

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DEC 22 1994

Donna L. Butler  
PPG Industries, Inc.  
One PPG Place - 36 W  
Pittsburgh, PA 15272

Subject: PPG Calcium Hypochlorite Tablets  
EPA Registration No. 748-295  
Your Amendment Dated October 21, 1994

Dear Ms. Butler:

This is in response to your addition of USDA wording and food processing use directions to your supplemental use-directions booklet.

The amendment referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable subject to the comments listed below. A stamped copy of the labeling is enclosed for your records.

1. This acceptance addresses only the proposed revisions as cited in your amendment application. As per your letter, all other label text must be identical to your labeling accepted with comments in the EPA letter dated March 18, 1994. For the record, the labeling comments in that letter have been satisfied.

2. Submit five (5) copies of your final printed labeling before you release the product for shipment bearing the amended labeling.

If you have any questions about these comments, please call Wallace Powell at 703-305-6938.

Sincerely,

Ruth G. Douglas  
Product Manager 32  
Antimicrobial Program Branch  
Registration Division (7505C)

Enclosure

CONFERENCE							
SYMBOL							
SURNAME							
DATE							

## FOOD PROCESSING

**Authorized by USDA for use in federally inspected meat and poultry plants.**

### **G4. Chlorine potable water treatment compounds.**

Chlorine may be present in processing water of meat and poultry plants at concentrations up to 5 parts per million calculated as available chlorine. Also, chlorine may be present in poultry chiller intake water, and in carcass wash water at concentrations up to 50 parts per million calculated as available chlorine. Chlorine must be dispensed at a constant and uniform level and the method or system must be such that a controlled rate is maintained.

### **G5. Cooling and retort water treatment compounds.**

Chemical agents may be added to water used to cook and cool containers of meat and poultry products to prevent staining of containers and to control corrosion and deposit formation on surfaces of processing equipment. The amount used should be the minimum sufficient for the purpose.

Calcium hypochlorite solutions providing 1% available chlorine should be fed into tanks or channels by an elevated tank to provide a concentration of 2 ppm available chlorine. The flow may be controlled with a noncorroding valve or a pinch-stop on a rubber hose.

Feed points should be located to provide uniform distribution of solution throughout the entire system. Long and narrow tanks may require the solution to be fed at two points to insure proper distribution.

Test the water for available chlorine. If a residual of 2 ppm is present throughout the system, the water is properly sanitized.

Test for available chlorine every hour until dosage requirements are established. Thereafter, check every 2 or 3 hours to ascertain that an available chlorine residual of 2 ppm is maintained throughout the system.

### **G7. Compounds for treating boilers, steam lines, and/or cooling systems where neither the treated water nor the steam produced may contact edible products. This does not include compounds added to water used to cook and cool containers of meat and poultry products.**

A clogged or fouled system should be mechanically cleaned to remove all physical soil prior to beginning treatment. Initially, treat by adding enough calcium hypochlorite to provide 10 ppm available chlorine (2 ounces per 1000 gallons) as a shock dosage and circulate it thoroughly through the system.

Then, for continuous preventative control of algae and slime growth, regularly add enough calcium hypochlorite to the recirculation system to maintain a 1.0 ppm free chlorine residual.

Other water condition factors, such as pH, should be controlled as recommended by the equipment manufacturer.

ACCEPTED  
with COMMENTS  
in EPA Letter Dated:

DEC 22 1994

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act as  
amended, for the pesticide  
registered under EPA Reg. No.

748-245

3 of 50

**PPG 3"  
CALCIUM HYPOCHLORITE TABLETS**

**Dry Chlorinating Tablets for Industrial and  
Potable Water Treatment Applications**

**EPA Reg. No. 748-295  
EPA Est. No. 2312-PA-1**

**ACTIVE INGREDIENT: Calcium Hypochlorite. . . 65%**  
**INERT INGREDIENTS: . . . . . 35%**  
**Minimum 65% Available Chlorine**

**KEEP OUT OF REACH OF CHILDREN  
DANGER**

**See additional precautionary statements on back label.**

**PRACTICAL TREATMENT (First Aid): EYE/SKIN CONTACT:** Flush with plenty of water for at least 15 minutes, while removing contaminated clothing and shoes. For eye contact, get immediate medical attention. If skin irritation occurs, get medical attention. **INHALATION:** Remove to fresh air. If signs of irritation or discomfort occur, take immediately to a hospital or physician. **SWALLOWING:** If swallowed, drink large quantities of water. Do not induce vomiting. Take immediately to a hospital or physician. If vomiting occurs, administer additional water. If unconscious, or in convulsions, take immediately to a hospital. Do not attempt to induce vomiting or give anything by mouth to an unconscious person.

**Manufactured by  
PPG INDUSTRIES, INC.  
One PPG Place  
Pittsburgh, PA 15272**

**Emergency Telephone Number: Natrium, WV (304) 843-1300**

**NET WT. 100 lbs. (45 kg)**

**ACCEPTED  
with COMMENTS  
in EPA Letter Dated**

DEC 22 1991

**Under the Federal Insecticide,  
Fungicide, and Rodenticide Act as  
amended, for the pesticide  
registered under EPA Reg. No.**

748 295

**PRECAUTIONARY STATEMENTS -**

**HAZARDS TO HUMANS AND DOMESTIC ANIMALS -**

**DANGER!** \* Highly Corrosive \* Causes Skin and Eye Damage \* May be Fatal if Swallowed \* Irritating to Nose and Throat \* Wear goggles or face shield and rubber gloves when handling. Avoid breathing dust. Remove and wash contaminated clothing and shoes before reuse.

**ENVIRONMENTAL HAZARDS:** This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

**PHYSICAL AND CHEMICAL HAZARDS:** Strong oxidizing agent! Mix only with water. Use only a clean, dry utensil made of metal or plastic each time product is taken from the container. Do not add this product to any dispensing device containing remnants of any other product. Such use may cause violent reaction leading to fire or explosion. Contamination with moisture, acids, organic matter, other chemicals or easily combustible materials such as petroleum or paint products may start a chemical reaction with generation of heat, liberation of hazardous gases and possible generation of a fire or explosion. In case of contamination or decomposition, do not reseal container. If possible isolate container in open air or well-ventilated area. Flood with large volumes of water, if necessary.

**STORAGE AND DISPOSAL:** Read before using. Keep in original container in a cool, dry, well-ventilated place. Keep container closed when not in use. Keep away from heat sources, sparks, open flames and lighted tobacco products. Use only a clean, dry utensil made of metal or plastic each time product is taken from the container. **Container Disposal** - Do not reuse container. Residual material remaining in empty container can react to cause fire. Thoroughly flush empty container with water then destroy by placing in trash collection. **Pesticide Disposal** - Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Do not contaminate water, food, or feed by storage or disposal. **In Case of Fire** - Drench with water. Calcium hypochlorite supplies oxygen; therefore, attempts to smother fire with a wet

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UFC 22 199A

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7-7-295

blanket, carbon dioxide, or a dry chemical extinguisher are ineffective. **In Case of Spill or Leak** - Use extreme caution. Contamination may cause fire or violent reaction. If fire or reaction occurs in area of spill, douse with plenty of water. Otherwise sweep up spilled material, using a clean, dry shovel and broom and dissolve spilled material in water. Then immediately use solution as directed.

**DIRECTIONS FOR USE:** It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

**DISINFECTION OF DRINKING WATER (Potable Water):**

**PUBLIC SYSTEMS**

Mix a ratio of 1 ounce of this product to 6000 gallons of water. Begin feeding this solution with a hypochlorinator until a free available chlorine residual of at least 0.2 ppm and no more than 0.6 ppm is attained throughout the distribution system. Check water frequently with a chlorine test kit. Bacteriological sampling must be conducted at a frequency no less than that prescribed by the National Interim Primary Drinking Water Regulations. Contact your local Health Department for further details.

**INDIVIDUAL SYSTEMS**

**Dug Wells** - Upon completion of the casing (lining) wash the interior of the casing (lining) with a 100 ppm available chlorine solution using a stiff brush. This solution can be made by thoroughly mixing 1 ounce of this product into 40 gallons of water. After covering the well, pour the sanitizing solution into the well through both the pipe sleeve opening and the pipeline. Wash the exterior of the pump cylinder also with the sanitizing solution. Start pump and pump water until strong odor of chlorine in water is noted. Stop pump and wait at least 24 hours. After 24 hours flush well until all traces of chlorine have been removed from the water. Contact your local Health Department for further details.

**INDIVIDUAL WATER SYSTEMS**

**Drilled, Driven & Bored Wells** - Run pump until water is as free from turbidity as possible. Pour a 100 ppm available chlorine sanitizing solution into the well. This solution can be made by thoroughly mixing 1 ounce of this product into 40 gallons of water. Add 5 to 10 gallons of clean, chlorinated water to the well in order to force the sanitizer into the rock formation. Wash the exterior of pump cylinder with the sanitizer. Drop pipeline into well, start pump and pump water until strong odor of chlorine in water is noted. Stop pump and wait at least 24

hours. After 24 hours flush well until all traces of chlorine have been removed from the water. Deep wells with high water levels may necessitate the use of special methods for introduction of the sanitizer into the well. Consult your local Health Department for further details.

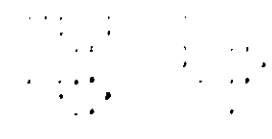
**Flowing Artesian Wells** - Artesian wells generally do not require disinfection. If analyses indicate persistent contamination, the well should be disinfected. Consult your local Health Department for further details.

**EMERGENCY DISINFECTION**

- When boiling of water for 1 minute is not practical, water can be made potable by using this product. Prior to addition of the sanitizer, remove all suspended material by filtration or by allowing it to settle to the bottom. Decant the clarified, contaminated water to a clean container and add 1 grain of this product to 1 gallon of water. One grain is approximately the size of the letter "O" in this sentence. Allow the treated water to stand for 30 minutes. Properly treated water should have a slight chlorine odor, if not, repeat dosage and allow the water to stand an additional 15 minutes. The treated water can then be made palatable by pouring it between clean containers for several times.

**OTHER CALCIUM HYPOCHLORITE USES**

Calcium Hypochlorite is also used in the sanitization of water systems, municipal water mains, sewage and industrial waste treatment, pulp bleaching, sanitization in the food industry, restaurants, dairies, and hospitals, odor and taste control in potable water systems, algae control in industrial cooling water systems, and general industrial sanitization. For specific literature on these and other accepted uses, write to: PPG Industries, Inc., One PPG Place, Pittsburgh, Pennsylvania 15272.



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## **SANITIZATION OF NONPOROUS FOOD CONTACT SURFACES**

**RINSE METHOD** - A solution of 100 ppm available chlorine may be used in the sanitizing solution if a chlorine test kit is available. Solutions containing an initial concentration of 100 ppm available chlorine must be tested and adjusted periodically to insure that the available chlorine does not drop below 50 ppm. Prepare a 100 ppm sanitizing solution by thoroughly mixing 1 ounce of this product with 40 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 1 ounce of this product with 20 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. If solution contains less than 50 ppm available chlorine, as determined by a suitable test kit, either discard the solution or add sufficient product to reestablish a 200 ppm residual. Do not rinse equipment with water after treatment and do not soak equipment overnight. Sanitizers used in automated systems may be used for general cleaning but may not be reused for sanitizing purposes.

**IMMERSION METHOD** - A solution of 100 ppm available chlorine may be used in the sanitizing solution if a chlorine test kit is available. Solutions containing an initial concentration of 100 ppm available chlorine must be tested and adjusted periodically to insure that the available chlorine does not drop below 50 ppm. Prepare a 100 ppm sanitizing solution by thoroughly mixing 1 ounce of this product with 40 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 1 ounce of this product with 20 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. If solution contains less than 50 ppm available chlorine, as determined by a suitable test kit, either discard the solution or add sufficient product to reestablish a 200 ppm residual. Do not rinse equipment with water after treatment. Sanitizers used in automated systems may be used for general cleaning but may not be reused for sanitizing purposes.

**FLOW/PRESSURE METHOD** - Disassemble equipment and thoroughly clean after use. Assemble equipment in operating position prior to use. Prepare a volume of a 200 ppm available chlorine sanitizing solution equal to 110% of volume capacity of the equipment by mixing the product in a ratio of 1 ounce product with 20 gallons of water. Pump solution through the system until full flow is obtained at all extremities, the system is completely filled with the sanitizer and all air is removed from the system. Close drain valves and hold under pressure for at least 2 minutes to insure contact with all internal surfaces. Remove some cleaning solution from drain valve and test with a chlorine test kit. Repeat entire cleaning/sanitizing process if effluent contains less than 50 ppm available chlorine.

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**CLEAN-IN-PLACE METHOD** - Thoroughly clean equipment after use. Prepare a volume of 200 ppm available chlorine sanitizing solution equal to 110% of volume capacity of the equipment by mixing the product in a ratio of 1 ounce product with 20 gallons of water. Pump solution through the system until full flow is obtained at all extremities, the system is completely filled with the sanitizer and all air is removed from the system. Close drain valves and hold under pressure for at least 10 minutes to insure contact with all internal surfaces. Remove some cleaning solution from drain valve and test with a chlorine test kit. Repeat entire cleaning/sanitizing process if effluent contains less than 50 ppm available chlorine.

**SPRAY/FOG METHOD** - Preclean all surfaces after use. Use a 200 ppm available chlorine solution to control bacteria, mold or fungi and a 600 ppm solution to control bacteriophage. Prepare a 200 ppm sanitizing solution of sufficient size by thoroughly mixing the product in a ratio of 1 ounce product with 20 gallons of water. Prepare a 600 ppm solution by thoroughly mixing the product in a ratio of 3 ounces product with 20 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Always empty and rinse spray/fog equipment with potable water after use. Thoroughly spray or fog all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours. Prior to using equipment, rinse all surfaces treated with a 600 ppm solution with a 200 ppm solution.

### **SANITIZATION OF POROUS FOOD CONTACT SURFACES**

**RINSE METHOD** - Prepare a 600 ppm solution by thoroughly mixing 3 ounces of this product with 20 gallons of water. Clean surfaces in the normal manner. Rinse all surfaces thoroughly with the 600 ppm solution, maintaining contact for at least 2 minutes. Prepare a 200 ppm sanitizing solution by thoroughly mixing 1 ounce of this product with 20 gallons of water. Prior to using equipment, rinse all surfaces with a 200 ppm available chlorine solution. Do not rinse and do not soak equipment overnight.

**IMMERSION METHOD** - Prepare a 600 ppm solution by thoroughly mixing, in an immersion tank, 3 ounces of this product with 20 gallons of water. Clean equipment in the normal manner. Prepare a 200 ppm sanitizing solution by thoroughly mixing 2 ounces of this product with 10 gallons of water. Prior to using, immerse equipment in the 200 ppm sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse and do not soak equipment overnight.

**SPRAY/FOG METHOD** - Preclean all surfaces after use. Prepare a 600 ppm available chlorine sanitizing solution of sufficient size by thoroughly mixing the product in a ratio of 3 ounces product with 20 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Always empty and rinse spray/fog equipment with potable water after use. Thoroughly spray or fog all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours. Prior to using equipment, rinse all



surfaces with a 200 ppm available chlorine solution. Prepare a 200 ppm sanitizing solution by thoroughly mixing 1 ounce of this product with 20 gallons of water.

**SANITIZATION OF NONPOROUS NON-FOOD CONTACT SURFACES**

**RINSE METHOD** - Prepare a sanitizing solution by thoroughly mixing 1 ounce of this product with 20 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.

**IMMERSION METHOD** - Prepare a sanitizing solution by thoroughly mixing, in an immersion tank, 1 ounce of this product with 20 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

**SPRAY/FOG METHOD** - Preclean all surfaces after use. Prepare a 200 ppm available chlorine sanitizing solution of sufficient size by thoroughly mixing the product in a ratio of 1 ounce product with 20 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Prior to using equipment, thoroughly spray or fog all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours.

**DISINFECTION OF NONPOROUS NON-FOOD CONTACT SURFACES**

**RINSE METHOD** - Prepare a disinfecting solution by thoroughly mixing 3 ounces of this product with 20 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the disinfecting solution, maintaining contact with the solution for at least 10 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.

**IMMERSION METHOD** - Prepare a disinfecting solution by thoroughly mixing, in an immersion tank, 3 ounces of this product with 20 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the disinfecting solution for at least 10 minutes and allow the solution to drain. Do not rinse equipment with water after treatment.

## **SANITIZATION OF POROUS NON-FOOD CONTACT SURFACES**

**RINSE METHOD** - Prepare a sanitizing solution by thoroughly mixing 3 ounces of this product with 20 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.

**IMMERSION METHOD** - Prepare a sanitizing solution by thoroughly mixing, in an immersion tank, 3 ounces of this product with 20 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

**SPRAY/FOG METHOD** - After cleaning, sanitize non-food contact surfaces with 600 ppm available chlorine by thoroughly mixing the product in a ratio of 3 ounces of this product with 20 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Always empty and rinse spray/fog equipment with potable water after use. Prior to using equipment, thoroughly spray or fog all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours.

## USE INSTRUCTIONS FOR PPG 3" Calcium Hypochlorite Tablets

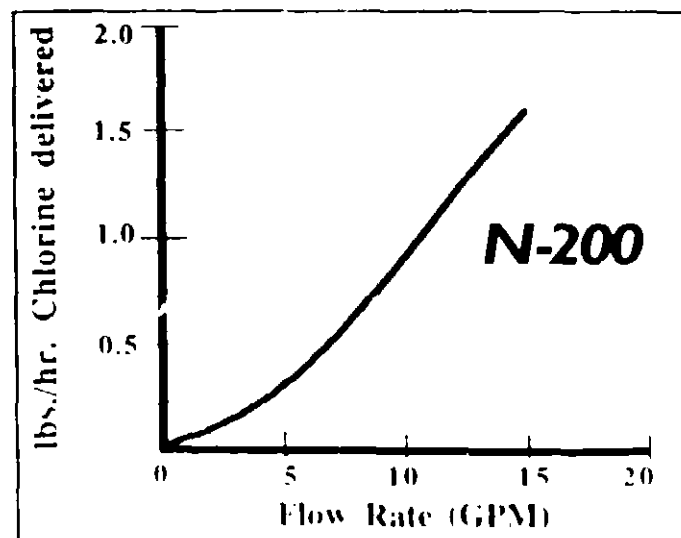
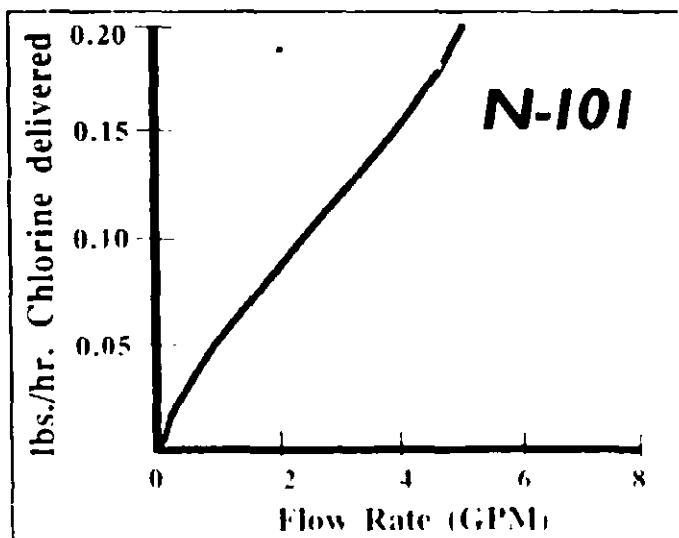
1. Install the PPG chlorinator per the instruction manual.
2. Load tablets into the PPG chlorinator.
3. Determine the water flow rate of your system in gpm.
4. Determine the chlorine demand of your system.
  - a. When you know the ppm chlorine demand required, calculate the lbs/hr chlorine delivery by the following:  
$$\text{water flow (gpm)} \times \text{ppm Chlorine Demand} \times 0.0005 = \text{lbs/hr chlorine}$$
  - b. If you are currently using chlorine gas, calculate usage on a lbs/hr basis.
  - c. If you are currently using sodium hypochlorite, calculate the usage as (at 10% strength):

$$\text{gallons/hr} = \text{lbs/hr chlorine}$$

5. From the chart below, determine the flow rate of water necessary through the chlorinator. Multiple chlorinators may be used for higher delivery rates.
6. Determine that there is a chlorine residual (i.e., 0.5 ppm for drinking water) in the water stream that meets requirements.
7. Operate the chlorinator per the instruction manual

### PPG 3" Calcium Hypochlorite Tablets Delivery

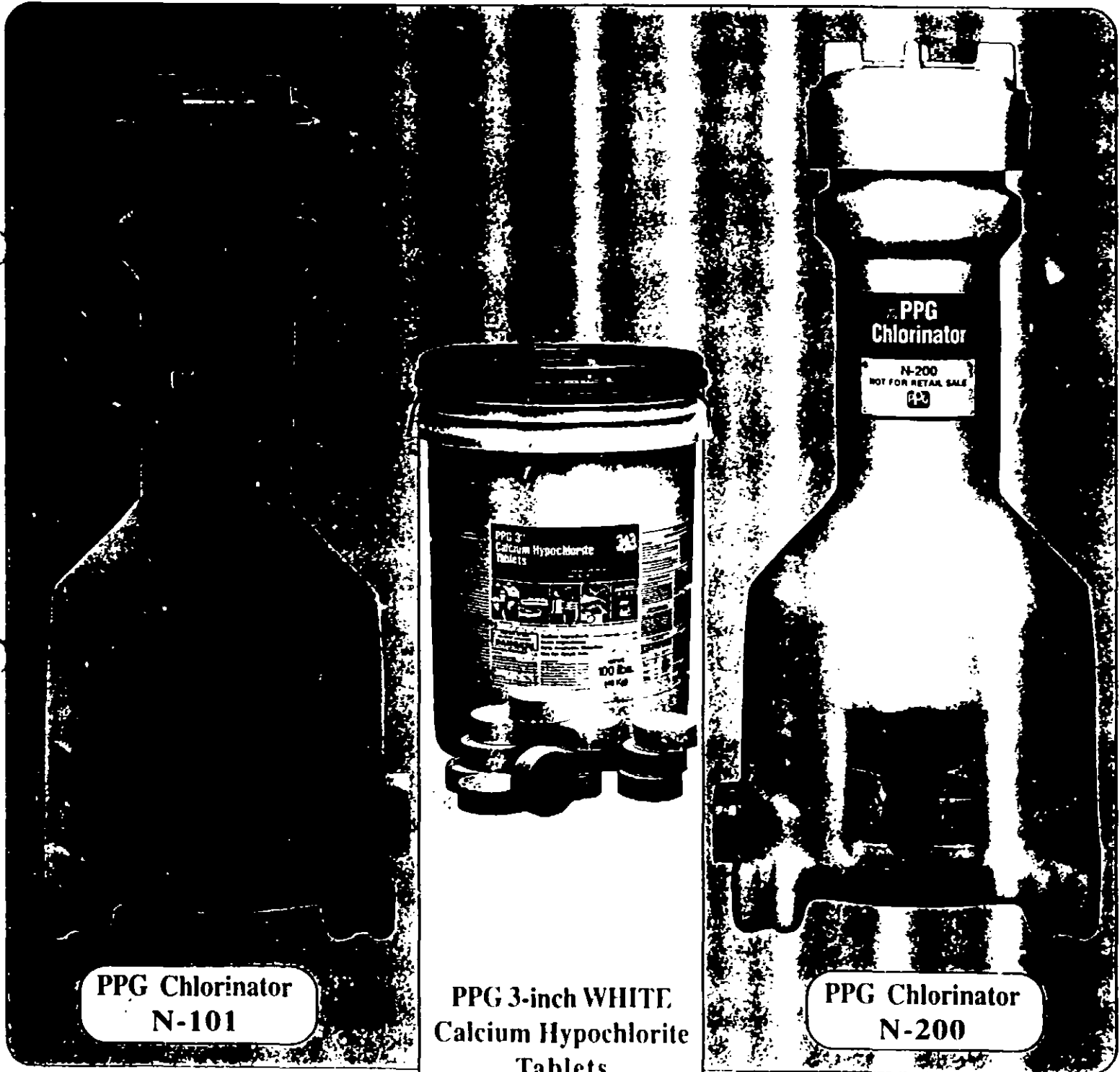
Graphs below are representative of average tested delivery values. Multiply the lbs/hr chlorine delivered by 1.5 to determine the lbs/hr of tablets used



1250

# PPG Chlorinating Systems

## Industrial Applications



PPG Chlorinator  
N-101

PPG 3-inch WHITE  
Calcium Hypochlorite  
Tablets

PPG Chlorinator  
N-200

BEST AVAILABLE COPY



The PPG Chlorinating System consists of the patented PPG Chlorinators and PPG 3-inch Calcium Hypochlorite tablets. The PPG Chlorinating System is the new workhorse in automatic chlorination. This bulletin will introduce a wide range of system applications and installations to suit most sanitizing needs.

PPG Industries is committed to producing quality products which fully meet the needs of our customers. If your application is not listed here, please contact our technical service staff to determine how we can serve you.

## Applications

### Water Treatment:

Cooling Water  
Drinking Water  
Potable Water  
Well Water Systems  
Waste Water  
Cooling Tower systems

### Food Processing Plants:

Canneries  
Poultry Processing Plants  
Meat Processing Plants  
Harvested Fruits & Vegetables  
Dairy Industries

### Beverage Plants:

Breweries/Wineries  
Carbonated Beverage Plants  
Cider & Fruit Juice Plants

## Approved Uses

The PPG Chlorinating System consists of the PPG Chlorinators used in conjunction with PPG 3-inch **WHITE** Calcium Hypochlorite Tablets

Recommended uses are for water treatment, industrial and food processing applications.

- **USDA approved Uses:**  
G-4, G-5, G-7, D-2 & Q-4.
- **Kosher approved**
- **Meets AWWA standards**
- **EPA Reg. # 748-138**
- **NSF Standard 60 (pending)**

← Authorized by USDA for use in federally inspected meat and poultry plants.

**For more information about PPG  
Chlorinating Systems, call (800) 421-2025**



...ation and water treatment applications. PPG chlorinators do not require electrical power, nor do they have any moving parts or small orifices. As a result of this patented design, the PPG delivery system is reliable to operate and requires very low maintenance.

### **Safety:**

- No dangerous Chlorine gas releases
- No dangerous and corrosive liquid handling or potential for spills
- No odor during operation (Only minimal odor during filling procedure)

### **Maintenance:**

- No chlorine gas corrosion
- No liquid bleach corrosion
- No leaching of metals from pumps, filters, etc. due to low pH
- No costly replacements of metering pumps or gas regulators
- No moving parts to break
- No orifices to plug
- No electrical power required for operation

### **Approximate Available Chlorine Conversion:**

1 lb. of Chlorine gas or  
1 gal. of Sodium Hypochlorite  
(10% solution)  
**= 1.5 lbs. of Cal Hypo tablets**

### **Convenience:**

- Easier material handling
- Tablets are easy to deliver to limited-access installation sites
- Refill is quick and easy
- Minimal clean-out needed over long periods of time
- Small size and light weight facilitates easy installation

### **Delivery:**

- Accurate & consistent chlorine delivery
- Dependable & simple operation
- Cal Hypo tablets will not lose strength over time like sodium hypochlorite

## **QUALITY**

PPG Industries' commitment to Total Customer Satisfaction is supported by our Corporate Quality Statement: *"PPG will provide products and services to our customers that fully meet their requirements, on time, every time. We are dedicated to constant improvements in every area of our business and to doing our job right the first time, so as to achieve Total Customer Satisfaction."*

## **SAFETY**

PPG is committed to safe handling of chemicals at every step of the process -- from our manufacturing and distribution process through education of the end user. Our leading participation in the Chemical Manufacturer's Association *Responsible Care*<sup>®</sup> Program is evidence of our commitment to the health, safety and welfare of our customers, the community and the industry. PPG urges everyone who stores, handles and uses our chemicals to read and follow all label directions, and become familiar with the Material Safety Data Sheets (MSDS) for any product they use.



Responsible Care<sup>®</sup>  
A Public Commitment

# PPG Chlorinating Tablets

## PPG 3-inch White Calcium Hypochlorite Tablets

### Properties

<b>Chemical Name</b>	Calcium Hypochlorite
<b>Chemical Formula</b>	Ca(OCl) <sub>2</sub>
<b>Molecular Weight</b>	142.994
<b>Dimensions</b>	3 1/8" diameter, 1 1/4" height, 300 grams weight
<b>Chemical Assay of PPG Calcium Hypochlorite</b>	
<b>Active Ingredient -- Calcium Hypochlorite</b>	65%
<b>Inert Ingredients -- Readily Soluble Salts</b>	35%



### Handling and Storage

Before using calcium hypochlorite tablets, read all label directions on the container. You should follow all handling and storage directions on the container to ensure accident-free use of this chemical.

Do not skid or drop calcium hypochlorite containers. Store the chemical in a cool, dry place. Be sure the container is tightly closed when not in use.

When you take calcium hypochlorite from the container, use clean, dry rubber gloves. As with any chemical, be sure to wash your hands after handling calcium hypochlorite.

Keep calcium hypochlorite away from any fire or lighted tobacco products. If you mix calcium hypochlorite with any other chemical, a fire or explosion could result.

Potentially volatile chemical combinations with calcium hypochlorite include: other chlorinating compounds (non-cal hypo), cyanuric acid, other chemicals, acids, easily combustible materials such as oil, kerosene, gasoline, paint products and any other organic materials.

In case of fire, drench with water. When calcium hypochlorite is involved in a fire, oxygen is supplied by the chemical. So, attempts to

smother the fire with a wet blanket, carbon dioxide or dry chemical extinguisher will be ineffective.

Do not reuse empty calcium hypochlorite containers. You should thoroughly rinse the containers with water and dispose of them properly, according to local regulations for plastic containers.

More detailed safety information can be found in the Material Safety Data Sheet (MSDS), available on request from PPG.

### Packaging and Shipping

PPG Industries supplies calcium hypochlorite in convenient 100-pound plastic drums which can be stacked up to four drums high.

PPG manufactures calcium hypochlorite at its plant in Natrium, West Virginia.

### Emergency

In case of a product emergency, call the PPG Emergency Response Center -- staffed to answer 24 hours a day.

**(304) 843-1300**

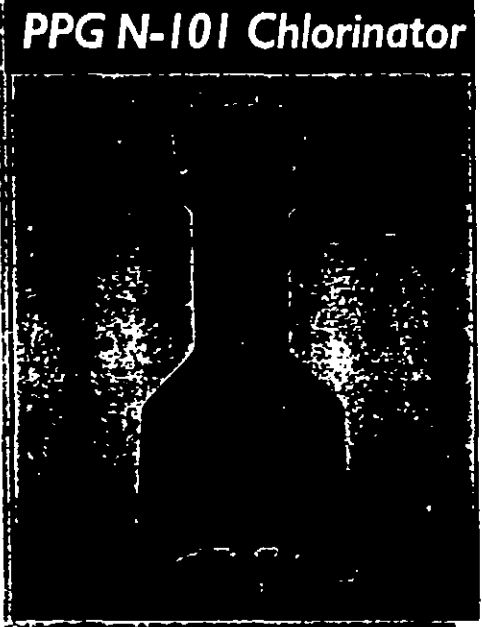
### Technical Service / Customer Service

The Technical Staff of PPG's Chemicals Group is available for consultation on the handling, storage and use of calcium hypochlorite for all applications. PPG's Technical Staff can also assist with recommendations for chlorinator installations. To access technical service or customer service,

call toll-free: **(800) 421-2025** -- Monday thru Friday

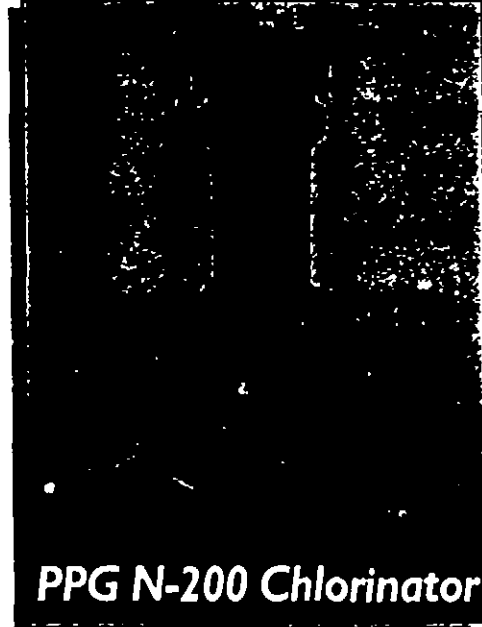
# PPG Automatic Chlorinators

PPG offers two automatic chlorinators to suit application needs. The N-200 model is designed for medium to high delivery applications. The N-101 model is ideal for low to medium delivery installations. Both chlorinators are designed for use with the PPG 3-inch calcium hypochlorite tablet. Both the N-101 and N-200 models offer the features listed below.



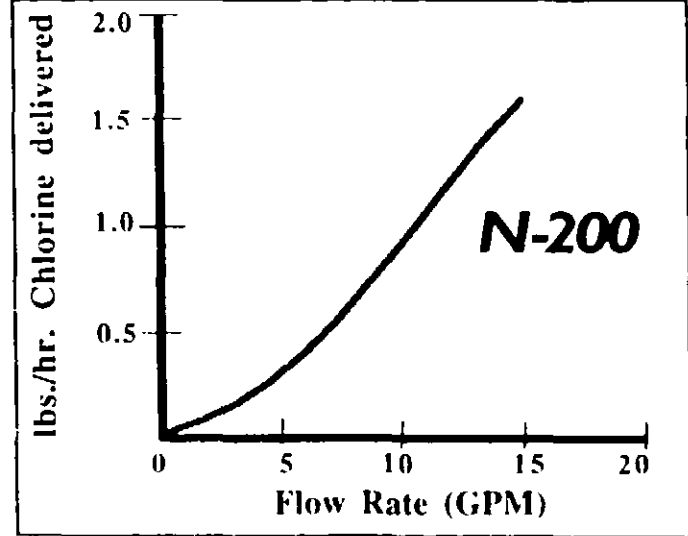
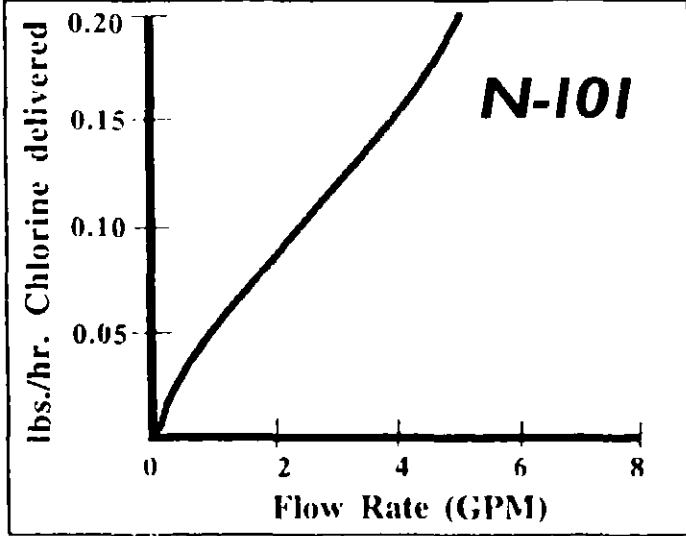
**Features:**

- Easy to use
- Dependable operation
- Accurate & consistent chlorine delivery due to water flow over constant surface area
- Top-loading refillable cartridge
- No moving parts
- Corrosion-resistant construction



## PPG 3-inch Calcium Hypochlorite Tablet Delivery

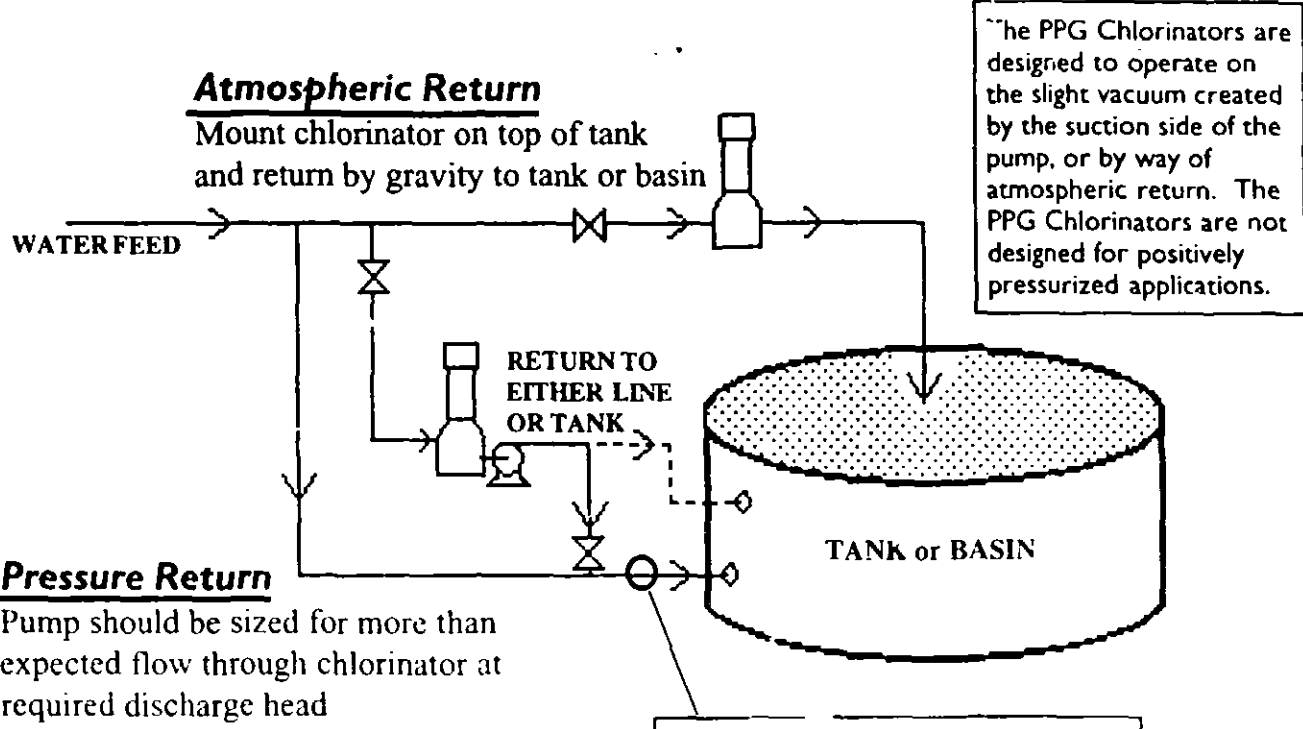
Graphs shown below are representative of average tested delivery values. Multiply the lbs./hr. chlorine delivered by 1.5 to determine the pounds per hour of tablets used. To calculate the exact performance needed for your application, consult a PPG service representative.



**IMPORTANT SAFETY NOTE:**  
 You should use only PPG 3-inch Calcium Hypochlorite tablets in the PPG chlorinators. If you mix PPG cal-hypo tablets with stablized chlorine or bromine tablets, or with any other sanitizing product, fire or explosion could result.

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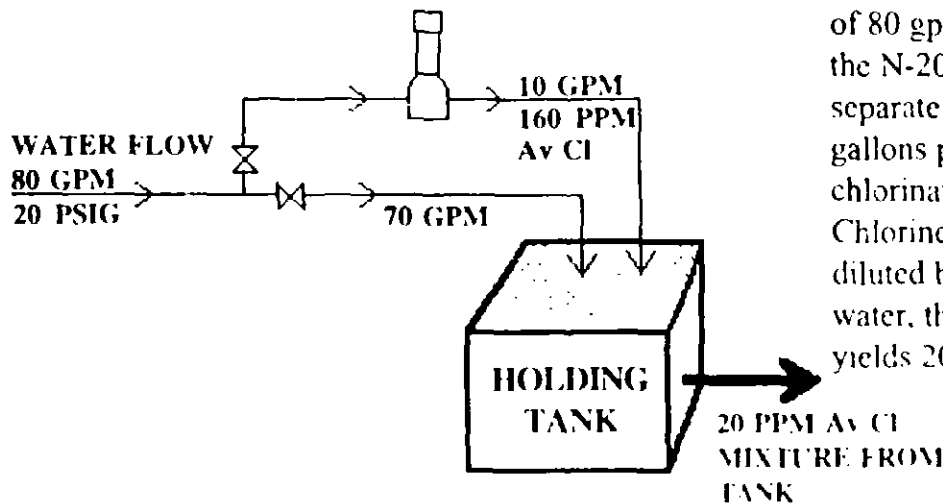




Use potable or "clean" water to feed chlorinator -- not recommended for use with feedwater which contains high solids.

## Mixed Flow Installation

By mixing chlorinated water from the chlorinator with unchlorinated water from the water feed line, you can achieve a regulated level of Available Chlorine in the water stored in a holding tank.

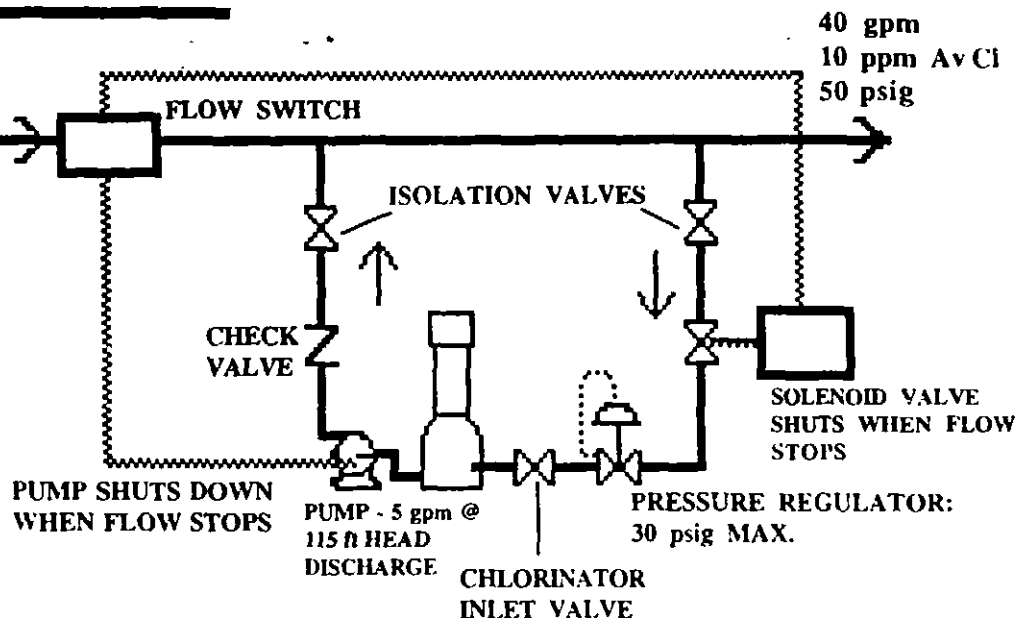


In this example, incoming water flow of 80 gpm @ 20 psig is split between the N-200 chlorinator (10 gpm) and a separate feed line (70 gpm). The 10 gallons per minute coming out of the chlorinator contain 160 ppm Available Chlorine. When this volume of water is diluted by the 70 gpm unchlorinated water, the mixture in the holding tank yields 20 ppm Available Chlorine.

## Fully Automated Installation

### **Example:**

40 gpm at 50 psi in a food processing plant needs 10 ppm Available Chlorine. This calculates to 0.2 lbs/hr of chlorine delivery or 7.5 lbs. of tablet usage per day. By reviewing the Tablet Delivery graph, a flow of 4 gpm through the PPG N-200 chlorinator provides water with 100 ppm Available Chlorine at the chlorinator discharge for blending with main water flow to achieve the 10 ppm Av Cl required.



Pressure regulator valve is used to limit inlet pressure to a maximum of 30 psig.

Check valve is used to prevent a surge or backflow from damaging either the pump or chlorinator.

Flow switch is needed to react to an interruption of water flow -- shutting down the pump when flow stops, thereby protecting the pump from running dry. In such a case, the flow switch would also activate the solenoid valve, which would then isolate the chlorinator.

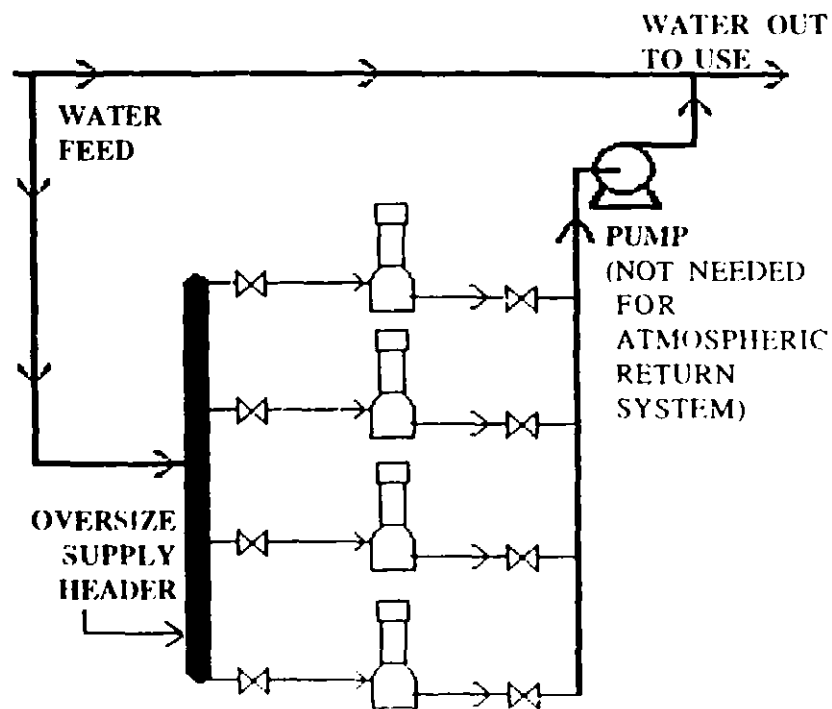
Flow meter (not shown on this diagram) regulating chlorinator inlet flow is recommended for precise control.

## Multiple Chlorinator Installations

Multiple PPG Chlorinators (N-101 or N-200) can be installed in parallel configurations where greater amounts of chlorine delivery are needed. The diagram at right depicts a representative configuration of a multiple chlorinator installation.

Whenever two or more chlorinators are installed, an oversize supply header must be used to distribute adequate flow to the chlorinators. The pipe lengths from the supply header to each of the chlorinators must be equal, providing even distribution of water flow.

This arrangement provides an even delivery of Available Chlorine from each chlorinator.



Physical Description	PPG N-101	PPG N-200
Base	11" x 11"	11" x 11"
Height	25"	25"
Weight (Empty)	10 lbs.	10 lbs.
Construction Material	Polyethylene	Polyethylene
Inlet Connection	1-1/2" FPT	1/2" PVC rigid pipe
Outlet Connection	1-1/2" FPT	1-1/2" FPT
Internals	Flexible PVC tubing	Rigid PVC piping
Capacity	12 Tablets (8 lbs.)	12 Tablets (8 lbs.)

PPG supplies 3-inch N-101 & N-200 BLUE cal hypo tablets and Chlorinators for NSF-Listed use in pool or spa applications. PPG 3-inch WHITE calcium hypochlorite tablets are designed for industrial uses and are not suited for swimming pool applications. Contact your service representative or PPG for more information.

### Installation Recommendations

PPG recommends the use of rigid PVC piping with solvent weld fittings. Flexible PVC hose can be used where rigid piping is not practical. In any installation, be sure to check for leaks in all connections and purge any air from the system prior to running at full operating flow.

The PPG chlorinators are designed to be installed with hardware such as pipes, tees and other fittings which are commonly available at most plumbing supply companies.

In-line mixers can be used to blend the chlorination side stream with the main water flow.

PPG also recommends the use of a flow meter

for precise control of inlet water flow. To locate the nearest distributor of compatible flow meters, contact:  
 Blue White Industries  
 14931 Chestnut Street  
 Westminster, CA 92683  
 (714) 893-8529 or fax: (714) 894-9492.

### Parts Availability

PPG chlorinators' spare parts are available from:

**Burch's Landing**  
 354 Portage Lakes Dr.  
 Akron, OH 44319  
 (216) 644-0234

OR

**Optimus Products**  
 2762 Getwell Rd.  
 Memphis, TN 38118  
 (800) 238-0207  
 Fax: (901) 794-3884

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The products mentioned herein can be hazardous if not used properly. Any health hazard and safety information contained herein should be passed on to your customers or employees, as the case may be. PPG Industries also recommends that, before use, anyone using or handling these products thoroughly read and understand the information and precautions on the label, as well as in other product safety publications such as the Material Safety Data Sheet (MSDS).

Take all potentially hazardous material, these products, must be kept out of reach of children.