

## SELECTED USES OF CHEMICAL METERING PUMPS

**TECHNICAL** BULLETIN

**BLEACH PRODUCERS** — Dose perfume such as eucalyptus oil in proportion to bleach flow to containers.

BOILERS — Full range of boiler chemicals for both heating and power boilers fed automatically or manually.

**BOTTLING PLANTS** — Use pumps for filter flocculation, water purification with hypochlorite, injection of wetting agents and alkaline cleaning solutions into bottle washers.

BOYS' CLUBS- Swimming pool applications for hypochlorite, alum, or soda ash feed. Slurry feed to diatomite filters.

BREWERIES — Slurry feed to filters. Chlorinate process water of water used for washing floors, walls and equipment.

**CAMPS, SUMMER** — Chlorinate drinking water, remove H2S or iron: often having swimming pools. (See Swimming Pools)

CAR WASHES — Injection of soaps or detergents into washing water.

**CEMENT MANUFACTURERS** — Use metering pumps for addition of air entraining chemicals and grinding aids to Portland cement.

CHEESE PLANTS — Chlorinate process water. Use pumps for addition of citric acid or hydrogen peroxide to cottage cheese tanks.

**CITRUS PLANTS** — Slime control.

COAL WASHING PLANTS — Dosing of flocculant aids ahead of centrifugation for dewatering coal slurry.

CONCRETE BLOCK MANUFACTURERS — Use pumps for addition of chemicals to boilers and to steam lines for the curing kiln.

**CONDENSERS** — Add chemicals for prevention of scale, algae growth and pH control.

COOLING TOWERS - Inject a number of different chemicals to control corrosion, adjust pH, prevent algae growth or delignification.

**DAIRIES** — Often chlorinate general water supply and water used in washing butter. May super chlorinate wash down water. May feed iodine or potassium permanganate solutions for sanitizing milking equipment and udder wash water.

**DE-AERATING HEATERS** — Sodium sulfite or hydrazine may follow DA heater as an oxygen scavenger.

**DEFENSE DEPARTMENT BASES** — Chlorinate drinking water systems, often fluoridate or feed corrosion control chemicals and may use slurry feeders on diatomite filters.

**DIE CASTING MACHINES** — Add sequestering or pH control chemicals to die cooling. Scale prevention is critical.

**DISHWASHING MACHINES** — (in hospitals, restaurants, schools, etc.) chlorinate sterilizing rinse water.

**DISTILLERIES** — Chlorinate general water supply and treat wastes for pH control. May use slurry feeders for diatomite filters. Boiler and condenser chemical treatment may be necessary.

**ELECTROLESS PLATING** — Add replenishment chemicals.

**ELECTRONIC COMPONENT MANUFACTURERS** — may pump coatings for parts.

**ELECTROPLATERS** — Feed brighteners or replenishing solutions. Use slurry feed to plating solution filters. Add chemicals for pH control, cyanide destruction in waste waters.

**EXTERMINATORS** — May meter insecticides into spray water

FEED MILLS — Boiler treatment chemicals, scale control chemicals in humidification systems. May add liquid vitamin and antibiotic chemicals to feeds.

FISH PROCESSING — Chlorinate wash water and flume conveyor water. Inject detergents into mechanical conveyor cleaning sprays.

FISHING VESSELS — Chlorinate wash waters for decks and holds.

FLOORING MANUFACTURERS — Sometimes meter liquid wax onto finished floor tiles.

**FOUNDRIES** — May meter detergent as part of magnetic test for flaws, may also meter sand conditioning chemicals.

FRUIT PACKERS — Wash water chlorination. May inject chemical treatment to enhance or preserve color and storage life of fruit.

FUEL OIL — Catalytic treatments sometimes containing abrasive powders may be fed for control of slag and vanadium corrosion in power boilers.

FURNACES, INDUSTRIAL — may inject scale and corrosion preventative chemicals into cooling water lines.

**GOLF COURSES** — Inject liquid fertilizer into sprinkling system.

GRAIN STORAGE ELEVATORS — May add insecticides to grain going into storage.

**GREENHOUSES** — Fertilizer injection is a common application. May also inject pH control chemicals and insecticides.

**HEAT EXCHANGERS** — Inject corrosion or scale prevention chemicals on the water side.

**HIGHWAY DEPARTMENTS** — Frequently chlorinate drinking water at rest stops and road side service facilities.

**HOMES** — Iron removal, sulfur removal, acid water correction and chlorination for purification are the common applications.

**HOSPITALS** — Pump boiler treatment chemicals. May chlorinate drinking water supply, whirlpool baths and sewage.

HOTELS — (see Swimming Pools) Drinking water may be chlorinated. Corrosion control chemicals may be added. Boilers and cooling towers may be treated.

**HYDROPONIC VEGETABLE AND PLANT GROWERS** — May feed nutrient solutions or pH control solutions to the growing beds.

**IRRIGATION** — May inject fertilizer, herbicides and rust control chemicals into irrigation lines. May also chlorinate to prevent algae formation.

LABORATORIES — Metering pumps may be used in experimentation and pilot plants.

LAUNDROMATS — Waste water treatment with chlorine, alum or activated carbon may be required. Boiler treatment is common.

LUMBER MILLS — Add chemical to dip tanks for prevention of "Bluestain" flotation.

MEAT PACKERS — Waste treatment including heavy chlorination is frequently required. Wash water and process water may be chlorinated. Boiler treatment is common.

**MINES** — Ore floatation often requires chemical additives. Drinking water chlorination, water reclamation, flocculant feeding.

**MOTELS** — Water supply is often individual and must be chlorinated and treated for acidity, iron or sulfur removal. Swimming pools are common. (See Swimming Pools)

**MUNICIPALITIES** — Corrosion control, iron removal, hydrogen sulfide removal are often a necessity. Chlorination is common. Fluoridation and sewage treatment.

**NURSERIES** — Fertilizer, insecticides, pH adjustment chemicals are often injected into irrigation water.

**NURSING HOMES** — Often feed chemicals for corrosion control, iron removal, hydrogen sulfide removal and purification. Chlorination of drinking water is common on individual supplies, and sewage effluent sanitation may also be required.

**OIL PRODUCER AND REFINERS** — Chlorination of water used in secondary recovery is common. Wetting agents are often infected. Chemicals to break the oil water emulsion and to control corrosion are frequently used.

**PAINTING PROCESSES** — May meter flocculants and other chemicals into overspray removal waters.

**PAPER MILLS** — Many pumps may be used by a single mill to feed defoaming chemicals, slimicides, pH control chemicals, dyes, pitch dispersants, wire life extenders, biocides and others. Also for feeding polymers in plant waste treatment.

**PARKS** — Chlorination of drinking water is common. Swimming pools may be included. (See Swimming Pools) Liquid fertilizers for sprinkling system for lawns.

**PHOTOGRAPHIC LABS** — Wetting agents are sometimes automatically fed into film wash baths. Sometimes algae control chemicals are pumped.

**PILOT PLANTS** — Chemical process plants often set up small scale reaction processes which require chemical metering pumps.

**PIPE LINE STATIONS** — Cooling tower and condenser waters, algicide and phosphate injection.

**PLASTIC EXTRUDERS** — may meter pigments into extrusion machine; may treat cooling water supplies.

**PLASTIC MOLDERS-** Frequently treat mold cooling waters to prevent corrosion, rust or scale build up.

**PLATING, METAL** — Organic brighteners may be metered, replenishment chemicals may be pumped and filter aid slurry may be added continuously. PH adjustment of waste flows may be required.

**POLYMER FLOCCULANT AIDS** — Fed to increase speed and efficiency of setting systems. Often very high viscosity.

**POULTRY PROCESSORS** — May heavily chlorinate washdown and process waters.

**POULTRY PRODUCERS** — Pump sterilizing chemicals, nutrients, vitamins, and antibiotics into water supplies. Scafe control chemicals may be added to humidification systems.

**POWDER METALLURGY** — Sintering dies have cooling water connections and treatment chemicals are often added.

POWER PLANTS — Pump algicides and corrosion control

chemicals into condenser cooling water. Generally pump boiler treatment chemicals including filming amines for condensate return lines.

**PRINTERS** — May meter viscosity control fluids for inks or off-set dampener fluids.

**PULP MILLS** — May feed pitch dispersants, waste treatment chemicals.

**REFINERIES** — Cooling tower treatments, corrosion control chemicals and pH adjustment chemicals including concentrated sulfuric acid are often used,

**SCHOOLS** — Fluoridation and chlorination of domestic water supply may be required. Iron, sulfur or acid water treatment may be needed. Swimming pool may be involved. (See Swimming Pools)

**SCRUBBERS** — Adjust pH of scrubber water by NaOH injection. In some processes also inject H<sub>2</sub>SO<sub>4</sub>.

**SEWAGE PLANTS AND OXIDATION PONDS** — Chlorination for DOD and odor reduction, flocculation, pH adjustment.

**SHIPS** — Frequently chlorinate potable water supplies. May also use metering pumps for boiler treatment.

**SHRIMP PROCESSING** — Like many food processing industries, sterilization of wash and process water may be required.

**SINTERING PROCESS** — (See Powder Metallurgy)

**SPRINKLING SYSTEMS** — Inject liquid fertilizer into system.

**SUGAR MILLS** — Often pump bacteria control chemicals and chemicals designed to increase sucrose yield.

**SWIMMING POOLS** — Sterilization is always required, usually by chlorination. Alum for flocculation, soda ash for pH control and filter aid slurry may also be pumped.

**TAVERNS** — Chlorination of private drinking water supply is often required.

**TEXTILE MILLS** — Dyes, pH adjustment chemicals and wetting agents may be used in processing. Waste treatment may require chlorination and other chemicals.

**TEXTILE PRINTERS** — May meter inks and dyes in the printing process.

**TRAILER COURTS** — Chlorination of drinking water supply and sewage effluent treatment is often required by health Departments

**VEGETABLE PACKERS** — Chlorination of process wash water is common. Sometimes either coloring, flavoring or preservative chemicals may be added.

**VIBRATORY FINISHERS** — Soap, rust inhibitors and polishing agents may be pumped.

**WASTE WATER SYSTEMS** — May require chemical treatment for pH control, flocculation, sanitation, BOD control, etc.

WIRE COATERS — Meter varnish to coating machines.

**WOOL SCOURING** — (See Textile Mills)

**YMCA**, **YWCA**, **YMHA** — Swimming Pool treatment is almost universal. Summer camps may require swimming pool treatment and sometimes drinking water treatment.



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