



Submittal Item

Project [IPS-III-1015] - 015 - Thomas D. Gregg Elementary School **View Date** 3/10/2010

Enginuity Management & Consulting Corp.
 Ste 230
 6214 Morenci Trail
 Indianapolis, IN 46268
 Phone: 317-297-5601
 Fax: 317-423-5460

Submittal Item No.
00009

General Information

Item No.	00009	Revision	0
Package No. Rev.	<u>232113.0</u>		
Description	Product Data		
CSI Code	23 21 13 - Hydronic Piping	Submitting Company	MacDougall Pierce Construction, Inc.
Reference No.		Copies Required	1
Status	Requested from Prime	Item Type	Product Data
Responsible Team Member	Sahara Williams (Enginuity Management & Consulting Corp.)		
Item Notes			
Primary Response			
Submission Notes			
Review Notes			

Dates

Material Required on Site	Required Lead Time (days)
Approved Submittal Required By	Required Review Time (days)
Submission Due	

Manufacturer


SUBMITTAL COVER SHEET

Project: **IPS 15- Thomas D. Gregg Elementary School Mechanical/Plumbing Work**
IPS-CIP Phase III GC: MacDougall Pierce Construction

Date: 01/13/10
 Project No: 09-0163M

General Contractor: MacDougall Pierce Construction 12720 Ford Drive Indianapolis, IN 46038 317-596-6371 Brent Houston	Architect/Engineer: Durkin & Villalta Partners Engineering 8440 Woodfield Crsg. Blvd., Ste. 175 Indianapolis, IN 46240 317-472-3883 Tom Durkin	Mechanical Contractor: Ellis Mechanical & Electrical 2929 Bluff Road Indianapolis, IN 46225 317-786-2957 Tim Brabender	Subcontractor/Supplier: Chardon Labs/WSG 4914 Founders Court Anderson, In. 46017 765-617-5193 Mike Heirbrandt
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<u>Specification Division:</u> 232113 - 3.7	<u>Item Description:</u> Chemical treatment	<u>Manufacturer(s):</u> Chardon Labs	<u>LEED Information:</u>
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Owner/Owner Representative Stamp	Architect/Engineer Stamp	Design-Build Contractor Stamp	Subcontractor/Supplier Stamp
<div style="border: 1px solid red; padding: 5px; color: red;"> Reviewed by WJB of Enginuity for CQM Team on 3/11/2010 </div>		REVIEWED & SUBMITTED TO DESIGN ARCHITECT/ENGINEER AND/OR OWNER/OWNER'S REPRESENTATIVE FOR APPROVAL ON <u>1/13/10</u>  X _____ Signed	

Comments:

Bulletin 1009: Using Boil Out Cleaner

What does it do?

Boil Out cleans and prepares metal surfaces inside boilers, pumps and piping systems. When new piping systems are assembled or installed, exposure to air and water with high levels of dissolved oxygen causes a light layer of general corrosion throughout the system. Oil and other lubricants can also contaminate new systems. Boil Out aggressively removes the corrosion layer and any oil which may be in the system. Boil Out will also break up and remove iron deposits which may have accumulated in the system during its initial start up period.

How do I use it?

First, fill the system with fresh water and activate the circulation pumps for approximately 1 hour. During this time you should check for possible leaks in the new system piping etc... Water should be drained completely from the system to remove contaminants in the system water. If you have the opportunity to utilize heating water from a boiler, this would be highly recommended.

Second, fill the system again with fresh water and activate the circulation pumps. Introduce Boil Out Cleaner into the system. You will need five gallons of Boil Out per every 1,000 gallons of system water volume. It is important to circulate Boil Out for a minimum of 48 hours, although it can be circulated for up to five days. If you have the opportunity to utilize heating water from a boiler, this would be highly recommended.

Following this cleaning period, open a drain valve at the lowest point on the system to a rate of 2-3 gallons per minute. Make sure the make-up water valve is open and keep the pump on and circulating. Monitor the system pressure and make sure the make-up rate is enough to maintain this operating pressure. Allowing the pressure to drop significantly can burn out the circulating pump. Drain at least five times the system volume during this procedure. (Note: It is highly recommended to flush the system at the farther point from the circulation pump also. If a multi-story building with heat pumps is installed, each individual floor should be flushed using a hose to the discharge side of the piping. It is very common to have sludge accumulate in low flow areas such as this. Heat pump strainers should be pulled, inspected and cleaned after this procedure is completed.)

Finally, after this procedure above has been completed, proper inhibitor treatment such as; SN-10 or an inhibited glycol should be added to the system to properly remove any corrosive dissolved oxygen and provide proper pII adjustment to assure long life to the water system. Always consult with a Water Treatment Consultant during this procedure to assure proper results are attained.

Dermal: Rabbit: LD50 > 7,940 mg/kg
Inhalation: Unknown
Carcinogenicity: Not listed as a carcinogen.

PERSONAL PROTECTION:

Ventilation: General room ventilation.
Respiratory: Not necessary for normal use.
Eyes: Wear chemical goggles when using product.
Gloves: Wear rubber gloves when using product.
Other: None

FIRE AND EXPLOSION

INFORMATION:
Not a fire hazard.

HAZARDOUS REACTIVITY:

Incompatibility Conditions or Materials to Avoid: Avoid strong acids.

SPILL OR LEAK PROCEDURES:

Rinse to drain or sweep up with absorbent material and discard in DOT approved waste containers.

WASTE DISPOSAL:

Follow all local, state and federal regulations for waste disposal.

SPECIAL

PRECAUTIONS: None

NOTICE:

Information accumulated herein is believed to be accurate, but is not warranted to be whether origination with the Company or not. Recipients are advised to confirm in advance of need that the information is current applicable and suitable to their circumstances.

Category: Water Treatment Product



CHARDON LABS
The Clean Choice for Today.



HAZARD RATINGS

- HEALTH
 - FLAMMABILITY
 - REACTIVITY
 - SPECIAL NOTICE
- 0 MINIMAL
 - 1 SLIGHT
 - 2 MODERATE
 - 3 SERIOUS
 - 4 EXTREME

MATERIAL SAFETY DATA

CONTROLLED DOCUMENT

CHARDON LABORATORIES, INC.
7300 Tussing Road / Reynoldsburg, Ohio 43068 (614) 860-1000

PRODUCT IDENTIFICATION: Trade Name: **Boil-Out**

HAZARDOUS INGREDIENTS: Section 313 Supplier Notification: This product contains no toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40CFR372.

	<u>Cas No.</u>	<u>Hazard</u>	<u>Wt. (%)</u>	<u>TLV</u>
Tetra potassium pyrophosphate	7320-34-5	None	20-25	10 mg/m

PHYSICAL PROPERTIES:

Boiling Point: Unknown
 Specific Gravity: 1.1838
 Percent Volatile: 80%
 Evaporation Rate: Unknown
 Solubility: Complete in water
 pH:10.5
 Appearance & Odor: Clear, colorless liquid. No odor.

FIRST AID MEASURES:

Eyes: Rinse eyes immediately with water after contact with product. Rinse for 15 minutes. Contact a physician if irritation persists.
Skin: Wash skin immediately with soap and water after contact.
Ingestion: If quantity is small, drink plenty of water. If quantity is large, consult a physician.
Inhalation: Remove to fresh air.

HEALTH HAZARD INFORMATION:

Eyes: Can cause irritation.
Skin: Can cause irritation after prolonged contact.
Ingestion: Can cause nausea and vomiting.
Inhalation: Can cause irritation, coughing or chest discomfort.

TOXICITY DATA:

Oral: Rat: LD50 2,980 mg/kg

BOIL-OUT

DESCRIPTION:

Boil-Out Cleaner is a pre-cleaning chemical for new boilers, condenser water and closed loop systems. This product is designed to remove pipe dope, oils, loose rust, mill scale and other extraneous materials.

APPLICATION:

Add the recommended dosage of Boil-Out and circulate throughout the system. Consult with your Chardon Field Technician for the dosage and time required to clean your systems. The system should be drained, refilled and flushed thoroughly until no foreign matter is visible, and the pH of the rinse water is equal to the make-up water. Do not run an elevated pH over or through galvanized metal.

SPECIFICATIONS:

Appearance:	Clear liquid
Odor:	None
Weight:	9.9 lb. /gal
pH:	10.5 - 11.0
Solubility:	Complete in water
Flash Point:	None

Precautions

Handling

Boil-Out Cleaner is a strong alkaline liquid. Contact with skin or eyes should be avoided. Do not take internally. In case of contact affected area should be flushed with large amounts of water. Protective rubber gloves, splash apron and chemical splash goggles should be worn when handling this product.

Storage

Protect against temperatures below 20 degrees Fahrenheit

Packaging

Available in 55 and 30-gallon drums; 15 and 5 gallon plastic containers.

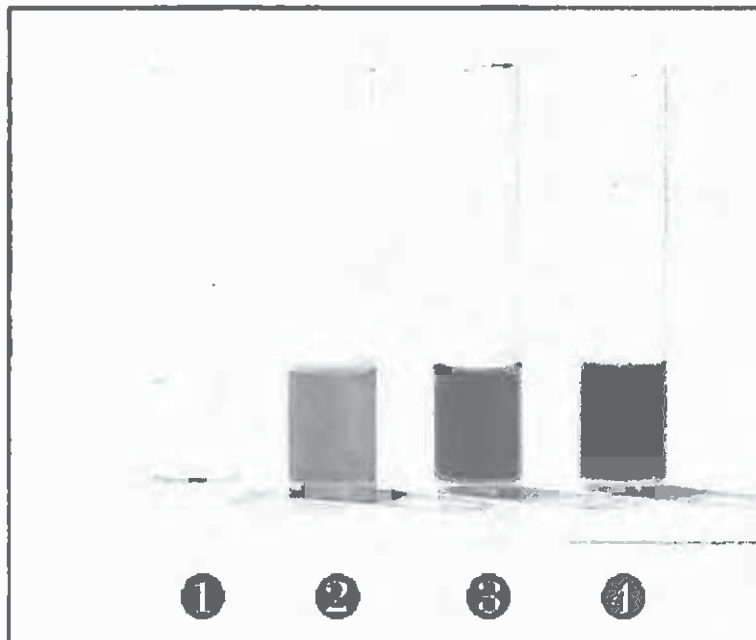


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Chardon Laboratories, Inc.,
P.O. Box 1004, Columbus, OH 43216
Form #F497

Nitrite Test Procedures (For Closed Loop System Testing)

1. Fill vial to the 5 mL mark with solution to be tested.
2. Add 5 drops of Ferroin Indicator #R-160.
3. Titrate with 0.21N Ceric Sulfate #R-162 solution until the color of the sample changes to blue. Too much Ceric Sulfate will drive color to purple.
4. # of R-162 Drops x 50 = mg/L as NaNO_2 (Nitrite)



SPILL OR LEAK PROCEDURES:

Collectively dike and contain all material as necessary. Neutralize and absorb on suitable sorbent material. Shovel into DOT approved waste containers.

WASTE DISPOSAL:

Follow all local, state and federal regulations for waste disposal.

SPECIAL PRECAUTIONS:

Store in a cool, dry place. Keep container tightly closed. Handle empty containers as if they were full.

NOTICE: Information accumulated herein is believed to be accurate, but is not warranted to be whether origination with the Company or not. Recipients are advised to confirm in advance if need that the information is current, applicable and suitable to their circumstances.

MSDS - Trade Name: SN-10

Generated: 10/01/1996

Date Modified: 10/09/1997

Skin: Immediately wash skin with lots of soap and water. Remove contaminated clothing and shoes. Launder before reuse. Get medical attention if irritation persists after washing.

Ingestion: Immediately drink large quantities of water. Call a physician at once. DO NOT GIVE ANYTHING BY MOUTH IF THE PERSON IS UNCONSCIOUS OR IF HAVING CONVULSIONS.

Inhalation: Remove to fresh air. Give artificial respiration if not breathing. Get immediate medical attention.

HEALTH HAZARD INFORMATION:

Eyes: Severe irritation and/or burns can occur following eye exposure. Can cause blindness.

Skin: Can cause severe irritation and/or burns.

Ingestion: Can cause severe damage to the gastrointestinal tract, nausea, vomiting, diarrhea, abdominal pain, bleeding tissue ulceration, macular rash, flushed face, uneven heart action, dizziness, tremors, cyanosis, fall in blood pressure.

Inhalation: Irritating to the nose, mouth throat and lungs. May also cause burns to the respiratory tract, shortness of breath, wheezing, choking, chest pain and impairment of lung function. Symptoms may also parallel those of ingestion.

TOXICITY DATA:

Oral: Potassium Hydroxide Rat LD50 = 365mg/kg

2-Mercaptobenzothiazole Rat LD50 = 5200mg/kg

Sodium Nitrite Rat LD50 = 85mg/kg

Human TDLO = 14mg/kg: CNS effects.

Dermal: Potassium Hydroxide Rabbit LD50 > 2g/kg

2-Mercaptobenzothiazole Rabbit LD50 > 5010mg/kg

Inhalation: Sodium Nitrite Rat LC50 = 1.45mg/L/4hr

Carcinogenicity: Not listed as a carcinogen. Sodium Nitrite is a mutagenic and tumorigenic agent.

PERSONAL PROTECTION:

Ventilation: Local mechanical exhaust ventilation.

Respiratory: Not normally needed. If vapors, mists, or aerosols are generated, wear a NOISH/MSHA approved respirator.

Eyes: Chemical goggles and a face shield.

Gloves: Rubber or neoprene gloves.

Other: Long sleeved shirt, trousers, safety shoes, rubber apron.

FIRE AND EXPLOSION:

Flash Point:

Extinguishing Media: Water or CO

Special Fire Fighting Procedures: Wear self-contained breathing apparatus.

HAZARDOUS REACTIVITY: Incompatibility Materials or Conditions to Avoid:

Acids, nitrogen containing organics, carbohydrates, Phosphorous, explosives, organic peroxides, aluminum, tin, zinc, ammonia salts, amines reducing agents, butadiene, phtalic acid, phthalic anhydride, sodium ammidides, ammonia, cyanides, sodium thiocyanides, combustible material, and elemental zirlionium.



CHARDON
Clean.Green.Lean.

MATERIAL SAFETY DATA

CHARDON LABORATORIES, INC.

7300 Tussing Road / Reynoldsburg, Ohio 43068 (614) 860-1000

PRODUCT IDENTIFICATION: Trade Name: **SN-10**

HAZARDOUS INGREDIENTS:

Section 313 Supplier Notification: Any ingredients shown in **BOLD underlined** type are subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and of 4CFR372.

Cas No. Hazard Wt. % TLV

Sodium Nitrite	7632-00-0	Health/Fire	5 - 10	10ppm
<u>Potassium</u>	1310-68-3	Health	< 1	2mg/m
<u>Hydroxide, 45%</u>				
<u>Liquid</u>				

PHYSICAL PROPERTIES:

Boiling Point: Unknown
Specific Gravity: 1.1
Percent Volatile: Unknown
Evaporation Rate: Unknown
Solubility: Complete in water
pH: 12.0
Appearance & Odor: Clear pale yellow liquid.

FIRST AID MEASURES:

Eyes: Immediately flush eyes with lots of running water for 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SN-10

DESCRIPTION:

SN-10 is designed for use in all types of closed heating and Cooling systems. SN-10 forms a self-healing film of ferric oxide on iron and steel surfaces which inhibits pitting and corrosion. The product also contains a specific inhibitor to prevent corrosive attack on copper or copper alloys. SN-10 contains special buffering agents which provide the proper pH and alkalinity balance to maintain maximum inhibitor efficiency. Scaling is prevented by the use of special polymers, which maintain any precipitated material in a fluid condition.

APPLICATION:

Feeding is done intermittently by means of a by-pass feeder or pump. The normal usage rate is 2.5 gallons per 1000 gallons of water. Control is based on a nitrite test. The nitrite level is usually maintained at 1000 to 1500 ppm.

SPECIFICATIONS:

Appearance:	Light Yellow Liquid
Odor:	Characteristic of Azole
Weight:	9.7 lb. /gal
pH:	12.7
Solubility:	Complete in water
Flash Point:	None

Precautions

Handling

SN-10 is a strong alkaline product. Contact with skin or eyes should be avoided. Do not take internally. In case of contact affected area should be flushed with large amounts of water. Protective rubber gloves, splash apron and chemical splash goggles should be worn when handling this product.

Storage

Protect against temperatures below 20 degrees Fahrenheit

Packaging

Available in 55 and 30-gallon drums; 15 and 5 gallon plastic containers.

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Laboratories, Inc.
GUARANTEED WATERSIDE SOLUTIONS™

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P.O. Box 1004, Columbus, OH 43216
Form #F323

Seametrics MJR Series Cold Water



CHARDON LABS
The Clean Choice for Today.

Contact Head Pulse Meters

Seametrics MJR Series Water Meters measure water and provide an electrical signal each time the preset amount of water passes through the meter. These meters are for process systems where chemical feed must be in proportion to the water flow.

Seametrics MJR Series Water Meters are typically used in conjunction with a pulse timer to operate a chemical feed pump, valve, or other device. This provides the right amount of chemical regardless of water usage.

Chemical usage is in proportion to the amount of water used. During low water usage, less chemical is used. This provides effective protection for the system being treated.

Typical applications include water treatment in cooling towers, boiler systems, evaporative condensers and other industrial processes that require proportional control.

Features And Benefits ...

• *Wide flow range*

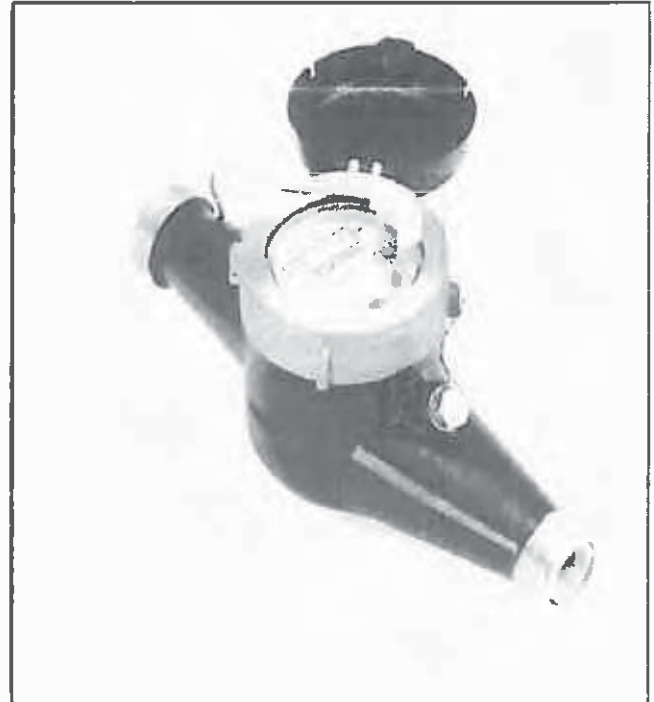
Depending on the model, flow rates from .22 GPM to 132 GPM offer the flexibility to tailor the flow meter to the application.

• *Low, easy maintenance*

Designed for in-line service and reduced downtime. The impeller and register are contained in a cartridge that can be serviced without removing the meter from the line.

• *Lubricated gears for longevity*

Internal gears and components are water lubricated for long life and dependable service.



• *Tolerates low quality water*

Measuring Chamber with built-in strainer is designed to trap particles of sand & debris

• *Smooth, quiet performance*

Low gear loading and elimination of friction surfaces provide for smooth, quiet performance

Filter Feeders



MODEL FTF-5HP

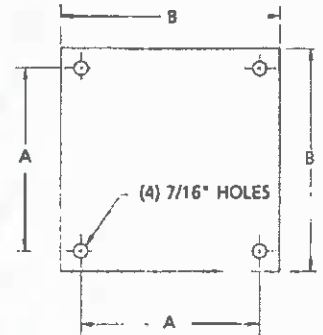
Features

- Stainless steel dissolving basket holds and fully supports the filter bag inside (order bag separately).
- Ring-top bags feature handles for easy removal.
- Model FTF-5150HP features oversize 1½" inlet and outlet connections. Can be used for system cleanup with high volume pumps where high flow rates are desired for fast clean-up or flush-out prior to start-up.
- "CL" Models feature a welded base to allow bolting to the floor or other mounting surface. Four holes for ¾" bolts are provided on each Anchor Bolt Plate.

See page 3 for specifications.

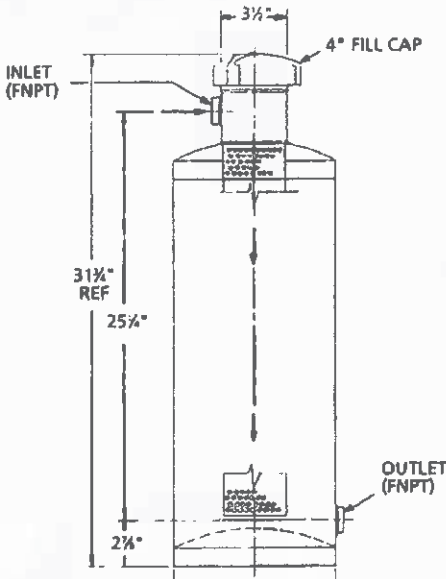
MODEL NUMBER	APPROX. CAPACITY	MAX. PRESSURE*	DIAM.	CONN. SIZE	ANCHOR BOLT PLATE A	ANCHOR BOLT PLATE B
FTF-2HP	2½ gals.	300 psi	6"	¼" FNPT	— N/A —	—
FTF-2CL	2½ gals.	300 psi	6"	¼" FNPT	5¼"	7"
FTF-5HP	7½ gals.	300 psi	10"	¼" FNPT	— N/A —	—
FTF-5CL	7½ gals.	300 psi	10"	¼" FNPT	10¼"	12"
FTF-5150HP	7½ gals.	300 psi	10"	1½" FNPT	— N/A —	—
FTF-5150CL	7½ gals.	300 psi	10"	1½" FNPT	10¼"	12"

*At 200°F Max

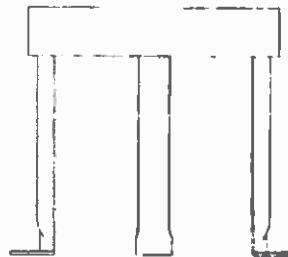


ANCHOR BOLT PLATE FOR "CL" MODELS

MODEL FTF-2CL



ALL MODELS



FTF-LEGS

Optional Leg Set with anchor bolts fits Models FTF-5HP and FTF-5150HP. Elevates feeder 9". Order "FTF-LEGS".



STAINLESS STEEL BASKET



FILTER BAG

Filter Bags

All bags fit any "FTF" model.

PART NO.	TYPE	QUANTITY	DESCRIPTION
107026	Ultra Fine	Pkg. of 1	1-micron ring-top bag
106453	Fine	Pkg. of 1	5-micron ring-top bag
107289	Medium	Pkg. of 1	20-micron ring-top bag
107231	Coarse	Pkg. of 1	50-micron ring-top bag

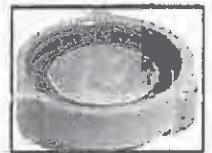
Neptune
CHEMICAL PUMP CO., INC.

P.O. Box 247 • Lansdale, PA 19446-0247
Tel: 215-699-8700 • Fax: 215-699-0370
Toll-Free Tel: 1-888-3NEPTUNE (1-888-363-7886)
Toll-Free Fax: 1-800-255-4017
Web Site: <http://www.neptune1.com>
E-mail: pump@neptune1.com

SOLD BY:

4. At that time, the bottom valve should begin releasing water from the vessel since the pressure was removed.
5. Once the unit is empty, close the shut off valve at the bottom. Pull filter and remove to replace.
6. Add the desired treatment content to the specific unit.
7. Once the chemical addition is made, slowly crack the discharge line valve to fill the vessel with system water until it is full. Shut off the discharge line.
8. Add the lid cap to the vessel by matching the slots on the vessel opening to that of the lid cap. Ensure the rubber "o" ring is in place on the cap prior to the replacement and secure the cap tightly.
9. Slowly open the suction line valve (bottom) first to add pressure to the vessel. Check for leaks on the vessel around the cap area. If no leaks, open the discharge line valve.

If a leak occurs, shut off both the discharge and suction line valves, relieve pressure from the vessel as instructed above, and take off the cap. Insure the rubber "o" ring seal is in place and put back on the vessel as instructed above. Make sure the cap is tightened and slowly opened starting with the suction line first. If no leaks, open the discharge line valve.



A water meter will be installed on the makeup line to determine if a leak has occurred in the systems. Water meter readings should be logged on a monthly basis.



If you should have any questions, please contact me at (765) 617-5193 or my pager at (317) 367-0644.

Sincerely,



Mike Heirbrandt
Representative



January 6th, 2009

IPS 15 School
2302 East Michigan Street
Indianapolis, Indiana 46201
Attention: Maintenance Personnel

Enclosed you will find information on Product, Equipment, and Testing Procedures for the chemical treatment of the Hot & Chilled Recovery closed loop systems at your facility:

Hot & Chilled Recovery Loop Systems

SN-10 is an inhibitor treatment for the passivation of system metals. It is a sodium nitrite based corrosion inhibitor designed to protect system metals from oxidizing. SN-10 is fed at a rate of ½ gallon to 100 gallons of system water to maintain a 1,000 to 1,500 ppm nitrite residual in the hot loop and a minimum of 800 ppm in the chilled loop.

Example #1: If the nitrite level is below 1,000 ppm, add 1/2 gallon SN-10 treatment for every 40 ppm less than 1,000 ppm. So if the system nitrite level is 680 ppm, take $1,000 - 680 \text{ ppm} = 320 \text{ ppm}$. Divide 320 ppm by 40 = 8 times .5 to equal 4 gallons of SN-10 to add.

Example #2: If the nitrite level is above 1,500 ppm, no action is needed. If the nitrite level exceeds 2,500 ppm, consult Mike Heirbrandt at (765) 617-5193 or at (317) 367-0644 (pager).

Equipment

Both Loop Systems contain a filter feeder unit used to add chemical treatment and to filter the system solution with a 5 micron filter. When adding treatment to the Loop or changing filters, use the following procedure:

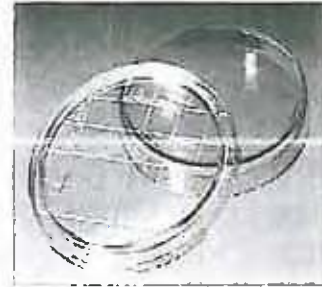
1. Shut off the discharge (top) and suction (bottom) line ¾" shut off valves distributing flow to the unit.
2. Slowly open the bottom drain valve (located on the suction line bottom) to relieve pressure from the vessel.
3. Open the lid cap (on top of the vessel) by turning counter clockwise until it loosens. Remove the cap.



Water Treatment Submittals/O&M's



For
IPS 15 School
Indianapolis, Indiana



CHARDON LABS
The *Clean* Choice for Today.



Submitted by:

Chardon Labs/WSG
4914 Founders Court
Anderson, Indiana 46017
Mike Heirbrandt, Sales Engineer
mikeheirbrandt@aol.com

January 5th, 2009