# Wastewater Treatment

Environmentally Treating & Reclaiming Water from Wastewater

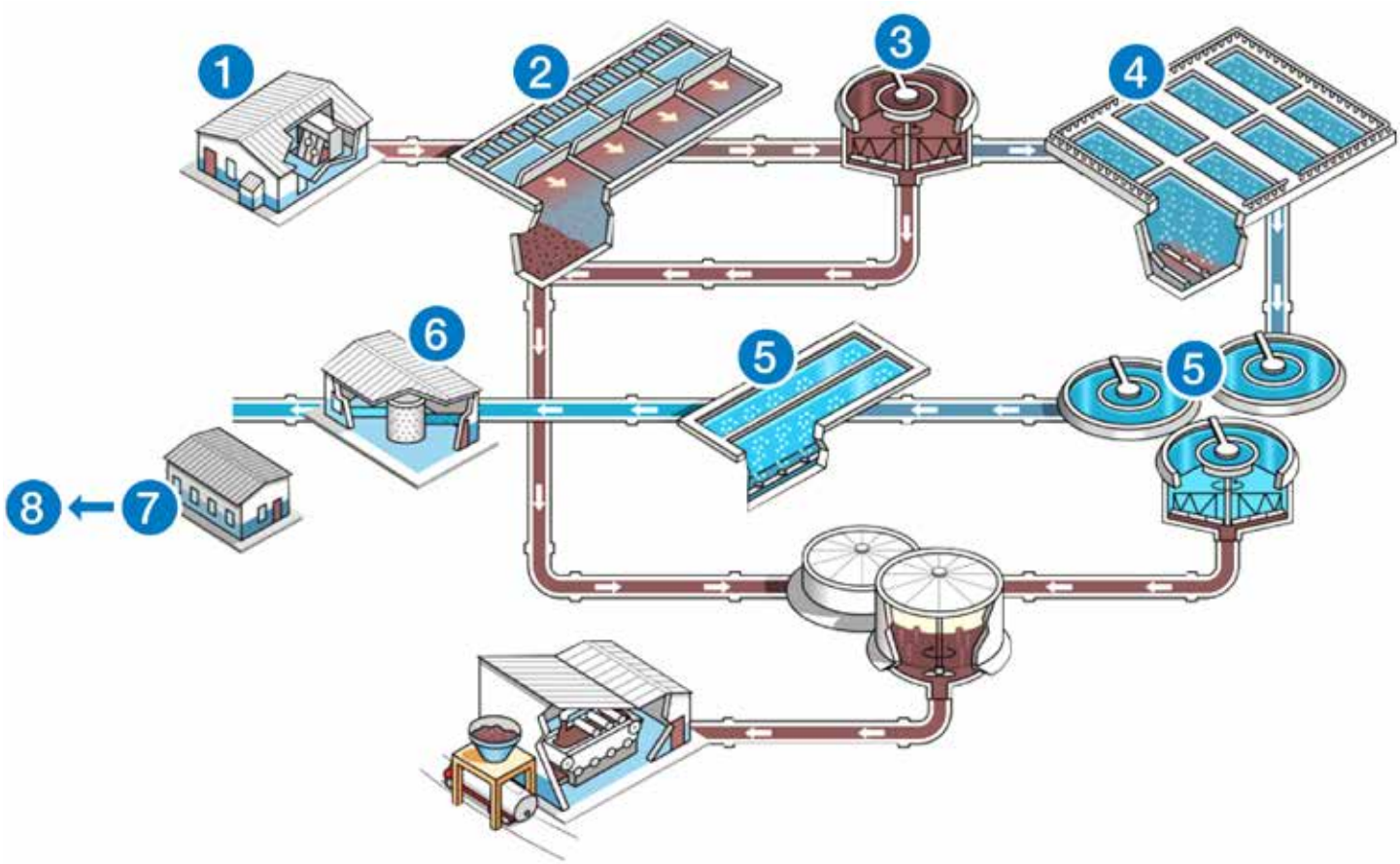
Cole-Parmer®
scientific experts

# Wastewater Treatment

## Cole-Parmer® has the products you need for your wastewater workflow.

Our vast array of products from market leading brands Masterflex®, Environmental Express®, Oakton® and Jenway®, serve to deliver the solutions you need when managing wastewater. Our products support the fluid handling, test & measurement and analysis of wastewater ensuring it is returned to the environment safely.

## The Wastewater Process in 8 Stages




### Stage 1: Bar Screening

Removal of large items from the influent to prevent damage to the facility's pumps, valves and other equipment.

1. pH meters reveal pH level, which can change significantly if chemicals, acid rain or drainage have contaminated the water
2. Dissolved Oxygen (DO) meters monitor water pollution by testing oxygen availability. Low levels of dissolved oxygen may indicate the presence of organic material decomposition
3. Turbidity Meters assess water clarity and particulates in the water
4. Total Dissolved Solids (TDS) meters measure anything that cannot be seen, including minerals, salts, metals, and more

### Stage 2: Grit Removal

Removal of grit by flowing the influent over/through a grit chamber.

Level Control Products - Ideal for use with large and medium industrial tanks and storage vessels

Magnetic Flowmeters - Available as insertion and full-bore—both have no moving parts

### Stage 3: Primary Clarifier

Initial separation of solid organic matter from wastewater.

Masterflex I/P® pumps provide accurate feed of flocculating polymers and other chemicals. The Masterflex peristaltic technology has no valves – thus, long chain polymer molecules will not clog.

Oakton pH meter

Oakton pH/Ion 700 Ion 700 Benchtop Meter with Probes

Oakton EcoTestr™ CTS Pocket Conductivity, Salinity, & TDS Meter

Oakton T-100 Turbidity Meter, with Standards

Masterflex I/P® Brushless Process Drive

Sludge Judge® Sludge Samplers

Cole-Parmer® Handheld Doppler Flowmeter

Raven Environmental Sludge Interface Detector

## Stage 4: Aeration

Air is pumped into the aeration tank/basin to encourage conversion of NH3 to NO3 and provide oxygen for bacteria to continue to propagate and grow.

Oakton® T-100 Waterproof Turbidity meters and turbidity tubes all measure turbidity. While Oakton DO meters support the measuring of dissolved oxygen.

Cole-Parmer® Handheld Doppler Flowmeter

Hach® Handheld Multiparameter

Oakton® DO 6+ Dissolved Oxygen Meter

## Stage 5: Secondary Clarifier

Treated wastewater is pumped into a secondary clarifier to allow any remaining organic sediment to settle out of treated water flow.

Our selection of water testing equipment includes test kits for bacteria and chemical compounds; colorimeters; multiparameter meters for measuring pH, ORP, conductivity/ salinity/total dissolved solids (TDS), dissolved oxygen (DO), temperature and turbidimeters.

Oakton® T-100 Turbidity Meter

Hach® DR300 Pocket Colorimeters

## Stage 6: Chlorination (Disinfection)

Chlorine is added to kill any remaining bacteria in the contact chamber. With the enhanced concentration of bacteria as part of the aeration stage, there is a need to test the outgoing effluent for bacteria presence or absence and to disinfect the water.

Masterflex I/P® Brushless Process Drive

Hach® DR1900 Portable Water Spectrophotometer

Powder Pack and Test Tube Reagents

## Stage 7: Water Analysis & Testing

Testing for proper pH level, ammonia, nitrates, phosphates, dissolved oxygen, and residual chlorine levels to conform to the plant's NPDES permit are critical to the plant's performance.

Although testing is continuous throughout the wastewater treatment process to ensure optimal water flow, clarification and aeration, final testing is done to make sure the effluent leaving the plant meets permit specifications. Use Oakton® Benchtop pH 700 & Ion 700 Meters, with Oakton® Buffer Solutions.

Environmental Express® BOD Bottles

Sludge Judge® Sludge Samplers

Environmental Express® ProWeigh® Filters

Environmental Express® Digestion Cups

Oakton® Ion 700 Benchtop Meters

Jenway® Series 76 Spectrophotometer

## Stage 8: Effluent Disposal

Final effluent flows into rivers or streams or into irrigation reservoirs for reuse.

MASTERFLEX® Jenway® ENVIRONMENTAL EXPRESS® OAKTON® INSTRUMENTS

With a well-balanced range of capacities and flexibility, excellent repeatability and optimal chemical resistance, Masterflex® pumps provide precise, highly reliable and long-term operation, regardless of the chemical being pumped. This means the integrity of critical equipment and processes is protected — so you can focus your attention on other concerns besides keeping your pumps running right.

***"With Masterflex® pumps, wastewater treatment plants can finally optimise NaOCl feed."***

Masterflex peristaltic pumps provide incredibly high suction lift — and accurate, reliable performance — removing the common issues of: clogging, check valves that can jam, siphoning, vapour-locking, downtime and performance or reliability issues. Masterflex pumps are self-priming and they can run dry for extended periods without damage.

**Peristaltic Design: A Better Alternative**

Masterflex peristaltic pumps operate on a positive displacement principle that uses rotating rollers to occlude (squeeze) fluid through elastomer tubing. The fluid being pumped never touches the pump — there are no wetted parts other than inside the tubing, and no valves or seals. Replacing the tubing typically takes just seconds.

***"It's the most highly reliable option for liquid chemical feed today."***

Masterflex pumps have no valves, glands or seals to wear out and thus provide superior performance in corrosive, viscous and abrasive handling applications.

Pump head demonstrating the non invasive peristaltic flow process

Masterflex I/P® Brushless Process Drive

Masterflex LS® pump

As a global market leader of tubing formulations for most extensive chemical compatibility Masterflex offers Norprene, Norprene Food or Pharmed/Chemdurance tubing. Designed to handle chemical compatibility with the wastewater treatment chemicals such as (NaOCl - sodium hypochlorite), polymer flocculants, NaOH (alkali's) and Acid – HCl, hydrochloric and H2SO4 sulphuric). Masterflex tubing includes single-use custom lengths and configurations available to minimise downtime.

**SimpleWater™ BOD Nutrient Buffer Solutions**

The BOD test is widely used to determine the pollution strength of domestic/industrial wastewaters in terms of the oxygen that they will require if discharged into natural watercourses in which aerobic conditions exist.

The test is one of the most important both in regulatory work and in studies designed to evaluate the purification capacity of receiving water bodies.

SimpleWater BOD Disposable Test Solution Bottles from Environmental Express® is exclusive to Cole-Parmer®

**HotBlock® Digestion Systems**

For analysing background metals and volume within wastewate, HotBlock digestion systems are ISO, APHA, and EPA approved for all methods of hotplate digestions. These systems eliminate corrosion and sample contamination and are made of PTFE-coated graphite along with other nonmetallic materials. The system delivers uniform heating to all samples, up to 150°C (HotBlock 100) or 200°C (HotBlock 200).

HotBlock 200 Digestion System

**AutoBlock™ Plus Digestion System**

The AutoBlock Plus system digests up to 54 samples simultaneously, adding up to ten reagents, while controlling sample temperatures and digestion times. Including advanced user-friendly software, preprogrammed EPA methods and a single X, Y & Z injection probe. The single probe automates reagent addition for up to 54 samples. After digestion, the unit adds deionized water to the digestates to achieve the final volume you choose.

AutoBlock Plus System Processes 54 Samples at once


## Contact Us

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