

SPECIFICATION AND SCOPE OF SUPPLY FOR WATER TREATMENT FOR COOLING TOWER MAKE UP WATER

PROJECT: Kilkenny Power Station
Kilkenny
Ireland

PREPARED BY: Tim Quinn
Whitewater
T32 Stillorgan Industrial Park
Blackrock
Co Dublin

QUOTATION NO: WW10-3491/2/TQ

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1.0 INTRODUCTION

The following proposal outlines the water treatment system required, which is to be used to produce treated water for evaporative Cooling Tower.

2.0 RAW WATER

The raw water supply is as SW-1, which can have some organic, colloidal and trace fats/oils contamination.

3.0 TREATED WATER QUALITY

The treated water requirement is softened water with total hardness of 30-50mg/l CaCO₃

4.0 SYSTEM DESIGN

The system proposed is divided into the following sections: -

- Booster Pump Set
- Pre Filters.
- Water Softening.

4.1 PRE-TREATMENT

Whose purpose is to eliminate dirt and pipe scale from the raw water. Our recommendation is for this pre-treatment to be 20µ Bag Filter. Additionally, a UV unit with auto wiper upstream of a simplex GAC filter, to protect softeners downstream.

4.2 WATER SOFTENING

Triplex Water Softeners are used to give partial redundancy and maintain design based on standard units. There will be a blend/bypass around the Water Softener to give a final hardness of 30-50mg/l, so as to provide a buffered supply to the Cooling Tower chemical treatment, and to maintain suitable pH value.

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UTILITIES

Electrical	415 V 50 Hz 15 A 3 phase and neutral isolated supply
Feed Water	Flow 69000 litres normally. Up to 13000 litres during regeneration taken from service water. Pressure 4 Bar Usage 2800m ³ /day
Drainage	0 l/hr approx normally, up to 11520 litres/hr during Water Softener regeneration System materials Standard ABS/PVC.
Air	Flow 2 CF Pressure 6 bar Quality Instrument Standard

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Item No. 2 Booster Pump Set

The booster pumps set allows water to be pumped to the water softener.

Specification:

Inlet/Outlet Pipe Size	:	3.0"
No. of Pumps	:	2 No.
Pump Type	:	Grundfos Model CR90-2-2
Flow Rate	:	69m ³ /hr
Pressure	:	Average 4 Bar

Scope of Supply.

- 1 No. Float switch top mounted for pump low water protection, Kasuga mercury tilt type
- 2 No. Centrifugal pump manufactured by Grundfos or equal with TEFC motor 11kW 380v/50hz/3phIP55. Pump duty 69m³/hr. at 40m total dynamic head.
- 1 No. Set of delivery pipework in 3" Class E ABS with isolating ball valves and non return valves.

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Item No. 3 Triplex Water Softeners

The units are designed to exchange Calcium and Magnesium ions for Sodium for use on Cooling Tower make up supply. This reduces the potential for calcium carbonate fouling of the heat exchange surfaces. The units regenerate on a sequential basis using volumetric control.

Specification

Manufacturer	:	Whitewater
Model No	:	WBX 48CC
No. of Units	:	3 No.
Min. Flow Rate	:	400 litres/hour
Max. Flow Rate	:	90,000 litres/hour
Design Flow	:	69,000 litres/hour
Unit Capacity	:	320m ³ at 250mg/l CaCO ₃
Salt/Regeneration	:	200kg
Pressure Range	:	2 – 6 bar
Pressure Vessel Size	:	1200mm diameter

Scope of Supply:

3 No. Whitewater WBX 15 Water Softener fully automatic regeneration and complete with the following equipment.

- Pressure Vessel manufactured from composite material with polypropylene internals and GRP outside. Vessel is complete with inlet/outlet ports and internal resin support nozzles. Vessel designed with a 4: 1 safety factor for minimum burst pressure.
- Filling of Purolite Monosphere Resin and inert resin layer.
- Side mounted valve manifold with 5 cycle operation to allow full regeneration and rinse cycles. Manifold with ABS type inlet and outlet to ISO 727.
- Automatic Regeneration via Volumetric Controllers and pulse head water meter.
- Brine tank complete with salt platform, brine valve and necessary tubing.

Item No. 5 Electrical Control System

We include for the provision of a dedicated control panel, which will require 3phase 415 volt supply. The panel will be complete with indicators and instruments as well as power supplies for the Water Softeners, and starters for Booster pumps.

We include for a panel mounted alarm system with a facility for common alarms output.

Item No 6 Mechanical Installation Commissioning & Supervision

Commissioning & Supervision

We include for installation and assembly of the complete package as per our proposal between the raw water inlet to the plant room and inclusive of all items as specified in this quotation, up to treated water outlet from the plant room.

All pipework, valves and fittings on the equipment will be 3" ABS Class E.

After completion of installation, we include for commissioning/certification of the system and instruction and training of plant operators.

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PRICE SUMMARY

Item No 1	Bag Filters
Item No 2	Booster Pump set
Item No 3	Water Softeners
Item No 4	Hardness Monitor
Item No 5	Control Panel
Item No 6	Mechanical Installation
Item No 7	Equipment Documentation Deliverables

Total price including delivery site:

PRICE:

Additional Items in order to treat 'Grey Water' water source – SW-1 Analysis Refers

- 1 No. Wedeco BX80 UV unit complete with automatic water and UV intensity monitor
- 1 No. Eurowater Model TFB75 (4-8) automatic pressure filter complete with fill of granular activated carbon

OPTIONAL ITEMS

Bulk Salt Saturator

1 No. Forbes Salt Saturator Model 21/18 in GRP material, complete with internal under drain systems, gravels, bulk inlet pipe, salt dust arrestor.

- Delivery 6-8 working weeks
- Installation 1 working weeks
- Commissioning 1 day
- Training ½ day

Please Note

As we assume the cooling tower water treatment plant is being located within the main plant room for the NOX DI plant, we would utilise the backwash tank and pumps provided for the NOx pre-treatment to backwash the cooling tower GAC filter.

Chemical Treatment for Cooling Towers

System data

Intercooler system
Make-up = 55m³/hr
Evaporation Rate = 0.27m³/hr
Blowdown Rate = 6.0m³/hr

Product to monitor: **Gengard GN Series/ Biomate 5702 /Spectrus NX1100**

Please Note

- GE Advanced Cooling System *Truesence uses the most advanced technology to control addition of biocides on a continuous basis.
- GE's proposed chemical treatment program includes treatment of the cooling waters using both non-oxidising and oxidising biocides for the minimisation of Legionella bacteria.
- GE proposes a monitoring/treatment contract which would operate to the best practices – HSE Guidelines – **L8 Approved Code of Practice and Guidance – The control of Legionella bacteria in water.**
- GE proposes exceeding the above best practices during initial build stages and carry-out monthly Legionella sampling (Recommended Quarterly)
- GE proposes the use of our Bioscan technology – provides instantaneous bacterial results for monitoring on cooling systems. See attached fact sheet.

Quotation

It is proposed to install a new open evaporative cooling system, with expected KPI as per spec supplied. This proposal allows for the optimum level of automation with regard to chemical dosing and control.

For all Cooling Water Systems, there is a requirement to carry out Chemical treatments and other system checks as per the guidelines in the L8 Legionnaires' Disease: The control of legionella bacteria in water systems, Approved Code Of Practice & Guidance and based upon L8 ACOP. These requirements are to ensure operation of the water systems pose minimal hazard to users of the systems at the Kilkenny site.

The Critical to Quality factors for the Cooling Water systems are: -

- Optimum control of water treatment chemicals.
- Maintain and protect heat exchange surfaces at all times.
- Maximise uptime of cooling availability for the process.
- Control excessive water consumption.

This proposal offers suitable chemicals and services to provide an appropriate water treatment programme to address the Critical to Quality factors. They offer industry proven technology supported by our Partner GE Water & Process Technologies resources for the operation and maintenance of the water treatment programme.

Our quotation for the supply of the aforementioned services will be:

SCOPE OF WORK

Whitewater will supply the following equipment:

- **1 off Advanced Cooling Skid with TrueSense**

This controller will control oxidising biocide additions using Redox control. It will control Inhibitor dosing using TrueSense polymer sensing with back up proportional control by make-up feed. It will allow dosing of the non-oxidising biocide Spectrus NX1100 on a timer basis and cycles of concentration will be controlled via a conductivity control system.

- **1 off 1" contacting head water meter (Part No. 2881509)**

This unit contains a reed switch will send a signal to the ACS controller for every 10 litres of water that enter the system. This will be used as an inhibitor secondary control after the direct polymer monitoring of TrueSense.

- **1 off ¾" pre-mounted bleed line assembly (Part No. 2881340)**

The conductivity of the cooling water will be controlled at a set point as determined by your account manager. When the set point is exceeded a signal will be sent to the bleed line assembly which will open the solenoid bleed valve, this will increase the amount of fresh (lower conductivity) water entering the system which will lower the conductivity of the cooling. When the conductivity of the cooling water drops below the set point the solenoid will close and the cycle will be repeated.

- **1 off Beta BT4a 1005 NPB 90YUA040000 dosing pump (Part No.2804897)**

This dosing pump will be used to dose the Biomate 5702. The pump contains a de-gassing head to minimise air locking.

- **2 off Beta BT4a 1005 PVT 20YUA040000 dosing pumps (Part No. 2803361)**

These pumps will be used to apply the Gengard Inhibitor and Spectrus NX1100

- **Supply of Initial fill of Treatment Chemicals**

1 x 250 kg Gengard GN8108 -Advanced Scale/Corrosion Inhibitor
1 x 250 kg Biomate 5702 – Oxidising biocide with dispersants
1 x 100kg Non-Oxidising Biocide Spectrus NX1100

Included in quotation is -

Supply deliver & commission quantity one ACS panel as per the attached agreement.

Site to provide 3/4" connection to pressure side of the cooling tower recirculation pumps to ACS panel location & 3/4" hose from the panel back to the cooling tower sump.

Local power supply.

Local drain

Electrical connections from make-up meter & blowdown valve

All connections should be with terminated within 1 meter of the ACS panel location

Phone line or Ethernet cabling to allow for external monitoring / alarm dial out functions.

QUOTATION

Advanced Cooling Skid with TrueSense

Contact Water Meter

Pre-mounted bleed assembly

3 off Beta BT4a dosing pumps

Initial Chemical Fill

3oH 100L Chemical Tanks

3oH 110L Bunds

PRICE: €

This quotation is based on limited information and can be subject to a full site survey.

Validity: 30 days

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GenGard* Technology

For Open Recirculating Cooling Systems

- Maintains System Cleanliness
- Only Halogen Stable Technology in the World
- Uncompromised performance under stressed conditions

Description and Use

GenGard* is the most advanced and effective water treatment technology for open recirculating cooling systems. GenGard treatment programs can be applied across the entire pH spectrum from neutral to alkaline and ensure uncompromising results even under the most stressful conditions. The programs incorporate the most advanced deposit and corrosion additives available. The patented GenGard technology includes a new Stress Tolerant Polymer (STP), Alkaline Enhanced Chemistry (AEC) and halogen resistant azole (HRA) in combination with phosphate-based steel corrosion inhibitors.

All GenGard treatment components are stable and retain their effectiveness in the presence of chlorine and other halogens. Halogen stability allows Legionella compliance when chlorine or bromine residuals are continuously applied at effective levels (0.5-1.0 ppm free Cl_2) for general microbiological control and during periodic system disinfections (> 5 ppm free Cl_2). Unlike conventional treatments, GenGard provides the freedom to effectively respond to microbial upsets without a loss of deposition or corrosion control.

The stress tolerant polymer (STP) is the culmination of more than 30 years of polymer research at GE.

a product of
ecomagination™

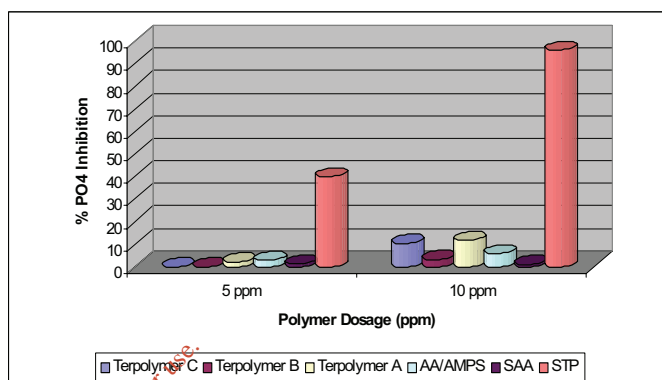


Figure 1: Calcium phosphate inhibition at 400 ppm calcium hardness, pH 8.2, 10 ppm PO_4 , 160°F (70°C)

STP is designed to maintain phosphate-based and zinc-based corrosion inhibitors soluble. (Figure 1) The STP performance far exceeds that of conventional polymeric dispersants, providing exceptional corrosion protection while preventing deposition even in the most demanding applications. The STP performance is not adversely affected by aluminum carryover from influent clarifiers, high temperatures encountered with low flow heat transfer equipment or soluble iron generated from corrosion or entering with the makeup water.

AEC is the only effective non-phosphorus calcium carbonate scale inhibitor for open recirculating system operation above 2.5 LSI (Langelier Saturation Index). Breaking the calcium carbonate supersaturation barrier of organic-phosphate scale inhibitors (phosphonates), AEC provides excellent deposition control under severe conditions where others fail. AEC's superior calcium tolerance and hydrolytic stability permit high cycle operation even under the most stressed conditions.

GenGard products include HRA, a modified azole that provides unequalled copper alloy corrosion pro-

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tection. HRA is halogen stable and capable of maintaining effective corrosion inhibition even in the presence of chlorine and bromine-based biocides. Conventionalazole inhibitors, such as tolyl-triazole and benzotriazole, are readily halogenated in the cooling water, preventing the establishment and repair of a protective film on the metal surface. HRA maintains its activity both in the water and on the metal surface, ensuring continuous protection for copper alloys. HRA also reduces copper levels in the cooling water, minimizing copper discharge and effectively controlling destructive galvanic pitting on steel surfaces.

Typical Applications

The GenGard GN7000 series of products are designed for cooling systems operating in the near-neutral pH 6.8 - 7.8 range. They utilize high levels of inorganic phosphate to promote the formation of a thin, protective iron oxide film on steel surfaces. This protective oxide film is extremely tenacious and does not interfere with heat transfer. STP provides the necessary calcium phosphate control to maintain system cleanliness and uninterrupted operation. (See Figure 2.)

The GenGard GN8000 series of products are designed for waters in the less corrosive alkaline range above pH 7.8. GN8000 products utilize AEC as the basic component to allow operation at highly alkaline conditions without concern for scale formation.

For More Information

For more information on the GenGard Technology, please contact a GE account representative or visit us on the web at www.ge.com/water.

2 ppm STP/HRA
 LCS <0.5 mpy
 ADM <0.2 mpy



8 ppm AA/AMPS /BZT
 LCS - 1.4 mpy
 ADM - 0.6 mpy

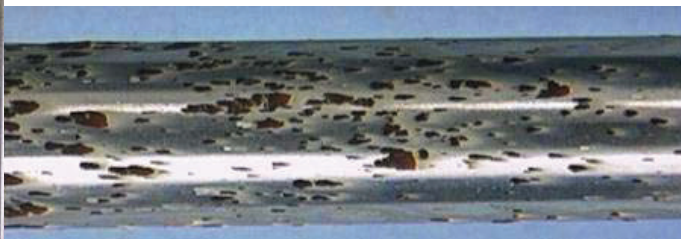
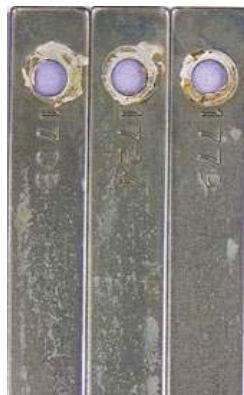


Figure 2: Comparison of Halogen Stable vs. Conventional Treatment, neutral pH, phosphate program, continuous chlorination (0.5 - 1.0 ppm free Cl₂)

Advanced Cooling Water Solution

The right product, in the right amount, at the right time – all the time

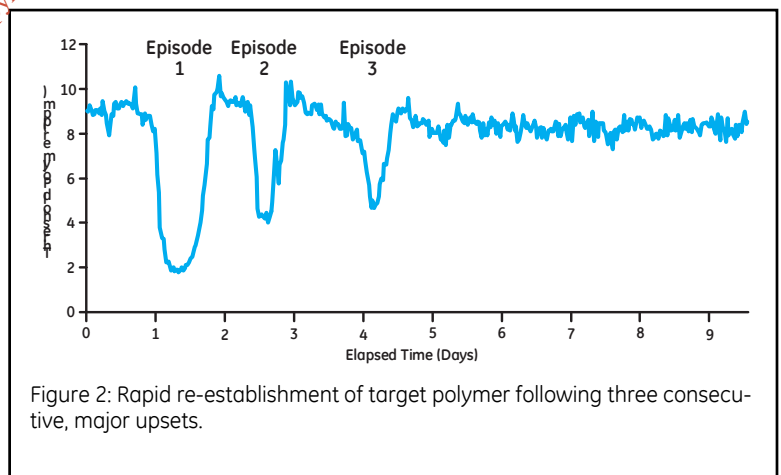
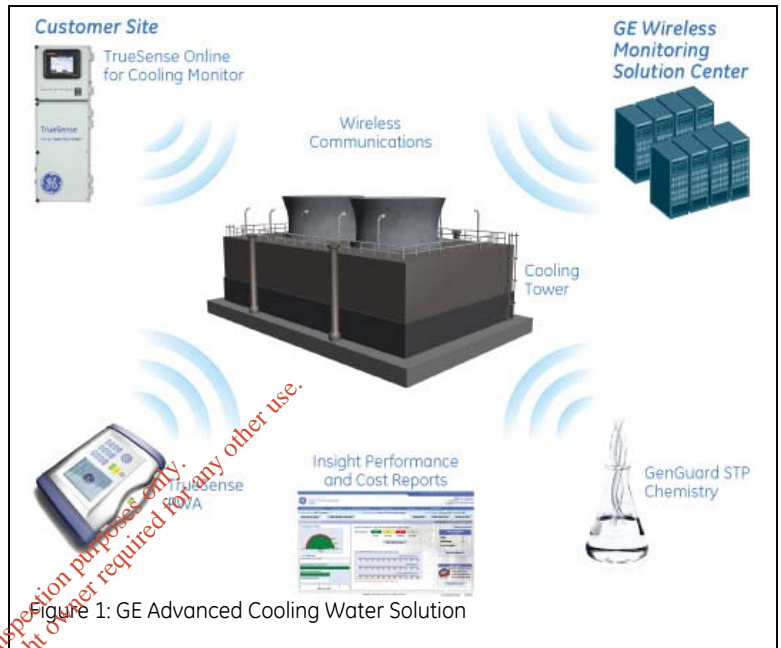
Everyday our manufacturing customers tell us that they are tasked “to do more with less.” The current environment includes fewer people, longer run-lengths, shorter turnarounds, reduced maintenance budgets, more production, and increased regulatory scrutiny and reporting. Equipment pushed beyond its original design capacity often causes utility systems to become unpredictable with unscheduled heat exchanger cleanings, reduced production rates and unplanned outages.

Solution

The GE Advanced Cooling Solution is an innovative offering that can help you monitor, control and maintain your cooling systems with greater efficiency, reliability, and predictability. The Advanced Cooling Solution combines the revolutionary monitoring and control capabilities of TrueSense* with the unparalleled, patented chemistry of GenGard*, wireless data monitoring and analysis along with the most complete portfolio of filtration and membrane products for sidestream softening, filtering, and wastewater reuse. (Figure 1)

Control

TrueSense is the first on-line monitor and control package that directly measures polymer levels. The polymer is the workhorse of your cooling treatment program and maintaining proper levels is critical to your system’s protection and keeping your energy costs down. By measuring the polymer directly, TrueSense reacts to system upsets in *real time*, keeping your system in balance. Figure 2 shows the rapid re-establishment of target polymer levels after three consecutive, major upsets.



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Chemistry

GenGard combines GE's new, patented Stress Tolerant Polymer (STP) with other halogen resistant inhibitors creating a complete program for corrosion and scale inhibition. Unparalleled in the industry, this technology prevents deposition under even the most severe conditions and upsets. Figure 3 demonstrates the superior performance of the STP during a high pH excursion, which is indicative of its deposit prevention abilities.

Membrane and Filtration Technology

Advanced Cooling Solutions go beyond feed and control. Our trained engineers can help determine the best membrane and filtration to meet your plant's water needs. We can analyze sidestream treatment options, blowdown recovery and help you identify alternative makeup streams.

Unique Features

Compared to the competition, GE's Advanced Cooling Solution offers several added features, which improve cooling system performance. Table 1 details these features.

Table 1: Comparative Features

Feature	GE	Competitor
Active polymer Measurement?	YES	NO
Water reuse?	Yes	NO
Corrosion monitoring?	YES	YES
Microbiological monitoring?	YES	YES
pH/acid feed	YES	YES
Conductivity/blowdown Control	YES	YES
Low installation costs?	YES	NO
SPC Graphs?	YES	YES
Management Summary Reports?	YES	YES
KPI Scorecard?	YES	YES
Cost Reports?	YES	NO
On-line Inventory Reporting?	YES	YES
Flexible solution?	YES	NO

Meeting Your Needs

The GE Advanced Cooling Solution addresses the issues that you have told us are important to you:

Lower Total Cost of Ownership – Less water consumption, less downtime, less energy consumption all adds up to a better cost position for your business.

pH Upset (7.9)

STP



Polymer¹ – uniform CaPO₄ deposit



¹Industry standard – sulfonated acrylic acid co-, ter- and quad- polymer

Figure 3: Comparison of STP vs. the industry standard polymer

Predictable – The Advanced Cooling Solution tightens control without operator intervention. The TrueSense monitor senses and responds immediately to system upsets.

Less Environmental Impact – Heavy metal discharge is reduced by eliminating the typical molybdate tracer and by minimizing the by-products of system corrosion. Water consumption is reduced by the chemistry's ability keep system water usable longer before it needs to be sent to drain. Lastly, total chemical consumption is optimized through the use of the TrueSense monitor.

Efficient Manpower Use – More automation, less operator intervention and an 80% time decrease in control testing. The automated management summary reports reduce the amount of operator oversight needed.

Simple and Easily Maintained – Features a simple plug-n-play, robust design for easy, low-cost installation into the toughest applications. The wireless communication package also significantly reduces costly wire and cable runs.

Better Safety Net – The GE Advanced Cooling Solution responds more effectively to system upsets and the chemistry provides a stress tolerant safeguard to handle your most common and uncommon issues.

Swings in pH, hydrocarbon leaks, high iron levels, clarifier carryover and increased suspended solids loadings are all detected and resolved with the Advanced Cooling Solution.

For more information on the Advanced Cooling Water Solution, contact your GE representative today.



Biomate™

Biocides for Membrane Systems

Features

- > Non-oxidizing biocides for membrane safety
- > Highly effective in reducing bacterial growth and slime build-up on a variety of membrane types.
- > Biomate MBC products can be used on or off line
- > Readily degraded actives for safe disposal

Description and Use

Biomate™ MBC781 is an EPA registered, non-oxidizing biocide used to sanitize reverse osmosis (RO) and ultrafiltration (UF) systems and membranes. Biomate MBC781 is fed continuously to the feed water of these systems.

Biomate MBC881 is used to reduce slime build-up in reverse osmosis and ultrafiltration membranes. A treatment program that includes Biomate MBC881 with Kleen MCT882 and Kleen™ MCT511 or Kleen MCT442 or Kleen MCT411, will result in more effective membrane cleaning and decreased cleaning frequency. This product is most effective as a bactericide, but will also control fungi and algae when used at higher dosages.

Biomate MBC2881 contains a higher concentration of ingredients and is used in the same manner as the MBC881.

Typical Application

Biomate products should be used only in industrial applications. They should never be used in those applications in which membrane system permeate, or products formulated with permeate could be consumed or injected into humans or animals.

Treatment and Feeding Requirements

Biomate MBC781 Typical dosage range is between 3 and 15 ppm (mg/L) depending upon the specific feed and application.

Biomate MBC881 This product is typically used off line as a batch application at 400 ppm (mg/L).

Biomate 2881 Typical batch application dosage is 100 ppm and on line dosage is generally 3 to 10 ppm (mg/L).

Materials Compatibility

Biomate MBC781: Most non-metallic tank materials including polyethylene, polypropylene, Saran™, and Teflon™, exhibit good, long-term resistance to Biomate MBC781. Acceptable pump components include SS 304, SS 316, Teflon™, Viton™, CPE™, PolyPro, PVC, Buna-N, EPDM, Neoprene, Polyethylene, Silicone, Lexan, Butyl Rubber and ABS.

Biomate MBC881 & MBC2881: Most non-metallic tank materials including polyethylene, polypropylene, Saran™, and Teflon™, exhibit good, long-term resistance to Biomate MBC881. Acceptable pump components include Kynar™, Teflon™, CPE™, and Viton™.

Packaging Information

Biomate MBC products are in liquid form and are available in a variety of containers and delivery methods.

Safety Precautions

Material Safety Data Sheets containing detailed information about these products are available upon request.

Spectrus™ NX1100

Microbiological Control Agent

- Broad spectrum antimicrobial
- Patented blend minimizes microbial resistance
- Nonfoaming, water-based
- Compatible with all corrosion and deposit control treatments
- Synergistic with halogen-based disinfectants
- Contains no copper or iron stabilizers
- FDA approved (CFR 176.170, 180, and 300)
- USDA approved (G-5, G-7)
- Approved for sale in California¹

Description and Use

Spectrus™ NX1100 is a proprietary blend of antimicrobial agents, specifically formulated for industrial water applications. It may be used in open or closed recirculating cooling water systems. Spectrus NX1100 is also approved for use in auxiliary water systems as well as wastewater and waste material disposal applications. The product label provides a complete listing of approved end uses.

¹NOTE TO CALIFORNIA USERS -

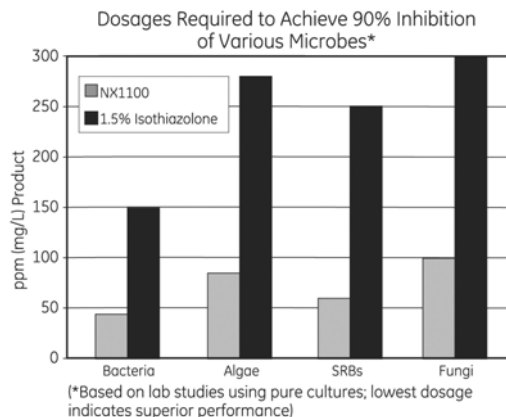
At the present time, the State of California has approved this product for use in recirculating cooling systems (evaporative condensers, heat exchange water systems, commercial and industrial cooling towers) and brewery pasteurizers, only. Consult the California version of the Spectrus NX1100 product label for a complete listing of approved end-uses and recommended dosages.

Spectrus NX1100 is EPA registered for control of a wide range of microbial species, including aerobic bacteria, anaerobic bacteria, algae, yeast, and fungi. Control of microbiological populations in in-

dustrial water systems is essential to prevent biofouling. In cooling systems, biofouling of heat exchange equipment and tower fill reduces heat transfer efficiency and can force unscheduled shutdowns and extended turnarounds leading to lost production. Biofouling can also damage equipment through microbiologically influenced corrosion (MIC). As a result of these effects, biofouling must be prevented in order for operating units to achieve profitability goals.

The actives in Spectrus NX1100 consist of 5.3% 2-bromo-2-nitropropane-1,3-diol (BNPD) and 2.6% Isothiazolone (1.9% 5-chloro-2-methyl-4 isothiazolin-3-one and 0.68% 2-methyl-4-isothiazolone-3-one). Compared to single-active, Isothiazolin-based products, the combination of actives in Spectrus NX1100 gives better microbial control at lower dosages (see chart). This blend of actives also limits the development of resistant microbial populations and eliminates the need to alternate products to maintain microbiological control.

Spectrus NX1100 is synergistic with chlorine and bromine disinfection programs. It demonstrates increased efficacy in the presence of these oxidizing agents. This means that continuous halogenation does not have to be interrupted or suspended when



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Global Headquarters
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Americas
Minnetonka, MN
952-933-2277

Europe/Middle East/Africa
Heverlee, Belgium
32-16-40-20-00

Asia/Pacific
Shanghai, China
86-21-5298-4573

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this product is fed into a cooling system. This is especially important when organic contamination leads to rapid microbial growth.

Spectrus NX1100 is water-based to minimize impact on the environment. It contains no metal-based stabilizers, such as copper or iron, thus simplifying customer compliance with NPDES permits. The Environmental Fate and Effects (aquatic toxicity and biodegradation) data package for this product is listed in Section 12 of the Material Safety Data Sheet.

Spectrus NX1100 Environmental Features

- Noncombustible
- Free of glycols, oils, and organic solvents
- Biodegradable
- Drumless delivery service available
- Copper stabilizer for isothiazolone eliminated
- Reduced BOD and COD
- No SARA 302 warnings
- No Michigan critical materials
- No Proposition 65 materials
- No reportable spill quantity

Treatment And Feeding Requirements

Correct treatment levels and frequency of Spectrus NX1100 addition depend on many factors. They include, but are not limited to, system cleanliness, nutrient concentrations, temperature, types of microorganisms, pH, retention time, and other system operating characteristics. Consult the product label for general dosage guidelines. Microbiological monitoring is recommended to evaluate product requirements. Consult your GE representative for technical advice about your specific application.

In all cases, this product must be applied in accordance with use instructions on the Spectrus NX1100 label.

Feed point - Spectrus NX1100 should be applied to a point in the cooling system where turbulence and flow patterns assure good mixing with the water being treated.

Dilution - This blend is best fed neat (undiluted) from the storage container.

Compatible Materials - Spectrus NX1100 is compatible with most plastics, such as polyvinylchloride (PVC), high density, cross-linked polyethylene (HDPE), polypropylene (PP), and Teflon™ (PTFE). (Teflon is a registered trademark of DuPont.)

Avoid: mild steel, copper and copper alloys, aluminum, galvanized metals, 304 stainless steel, and thin-wall 316 SS tubing.

This product may be fed using a PaceSetter Plus™ or PaceSetter™ Model E Control System.

General Properties

Physical properties of Spectrus NX1100 are shown on the Material Safety Data Sheet, a copy of which is available on request.

Packaging Information

Spectrus NX1100 is a liquid blend, available in a wide variety of customized containers and delivery methods, including the ChemSure™ Drumless Delivery Service program. Contact your GE representative for details.

Storage

Protect from freezing. If this product is frozen during shipment or storage, slight mixing may be required to insure homogeneity.

Safety Precautions

Use of eye protection (goggles & face shield) and gauntlet-type gloves is required when handling this product. See section 7 of the MSDS for additional information on recommended personal protective equipment.

General Information

EPA Registration Number 3876-151
Purchase of Spectrus NX1100 from GE includes a license to practice the processes covered by U.S. Patents 4,732,905, 4,855,296 and 4,966,775.

Can you Afford to Wait 2 Days for Microbial Monitoring Results?

Biomonitoring with the Speed of Light



Now you can get instant and comprehensive results with BIOSCAN* 2 ATP-based biomonitoring from GE Water & Process Technologies. Biomonitoring with Bioscan 2 enables...

Improved:

- Product selection and dosing frequency leading to better control of microbial populations
- System cleanliness and heat transfer rates
- Equipment performance

Reductions in:

- Cleaning and maintenance costs
- Unscheduled downtime
- Energy consumption

Biomonitoring with Bioscan 2 facilitates:

- Increased unit reliability
- Higher production rates
- Lower operating costs

BIOSCAN 2 is:

Improved - Durable construction; exchangeable batteries and power pack; permanent burned-in, E-prom memory

Easy to Use - Requires minimal training

Fast - Eliminates the two to seven day wait for traditional test results

Comprehensive - Measures total system bioactivity

Cost Effective - BIOSCAN pays for itself with increased system and treatment efficiencies



BIOSCAN 2 is quick and easy to use:

- Press green ON/OFF button to open turret
- Dip sampling pen into water sample
- Inject sample into cuvette
- Shake sampling pen
- Insert pen in luminometer
- Close lid
- Read and log results

Call your GE representative for a demonstration of the BIOSCAN 2 biomonitoring system. You can't afford to wait.

Fact 1: In just 48 hours under the right conditions, a single microbe can produce a population roughly 4,000 times the weight of the earth.

Organisms Detected	Dip slide Results in 2-3 days	BIOSCAN Results in Less than 1 minute
Aerobic bacteria	X	X
Iron bacteria		X
Nitrogen cycle bacteria		X
Legionella bacteria		X
Protozoa/Amoeba		X
Sulfate-reducing bacteria		X
Molds/Yeasts	X	X
Algae		X

¹ THE MICROBIAL WORLD, p.277, 4th ed., Stanier, R.Y., et al.

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