



# Whittier® Filtration & Separation Solutions

**WATER TECHNOLOGIES**

# Effective Filtration for Industrial Processes

Veolia Water Technologies combines innovative technology with industry experience to provide economical and effective filtration and separation technologies. Our wide range of technological solutions is supported by a dedicated staff with an unmatched reputation for the highest quality of customer service.

Our Whittier product line includes innovative technologies for:

- Degasification
- Oil-Water Separation
- Filtration
- Ion Exchange
- Liquid-Liquid Extraction

## Markets Served



**Oil and Gas  
Production**



**Mining**



**Food  
Processing**



**Juice and  
Beverage  
Processing**



**General  
Manufacturing**

## Degasification

### Co-Strip™

Co-Strip™ is ideal for degasification of water streams with high oil and suspended solids loadings. Unlike conventional packed towers, Co-Strip effectively removes dissolved gases such as BTEX, CO<sub>2</sub>, and H<sub>2</sub>S from water without the need for filtration upstream of the degasification operation, saving off-gas treatment costs.

In addition to our proprietary product, Veolia offers a variety of packed tower gas strippers, including forced-draft or vacuum degasifiers. Our industry experts will help you determine the most cost-effective product to meet your needs.



# Oil-Water Separation



## **AutoFlot®**

AutoFlot® is a horizontal induced gas flotation system designed to effectively remove free and emulsified oil and suspended solids from water. Available in both mechanical and hydraulic designs, each unit consists of a horizontal cylindrical vessel divided into four in-line flotation cells. Each chamber successively removes the oily froth, resulting in greater than 95% oil removal.

## **Corrugated Plate Separators (CPI)**

Corrugated Plate Separators (CPI) are used for oil/water separation in a large range of applications. The plate pack is customizable in regard to inclination, plate spacing and material. Typical removal rates for CPI technology range from 50 to >90% of oil and 80 to 90% of total suspended solids (TSS).



## **Streamliner™**

Streamliner™ deoiling hydrocyclones are designed with an axial flow stator to achieve high efficiency, easy maintenance and reduced cost. Ideal for free oil removal, the geometry of the flow through these hydrocyclones gives “best in class” performance.

## **Dissolved Air Flotation (DAF)**

Dissolved Air Flotation (DAF) technology uses microbubbles to lift suspended solids and oil to the top surface while allowing heavy solids to settle for removal. The froth that is formed is scraped into a holding tank. The addition of coagulation and flocculation chemicals may be required to enhance the performance. Removal efficiency is superior to gravity-based systems.

Veolia also provides conventional equipment such as skim tanks for oil removal applications. Our process engineers have the expertise to recommend the best solution to meet your needs.

# Filtration



## Pressure Leaf Filters

### Auto-Jet®

Auto-Jet® is the premium self-cleaning leaf filter designed for efficient filtration in the most severe applications. Due to a superior, patented sluicing design, Auto-Jet maintains its full-rated capacity even where heavy, sticky or unusually tenacious cake is encountered. Its uniform leaf construction enables leaf interchangeability and provides uniform precoating, filtration and cake build-up. Available in wet or dry cake models, our standard sizes range from 50 to 2000 ft<sup>2</sup> for a variety of applications including sanitary design.

### Filtra-Matic®

Filtra-Matic® is a versatile pressure leaf filter designed to provide operating efficiency and easy maintenance for high-volume applications or where a dry cake discharge is desired. This filter is offered in two basic models: Filtra-Matic® RT with its unique retracting tank and Filtra-Matic® RB featuring a retracting bundle design. An automatic wet sluice cleaning cycle scrubs the leaf surfaces and assists in cake removal. Dry cake can be achieved with gas or steam injection into the air inlet.

**Our Pressure Leaf filters are ideal for many food & beverage, chemical industry and mining applications.**



## Candle Filters

### Auto-Shok®

Auto-Shok® is a classical tubular filter, ideal where a high flow rate per unit of filter area is required. Tubes are mounted vertically, attaching to a tube sheet at the top of the tank. Cleaned through a backwash cycle, Auto-Shok is simple, requires fewer valves than other types of filters, and is easily automated to fit the process requirements.

### Auto-Pulse™

Auto-Pulse™ is designed to accomplish sub-micron filtration without the use of precoats or filter aids, making it possible for product to be recovered from waste streams and returned to the process stream without contamination. These tubular filters can be provided with a variety of membranes to cover the tubes, depending on your application. Back-pulse “bump and run” operation ensures efficient filtration, effective cake removal and consistent effluent quality.

**Candle filters are used in a variety of industrial applications.**



### **Power Clean®**

Power Clean® nutshell filters are unparalleled in removing free oil and suspended solids from water. Ideal for produced water or a variety of other industrial applications, Power Clean filters reclaim more oil than conventional techniques. In this automated system, the media is cleaned in only 12 minutes with only 5% media loss per year, making Power Clean an efficient, cost-effective process for managing oily water.



### **L'eau Claire**

L'eau Claire upflow deep bed media filters provide a ready clarification solution. Its installed cost is less than that of a conventional sedimentation basin and filter system, requiring 75% less space. Total automation and minimal levels of chemical feed hold operating costs to a minimum. L'eau Claire delivers water with a total suspended solids content that is virtually independent of influent concentrations. This cost-effective process does not use clarifiers, flocculation, sedimentation or mixers.

### **High-Rate Downflow (HRD) Filters**

High-Rate Downflow (HRD) sand filters offer high performance filtration even in difficult process applications. The flux rate is typically 5-20 gallons per minute per square foot. These filters utilize a proven distribution design to enable excellent hydraulic coverage during high-rate operation. The high velocity can drive the solids deeper into the media bed and achieve higher solids loading and extended run cycles. Typical media types are silica sand, garnet and anthracite. Air scour blowers and backwash pump systems are provided for proper cleaning of the media.



## Specialty Products



### **Ion Exchange HD Water Softeners**

Veolia's industrial Ion Exchange HD Water Softeners are engineered and fabricated specifically for demanding high total dissolved solids applications. The IX softeners utilize proven ion exchange technologies, merged with high-quality materials of construction selected to withstand corrosive fluids.

Veolia configures a system to fit your needs, whether it be one or more trains of Strong Acid Cation (SAC), Weak Acid Cation (WAC), a combination of both in series, or a multistep process of softening with other water treatment technologies. Our specialties include WAC softeners for produced water treatment, brine softeners, and automated regeneration stations to service your treatment trains.

**In addition, Veolia offers condensate polishing solutions and custom demineralizers for feed and process water purification.**



### **MPPE Macro Porous Polymer Extraction**

MPPE (Macro Porous Polymer Extraction) is a highly-effective, fully automated, remote-controlled and guaranteed technology for removing hydrocarbons from water by means of liquid-liquid extraction using macro porous polymer beads containing the liquid extractant. MPPE systems remove dissolved and dispersed hydrocarbons with efficiencies of 99.9999%, down to below ppb level, or as specified.

# Customer Service at its Best



Profitable operation depends on properly functioning leaves and parts on your filtration equipment. At Veolia, all parts and leaves are designed, engineered and manufactured to your equipment's specifications, ensuring top performance and long-term operation. Our service team is unparalleled in its responsiveness in meeting your needs for spare parts and service on any of your Whittier® filtration equipment.

## Filter Leaves

### Laser Filter Leaves-Round

Designed to be leak-proof with a positive and complete seal at the outer periphery of the leaf.

### T-Bar, T-Channel Leaves

Ideal for rugged operating conditions. Typical applications include the petroleum, chemical mining, beer and food industries.

### Cloth Cover Leaves

Available in a variety of porosities, materials and meshes to meet your needs.

### Non-Metallic Leaves

A low-cost alternative to exotic metals. These leaves are ideal for caustic chlorine, brine and corn syrup processes.

## Spare Parts

### Bearings

- Glass-Filled Teflon™
- Bronze
- Carbon Steel

### Spray Jets

- Stainless Steel
- PVC
- Kynar™

### Filtration Media

- Sand
- Anthracite
- Garnet
- Nutshell
- Support Gravel

### Gaskets

- Door Gaskets
- O-Rings
- Hub Gaskets
- V-Rings

### Leaf Guide Rollers

- Glass-Filled Teflon™
- Stainless Steel and Kynar™
- LBO Synthane

### Ion Exchange Media

- Cation & Anion
- Mixed Bed
- Chelating

Resourcing the world

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