable products from each location at the time service is rendered. Storage of excess chemicals, materials, and surplus at site locations is strictly prohibited.
8. If needed, the selected vendor shall loan equipment required to provide service such as pumps, tanks, and serviceable equipment, to the LFUCG until the contract expires. All equipment on loan must be clearly labeled and identifiable. It is the responsibility of the vendor to remove such equipment when contract expires.
9. Whenever possible, the selected vendor must provide maintenance and repairs to ALL serviceable equipment on site.
10. The selected vendor must provide a statement of service guarantee and any limitations of the service, implied or otherwise stated.
11. The vendor shall submit a statement that guarantees response time for emergency situations.

Chemical Specification:

1. Each bid must provide a summary sheet specifying their recommended chemical regimen for treatment of boilers, cooling towers, and closed-loop systems.
2. The information provided must clearly indicate the chemicals to be used for each type of system (i.e. – boilers, cooling towers, closed-loop system).

3. In the event that the recommended chemicals do not perform as guaranteed, the bid must specify the second choice of chemicals to use as an alternative.
4. The vendor must price the cost of each type of chemical per the size of the container. If sold in various quantities, the vendor should price all sizes.
5. The bid must include a price for the test indicator kits used to test closed loop systems. Since there are many closed loop systems throughout the government facilities, the testing and service of any closed loop systems not listed below will be awarded to the selected vendor. This service will be scheduled and invoiced separately as needed.
6. The vendor must provide copies of all material safety data sheets for each chemical listed on the information sheet(s) provided for consideration.
7. Chemicals will be in factory sealed container.

SITE LOCATIONS, SYSTEMS, SERVICE AND CHEMICAL PRICING SCHEDULE:

Pricing below should reflect cost of labor only. Do not reflect the cost of chemicals in estimating the cost of service for the areas below. All chemicals will be purchased as needed/used according to the separate price schedule submitted for chemicals and test kits.

SERVICE ONLY

<u>Locations</u>	<u>Price</u>
1. Government Center – 200 E. Main Street <ul style="list-style-type: none"> • Hot water boilers (4) • Chilled water loop 	<u>\$ 50⁰⁰</u> per month x 12 = <u>\$ 600.00</u>
2. Carnegie Center – 251 W Second Street <ul style="list-style-type: none"> • Cooling tower • Hot water boiler loop 	<u>\$ 50⁰⁰</u> per month x 12 = <u>\$ 600.00</u>
3. Family Care Center – 1135 Red Mile Place <ul style="list-style-type: none"> • Hot water boiler (2) • Cooling tower • Closed loop 	<u>\$ 50⁰⁰</u> per month x 12 = <u>\$ 600.00</u>
4. Kearney Hills Club House – 3403 Kearney Rd. <ul style="list-style-type: none"> • Cooling tower • Closed loop 	<u>\$ 50⁰⁰</u> per month x 12 = <u>\$ 600.00</u>
5. Police Roll Call – 1795 Old Frankfort Pike <ul style="list-style-type: none"> • Hot water boiler • Cooling tower • Closed loop 	<u>\$ 50⁰⁰</u> per month x 12 = <u>\$ 600.00</u>
6. Phoenix Building – 101 Vine Street <ul style="list-style-type: none"> • Cooling tower • Closed loop 	<u>\$ 50⁰⁰</u> per month x 12 = <u>\$ 600.00</u>
7. Day Treatment – 1177 Red Mile Place <ul style="list-style-type: none"> • Geothermal loop 	<u>\$ 50⁰⁰</u> per month x 12 = <u>\$ 600.00</u>

- 8. Downtown Arts Center - 141 E Main St.
 - Hot water boiler
 - Hot water loop
 - Chilled water loop $\$50^{00}$ per month x 12 = $\$600.00$
- 9. Government Center Annex - 162 E Main St.
 - Hot water boilers (2)
 - Closed loop $\$50^{00}$ per month x 12 = $\$600.00$
- 10. Police HQ - 150 E Main Street
 - Hot water boiler
 - Hot water loop
 - Chilled water loop $\$50^{00}$ per month x 12 = $\$600.00$
- 11. Waste Management - 675 Byrd Thurman Dr
 - Geothermal loop $\$50^{00}$ per month x 12 = $\$600.00$
- 12. DEEM - 115 Cisco Road
 - Hot water boiler
 - Closed loop $\$50^{00}$ per month x 12 = $\$600.00$

OTHER SERVICE CHARGES i.e., REPAIRS:

For charges not covered under the bid requirements or those cost that are not expressed in vendors guarantee of services provided, please itemize your company's charges as listed below.

- 1. Regular labor charges \$ 50.00 per hour
- 2. Overtime labor charges \$ None per hour
- 3. After hour(s) emergency call out \$ 100.00 per hour

CHEMICALS AND TEST KITS - Pricing below should reflect cost of chemicals only.

Type of System	Chemical	Alternate Chemical	Price	Unit of Measure
HOT WATER § CHILLED WATER CLOSED LOOPS	<u>PRIMARY</u> CA-777		\$ 2.74	per pound
		<u>BACK UP</u> CA-999	\$ 4.00	per pound
HOT WATER BOILERS	CA-777		\$ 2.74	per pound
		CA-999	\$ 4.00	per pound
COOLING TOWER SCALE § CORROSION	CA-15000		\$ 4.47	per pound
		CA-15000MTP	\$ 5.06	per pound
COOLING TOWER OXIDIZING BIOCIDES	MB-38		\$ 1.27	per pound
		CA-42171	\$ 5.34	per pound
COOLING TOWER NON OXIDIZING BIOCIDES	MB-215		\$ 4.77	per pound
		BACTICIDE 45	\$ 10.21	per pound
GEOTHERMAL	GLYCOL		OPEN MARKET	
		CA-777	\$ 2.74	per pound

TEST KITS

§ NO CHARGE - Furnished As Needed

**Lexington Fayette Urban County Government
Bid # 163-2013**

ChemAqua Corp

RE: Operating Parameters for Bid Chemicals

Cooling Tower Biocides

MB-38 and CA-42171 are both Oxidizing Biocides and should be added based on the Tower System Volumes. System volumes will be determined upon start up using ChemAqua.

MB-215 and Bacticide 45 are both Non Oxidizing Biocides and should be added based on Tower System Volumes. System volumes will be determined upon start up using Chem Aqua.

Cooling Tower Scale and Corrosion Inhibitors

CA-15000 Best Organic Chemical for Calcium Carbonate Scale and Corrosion Control. The feed rate is 100-200 ppm and test for Phosphonate at 5-10 ppm or Phosphate at 1.9-3.8 ppm.

CA-15000MTP Best Organic Chemical for Calcium Carbonate Scale and Corrosion Control. In addition CA-15000MTP has excellent Copper protection for those systems with high copper content. Feed rate is 100-140 ppm and the test is for Molybdenum at 0.25 to 0.35 ppm.

Hot Water/ Chilled Water Closed Loops and Hot Water Boilers Systems

CA-777 and CA-999 are both NO₂ (Nitrite) based chemicals also containing a blend of Borate, Caustic, TTA, and Polymer used for scale and corrosion control in closed water systems. Chilled Water NO₂ (Nitrite) levels should be maintained at 600-1000 free NO₂ (Nitrite) and Hot Water NO₂ (Nitrite) should be maintained at 800-1600 ppm free NO₂ (Nitrite) levels.

Geothermal Systems

If the present Geothermal System is treated with a Glycol based chemical then this should be purchased on the open market for the best price. If the system is treated with a NO₂ (Nitrite) based chemical then either CA-777 or CA-999 should be used.



SMART™ Field Service Report

Company: LEXINGTON FAYETTE URBAN COUNTY GOVERNMENT (SCORE_294513)
200 EAST MAIN ST

January 06, 2014

LEXINGTON, KY 40502

Contact:

Your Representative:

CONGLETON, Mr. MICHAEL S (SCOTT)

SCOTT.CONGLETON@CHEMAQUA.COM

Cooling Water Advanced

City Water Make Up

Sample: Make-Up

Lexington City Water

Cond	Calcium	Hardness	Total Alk	pH
386	78.0	160.0	87.00	7.40

STATUS

Make-up water is normal for this time of year.

ACTIONS

No action required at this time.

Sample: Tower

Main Tower # 1

STATUS

Treatment levels and bleed are within recommended ranges for good scale and corrosion control. Keep up the good work.

ACTIONS

CA-15000 is the Best Organic Chem for Calcium Carbonate Scale Control. It is a phosphonate based chemical and should be maintained at 0.25 to 0.35 ppm in the tower. CA-15000MTP is also an extremely good calcium carbonate scale control chemical with excellent corrosion control for high copper systems. Biocides: MB-38, CA-42171, MB-215, and Bactricide 45 are all added based on tower volumes. Individual Tower volumes will be determined at the start up of the ChemAqua program and biocides added accordingly.

Chem-Aqua Headquarters 1-800-527-9921

ANCO Headquarters 1-800-476-4262

Irving, TX ; Monmouth Junction, NJ ; Jacksonville, FL ; Macon, GA ; Las Vegas, NV ; Brampton, ON

200 EAST MAIN ST

LEXINGTON, KY 40502

Contact:

Your Representative:

CONGLETON, Mr. MICHAEL S (SCOTT)

SCOTT.CONGLETON@CHEMAQUA.COM

Sample: Closed Chilled Water

closed chilled water

STATUS

Nitrite level is within recommended limits.

ACTIONS

CA-777 and CA-999 are both Nitrite (NO2) based corrosion control chemicals. For Chilled Closed Loops keep the Nitrite levels between 600-1000.

ID	Pumps		ID	Controllers		
	Speed	Stroke		Cond	pH	Meter Cntr

Name

Quantity

Customer Signature

Rep. Signature

New Field Service Report

Company:

LEXINGTON FAYETTE URBAN COUNTY GOVERNMENT (200 EAST MAIN ST.) - [SCORE 294513]

Reports:

0

Header Locked

Hours Spent At Service:

Company:

LEXINGTON FAYETTE URBAN COUNTY GOVERNMENT

Address:

200 EAST MAIN ST
LEXINGTON, KY 40502

Contact:

Phone Number:

Email:

Date:

1/6/

Acct #:

SCORE 294513

Rep:

CONGLETON, Mr. MICHAEL S (SCOTT) #USCA4

Phone:

Email:

SCOTT.CONGLETON@CHEMAQUA.COM

Additional Contacts:

System: Cooling Water Advanced

Description: City Water Make Up

Sample: Make-Up

Description:

Water: **Bacteria:** < 10^0

Cond	RECORD	RECORD	RECORD	RECORD	RECORD	RECORD	RECORD
Calcium	386.000	78.000	160.000		87.000	7.400	
Hardness							
P. Alk							
Total Alk							
pH							
Chloride							
Silica							
Phosphate	RECORD	RECORD	RECORD	RECORD	RECORD	RECORD	RECORD
Iron							
Free Hal							
{Misc}							
{Misc}							
{Misc}							
RECORD	RECORD	RECORD	RECORD	RECORD	RECORD	RECORD	RECORD

Status: Make-up water is normal for this time of year.

Make-up water is normal for this time of year.

Actions: No action required at this time.

No action required at this time.

Sample: Tower **Description:** Main Tower # 1

Water: Cycles: 0.00 **LSI:** 0.00 @ Bacteria: < 10⁶

Cond							
Calcium							
Total Alk							
pH							
Chloride							
Silica							
Molybdenum							
Phosphate							
1000-1200	180-240	Max 500	7.4-8.9	RECORD	RECORD	0.25-0.35	1.9-3.8
Phosphonat							
Azole							
Free Hal							
Turbidity							
Iron							
Copper							
{Misc}							
5-10	RECORD	RECORD	RECORD	<0.10	<0.50	RECORD	

Status: Treatment levels and bleed are within recommended ranges for good scale and corrosion control. Keep up good work.

Treatment levels and bleed are within recommended ranges for good scale and corrosion control. Keep up the good work.

Actions:

CA-15000 is the Best Organic Chem for Calcium Carbonate Scale Control. It is a phosphonate based chemical and should be maintained at 0.25 to 0.35 ppm in the tower. CA-15000MTP Is also an extremely good calcium carbonate scale control chemical excellent corrosion control for high copper systems. Biocides: MB-38, CA-42171, MB-215, and Bactricide 45 are all added based tower volumes. Individual Tower volumes will be determined at the start up of the ChemAqua program and biocides added accor

Sample: Closed Chilled Water **Description:** closed chilled water

Water: Bacteria: < 10^0

Cond							
pH							
NaNO2							
Molybdenum							
Silica							
Azole							
Turbidity							
Iron							
Max 3500	8.5-10.5	600-1000	RECORD	RECORD	RECORD	RECORD	<1.0
Copper							
{Misc}							
{Misc}							
{Misc}							
{Misc}							
<1.0	RECORD	RECORD	RECORD	RECORD			

Status: Nitrite level is within recommended limits.

Nitrite level is within recommended limits.

Actions:

CA-777 and CA-999 are both Nitrite (NO2) based corrosion control chemicals. For Chilled Closed Loops keep the Nitrite levels bet 600-1000.

Pump Settings:			Controller Settings: Controller Type: <input checked="" type="checkbox"/>		
Speed:	Stroke:	ID:	Conductivity	pH	ID
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
			Meter Counter	Timer	
			<input type="text"/>	<input type="text"/>	

Products:

Product Name:	Quantity:	Unit of Measure:
<input type="text"/>	<input type="text"/>	<input type="text"/>

System Notes:

Show/Hide System Notes

Cust. Signature

Rep. Signature

Sample: Tower Description: Cooling Tower Water

Water: Cycles: 0.00 LSI: 0.00 @ Bacteria: < 10^0

Cond							
Calcium							
Total Alk							
pH							
Chloride							
Silica							
Molybdenum							
Phos[hate							
1400-1600	260-300	260-300	7.5-8.9	RECORD	RECORD	0.25-0.75	RECORD
Phosphon							
Iron							
Copper							
{Misc}							
{Misc}							
RECORD	RECORD	RECORD	RECORD	RECORD			

Status:

Actions:

Sample: Closed Chilled Water Description: Closed Chilled Water Loo

Water: Bacteria: < 10^0

Cond							
pH							
NaNO2							
Molybdenum							
Silica							
Iron							
Copper							
{Misc}							
RECORD	8.5-10.5	600-1000	RECORD	RECORD	<2.5	<0.50	RECORD

Material Safety Data Sheet: CHEM-AQUA 777

Supersedes Date 09/25/2008

Issuing Date 09/06/2011

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name CHEM-AQUA 777
Recommended use Water treatment chemical
Information on Manufacturer
 CHEM-AQUA, INC
 BOX 152170
 IRVING, TEXAS 75015

Product Code 0182
Chemical nature Aqueous solution of alkali salts
Emergency Telephone Number
 CHEMTREC 1-800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview

WARNING

Severe skin irritation
 Severe eye irritation
 May cause allergic skin reaction
 May cause allergic respiratory reaction
 May be harmful if inhaled
 Harmful if swallowed

Color dark violet

Physical State Liquid

Odor Odorless

Potential Health Effects

Principle Route of Exposure

Skin contact, Eye contact, Inhalation.

Primary Routes of Entry

Inhalation, Ingestion, Skin Absorption.

Acute Effects

Eyes

Severe irritation.

Skin

Severe irritation. May cause allergic skin reaction.

Inhalation

Irritating to respiratory system. May cause allergic respiratory reaction. Methemoglobinemia. Blood disorder may occur after prolonged inhalation.

Ingestion

Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May produce an allergic reaction. Blood disorder may occur after ingestion. Components of the product create formation of methemoglobin.

Chronic Toxicity

The absorption of this product into the body may lead to the formation of methemoglobin that, in sufficient concentration, causes cyanosis. May cause sensitization of susceptible persons. Contains a known or suspected carcinogen. Liver and kidney injuries may occur.

Target Organ Effects

Aggravated Medical Conditions

Liver, Kidney, Spleen, Blood, Heart, Bone Marrow, Respiratory system, Central Nervous System, Eyes, Skin. Skin disorders, Respiratory disorders, Neurological disorders, Blood disorders, Liver disorders, Kidney disorders, Heart disease.

Potential Environmental Effects

See Section 12 for additional Ecological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No
Sodium nitrite	7632-00-0
Sodium metaborate, anhydrous	7775-19-1
Sodium sulfite	7757-83-7
Sodium hydroxide	1310-73-2
Phenolphthalein	77-09-8

4. FIRST AID MEASURES

General Advice

Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mists.

Eye Contact

Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention immediately.

Skin Contact

Remove immediately all contaminated clothing. Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately.

Inhalation

Move to fresh air. In case of shortness of breath, give oxygen. If breathing has stopped, apply artificial respiration. Get medical attention immediately.

Ingestion

Drink 1 or 2 glasses of water. Do NOT induce vomiting. Get medical attention immediately. Never give anything by mouth to an unconscious person.

Notes to physician

Since reversion of methemoglobin to hemoglobin occurs spontaneously after termination of exposure, moderate degrees of cyanosis need to be treated only by supportive measures. May cause sensitization of susceptible persons.

5. FIRE-FIGHTING MEASURES

Flash Point

Does not flash

Method

Not applicable

Autoignition Temperature No information available.

Flammability Limits in Air % Hydrogen, by reaction with metals.

Upper 75%

Lower 4%

Suitable Extinguishing Media

Water spray. Carbon dioxide (CO2). Foam. Alcohol-resistant foam. Dry chemical. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific hazards arising from the chemical

Material can create slippery conditions.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA	Health 2	Flammability 1	Instability 0
HMIS	Health 2	Flammability 1	Instability 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Use personal protective equipment. Ensure adequate ventilation. Prevent further leakage or spillage if safe to do so. Material can create slippery conditions.
Environmental Precautions	Do not flush into surface water or sanitary sewer system.
Methods for Containment	Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).
Methods for Cleaning Up	Pick up and transfer to properly labeled containers.
Neutralizing Agent	Neutralize with hydrochloric acid.

7. HANDLING AND STORAGE

Handling	Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mists.			
Storage	Store in original container. Keep container tightly closed in a dry and well-ventilated place. Freezing will affect the physical condition but will not damage the material. Thaw and mix before using.			
Storage Temperature	Minimum	35 °F / 2 °C	Maximum	120 °F / 49 °C
Storage Conditions	Indoor	X	Outdoor	
			Heated	
			Refrigerated	

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH
Sodium nitrite	No data available	No data available	No data available
Sodium metaborate, anhydrous	TWA: 2 mg/m ³ STEL: 6 mg/m ³	No data available	No data available
Sodium sulfite	No data available	No data available	No data available
Sodium hydroxide	Ceiling: 2 mg/m ³	TWA: 2 mg/m ³	IDLH: 10 mg/m ³ Ceiling: 2 mg/m ³
Phenolphthalein	No data available	No data available	No data available

Engineering Measures	Use with local exhaust ventilation. Ensure adequate ventilation, especially in confined areas.
Personal Protective Equipment	
Eye/Face Protection	Tightly fitting safety goggles.
Skin Protection	Wear suitable protective clothing. Impervious gloves.
Respiratory Protection	In case of inadequate ventilation wear respiratory protection. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
General Hygiene Considerations	Wear protective gloves/clothing. Ensure that eyewash stations and safety showers are close to the workstation location. Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid	Viscosity	Non viscous
Color	dark violet	Odor	Odorless
Appearance	Transparent	pH	12.4
Specific Gravity	1.1	Evaporation Rate	0.53 (Butyl acetate=1)
Percent Volatile (Volume)	94	VOC Content (%)	0
VOC Content (g/L)	0	Vapor Pressure	15.4 mmHg @ 70°F
Vapor Density	0.6 (Air = 1.0)	Solubility	Completely soluble
Boiling Point/Range	> 212 °F / 100 °C		

10. STABILITY AND REACTIVITY

Chemical Stability	Stable. Hazardous polymerization does not occur.
Conditions to Avoid	None known
Incompatible Products	Strong oxidizing agents, Acids, Alkali metals, Ammonia, Amines.
Hazardous Decomposition Products	Carbon oxides, Nitrogen oxides (NOx), Hydrogen chloride gas, Sulfur oxides.
Possibility of Hazardous Reactions	None under normal processing

11. TOXICOLOGICAL INFORMATION

Product Information	No information available.
----------------------------	---------------------------

Component Information**Acute Toxicity**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation	Draize Test	Other
Sodium nitrite	= 85 mg/kg (Rat)	no data available	= 5.5 mg/L (Rat) 4 h	no data available	no data available
Sodium metaborate, anhydrous	= 2330 mg/kg (Rat)	no data available	no data available	no data available	no data available
Sodium sulfite	= 820 mg/kg (Rat)	no data available	> 22 mg/L (Rat) 1 h > 5.5 mg/L (Rat) 4 h	no data available	no data available
Sodium hydroxide	no data available	= 1350 mg/kg (Rabbit)	no data available	no data available	no data available
Phenolphthalein	no data available	no data available	no data available	no data available	no data available

Chronic Toxicity

Component	Mutagenicity	Sensitization	Developmental Toxicity	Reproductive Toxicity	Target Organ Effects
Sodium nitrite	no data available	no data available	no data available	no data available	liver, kidneys, nervous system, spleen, blood, heart
Sodium metaborate, anhydrous	no data available	no data available	no data available	no data available	no data available
Sodium sulfite	no data available	Skin sensitization, respiratory sensitization	no data available	no data available	Respiratory system, Bone marrow, CNS
Sodium hydroxide	no data available	no data available	no data available	no data available	eyes, respiratory system, skin
Phenolphthalein	no data available	no data available	no data available	no data available	lungs

Carcinogenicity

Component	ACGIH	IARC	NTP	OSHA	Other
Sodium nitrite	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium metaborate, anhydrous	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium sulfite	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium hydroxide	not applicable	not applicable	not applicable	not applicable	not applicable
Phenolphthalein	not applicable	Group 2B	Reasonably Anticipated	X	not applicable

12. ECOLOGICAL INFORMATION**Product Information**

No information available.

Component Information

Component	Toxicity to Algae	Toxicity to Fish	Microtox	Water Flea	log Pow	
Sodium nitrite	no data available	LC50 0.092 - 0.13 mg/L Oncorhynchus mykiss 96 h LC50 0.4 - 0.6 mg/L Oncorhynchus mykiss 96 h LC50 0.65 - 1 mg/L Oncorhynchus mykiss 96 h LC50 = 0.19 mg/L Oncorhynchus mykiss 96 h LC50 = 2.3 mg/L Pimephales promelas 96 h LC50 = 20 mg/L Pimephales promelas 96 h	no data available	no data available	no data available	-3.7
Sodium metaborate, anhydrous	no data available	no data available	no data available	no data available	N/A	
Sodium sulfite	no data available	LC50 220 - 460 mg/L Leuciscus idus 96 h	EC50 = 770 mg/L 17 h	LC50 = 330 mg/L 24 h	-4	
Sodium hydroxide	no data available	LC50 = 45.4 mg/L Oncorhynchus mykiss 96 h	no data available	no data available	N/A	
Phenolphthalein	no data available	no data available	no data available	no data available	N/A	

Persistence and Degradability

No information available.

Bioaccumulation

No information available.

Mobility

No information available.

13. DISPOSAL CONSIDERATIONS**Product Disposal**

Dispose of in accordance with local regulations.

Container Disposal

Empty containers should be taken for local recycling, recovery, or waste disposal

14. TRANSPORT INFORMATION**DOT**

Proper Shipping Name	Environmentally hazardous substances, liquid, n.o.s.
Hazard Class	9
UN-No	UN3082
Packing Group	III
Reportable Quantity (RQ)	840 lbs
Description	Environmentally hazardous substances, liquid, n.o.s.(Sodium nitrite),9,UN3082,PG III, <840# not regulated

TDG

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.
Hazard Class	9
UN-No	UN3082

Packing Group III
 Description ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Sodium nitrite),9,UN3082,PG III; <840# not regulated

ICAO

UN-No UN3082
 Proper Shipping Name Environmentally hazardous substance, liquid, n.o.s.*
 Hazard Class 9
 Packing Group III
 Shipping Description Environmentally hazardous substance, liquid, n.o.s.*(Sodium nitrite),9,UN3082,PG III; <840# not regulated

IATA

UN-No UN3082
 Proper Shipping Name Environmentally hazardous substance, liquid, n.o.s.*
 Hazard Class 9
 Packing Group III
 ERG Code 9L
 Shipping Description UN3082,Environmentally hazardous substance, liquid, n.o.s.*(Sodium nitrite),9,PG III; <840# not regulated

IMDG/IMO

Proper Shipping Name Environmentally hazardous substance, liquid, n.o.s.
 Hazard Class 9
 UN-No UN3082
 Packing Group III
 EmS No. F-A, S-F
 Shipping Description UN3082, Environmentally hazardous substance, liquid, n.o.s (Sodium nitrite),9,PG III; <840# not regulated

15. REGULATORY INFORMATION

Inventories

TSCA Complies
 DSL Complies

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40n of the Code of Federal Regulations, Part 372

Component	CAS-No	Weight %	SARA 313 - Threshold Values
Sodium nitrite	7632-00-0	3-7	1.0
Phenolphthalein	77-09-8	0.1-1	0.1

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Chronic Health Hazard	Fire Hazard	Sudden Release of Pressure Hazard	Reactive Hazard
Yes	Yes	No	No	No

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Sodium nitrite	100 lb	Not applicable
Sodium metaborate, anhydrous	Not applicable	Not applicable
Sodium sulfite	Not applicable	Not applicable
Sodium hydroxide	1000 lb	Not applicable
Phenolphthalein	Not applicable	Not applicable

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

D2A Very toxic materials, D2B Toxic materials.



16. OTHER INFORMATION

Prepared By Rachael Mohochi
 Supersedes Date 09/25/2008
 Issuing Date 09/06/2011

Reason for Revision No information available.

Glossary No information available.

List of References. No information available.

CHEM-AQUA, INC assumes no responsibility for personal injury or property damage caused by the use, storage, or disposal of the product in a manner not recommended on the product label. Users assume all risks associated with such unrecommended use, storage or disposal of the product. The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

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Specifications

GENERAL DESCRIPTION:

SHALL BE A LIQUID BLEND OF CORROSION INHIBITORS WITH A COLOR INDICATOR COLOR COMPARATOR KIT. SHALL BE TESTED WITH A NITRITE DROP TEST KIT. SHALL DILUTE ONE GALLON TO TWO HUNDRED GALLONS OF WATER FOR A CHILLED WATER LOOP AND ONE GALLON TO ONE HUNDRED GALLONS OF WATER FOR A HOT WATER LOOP.

USES:

SHALL CONTAIN BORATES AND NITRITES FOR PASSIVATION OF FERROUS ALLOYS, ORGANIC CORROSION INHIBITORS FOR PROTECTION OF CUPROUS ALLOYS AND A pH SENSITIVE DYE WHICH TURNS RED TO PINK WHEN SYSTEM BUFFER LEVEL IS CORRECT.

STABILITY:

SHALL REMAIN STABLE FOR ONE YEAR UNDER RECOMMENDED STORAGE CONDITIONS.

Last Updated By: jthomps

Last Changed: 1/25/2008 2:12:36 PM

[Comments](#)

NCH CORPORATION

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Material Safety Data Sheet: CHEM-AQUA 999

Supersedes Date 10/26/2012

Issuing Date 06/03/2013

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name CHEM-AQUA 999
Recommended use Water treatment chemical
Information on Manufacturer
CHEM-AQUA, INC
BOX 152170
IRVING, TEXAS 75015

Product Code 0376
Chemical nature Aqueous solution of alkali salts
Emergency Telephone Number
CHEMTREC® 800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview
WARNING
Oxidizing agent
Severe skin irritation
Causes severe eye irritation
May be harmful if inhaled
May be harmful if swallowed

Color Colorless - Light yellow

Physical State Liquid

Odor Odorless

Potential Health Effects

Principle Route of Exposure

Skin contact, Eye contact, Inhalation.

Primary Routes of Entry

Inhalation, Ingestion.

Acute Effects

Eyes

Severe irritation. May cause irreversible eye damage.

Skin

Severe irritation.

Inhalation

Causes respiratory tract irritation. Inhalation may cause central nervous system effects. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness. Blood disorder may occur after prolonged inhalation. Methemoglobinemia. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Toxic if swallowed. Blood disorder may occur after ingestion. Components of the product create formation of methemoglobin.

Ingestion

Chronic Toxicity

Prolonged exposure can be harmful for certain organs, e.g. liver, kidneys, blood, nervous system and skin. Methemoglobinemia. Cyanosis. Experiments have shown reproductive toxicity effects on laboratory animals.

Target Organ Effects

Respiratory system, Skin, Blood, Spleen, Heart, Liver, Kidney, Central nervous system, Testes.

Aggravated Medical Conditions

Skin disorders, Respiratory disorders, Cardiovascular, Kidney disorders, Liver disorders, Neurological disorders, Blood disorders.

Potential Environmental Effects

See Section 12 for additional Ecological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No
Sodium nitrite	7632-00-0
Sodium metaborate tetrahydrate	10555-76-7

4. FIRST AID MEASURES

General advice

Avoid contact with skin, eyes and clothing. Avoid breathing vapors, mist, or gas.

Eye Contact

Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention immediately.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Remove immediately all contaminated clothing. Get medical attention immediately.

Inhalation

If inhaled, remove to fresh air. Get medical attention if symptoms occur.

Ingestion

Rinse mouth. Drink 1 or 2 glasses of water. Do NOT induce vomiting. Get medical attention immediately. Never give anything by mouth to an unconscious person.

Notes to physician

Since reversion of methemoglobin to hemoglobin occurs spontaneously after termination of exposure, moderate degrees of cyanosis need to be treated only by supportive measures.

5. FIRE-FIGHTING MEASURES

Flash Point

Does not flash

Method

Not applicable

Autoignition Temperature No information available.

Flammability Limits in Air % Hydrogen, by reaction with metals. Upper 75 Lower 4

Suitable Extinguishing Media

Water spray. Carbon dioxide (CO₂) Foam. Alcohol-resistant foam. Dry chemical. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific hazards arising from the chemical

Contact with metals may evolve flammable hydrogen gas. Oxidizing potential. Material can create slippery conditions.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA Health 3 Flammability 0 Instability 0 Other OX
 HMIS Health 3 Flammability 0 Instability 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Use personal protective equipment. Prevent further leakage or spillage if safe to do so. Material can create slippery conditions.

Environmental Precautions Do not flush into surface water or sanitary sewer system.

Methods for Containment Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13)

Methods for Cleaning Up Pick up and transfer to properly labeled containers. Never return spills in original containers for re-use.

Neutralizing Agent Acetic acid, diluted.

7. HANDLING AND STORAGE

Handling Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mists.

Storage Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Freezing will affect the physical condition but will not damage the material. Thaw and mix before using.

Storage Temperature Minimum 35 °F / 2 °C Maximum 115 °F / 46 °C

Storage Conditions Indoor X Outdoor Heated Refrigerated

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Exposure Guidelines**

Component	ACGIH TLV	OSHA PEL	NIOSH
Sodium nitrite	No data available	No data available	No data available
Sodium metaborate tetrahydrate	TWA: 2 mg/m ³ STEL: 6 mg/m ³	No data available	No data available

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/Face Protection Tightly fitting safety goggles.

Skin Protection Wear suitable protective clothing. Impervious gloves.

Respiratory Protection In case of inadequate ventilation wear respiratory protection. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

General Hygiene Considerations Ensure that eyewash stations and safety showers are close to the workstation location. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid	Viscosity	Non viscous
Color	Colorless - Light yellow	Odor	Odorless
Appearance	Transparent	pH	12.4
Specific Gravity	1.21	Evaporation Rate	0.43
Percent Volatile (Volume)	84.2	VOC Content (%)	0
VOC Content (g/L)	0	Vapor Pressure	13.12 mmHg @ 70°F
Vapor Density	0.6 (Air = 1.0)	Solubility	Completely soluble
Boiling Point/Range	> 212 °F / 100 °C		

10. STABILITY AND REACTIVITY

Chemical Stability Stable. Hazardous polymerization does not occur.

Conditions to Avoid None known

Incompatible Products Strong oxidizing agents, Reducing agents, Avoid amines, Contact with metals liberates hydrogen gas, Acids.

Hazardous Decomposition Products Sodium oxides, Nitrogen oxides (NO_x), Hydrogen, by reaction with metals.

Possibility of Hazardous Reactions Oxidizing properties

11. TOXICOLOGICAL INFORMATION

Product Information No information available.

Component Information**Acute Toxicity**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation	Draize Test	Other
Sodium nitrite	= 85 mg/kg (Rat)	no data available	= 5.5 mg/L (Rat) 4 h	no data available	no data available
Sodium metaborate tetrahydrate	no data available	no data available	no data available	no data available	no data available

Chronic Toxicity

Component	Mutagenicity	Sensitization	Developmental Toxicity	Reproductive Toxicity	Target Organ Effects
Sodium nitrite	no data available	no data available	no data available	no data available	liver, kidneys, nervous system, spleen, blood, heart
Sodium metaborate tetrahydrate	no data available	no data available	no data available	X	Testes

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH	IARC	NTP	OSHA	Other
Sodium nitrite	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium metaborate tetrahydrate	not applicable	not applicable	not applicable	not applicable	not applicable

12. ECOLOGICAL INFORMATION

Product Information No information available.

Component Information

Component	Toxicity to Algae	Toxicity to Fish	Microtox	Water Flea	log Pow	
Sodium nitrite	no data available	LC50 = 0.19 mg/L Oncorhynchus mykiss 96 h LC50 0.092 - 0.13 mg/L Oncorhynchus mykiss 96 h LC50 0.4 - 0.6 mg/L Oncorhynchus mykiss 96 h LC50 0.65 - 1 mg/L Oncorhynchus mykiss 96 h LC50 = 2.3 mg/L Pimephales promelas 96 h LC50 = 20 mg/L Pimephales promelas 96 h	no data available	no data available	no data available	-3.7
Sodium metaborate tetrahydrate	no data available	no data available	no data available	no data available	N/A	

Persistence and Degradability No information available.

Bioaccumulation No information available.

Mobility No information available.

13. DISPOSAL CONSIDERATIONS

Product Disposal Dispose of in accordance with local regulations.

Container Disposal Empty containers should be taken for local recycling, recovery, or waste disposal.

14. TRANSPORT INFORMATION**DOT**

Proper Shipping Name <400#- NOT REGULATED >399#- UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (SODIUM NITRITE)
UN-No UN3082
Packing Group III
Reportable Quantity (RQ) RQ @ 400lbs
Description UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.,(SODIUM NITRITE), 9,III,RQ

TDG

Proper shipping name <400#- NOT REGULATED >399#- UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.,(SODIUM NITRITE)
Hazard Class 9
UN-No UN3082
Packing Group III

Description UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.,(SODIUM NITRITE), 9, PG III, RQ

ICAO

UN-No UN3082
 Proper Shipping Name <400#- NOT REGULATED >399#- UN3082,ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.,(SODIUM NITRITE)
 Hazard Class 9
 Packing Group III
 Shipping Description UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.,(SODIUM NITRITE), 9, PG III, RQ

IATA

UN-No UN3082
 Proper Shipping Name <400# - NOT REGULATED >399# - UN3082,ENVIRONMENTALLY HAZAROUS SUBSTANCE, LIQUID, N.O.S.,(SODIUM NITRITE)
 Hazard Class 9
 Packing Group III
 Shipping Description UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.,(SODIUM NITRITE), 9, PG III, RQ

IMDG/IMO

Proper Shipping Name <400# - NOT REGULATED >399# - UN3082,ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.,(SODIUM NITRITE)
 Hazard Class 9
 UN-No UN3082
 Packing Group III
 Shipping Description UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.,(SODIUM NITRITE), 9, PG III, RQ

15. REGULATORY INFORMATION

Inventories

TSCA Complies
 DSL Complies

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Component	CAS-No	Weight %	SARA 313 - Threshold Values
Sodium nitrite	7632-00-0	15-40	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Chronic Health Hazard	Fire Hazard	Sudden Release of Pressure Hazard	Reactive Hazard
Yes	Yes	No	No	No

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Sodium nitrite	100 lb	Not applicable
Sodium metaborate tetrahydrate	Not applicable	Not applicable

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

E Corrosive material C Oxidizing materials D1B Toxic materials



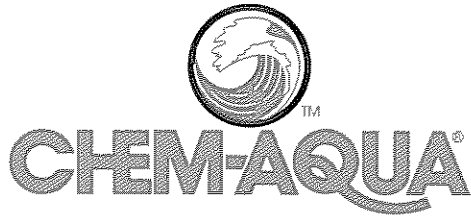
16. OTHER INFORMATION

Prepared By Ana Santiago
 Supersedes Date 10/26/2012
 Issuing Date 06/03/2013
 Reason for Revision No information available.

Glossary No information available.

List of References. No information available.

CHEM-AQUA, INC assumes no responsibility for personal injury or property damage caused by the use, storage, or disposal of the product in a manner not recommended on the product label. Users assume all risks associated with such unrecommended use, storage or disposal of the product. The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.



CHEM-AQUA[®]

999

Closed System Corrosion Inhibitor

Description

CHEM-AQUA 999 is a liquid nitrite based inhibitor formulated to provide effective multi-metal corrosion control in recirculating closed heating and cooling water systems. CHEM-AQUA 999 is a highly buffered product designed to maintain an alkaline pH. This product includes a scale inhibitor to control deposits on heat exchange surfaces. CHEM-AQUA 999 contains no molybdate and is compatible with alcohol- and glycol-based antifreezes.

Features

- Excellent multi-metal corrosion control
- Prevents corrosion deposits in heat exchangers, zone valves, and system piping
- Extends equipment life and reduces maintenance costs
- Concentrated, easy-to-use liquid formulation
- Product feed rate is easily monitored

Physical Properties

Physical State	Liquid
Color	Light yellow
Odor	Odorless
Appearance	Transparent
pH	11.8
Specific Gravity	1.21
Density	10.1 lbs/gal

Consult the label for complete directions and precautions before using this product.



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Material Safety Data Sheet: CHEM-AQUA 15000

Supersedes Date 07/13/2012

Issuing Date 06/03/2013

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name CHEM-AQUA 15000
Recommended use Water treatment chemical
Information on Manufacturer
CHEM-AQUA, INC
BOX 152170
IRVING, TEXAS 75015

Product Code 347C
Chemical nature Aqueous solution
Emergency Telephone Number
CHEMTREC® 800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview
WARNING
Severe skin irritation
Causes severe eye irritation
Causes respiratory tract irritation
Harmful if swallowed

Color Yellow
Potential Health Effects
Principle Route of Exposure Skin contact, Eye contact, Inhalation.
Primary Routes of Entry None known
Acute Effects
Eyes Severe irritation.
Skin Severe irritation.
Inhalation Causes respiratory tract irritation.
Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Chronic Toxicity None known.
Target Organ Effects None known
Aggravated Medical Conditions Respiratory disorders, Skin disorders.
Potential Environmental Effects See Section 12 for additional Ecological information.

Physical State Liquid
Odor Sweet

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	40372-66-5
Sodium polyacrylate	9003-04-7
Polymaleic acid, sodium salt	70247-90-4
Sodium tolyltriazole	64665-57-2
Sodium hydroxide	1310-73-2

4. FIRST AID MEASURES

General advice Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mists.
Eye Contact Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention immediately.
Skin Contact Remove immediately all contaminated clothing. Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately.
Inhalation If inhaled, remove to fresh air. Get medical attention if symptoms occur.
Ingestion Drink 1 or 2 glasses of water. Do NOT induce vomiting. Get medical attention immediately. Never give anything by mouth to an unconscious person.
Notes to physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash Point > 201 °F / > 94 °C
Autoignition Temperature No information available.
Flammability Limits in Air % Hydrogen, by reaction with metals.
Suitable Extinguishing Media Carbon dioxide (CO2). Foam. Alcohol-resistant foam. Dry chemical. Water spray. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Specific hazards arising from the chemical Contact with metals may evolve flammable hydrogen gas. Material can create slippery conditions.

Method Seta closed cup
Upper 75
Lower 4

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA	Health 2	Flammability 1	Instability 0
HMIS	Health 2	Flammability 1	Instability 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Use personal protective equipment. Ensure adequate ventilation. Prevent further leakage or spillage if safe to do so. Material can create slippery conditions.
Environmental Precautions	Do not flush into surface water or sanitary sewer system.
Methods for Containment	Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13)
Methods for Cleaning Up	Pick up and transfer to properly labeled containers.
Neutralizing Agent	Neutralize with hydrochloric acid.

7. HANDLING AND STORAGE

Handling	Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mists.			
Storage	Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Metal containers must be lined. Freezing will affect the physical condition but will not damage the material. Thaw and mix before using.			
Storage Temperature	Minimum	40 °F / 4 °C	Maximum	115 °F / 46 °C
Storage Conditions	Indoor	X	Outdoor	
			Heated	
			Refrigerated	

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Exposure Guidelines**

Component	ACGIH TLV	OSHA PEL	NIOSH
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	No data available	No data available	No data available
Sodium polyacrylate	3 mg/m ³ PNOS	5 mg/m ³ PNOR	0.05 mg/m ³ 8hr OEL - Vendor data
Polymaleic acid, sodium salt	No data available	No data available	No data available
Sodium tolyltriazole	No data available	No data available	No data available
Sodium hydroxide	Ceiling: 2 mg/m ³	TWA: 2 mg/m ³	IDLH: 10 mg/m ³ Ceiling: 2 mg/m ³

Engineering Measures	Ensure adequate ventilation, especially in confined areas.
Personal Protective Equipment	
Eye/Face Protection	Tightly fitting safety goggles.
Skin Protection	Wear suitable protective clothing, Impervious gloves.
Respiratory Protection	In case of inadequate ventilation wear respiratory protection. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
General Hygiene Considerations	Ensure that eyewash stations and safety showers are close to the workstation location. Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid	Viscosity	Non viscous
Color	Yellow	Odor	Sweet
Appearance	Transparent	pH	12.3
Specific Gravity	1.123	Evaporation Rate	0.5 (Butyl acetate=1)
Percent Volatile (Volume)	76.3	VOC Content (%)	0
VOC Content (g/L)	0	Vapor Pressure	15.43 mmHg @ 70°F
Vapor Density	0.6 (Air = 1.0)	Solubility	Completely soluble
Boiling Point/Range	> 212 °F / 100 °C		

10. STABILITY AND REACTIVITY

Chemical Stability	Stable. Hazardous polymerization does not occur.
Conditions to Avoid	None known
Incompatible Products	Strong oxidizing agents, Acids, Light and/or alkaline metals, Halogenated hydrocarbon, Reducing agents, Aldehydes.
Hazardous Decomposition Products	Carbon oxides, Nitrogen oxides (NOx), Hydrocarbons, Hydrogen cyanide, Phosphorus compounds.
Possibility of Hazardous Reactions	None under normal processing

11. TOXICOLOGICAL INFORMATION**Product Information** No information available.**Component Information****Acute Toxicity**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation	Draize Test	Other
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	no data available	no data available	no data available	no data available	no data available
Sodium polyacrylate	> 40 g/kg (Rat)	no data available	no data available	no data available	no data available
Polymaleic acid, sodium salt	no data available	no data available	no data available	no data available	no data available
Sodium tolyltriazole	no data available	no data available	no data available	no data available	no data available
Sodium hydroxide	no data available	= 1350 mg/kg (Rabbit)	no data available	no data available	no data available

Chronic Toxicity

Component	Mutagenicity	Sensitization	Developmental Toxicity	Reproductive Toxicity	Target Organ Effects
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	no data available	no data available	no data available	no data available	no data available
Sodium polyacrylate	no data available	no data available	no data available	no data available	no data available
Polymaleic acid, sodium salt	no data available	no data available	no data available	no data available	no data available
Sodium tolyltriazole	no data available	no data available	no data available	no data available	no data available
Sodium hydroxide	no data available	no data available	no data available	no data available	eyes, respiratory system, skin

Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH	IARC	NTP	OSHA	Other
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium polyacrylate	not applicable	not applicable	not applicable	not applicable	not applicable
Polymaleic acid, sodium salt	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium tolyltriazole	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium hydroxide	not applicable	not applicable	not applicable	not applicable	not applicable

12. ECOLOGICAL INFORMATION**Product Information****Toxicity to fish**

Pimephales promelas (fathead minnow) 600 mg/L 96h

Component Information

Component	Toxicity to Algae	Toxicity to Fish	Microtox	Water Flea	log Pow
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	no data available	no data available	no data available	no data available	N/A
Sodium polyacrylate	no data available	no data available	no data available	no data available	N/A
Polymaleic acid, sodium salt	no data available	no data available	no data available	no data available	N/A
Sodium tolyltriazole	no data available	no data available	no data available	no data available	N/A
Sodium hydroxide	no data available	LC50 = 45.4 mg/L Oncorhynchus mykiss 96 h	no data available	no data available	N/A

Persistence and Degradability

No information available.

Bioaccumulation

No information available.

Mobility

No information available.

13. DISPOSAL CONSIDERATIONS**Product Disposal**

Dispose of in accordance with local regulations.

Container Disposal

Empty containers should be taken for local recycling, recovery, or waste disposal.

14. TRANSPORT INFORMATION

DOT Not regulated

TDG Not regulated

ICAO Not regulated

IATA Not regulated

IMDG/IMO

Not regulated

15. REGULATORY INFORMATION**Inventories**

TSCA Complies
 DSL Complies

U.S. Federal Regulations**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Chronic Health Hazard	Fire Hazard	Sudden Release of Pressure Hazard	Reactive Hazard
Yes	No	No	No	No

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	Not applicable	Not applicable
Sodium polyacrylate	Not applicable	Not applicable
Polymaleic acid, sodium salt	Not applicable	Not applicable
Sodium lolyltriazole	Not applicable	Not applicable
Sodium hydroxide	1000 lb	Not applicable

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

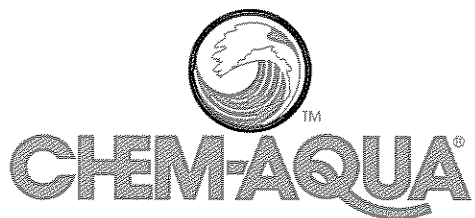
WHMIS Hazard Class

D2B Toxic materials

**16. OTHER INFORMATION**

Prepared By Rachael Mohochi
 Supersedes Date 07/13/2012
 Issuing Date 06/03/2013
 Reason for Revision No information available.
 Glossary No information available.
 List of References. No information available.

CHEM-AQUA, INC assumes no responsibility for personal injury or property damage caused by the use, storage, or disposal of the product in a manner not recommended on the product label. Users assume all risks associated with such unrecommended use, storage or disposal of the product. The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.



CHEM-AQUA[®] 15000

Cooling Tower Inhibitor

Description

CHEM-AQUA 15000 is a liquid blend of high performance inhibitors designed to control corrosion and scale in open recirculating cooling water systems. It is specifically formulated to provide effective control in systems using high alkalinity and hardness makeup water. CHEM-AQUA 15000 also provides excellent recoverability from system upsets and is effective over a wide range of operating conditions.

Features

- Reduces the potential for destructive corrosion
- Keeps heat transfer surfaces clean and energy efficient
- High performance inhibitors are effective over a broad range of conditions
- Convenient multifunctional formula simplifies product feed
- Concentrated, easy-to-use formulation

Physical Properties

Physical State	Liquid
Color	Amber
Appearance	Transparent
Odor	Sweet
pH	12.4
Specific Gravity	1.133
Density	9.4 lbs/gal

Consult the label for complete directions and precautions before using this product.



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1M101

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Material Safety Data Sheet: CHEM-AQUA 15000 MTP

Supersedes Date 10/25/2012

Issuing Date 09/11/2013

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name CHEM-AQUA 15000 MTP
 Recommended use Water treatment chemical
 Information on Manufacturer
 CHEM-AQUA, INC
 BOX 152170
 IRVING, TEXAS 75015

Product Code 780C
 Chemical nature Aqueous solution
 Emergency Telephone Number
 CHEMTREC® 800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview
WARNING
 Severe skin irritation
 Causes severe eye irritation
 Causes respiratory tract irritation
 Harmful if swallowed

Color Yellow	Physical State Liquid	Odor Sweet
Potential Health Effects		
Principle Route of Exposure	Skin contact, Eye contact.	
Primary Routes of Entry	Inhalation, Ingestion.	
Acute Effects		
Eyes	Severe irritation.	
Skin	Severe irritation.	
Inhalation	Causes respiratory tract irritation.	
Ingestion	Irritating to mouth, throat, and stomach.	
Chronic Toxicity	None known.	
Target Organ Effects	Respiratory system, Central nervous system.	
Aggravated Medical Conditions	Neurological disorders, Respiratory disorders, Skin disorders.	
Potential Environmental Effects	See Section 12 for additional Ecological information.	

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	40372-66-5
Sodium tolyltriazole	64665-57-2
Sodium polyacrylate	9003-04-7
Polymaleic acid, sodium salt	70247-90-4
Sodium molybdate	7631-95-0
Sodium hydroxide	1310-73-2

4. FIRST AID MEASURES

General advice	Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mists.
Eye Contact	Immediately flush eyes for at least 15 minutes. Get medical attention. Get medical attention immediately.
Skin Contact	Remove immediately all contaminated clothing. Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately.
Inhalation	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
Ingestion	Drink 1 or 2 glasses of water. Do NOT induce vomiting. Get medical attention immediately. Never give anything by mouth to an unconscious person.
Notes to physician	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash Point	> 201 °F / > 94 °C	Method	Seta closed cup
Autoignition Temperature	No information available.		
Flammability Limits in Air % Hydrogen, by reaction with metals.	Upper 75	Lower 4	
Suitable Extinguishing Media	Carbon dioxide (CO2). Foam. Alcohol-resistant foam. Water spray. Dry powder. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.		
Specific hazards arising from the chemical			

Contact with metals may evolve flammable hydrogen gas. Material can create slippery conditions.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA	Health 2	Flammability 1	Instability 0
HMS	Health 2	Flammability 1	Instability 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Use personal protective equipment. Ensure adequate ventilation. Material can create slippery conditions.
Environmental Precautions	Do not flush into surface water or sanitary sewer system.
Methods for Containment	Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13)
Methods for Cleaning Up	Pick up and transfer to properly labeled containers.
Neutralizing Agent	Acetic acid, diluted.

7. HANDLING AND STORAGE

Handling	Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mists.			
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place. Metal containers must be lined. Freezing will affect the physical condition but will not damage the material. Thaw and mix before using.			
Storage Temperature	Minimum	40 °F / 4 °C	Maximum	115 °F / 46 °C
Storage Conditions	Indoor	X	Outdoor	Heated Refrigerated

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	No data available	No data available	No data available
Sodium tolyltriazole	No data available	No data available	No data available
Sodium polyacrylate	3 mg/m ³ PNOS	5 mg/m ³ PNOR	0.05 mg/m ³ 8hr OEL - Vendor data
Polymaleic acid, sodium salt	No data available	No data available	No data available
Sodium molybdate	TWA: 0.5 mg/m ³	TWA: 5 mg/m ³	IDLH: 1000 mg/m ³
Sodium hydroxide	Ceiling: 2 mg/m ³	TWA: 2 mg/m ³	IDLH: 10 mg/m ³ Ceiling: 2 mg/m ³

Engineering Measures	Use with local exhaust ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction.
Personal Protective Equipment	
Eye/Face Protection	Tightly fitting safety goggles.
Skin Protection	Wear suitable protective clothing, Impervious gloves.
Respiratory Protection	In case of inadequate ventilation wear respiratory protection. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
General Hygiene Considerations	Ensure that eyewash stations and safety showers are close to the workstation location. Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid	Viscosity	Non viscous
Color	Yellow	Odor	Sweet
Appearance	Transparent	pH	12.0
Specific Gravity	1.136	Evaporation Rate	0.5 (BuAc = 1)
Percent Volatile (Volume)	75	VOC Content (%)	0
VOC Content (g/L)	0	Vapor Pressure	15.2 mmHg @ 70°F
Vapor Density	0.6 (Air = 1.0)	Solubility	Completely soluble
Boiling Point/Range	> 212 °F / 100 °C		

10. STABILITY AND REACTIVITY

Chemical Stability	Stable. Hazardous polymerization does not occur.
Conditions to Avoid	None known
Incompatible Products	Strong oxidizing agents, Acids, Light and/or alkaline metals, Aldehydes, Halogenated hydrocarbon, Reducing agents.
Hazardous Decomposition Products	Carbon oxides, Nitrogen oxides (NOx), Hydrocarbons, Potassium oxides, Sodium oxides, Oxides of phosphorus, Phosphorus compounds, Acrylate

Possibility of Hazardous Reactions

monomers.
None under normal processing

11. TOXICOLOGICAL INFORMATION

Product Information No information available.

Component Information**Acute Toxicity**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation	Draize Test	Other
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	no data available	no data available	no data available	no data available	no data available
Sodium tolyltriazole	no data available	no data available	no data available	no data available	no data available
Sodium polyacrylate	no data available	no data available	no data available	no data available	no data available
Polymaleic acid, sodium salt	no data available	no data available	no data available	no data available	no data available
Sodium molybdate	no data available	no data available	> 2080 mg/m ³ (Rat) 4 h	no data available	no data available
Sodium hydroxide	no data available	= 1350 mg/kg (Rabbit)	no data available	no data available	no data available

Chronic Toxicity

Component	Mutagenicity	Sensitization	Developmental Toxicity	Reproductive Toxicity	Target Organ Effects
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	no data available	no data available	no data available	no data available	no data available
Sodium tolyltriazole	no data available	no data available	no data available	no data available	no data available
Sodium polyacrylate	no data available	no data available	no data available	no data available	no data available
Polymaleic acid, sodium salt	no data available	no data available	no data available	no data available	no data available
Sodium molybdate	no data available	no data available	no data available	no data available	respiratory system, eyes, kidneys, blood, bone, pancreas
Sodium hydroxide	no data available	no data available	no data available	no data available	eyes, respiratory system, skin

Carcinogenicity

Component	ACGIH	IARC	NTP	OSHA	Other
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium tolyltriazole	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium polyacrylate	not applicable	not applicable	not applicable	not applicable	not applicable
Polymaleic acid, sodium salt	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium molybdate	A3	not applicable	not applicable	not applicable	not applicable
Sodium hydroxide	not applicable	not applicable	not applicable	not applicable	not applicable

12. ECOLOGICAL INFORMATION

Product Information

Toxicity to fish
Pimephales promelas (fathead minnow) LC50 1,397 mg/L 96h

Component Information

Component	Toxicity to Algae	Toxicity to Fish	Microtox	Water Flea	log Pow
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	no data available	no data available	no data available	no data available	N/A
Sodium tolyltriazole	no data available	no data available	no data available	no data available	N/A
Sodium polyacrylate	no data available	no data available	no data available	no data available	N/A
Polymaleic acid, sodium salt	no data available	no data available	no data available	no data available	N/A
Sodium molybdate	no data available	no data available	no data available	no data available	N/A
Sodium hydroxide	no data available	LC50 = 45.4 mg/L Oncorhynchus mykiss 96 h	no data available	no data available	N/A

Persistence and Degradability

No information available.

Bioaccumulation

No information available.

Mobility

No information available.

13. DISPOSAL CONSIDERATIONS

Product Disposal

Dispose of in accordance with local regulations.

Container Disposal

Empty containers should be taken for local recycling, recovery, or waste disposal.

14. TRANSPORT INFORMATION

DOT	Not regulated
TDG	Not regulated
ICAO	Not regulated
IATA	Not regulated
IMDG/IMO	Not regulated

15. REGULATORY INFORMATION**Inventories**

TSCA	Does not Comply
DSL	Does not Comply

U.S. Federal Regulations**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Chronic Health Hazard	Fire Hazard	Sudden Release of Pressure Hazard	Reactive Hazard
Yes	No	No	No	No

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	Not applicable	Not applicable
Sodium tolyltriazole	Not applicable	Not applicable
Sodium polyacrylate	Not applicable	Not applicable
Polymaleic acid, sodium salt	Not applicable	Not applicable
Sodium molybdate	Not applicable	Not applicable
Sodium hydroxide	1000 lb	Not applicable

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

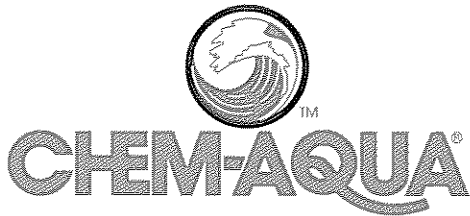
WHMIS Hazard Class

D2B Toxic materials

**16. OTHER INFORMATION**

Prepared By	Sarah Williamson
Supersedes Date	10/25/2012
Issuing Date	09/11/2013
Reason for Revision	No information available.
Glossary	No information available.
List of References.	No information available.

CHEM-AQUA, INC assumes no responsibility for personal injury or property damage caused by the use, storage, or disposal of the product in a manner not recommended on the product label. Users assume all risks associated with such unrecommended use, storage or disposal of the product. The information provided on this document is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.



CHEM-AQUA® 15000MTP

Cooling Tower Inhibitor

Description

CHEM-AQUA 15000MTP is a liquid blend of high performance inhibitors designed to control corrosion and scale in open recirculating cooling water systems. It is specifically formulated to provide effective control in systems using higher alkalinity and hardness makeup water, and to provide enhanced copper corrosion protection. CHEM-AQUA 15000MTP also contains a molybdate tracer for easy monitoring, provides excellent recoverability from system upsets, and is effective over a wide range of operating conditions.

Features

- Keeps heat transfer surfaces clean and energy efficient
- Reduces the potential for destructive corrosion
- Product residual is easily monitored
- Convenient multifunctional formula simplifies product feed
- Concentrated, easy-to-use liquid formulation

Physical Properties

Physical State	Liquid
Color	Yellow-Amber
Odor	Slightly Sweet
Appearance	Transparent-Slightly Cloudy
pH	12.4
Specific Gravity	1.153
Density	9.6 lbs/gal

Consult the label for complete directions and precautions before using this product.



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Irving, TX • Monmouth, NJ • Jacksonville, FL • Indianapolis, IN • Macon, GA • Las Vegas, NV • Sunnyvale, CA • Brampton, ON

Material Safety Data Sheet: MB-38

Supersedes Date 12/18/2009

Issuing Date 02/06/2013

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name MB-38
Recommended use Biocidal product
Information on Manufacturer
CHEM-AQUA, INC
BOX 152170
IRVING, TEXAS 75015

Product Code C517
Chemical nature Alkaline Aqueous solution
Emergency Telephone Number
CHEMTREC® 800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview

DANGER
Corrosive
Causes skin and eye burns
May cause delayed lung injury and burns
Harmful or fatal if swallowed

Color Yellow - Green

Physical State Liquid

Odor Chlorine

Potential Health Effects

Principle Route of Exposure

Skin contact, Eye contact, Inhalation.

Primary Routes of Entry

None known

Acute Effects

Eyes

Corrosive to the eyes and may cause severe damage including blindness.

Skin

Causes skin burns.

Inhalation

Harmful by inhalation. Causes burns.

Ingestion

If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Chronic Toxicity

Inhaled corrosive substances can lead to a toxic edema of the lungs.

Target Organ Effects

Respiratory system

Aggravated Medical Conditions

Skin disorders, Respiratory disorders.

Potential Environmental Effects

See Section 12 for additional Ecological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No
Sodium hypochlorite	7681-52-9
Sodium hydroxide	1310-73-2

4. FIRST AID MEASURES

General advice	Do not get in eyes, on skin or on clothing. Do not breathe vapors or spray mist.
Eye Contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Call a physician or poison control center immediately.
Skin Contact	Remove immediately all contaminated clothing. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Inhalation	Move to fresh air. In case of shortness of breath, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
Ingestion	Call a physician or Poison Control Center immediately. Drink 1 or 2 glasses of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth.
Notes to physician	The product causes burns of eyes, skin and mucous membranes. Control of circulatory system, shock therapy if needed.

5. FIRE-FIGHTING MEASURES

Flash Point	Does not flash	Method	Not applicable
Autoignition Temperature	No information available.		
Flammability Limits in Air %	Hydrogen, by reaction with metals.	Upper 75	Lower 4
Suitable Extinguishing Media	Water spray. Foam. Alcohol-resistant foam. Carbon dioxide (CO ₂). Dry chemical. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.		
Specific hazards arising from the chemical	Contact with metals may evolve flammable hydrogen gas. Material can create slippery conditions.		

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA Health 3 Flammability 0 Instability 1 Other OX
 HMIS Health 3 Flammability 0 Instability 1

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Use personal protective equipment. Prevent further leakage or spillage if safe to do so. Material can create slippery conditions.
Environmental Precautions Do not flush into surface water or sanitary sewer system.
Methods for Containment Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13)
Methods for Cleaning Up Pick up and transfer to properly labeled containers
Neutralizing Agent Acetic acid, diluted.

7. HANDLING AND STORAGE

Handling Do not get in eyes, on skin or on clothing. Do not breathe vapors or spray mist.
Storage Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Metal containers must be lined.
Storage Temperature Minimum 35 °F / 2 °C Maximum 70 °F / 21 °C
Storage Conditions Indoor X Outdoor Heated Refrigerated

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH
Sodium hypochlorite	No data available	No data available	No data available
Sodium hydroxide	Ceiling: 2 mg/m ³	TWA: 2 mg/m ³	IDLH: 10 mg/m ³ Ceiling: 2 mg/m ³

Engineering Measures Ensure adequate ventilation, especially in confined areas. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction.
Personal Protective Equipment
Eye/Face Protection Tightly fitting safety goggles. Face-shield.
Skin Protection Wear suitable protective clothing, Impervious gloves.
Respiratory Protection In case of inadequate ventilation wear respiratory protection. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
General Hygiene Considerations Wear protective gloves/clothing. Ensure that eyewash stations and safety showers are close to the workstation location. Remove and wash contaminated clothing before re-use. Do not eat, drink or smoke when using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid	Viscosity	Non viscous
Color	Yellow - Green	Odor	Chlorine
Appearance	Transparent	pH	13.5
Specific Gravity	1.17	Evaporation Rate	< 1 (Butyl acetate=1)
Percent Volatile (Volume)	85	VOC Content (%)	0
VOC Content (g/L)	0	Vapor Pressure	12.5 mmHg @ 70°F
Vapor Density	< 1 (Air = 1.0)	Solubility	Soluble
Boiling Point/Range	284 °F / 140 °C		

10. STABILITY AND REACTIVITY

Chemical Stability Stable. Hazardous polymerization does not occur.
Conditions to Avoid Keep away from open flames, hot surfaces, and sources of ignition
Incompatible Products Reducing agents, Acids, Metals, Amines, Ammonia, Ammonium salts, Alcohols, Cyanides, Flammable materials, Combustible material.
Hazardous Decomposition Products Hydrogen chloride gas, Sodium oxides, Phosgene, Contact with metals liberates hydrogen gas.
Possibility of Hazardous Reactions None under normal processing

11. TOXICOLOGICAL INFORMATION

Product Information No information available.

Component Information

Acute Toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation	Draize Test	Other
Sodium hypochlorite	= 8200 mg/kg (Rat)	> 10000 mg/kg (Rabbit)	no data available	no data available	no data available
Sodium hydroxide	no data available	= 1350 mg/kg (Rabbit)	no data available	no data available	no data available

Chronic Toxicity

Component	Mutagenicity	Sensitization	Developmental Toxicity	Reproductive Toxicity	Target Organ Effects
Sodium hypochlorite	no data available	no data available	no data available	no data available	no data available
Sodium hydroxide	no data available	no data available	no data available	no data available	eyes, respiratory system, skin

Carcinogenicity

There are no known carcinogenic chemicals in this product.

Component	ACGIH	IARC	NTP	OSHA	Other
Sodium hypochlorite	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium hydroxide	not applicable	not applicable	not applicable	not applicable	not applicable

12. ECOLOGICAL INFORMATION

Product Information

Toxicity to fish
Pimephales promelas (fathead minnow) LC50 6.45 mg/L @48 hour

Component Information

Component	Toxicity to Algae	Toxicity to Fish	Microtox	Water Flea	log Pow
Sodium hypochlorite	EC50 = 0.095 mg/L Skeletonema costatum 24 h	LC50 0.06 - 0.11 mg/L Pimephales promelas 96 h LC50 4.5 - 7.6 mg/L Pimephales promelas 96 h LC50 0.4 - 0.8 mg/L Lepomis macrochirus 96 h LC50 0.28 - 1 mg/L Lepomis macrochirus 96 h LC50 0.05 - 0.771 mg/L Oncorhynchus mykiss 96 h LC50 0.03 - 0.19 mg/L Oncorhynchus mykiss 96 h LC50 0.18 - 0.22 mg/L Oncorhynchus mykiss 96 h	no data available	EC50= 2.1 mg/L 96 h EC50 0.033 - 0.044 mg/L 48 h	N/A
Sodium hydroxide	no data available	LC50 = 45.4 mg/L Oncorhynchus mykiss 96 h	no data available	no data available	N/A

Persistence and Degradability

No information available.

Bioaccumulation

No information available.

Mobility

No information available.

13. DISPOSAL CONSIDERATIONS

Product Disposal

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your state pesticide or environmental control agency.

Container Disposal

Empty containers should be taken for local recycling, recovery, or waste disposal.

14. TRANSPORT INFORMATION

DOT

Proper Shipping Name	Hypochlorite solutions
Hazard Class	8
UN-No	UN1791
Packing Group	III
Reportable Quantity (RQ)	Sodium hypochlorite, RQ kg = 363.20
Description	UN1791, Hypochlorite solutions, 8, PG III , RQ

TDG

Proper shipping name	Hypochlorite solution
Hazard Class	8
UN-No	UN1791

Packing Group III
 Description HYPOCHLORITE SOLUTION,8,UN1791,PG III

ICAO

UN-No UN1791
 Proper Shipping Name Hypochlorite solution
 Hazard Class 8
 Packing Group III
 Shipping Description UN1791, Hypochlorite solution,8,PG III

IATA

UN-No UN1791
 Proper Shipping Name Hypochlorite solution
 Hazard Class 8
 Packing Group III
 ERG Code 8L
 Shipping Description UN1791,Hypochlorite solution,8,PG III

IMDG/IMO

Proper Shipping Name Hypochlorite solution
 Hazard Class 8
 UN-No UN1791
 Packing Group III
 EmS No. F-A, S-B
 Shipping Description UN1791, Hypochlorite solution,8,PG III

15. REGULATORY INFORMATION

Inventories

TSCA Complies
 DSL Complies

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Chronic Health Hazard	Fire Hazard	Sudden Release of Pressure Hazard	Reactive Hazard
Yes	No	No	No	No

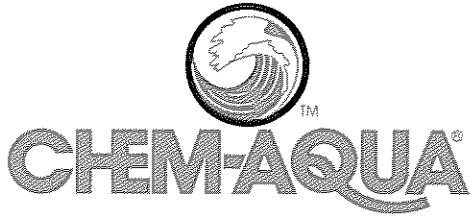
CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Sodium hypochlorite	100 lb	Not applicable
Sodium hydroxide	1000 lb	Not applicable

16. OTHER INFORMATION

Prepared By Rachael Mohochi
 Supersedes Date 12/18/2009
 Issuing Date 02/06/2013
 Reason for Revision No information available.
 Glossary No information available.
 List of References. No information available.

CHEM-AQUA, INC assumes no responsibility for personal injury or property damage caused by the use, storage, or disposal of the product in a manner not recommended on the product label. Users assume all risks associated with such unrecommended use, storage or disposal of the product. The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.



MB-38™

Water Treatment Microbiocide

Description

MB-38 is a concentrated liquid EPA registered oxidizing microbiocide containing sodium hypochlorite. MB-38 is registered for use to control bacteria, fungi, and algae in cooling towers, evaporative condensers, and other industrial water systems. MB-38 is also NSF registered for use to disinfect drinking water.

Features

- Provides broad spectrum microbiological control
- Helps prevent biofilm formation and loss of heat exchange efficiency
- Helps prevent the growth of corrosion-causing bacteria

Physical Properties

Physical State	Liquid
Color	Yellow-Green
Appearance	Transparent
Odor	Chlorine
pH	13.5
Specific Gravity	1.196

Consult the label for complete directions and precautions before using this product.



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1M207

Material Safety Data Sheet: CHEM-AQUA 42171

Supersedes Date 08/13/2012

Issuing Date 12/28/2012

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name CHEM-AQUA 42171

Recommended use Water treatment chemical Biocidal product

Information on Manufacturer

CHEM-AQUA, INC

BOX 152170

IRVING, TEXAS 75015

Product Code TV11

Chemical nature Aqueous solution Alkaline

Emergency Telephone Number

CHEMTREC® 800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview

DANGER

Corrosive

Causes skin and eye burns
May cause delayed lung injury and burns
Harmful or fatal if swallowed

Color Yellow

Physical State Liquid

Odor Slight chlorine

Potential Health Effects

Principle Route of Exposure

Skin contact, Eye contact, Inhalation.

Primary Routes of Entry

None known

Acute Effects

Eyes

Corrosive to the eyes and may cause severe damage including blindness.

Skin

Causes skin burns.

Inhalation

Harmful by inhalation. Causes burns.

Ingestion

Ingestion causes burns of the upper digestive and respiratory tracts. May be fatal if swallowed.

Chronic Toxicity

Inhaled corrosive substances can lead to a toxic edema of the lungs.

Target Organ Effects

Skin, Respiratory system.

Aggravated Medical Conditions

Skin disorders, Respiratory disorders.

Potential Environmental Effects

See Section 12 for additional Ecological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No
Sulfamic acid, n-bromo, sodium salt	1004542-84-0
Sodium chloride	7647-14-5
Sodium hydroxide	1310-73-2

4. FIRST AID MEASURES

General advice

Do not get in eyes, on skin or on clothing. Do not breathe vapors or spray mist.

Eye Contact

Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Call a physician or poison control center immediately.

Skin Contact

Remove immediately all contaminated clothing. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.

Inhalation

Move to fresh air. If not breathing, give artificial respiration. Call a physician or poison control center immediately.

Ingestion

Call a physician or Poison Control Center immediately. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.

Notes to physician

The product causes burns of eyes, skin and mucous membranes. Control of circulatory system, shock therapy if needed.

5. FIRE-FIGHTING MEASURES

Flash Point Does not flash

Method

Not applicable

Autoignition Temperature No information available.

Flammability Limits in Air % Hydrogen, by reaction with metals.

Upper 75

Lower 4

Suitable Extinguishing Media

Water spray. Foam. Alcohol-resistant foam. Carbon dioxide (CO₂). Dry chemical. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific hazards arising from the chemical

Contact with metals may evolve flammable hydrogen gas. Material can create slippery conditions.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA	Health 3	Flammability 1	Instability 1
HMIS	Health 3	Flammability 1	Instability 1

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Use personal protective equipment. Prevent further leakage or spillage if safe to do so. Material can create slippery conditions.
Environmental Precautions	Do not flush into surface water or sanitary sewer system.
Methods for Containment	Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13)
Methods for Cleaning Up	Pick up and transfer to properly labeled containers
Neutralizing Agent	Acetic acid, diluted.

7. HANDLING AND STORAGE

Handling	Do not get in eyes, on skin or on clothing. Do not breathe vapors or spray mist.
Storage	Store in original container. Keep away from direct sunlight. Keep containers tightly closed in a dry, cool and well-ventilated place. Metal containers must be lined. Do not freeze.
Storage Temperature	Minimum 45 °F / 7 °C Maximum 100 °F / 38 °C
Storage Conditions	Indoor X Outdoor Heated Refrigerated

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH
Sulfamic acid, n-bromo, sodium salt	No data available	No data available	No data available
Sodium chloride	No data available	5 mg/m ³ PNOR (as solid)	No data available
Sodium hydroxide	Ceiling: 2 mg/m ³	TWA: 2 mg/m ³	IDLH: 10 mg/m ³ Ceiling: 2 mg/m ³

Engineering Measures	Use with local exhaust ventilation. Ensure adequate ventilation, especially in confined areas.
Personal Protective Equipment	
Eye/Face Protection	Tightly fitting safety goggles. Face-shield.
Skin Protection	Wear suitable protective clothing, Impervious gloves.
Respiratory Protection	In case of inadequate ventilation wear respiratory protection. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
General Hygiene Considerations	Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid	Viscosity	Non viscous
Color	Yellow	Odor	Slight chlorine
Appearance	Transparent	pH	> 13
Specific Gravity	1.32	Evaporation Rate	0.38 (Butyl acetate=1)
Percent Volatile (Volume)	73.5	VOC Content (%)	0
VOC Content (g/L)	0	Vapor Pressure	11.8 mmHg @ 70°F
Vapor Density	0.6 (Air = 1.0)	Solubility	Completely soluble
Boiling Point/Range	No data available		

10. STABILITY AND REACTIVITY

Chemical Stability	Stable. Hazardous polymerization does not occur.
Conditions to Avoid	Extremes of temperature and direct sunlight
Incompatible Products	Strong oxidizing agents, Acids, Metals.
Hazardous Decomposition Products	Carbon oxides, Nitrogen oxides (NOx), Sulfur oxides, Sulfur compounds, Sodium oxides, Bromine, Fumes of bromine, Hydrogen bromide.
Possibility of Hazardous Reactions	None under normal processing

11. TOXICOLOGICAL INFORMATION

Product Information	No information available.
Component Information	

Acute Toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation	Draize Test	Other
Sulfamic acid, n-bromo, sodium salt	no data available	no data available	no data available	no data available	no data available
Sodium chloride	= 3 g/kg (Rat)	> 10 g/kg (Rabbit)	> 42 g/m ³ (Rat) 1 h	no data available	no data available
Sodium hydroxide	no data available	= 1350 mg/kg (Rabbit)	no data available	no data available	no data available

Chronic Toxicity

Component	Mutagenicity	Sensitization	Developmental Toxicity	Reproductive Toxicity	Target Organ Effects
Sulfamic acid, n-bromo, sodium salt	no data available	no data available	no data available	no data available	no data available
Sodium chloride	no data available	no data available	no data available	no data available	kidney
Sodium hydroxide	no data available	no data available	no data available	no data available	eyes, respiratory system, skin

Carcinogenicity

There are no known carcinogenic chemicals in this product.

Component	ACGIH	IARC	NTP	OSHA	Other
Sulfamic acid, n-bromo, sodium salt	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium chloride	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium hydroxide	not applicable	not applicable	not applicable	not applicable	not applicable

12. ECOLOGICAL INFORMATION**Product Information**

No information available.

Component Information

Component	Toxicity to Algae	Toxicity to Fish	Microtox	Water Flea	log Pow
Sulfamic acid, n-bromo, sodium salt	no data available	no data available	no data available	no data available	N/A
Sodium chloride	no data available	LC50 5560 - 6080 mg/L Lepomis macrochirus 96 h LC50 = 12946 mg/L Lepomis macrochirus 96 h LC50 6020 - 7070 mg/L Pimephales promelas 96 h LC50 = 7050 mg/L Pimephales promelas 96 h LC50 6420 - 6700 mg/L Pimephales promelas 96 h LC50 4747 - 7824 mg/L Oncorhynchus mykiss 96 h	no data available	EC50= 1000 mg/L 48 h EC50 340.7 - 469.2 mg/L 48 h	N/A
Sodium hydroxide	no data available	LC50 = 45.4 mg/L Oncorhynchus mykiss 96 h	no data available	no data available	N/A

Persistence and Degradability

No information available.

Bioaccumulation

No information available.

Mobility

No information available.

13. DISPOSAL CONSIDERATIONS**Product Disposal**

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your state pesticide or environmental control agency.

Container Disposal

Empty containers should be taken for local recycling, recovery, or waste disposal.

14. TRANSPORT INFORMATION**DOT**

Proper Shipping Name	Corrosive liquid, n.o.s.
Hazard Class	8
UN-No	UN1760
Packing Group	III
Description	UN1760, Corrosive liquid, n.o.s.,(Bromide Salts), 8, PG III

TDG

Proper shipping name	UN1760, Corrosive liquid, n.o.s.(Bromide Salts), 8, PG III
Hazard Class	8
UN-No	UN1760

Material Safety Data Sheet: MB-215/ANCOCIDE 4070

Supersedes Date 12/13/2011

Issuing Date 07/09/2013

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name MB-215/ANCOCIDE 4070
Recommended use Biocidal product
Information on Manufacturer
CHEM-AQUA, INC
BOX 152170
IRVING, TEXAS 75015

Product Code C668
Chemical nature Aqueous solution
Emergency Telephone Number
CHEMTREC® 800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview

DANGER
Corrosive
Causes skin and eye burns
May cause allergic skin reaction
May cause delayed lung injury and burns
Harmful or fatal if swallowed

Color Colorless - Yellow

Physical State Liquid

Odor Pungent

Potential Health Effects

Principle Route of Exposure

Skin contact, Eye contact, Inhalation.

Primary Routes of Entry

Skin Absorption

Acute Effects

Eyes

Corrosive to the eyes and may cause severe damage including blindness.

Skin

Causes skin burns. May cause allergic skin reaction.

Inhalation

Harmful by inhalation. Causes burns. Risk of serious damage to the lungs (by inhalation).

Ingestion

If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach. Components of the product create formation of methemoglobin.

Chronic Toxicity

May cause sensitization by skin contact. Inhaled corrosive substances can lead to a toxic edema of the lungs.

Target Organ Effects

Immune system, Blood.

Aggravated Medical Conditions

Skin disorders, Respiratory system.

Potential Environmental Effects

See Section 12 for additional Ecological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No
Magnesium nitrate	10377-60-3
5-Chloro-2-methyl-4-isothiazolin-3-one	26172-55-4
Magnesium chloride	7786-30-3

4. FIRST AID MEASURES

General advice

Do not get in eyes, on skin or on clothing. Do not breathe mist.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Call a physician or poison control center immediately.

Skin Contact

Remove immediately all contaminated clothing. Wash off immediately with plenty of water for at least 15 minutes. Contact a poison control center.

Inhalation

Move to fresh air. If not breathing, give artificial respiration. Get medical attention immediately.

Ingestion

Call a physician or poison control center immediately. Give small amounts of water to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center.

Notes to physician

The product causes burns of eyes, skin and mucous membranes. Control of circulatory system, shock therapy if needed. Since reversion of methemoglobin to hemoglobin occurs spontaneously after termination of exposure, moderate degrees of cyanosis need to be treated only by supportive measures. May cause sensitization of susceptible persons.

5. FIRE-FIGHTING MEASURES

Flash Point Does not flash

Method

Not applicable

Autoignition Temperature No information available.

Flammability Limits in Air % Hydrogen, by reaction with metals.

Upper 75

Lower 4

Suitable Extinguishing Media

Foam. Alcohol-resistant foam. Carbon dioxide (CO₂). Dry chemical. Water spray. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating gases and vapors. Contact with metals liberates flammable hydrogen gas. Material can create slippery conditions.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA	Health 3	Flammability 1	Instability 0
HMS	Health 3	Flammability 1	Instability 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Use personal protective equipment. Ensure adequate ventilation. Prevent further leakage or spillage if safe to do so. Material can create slippery conditions.
Environmental Precautions	Do not flush into surface water or sanitary sewer system.
Methods for Containment	Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13)
Methods for Cleaning Up	Pick up and transfer to properly labeled containers.
Neutralizing Agent	Neutralize with lime milk or soda and flush with plenty of water.

7. HANDLING AND STORAGE

Handling	Ensure adequate ventilation. Wear personal protective equipment.
Storage	Keep out of the reach of children. Store in original container. Keep containers tightly closed in a cool, well-ventilated place. Metal containers must be lined. Freezing will affect the physical condition but will not damage the material. Thaw and mix before using.
Storage Temperature	Minimum 34 °F / 1 °C Maximum 131 °F / 55 °C
Storage Conditions	Indoor X Outdoor Heated Refrigerated

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH
Magnesium nitrate	No data available	No data available	No data available
5-Chloro-2-methyl-4-isothiazolin-3-one	No data available	No data available	No data available
Magnesium chloride	No data available	No data available	No data available

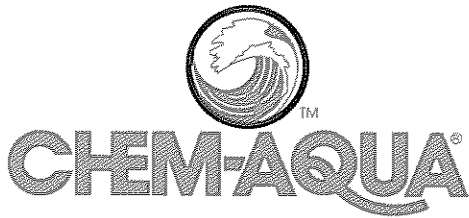
Engineering Measures	Ensure adequate ventilation, especially in confined areas. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction.
Personal Protective Equipment	
Eye/Face Protection	Tightly fitting safety goggles. Face-shield.
Skin Protection	Wear suitable protective clothing, impervious gloves.
Respiratory Protection	In case of inadequate ventilation wear respiratory protection. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
General Hygiene Considerations	Wear protective gloves/clothing. Ensure that eyewash stations and safety showers are close to the workstation location. Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid	Viscosity	Non viscous
Color	Colorless - Yellow	Odor	Pungent
Appearance	Transparent	pH	2
Specific Gravity	1.02	Evaporation Rate	0.58 (Butyl acetate=1)
Percent Volatile (Volume)	97.9	VOC Content (%)	0
VOC Photoreactive (Y/N)	No	VOC Content (g/L)	0
Vapor Pressure	17.05 mmHg @ 70°F	Vapor Density	0.6 (Air = 1.0)
Solubility	Completely soluble	Boiling Point/Range	212 °F / 100 °C

10. STABILITY AND REACTIVITY

Chemical Stability	Stable. Hazardous polymerization does not occur.
Conditions to Avoid	None known
Incompatible Products	Strong oxidizing agents, Reducing agents, Amines, Powdered metals, Light and/or alkaline metals, Contact with metals liberates hydrogen gas.
Hazardous Decomposition Products	Carbon oxides, Nitrogen oxides (NO _x), Sulfur oxides, Hydrogen chloride gas.



MB-215/ANCOCIDE™ 4070

Water Treatment Microbiocide

Description

MB-215/ANCOCIDE 4070 is a US EPA registered liquid microbiocide used to control bacteria, fungi, and algae. MB-215/ANCOCIDE 4070 contains a mixture of isothiazoline compounds and is registered for use in a range of water treatment applications including recirculating cooling and process water systems, air washers, and non-potable reverse osmosis systems.

Features

- Reduces the potential for microbiological fouling
- Helps keep heat transfer surfaces clean and energy efficient
- Concentrated, easy-to-use liquid formulation

Physical Properties

Physical State	Liquid
Color	Amber
Appearance	Transparent
Odor	Pungent
pH	2 - 4
Specific Gravity	1.02
Density	8.5 lbs/gal

Consult the label for complete directions and precautions before using this product.



Material Safety Data Sheet: BACTICIDE 45 (46 LB)

Supersedes Date 05/18/2010

Issuing Date 04/15/2013

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name BACTICIDE 45 (46 LB)
Recommended use Biocidal product
Information on Manufacturer
CHEM-AQUA, INC
BOX 152170
IRVING, TEXAS 75015

Product Code 0684
Chemical nature Aqueous solution
Emergency Telephone Number
CHEMTREC® 800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview

DANGER

Corrosive

Causes skin and eye burns
May cause allergic skin reaction
May cause delayed lung injury and burns
May cause allergic respiratory reaction
Harmful or fatal if swallowed

Color Colorless

Physical State Liquid

Odor Fruity

Potential Health Effects

Principle Route of Exposure

Skin contact, Eye contact, Inhalation.

Primary Routes of Entry

Skin Absorption, Ingestion.

Acute Effects

Eyes

Corrosive to the eyes and may cause severe damage including blindness.

Skin

Causes skin burns. May cause allergic skin reaction. May be absorbed through the skin in harmful amounts.

Inhalation

Harmful by inhalation. Causes burns. May cause allergic respiratory reaction.

Ingestion

If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach. May cause central nervous system effects such as headache, dizziness, weakness, staggering gait, nausea, blurred vision, excitation, and in extreme cases, coma or death.

Chronic Toxicity

May cause sensitization by skin contact. May cause respiratory sensitization in some individuals. Liver injury may occur. Contains a known or suspected reproductive toxin.

Target Organ Effects

Respiratory system, Central nervous system, Immune system, Liver, Skin.

Aggravated Medical Conditions

Respiratory disorders, Skin disorders, Liver disorders, Neurological disorders.

Potential Environmental Effects

See Section 12 for additional Ecological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No
Glutaraldehyde	111-30-8

4. FIRST AID MEASURES

General advice

Do not get in eyes, on skin or on clothing. Do not breathe vapors or spray mist.

Eye Contact

If in eyes, rinse with water for 15 minutes. Remove contact lenses. Call a physician or poison control center immediately.

Skin Contact

Take off all contaminated clothing immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.

Inhalation

Move to fresh air. Give oxygen or artificial respiration if needed. Call a physician or poison control center immediately.

Ingestion

Call a physician or poison control center immediately. Do NOT induce vomiting. Rinse mouth.

Notes to physician

Aspiration hazard if swallowed - can enter lungs and cause damage. Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression, and convulsions may be needed. May cause sensitization of susceptible persons.

5. FIRE-FIGHTING MEASURES

Flash Point

> 201 °F / > 94 °C

Method

Closed cup

Autoignition Temperature No information available.

Flammability Limits in Air % Hydrogen, by reaction with metals.

Upper 75

Lower 4

Suitable Extinguishing Media

Foam. Alcohol-resistant foam. Carbon dioxide (CO₂). Dry chemical. Water spray. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific hazards arising from the chemical

Contact with metals liberates flammable hydrogen gas. Material can create slippery conditions.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA	Health 3	Flammability 1	Instability 0
HMIS	Health 3	Flammability 1	Instability 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Use personal protective equipment. Prevent further leakage or spillage if safe to do so. Material can create slippery conditions.
Environmental Precautions	Do not flush into surface water or sanitary sewer system.
Methods for Containment	Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13)
Methods for Cleaning Up	Pick up and transfer to properly labeled containers
Neutralizing Agent	Not applicable.

7. HANDLING AND STORAGE

Handling	Do not get in eyes, on skin or on clothing. Do not breathe vapors or spray mist.
Storage	Keep away from open flames, hot surfaces and sources of ignition. Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Metal containers must be lined. Freezing will affect the physical condition but will not damage the material. Thaw and mix before using.
Storage Temperature	Minimum 25 °F / -4 °C Maximum 100 °F / 38 °C
Storage Conditions	Indoor X Outdoor Heated Refrigerated

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Exposure Guidelines**

Component	ACGIH TLV	OSHA PEL	NIOSH
Glutaraldehyde	Ceiling: 0.05 ppm	No data available	Ceiling: 0.2 ppm Ceiling: 0.8 mg/m ³

Engineering Measures

Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment**Eye/Face Protection**

Tightly fitting safety goggles. Face-shield.

Skin Protection

Wear suitable protective clothing, Impervious gloves.

Respiratory Protection

In case of insufficient ventilation wear suitable respiratory equipment. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

General Hygiene Considerations

Wear protective gloves/clothing. Ensure that eyewash stations and safety showers are close to the workstation location.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid	Viscosity	Non viscous
Color	Colorless	Odor	Fruity
Appearance	Transparent	pH	3.1
Specific Gravity	1.12	Evaporation Rate	1.0 (Butyl acetate=1)
Percent Volatile (Volume)	100	VOC Content (%)	45.5
VOC Content (g/L)	509	Vapor Pressure	0.2 mmHg @ °F
Vapor Density	1.0 (Air = 1.0)	Solubility	Completely soluble
Boiling Point/Range	213 °F / 101 °C		

10. STABILITY AND REACTIVITY

Chemical Stability	Stable. Hazardous polymerization does not occur.
Conditions to Avoid	Heat, flames, and sparks
Incompatible Products	Strong oxidizing agents, Bases, Amines, Metals, Strong acids.
Hazardous Decomposition Products	Carbon oxides
Possibility of Hazardous Reactions	None under normal processing

11. TOXICOLOGICAL INFORMATION**Product Information**

LD50 Oral rat 1,330 mg/kg	LD50 Dermal rabbit 1,810 - 3,164 mg/kg
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Component Information**Acute Toxicity**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation	Draize Test	Other
Glutaraldehyde	= 66 mg/kg (Rat)	> 2000 mg/kg (Rat) = 560 µL/kg (Rabbit)	= 0.1 mg/L (Rat) 4 h	no data available	no data available

Chronic Toxicity

Component	Mutagenicity	Sensitization	Developmental Toxicity	Reproductive Toxicity	Target Organ Effects
Glutaraldehyde	no data available	skin sensitization, respiratory sensitization	X	no data available	eyes, respiratory system, skin, immune system, liver, CNS

Carcinogenicity

There are no known carcinogenic chemicals in this product.

Component	ACGIH	IARC	NTP	OSHA	Other
Glutaraldehyde	not applicable	not applicable	not applicable	not applicable	not applicable

12. ECOLOGICAL INFORMATION**Product Information**

Toxic to aquatic organisms

Component Information

Component	Toxicity to Algae	Toxicity to Fish	Microtox	Water Flea	log Pow
Glutaraldehyde	EC50 = 0.61 mg/L Desmodesmus subspicatus 72 h EC50 = 0.84 mg/L Desmodesmus subspicatus 96 h	LC50 7.8 - 22 mg/L Lepomis macrochirus 96 h LC50 2.6 - 4.8 mg/L Oncorhynchus mykiss 96 h LC50 7.8 - 13 mg/L Oncorhynchus mykiss 96 h LC50 = 5.4 mg/L Pimephales promelas 96 h	EC50 = 13.3 mg/L 17 h EC50 = 76.0 mg/L 5 min	EC50 = 14 mg/L 48 h EC50 = 0.56 - 1.0 mg/L 48 h	0.22

Persistence and Degradability

Readily biodegradable.

Bioaccumulation

No information available.

Mobility

No information available.

13. DISPOSAL CONSIDERATIONS**Product Disposal**

Dispose of in accordance with local regulations.

Container Disposal

Empty containers should be taken for local recycling, recovery, or waste disposal. Do not re-use empty containers.

14. TRANSPORT INFORMATION**DOT**

Proper Shipping Name	Corrosive liquid, toxic, n.o.s.
Hazard Class	8
Subsidiary Hazard Class	6.1
UN-No	UN2922
Packing Group	II
Description	UN2922, Corrosive liquid, toxic, n.o.s.,(Glutaraldehyde), 8 (6.1), PG II

TDG

Proper shipping name	Corrosive liquid, toxic, n.o.s.
Hazard Class	8
Subsidiary Hazard Class	6.1
UN-No	UN2922
Packing Group	II
Description	UN2922, Corrosive liquid, toxic, n.o.s.,(Glutaraldehyde), 8 (6.1), PG II

ICAO

UN-No	UN2922
Proper Shipping Name	Corrosive liquid, toxic, n.o.s.
Hazard Class	8
Subsidiary Hazard Class	6.1
Packing Group	II

Shipping Description UN2922, Corrosive liquid, toxic, n.o.s.,(Glutaraldehyde), 8 (6.1), PG II

IATA

UN-No UN2922
 Proper Shipping Name Corrosive liquid, toxic, n.o.s.
 Hazard Class 8
 Subsidiary Hazard Class 6.1
 Packing Group II
 Shipping Description UN2922, Corrosive liquid, toxic, n.o.s.,(Glutaraldehyde), 8 (6.1), PG II

IMDG/IMO

Proper Shipping Name Corrosive liquid, toxic, n.o.s.
 Hazard Class 8
 Subsidiary Hazard Class 6.1
 UN-No UN2922
 Packing Group II
 Shipping Description UN2922, Corrosive liquid, toxic, n.o.s.,(Glutaraldehyde), 8 (6.1), PG II

15. REGULATORY INFORMATION

Inventories

TSCA Complies
 DSL Complies

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Chronic Health Hazard	Fire Hazard	Sudden Release of Pressure Hazard	Reactive Hazard
Yes	Yes	No	No	No

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Glutaraldehyde	Not applicable	Not applicable

Canada

This product is exempt from WHMIS due to PCP registration

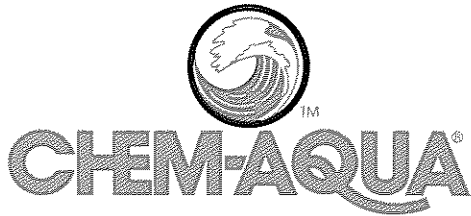
WHMIS Hazard Class

Exempt

16. OTHER INFORMATION

Prepared By Rachael Mohochi
 Supersedes Date 05/18/2010
 Issuing Date 04/15/2013
 Reason for Revision No information available.
 Glossary No information available.
 List of References. No information available.

CHEM-AQUA, INC assumes no responsibility for personal injury or property damage caused by the use, storage, or disposal of the product in a manner not recommended on the product label. Users assume all risks associated with such unrecommended use, storage or disposal of the product. The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.



BACTICIDE™ 45B

Water Treatment Microbiocide

Description

BACTICIDE 45B is an EPA registered microbiocide containing 45% glutaraldehyde. BACTICIDE 45B is formulated to control slime-forming bacteria, sulfate-reducing bacteria and algae in cooling towers and other industrial water systems.

Features

- Controls bacteria, fungi, and algae
- Helps prevent the growth of corrosion-causing bacteria
- Effective over a broad pH and temperature range
- Compatible with most corrosion and scale inhibitors

Physical Properties

Physical State	Liquid
Color	Colorless
Appearance	Transparent
Odor	Pungent
pH	3.1
Specific Gravity	1.12

Consult the label for complete directions and precautions before using this product.



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