



**Smart** *release*<sup>®</sup>  
Technology



## **SIMPLE. SAFE. RELIABLE.**

Thousands of facilities throughout the world are enjoying the benefits of Smart Release<sup>®</sup> Technology.

Smart Release uses proven water treatment chemistries and applies them in a Simple, Safe, and more Reliable way in order to protect your valuable cooling systems while also benefiting your employees and the environment.

- 3** WHAT IS SMART RELEASE TECHNOLOGY?
- 5** SCALE AND CORROSION INHIBITORS
- 7** BIOCIDES
- 9** SMART FEEDERS & EQUIPMENT
- 11** PRE-MOUNTED SKIDS
- 15** SIZING AND INSTALLATION
- 17** TESTING FOR SMART RELEASE INHIBITORS

# WHAT IS SMART RELEASE TECHNOLOGY?

Water treatment chemicals are designed to protect your valuable assets. With good treatment and good service, your assets will be protected. That is why first and foremost, Smart Release was created with robust, proven water treatment formulas.

The next step was thinking about how this treatment could be applied in a better way; better for the environment, better for people in and around the facility, and better for the systems being treated. The result is Smart Release Technology.

Smart Release Technology is designed to use proven solid water treatment chemistries in a Simple, Safe, and more Reliable way.



## SIMPLE

WATER IN.  
WATER OUT.

### Simple Installation

- Supply tower water to feeder and back to tower
- Small footprint required
- No pumps

### Product Dosing is as Easy as 1-2-3

1. Determine gallons of blowdown
2. Calculate required product dosage and insert products in feeders
3. Return 30 days later and replace products

### Verification through testing

- Simple 'Go' / 'No-Go' Testing



## SAFE

SAFER FOR ENVIRONMENT  
SAFER FOR YOUR EMPLOYEES

### Safe to Handle

- No risk of liquid spills or splashing
- No drum or pail disposal
- Non-hazardous inhibitor package per OSHA guidelines
- Ergonomically friendly: packaging is easy to carry, even in hard to reach locations

### Safe for Environment

- Please see Green section on next page



## RELIABLE

PROVEN CHEMISTRIES,  
VALIDATED APPLICATION

### Reliable Results

- Used in thousands of locations throughout the world
- Hospitals, universities, data centers, commercial buildings, manufacturing facilities and many more all depend on Smart Release Technology

Facilities throughout the world are going *Green*. Some decision makers are enticed by the incentives offered by cities, while others take actions to go *Green* because it is a decision they control with an immediate positive effect on the environment. From receiving LEED points and community recognition to just doing the right thing, Smart Release Technology can help.



### **ELIMINATE DISCHARGE OF HARMFUL CHEMICALS**

Unlike traditional liquid chemistries which require stabilizers to keep raw materials in solution, Smart Release contains at least 97% active as the salts. This eliminates the discharge of many harmful chemicals into the waterways.

### **REDUCE WATER USAGE**

Good treatment allows for higher cycles of concentration. This in turn lowers water usage. Smart Release uses robust and proven chemistries to do just that.

### **REDUCE ENERGY USAGE**

No pumps required equates to less energy usage.

### **LOWER CO<sub>2</sub>**

Smart Release products are delivered in recyclable cardboard boxes and the high active concentration reduces shipping weight, thus lowering CO<sub>2</sub> emissions.



# SCALE AND CORROSION INHIBITORS

Smart Release scale and corrosion products are delivered in safe-to-handle tablets. The patented coated tablet controls release and also provides for safe handling; Smart Release ships as non-regulated according to DOT guidelines.

Unlike liquids which require stabilizers to keep the product in solution, Smart Release tablets contain over 97% active as the salts.

## HOW DOES IT WORK?

Smart Release Technology combines proven water treatment chemistries into a tablet, and coats the tablet with a patented polymer coating which osmotically controls the release over a 30-day period.

Diffusion only occurs while the cooling tower is running and while the Smart Feeder has flow—when the flow stops, osmotic pressure will gradually equalize and stop diffusion of chemistry. Once flow is restored, osmotic pressure continues to diffuse the chemistry.





**SCALE AND CORROSION TABLETS WILL TREAT ALL WATER TYPES**

PRODUCTS	CW211	CW311
WATER TYPE	MEDIUM DUTY	HARD WATER (SCALING)
LSI RANGE	LSI <2	LSI 2.0-2.8
CHEMISTRY	Polyphosphate Orthophosphate PBTC HEDP BZT CO-POLYMER	PBTC HEDP BZT CO-POLYMER
DOSING	25 PPM	25 PPM
PACKAGING	25lb box (10 2.5lb bags)	25lb box (10 2.5lb bags)

Visit [www.smartreleasetechnology.com](http://www.smartreleasetechnology.com) to view the complete scale and corrosion inhibitor offering.

# BIOCIDES

The Smart Release Technology biocide offering consists of both oxidizing and non-oxidizing biocides. By utilizing Smart Release Technology, these solid biocides can be delivered in a Simple and more Reliable way than traditional liquid biocides.

An oxidizing and non-oxidizing biocide program provides a robust biocide solution to control against microbial growth.

## HOW DOES IT WORK?

Smart Release Technology controls the release of biocides through the use of patent-pending membranes. Every biocide has a different natural solubility which can be matched to a membrane porosity and area to provide the desired controlled release for 30 days.

Just like the scale and corrosion inhibitor tablets, the biocides work on the principles of osmosis.

## MEMBRANE TECHNOLOGY



*Each biocide membrane canister lid is designed for a specific molecule and packaging size. The Smart Release Research and Development team has customized the membrane type and the open area in each lid to enable consistent and reliable release.*



Smart Release Technology has partnered with two of the leading biocide manufacturers in the world to deliver their solid offerings in a Simple and more Reliable way.



## Microbial Control

Putting you in control.



Packaging:

12lb Box (Twelve 1lb Canisters or Six 2lb Canisters)

### NON-OXIDIZING BIOCIDES

#### AQUICAR™ DB 100

Water Treatment Microbiocide with Smart Release<sup>®</sup> Technology

The product is 97.6% active powder form of 2,2-Dibromo-3-nitropropionamide biocide (DBNPA). The product is a fast-acting, broad-spectrum non-oxidizing biocide. The product controls algae, bacteria, and fungi growth and is a popular choice for use in water treatment. It is EPA registered for use in cooling towers.

- Broad spectrum biocide effective against a range of bacteria
- Provides a quick kill at a very low dosage rate of active biocide
- Short half-life of active ingredient supports sustainable microbial control



### OXIDIZING BIOCIDES

#### XTRABROM<sup>®</sup> 111 Biocide



Packaging:

12lb Box (Twelve 1lb Canisters)

XtraBrom<sup>®</sup> 111 Biocide is a 99.4% active granular form of 1,3-dibromo-5,5-dimethylhydantoin biocide (DBDMH). XtraBrom<sup>®</sup> 111 Biocide is used as a fungicide, algicide, slimeicide, and microbiocide. EPA registered for commercial and industrial recirculating cooling water systems, industrial once-through cooling water systems, brewery pasteurizers, pulp and paper mill systems, air washer systems, air and gas scrubber systems, decorative fountains and wastewater. This product controls biofilm deposits from pumps, pipework, heat exchangers and filters associated with industrial water treatment systems.

- XtraBrom<sup>®</sup> 111 Biocide contains almost twice the bromine of conventional drychlorine/bromine products
- XtraBrom<sup>®</sup> 111 Biocide provides equivalent performance with reduced product consumption than BCDMH
- Low latency to form halogen vapors
- Chlorine free

USE BIOCIDES SAFELY. ALWAYS READ THE LABEL AND PRODUCT INFORMATION BEFORE USE.

<sup>®</sup> <sup>™</sup> Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow.

# SMART FEEDERS & EQUIPMENT

Smart Release feeders (Smart Feeders) are used to feed both scale and corrosion inhibitors and biocides. The simple PVC construction not only looks good today, but will look good for years to come.



## SMART FEEDERS

*All components pictured above are included in each Smart Feeder order*

SPECIFICATIONS	SMALL FEEDER	MEDIUM FEEDER	LARGE FEEDER
Tablet Capacity	5lbs	10lbs	15lbs
Biocide Capacity	1lb canister: 4lbs 2lb canister: 4lbs	1lb canister: 6lbs 2lb canister: 8lbs	1lb canister: 9lbs 2lb canister: 12lbs
Feeder Height	21"	34"	49"
Basket Height	19"	31"	46"
Feeder Width	11" (including valve)		
Feeder Construction	PVC		
Basket Material	HDPE & UHMWPE		
Max Pressure	130 PSI @ 130 °F		
Recommended Flow	1-3 GPM		

## MOUNTING KITS

Smart Feeders can be mounted to the floor, wall, or the cooling system. Pre-cut Unistrut<sup>®</sup> is provided in addition to all hardware and clamps for mounting.

- Pre-cut Unistrut with gold galvanized finish
- Clamps and valves

Pre-Cut Kits Available:

- Single Smart Feeder Mounting Kit
- Dual Smart Feeder Mounting Kit
- Triple Smart Feeder Mounting Kit

\*Feeders not included



### PRESSURE RELIEF VALVE

If an oxidizing biocide is used, a pressure relief valve is required. This 125 PSI valve is designed to work with 130 PSI Smart Feeders.



### LID WRENCH

Tool used for simple removal or tightening of Smart Feeder lids.



### SOLENOID VALVES

Both 'normally open' and 'normally closed' solenoid valves available.



### BASIN FEEDER WITH FLOAT RING

Simple drop-in feeder design used for new construction and low visibility cooling systems. Float ring sold separately.



### TEST KIT

Simple organic phosphonate test kit. Used to determine approximate feed rate of product.



# PRE-MOUNTED SKIDS

- XS
- S
- M
- L

## EXTRA SMALL SYSTEMS

375,000 gallons of blowdown per year

Note: Please consult with your water treatment professional before deciding on which skid will best fit your needs.



**BASIC PRE-MOUNTED SKID**

### *Skid Components*

- Medium Feeders (2)
- Pressure Relief Valve (125 PSI)
- Dual Discharge



**PREMIUM PRE-MOUNTED SKID**

### *Skid Components*

- Medium Feeders (2)
- Pressure Relief Valve (125 PSI)
- Dual Discharge
- WCT-410 Controller
- 3 Station Coupon Rack
- Solenoid Blowdown

## SMALL SYSTEMS

600,000 gallons of blowdown per year

Note: Please consult with your water treatment professional before deciding on which skid will best fit your needs.

XS

S

M

L



**BASIC PRE-MOUNTED SKID**

*Skid Components*

- Medium Feeders (3)
- Pressure Relief Valve (125 PSI)
- Dual Discharge



**PREMIUM PRE-MOUNTED SKID**

*Skid Components*

- Medium Feeders (3)
- Pressure Relief Valve (125 PSI)
- Dual Discharge
- WCT-410 Controller
- 3 Station Coupon Rack
- Solenoid Blowdown



# PRE-MOUNTED SKIDS

- XS
- S
- M**
- L

## MEDIUM SYSTEMS

1,000,000 gallons of blowdown per year

Note: Please consult with your water treatment professional before deciding on which skid will best fit your needs.



**BASIC PRE-MOUNTED SKID**

*Skid Components*

- Medium Feeders (2)  
Large Feeders (2)
- Pressure Relief Valve (125 PSI)
- Dual Discharge



**PREMIUM PRE-MOUNTED SKID**

*Skid Components*

- Medium Feeders (2)  
Large Feeders (2)
- Pressure Relief Valve (125 PSI)
- Dual Discharge
- WCT-410 Controller
- 3 Station Coupon Rack
- Solenoid Blowdown

## LARGE SYSTEMS

1,500,000 gallons of blowdown per year

Note: Smart Release can be used in systems with over 1.5MM gallons of blowdown. It is recommended to consult with your Smart Release representative to ensure proper skid design for systems this size.

XS

S

M

L



### BASIC PRE-MOUNTED SKID

#### *Skid Components*

- Large Feeders (4)
- Pressure Relief Valve (125 PSI)
- Dual Discharge



### PREMIUM PRE-MOUNTED SKID

#### *Skid Components*

- Large Feeders (4)
- Pressure Relief Valve (125 PSI)
- Dual Discharge
- WCT-410 Controller
- 3 Station Coupon Rack
- Solenoid Blowdown

# SIZING AND INSTALLATION

Smart Release Technology uses concentrated chemistries which require fewer pounds of product per system than do traditional liquids. Simply calculate the required pounds of each product and the corresponding feed equipment required based upon the cooling system's annual gallons of blowdown. The simple to install PVC feed systems are sized to hold the designated quantity of Smart Release concentrated chemistry.

## SIZING YOUR SYSTEM

The simplest way to size your system is based upon gallons of blow down per year. Use the table below to determine the estimated annual usage of each product based upon the system size.

Gallons of Blowdown per Year	ESTIMATED ANNUAL USAGE BY PRODUCT		
	Scale and Corrosion Inhibitor	Oxidizing Biocide Usage	Non-Oxidizing Biocide Usage
125,000 gallons	25lbs	12lbs	2.5lbs
250,000 gallons	50lbs	24lbs	5lbs
500,000 gallons	100lbs	48lbs	10lbs
1,000,000 gallons	200lbs	95lbs	20lbs
1,500,000 gallons	300lbs	143lbs	30lbs
> 1,500,000 gallons	Please consult with your Smart Release representative for proper sizing.		

For more specific intermediate system sizes, use the following conversions to estimate annual chemical usage:

- 1lb Scale and Corrosion Inhibitors = 5,000 gallons of blowdown
- 1lb Oxidizing Biocide = 10,500 gallons of blowdown
- 1lb Non-Oxidizing Biocide = 50,000 gallons of blowdown

The next step is to determine the required size and number of Smart Feeders based upon the peak monthly blowdown rate. Do this by dividing the total gallons of blowdown for this peak month by the amount of blowdown that is treated by 1lb of chemistry to calculate peak monthly usage. Then, select the number of feeders needed to accommodate the required chemical usage (reference feeder capacities by product on page 9).

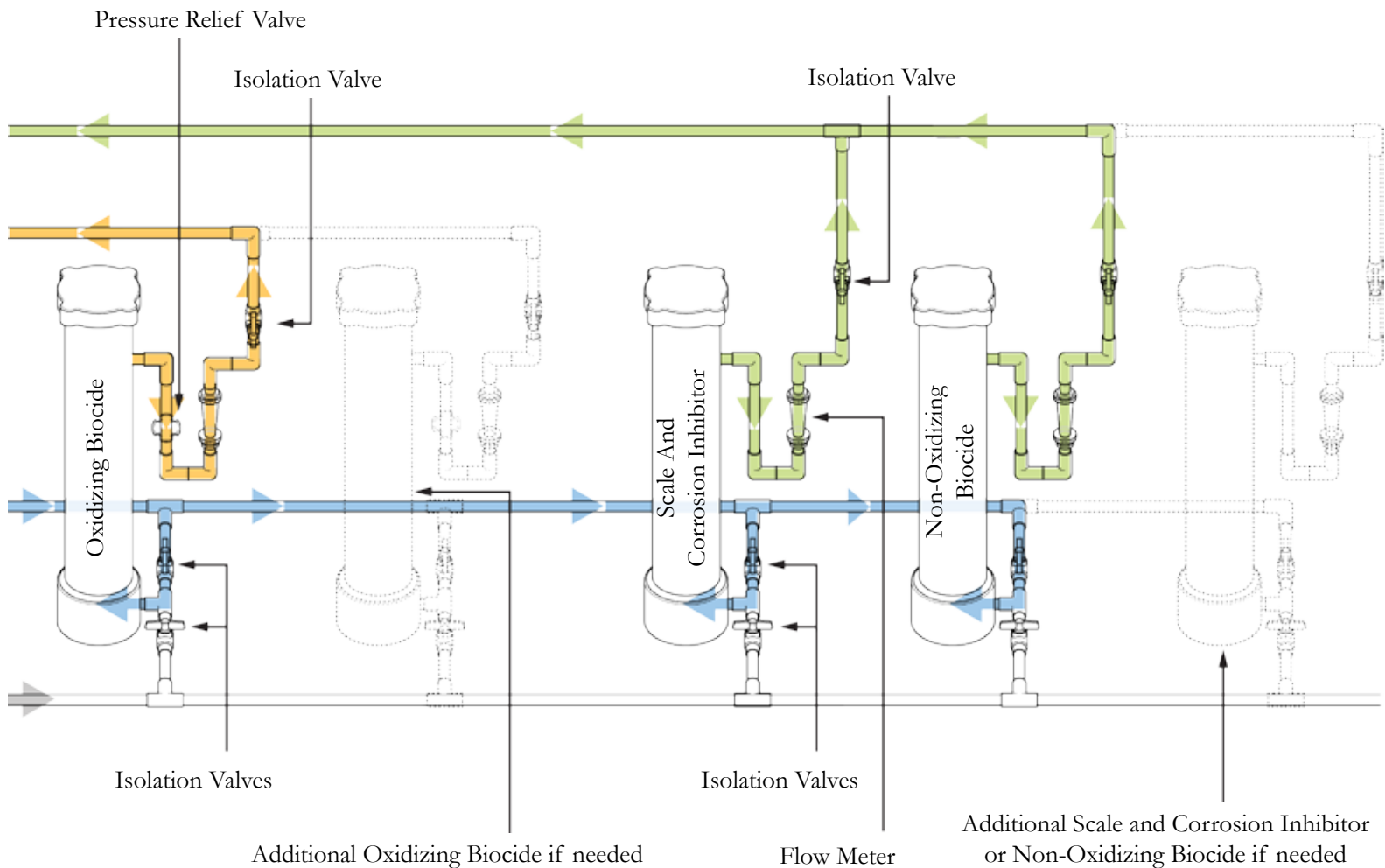
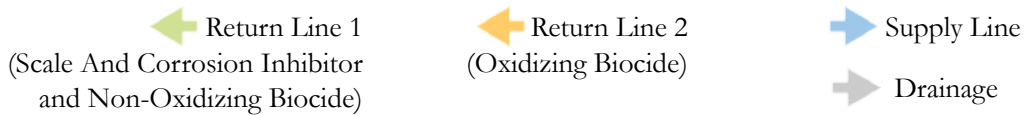
### *SIZING EXAMPLE*

Cooling Tower #1 has a peak blow down in July = 90,000 gallons.

Product	Peak Blowdown (Gallons)	Gallons Treated Per Pound of Chemistry	Peak Monthly Usage	Feeders Required
Inhibitor	90,000	5,000	18.0 lbs	Two medium feeders
Oxidizer	90,000	10,500	8.6 lbs	One large feeder
Non-Oxidizer	90,000	50,000	1.8 lbs	One small feeder

## PROPER INSTALLATION

- 1 ASSEMBLE FEEDERS:** Feeders arrive with required components (ball valves, flow meter, etc.) and assemble in no time.
- 2 PLUMB FEEDERS TOGETHER:** Proper installation is depicted in the diagram below. Note the oxidizing biocide feeder(s) discharge into a separate return line. This is because Smart Release provides constant, controlled release of oxidizing biocides, and in order to maintain proper treatment, the oxidizing biocide feeder(s) must have a line separate from the inhibitor and non-oxidizing biocides feeders.
- 3 SECURELY MOUNT:** Securely mount to ground, wall, or tower.
- 4 PROVIDE WATER SUPPLY AND RETURN LINES TO COOLING SYSTEM:**  
Feeders use tower water as drive (supply) water and as noted above require 2 return lines to tower.



**Important Note:** A pressure relief valve is required on the outlet of oxidizing biocide feeders.

# TESTING FOR SMART RELEASE INHIBITORS



SIMPLE



SAFE



RELIABLE

## SMART RELEASE TECHNOLOGY TESTING

A critical aspect of ensuring a successful water treatment program is to verify and validate system performance in a predictable manner. One method of determining system performance predictability is accomplished through periodic on site testing and control. If specific water treatment parameters are maintained within specification limits, successful performance is assured.

Smart Release Technology does not contain any tracing materials. The correct testing protocol of Smart Release scale and corrosion inhibitors is to look for active ingredients.

Water treatment professionals have differing opinions on various testing procedures and approaches in the field. Some field technicians and sales representatives prefer to test phosphonate while others prefer to test for active polymer levels. Unfortunately, neither of these testing procedures is completely absolute in the field, nor are they easy to perform. For this reason, we have taken a more reliable approach in the Smart Release Technology program.

	START-UP PHASE TESTING	ONGOING TESTING
SUMMARY	Initially during the start-up phase of each program (first few months), we recommend that all active ingredients are tested using in-depth procedures from Hach® (spectrophotometers) as well as lab analysis for verification. We recommend utilizing a full digestion phosphonate test (Hach® method 8007), active polymer test, and active azole test (Hach® method 8079). It is recommended that while these tests are initially performed, that a field simple organic phosphonate test, such as the Palintest® organic phosphonate test, be performed to develop a correlation between the field test and the in-depth tests. As an option, active polymer tests can be substituted or added into the testing protocol with the field “quick” organic phosphonate test.	Once the on-site correlation is developed, the simple field organic phosphonate test (and/or active polymer test) can be used on an ongoing basis. We recommend that periodic lab verification and validation tests be performed (either quarterly or semi-annually).
CHECK-LIST	<ul style="list-style-type: none"> <li><input type="checkbox"/> Full digestion phosphonate test (Hach® method 8007)</li> <li><input type="checkbox"/> Active polymer test</li> <li><input type="checkbox"/> Active azole test (Hach® method 8079)</li> <li><input type="checkbox"/> Field simple organic phosphonate test, such as the Palintest® organic phosphonate test</li> <li><input type="checkbox"/> Active polymer tests (with the field “quick” organic phosphonate test)</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Simple field organic phosphonate test (and/or active polymer test)</li> <li><input type="checkbox"/> Periodic lab verification test (quarterly or semi-annually)</li> <li><input type="checkbox"/> Validation test (quarterly or semi-annually)</li> </ul>

Although initial monitoring may be slightly more work during the initial start-up, this approach will save time in the long term as it will require less involvement as the proven Smart Release controlled release chemistry treats your system consistently.

For additional information on testing and validation of Smart Release Technology products, please consult with your Smart Release representative.





**UNIVERSITIES**



**DATA CENTERS**

**SMART RELEASE TECHNOLOGY IS USED  
BY LEADERS OF THESE INDUSTRIES AND  
MANY MORE...**

**HOSPITALS**



**MANUFACTURING**



**COMMERCIAL**





Dober  
11230 Katherine's Crossing  
Woodridge, IL 60517

T: +1.630.410.7300  
E: [smartreleaseinfo@smartreleasetechnology.com](mailto:smartreleaseinfo@smartreleasetechnology.com)

[www.smartreleasetechnology.com](http://www.smartreleasetechnology.com)