FILTRATION APPLICATIONS IN CHEMICAL PROCESSING

Installing the correct filtration solution for your chemical application is vital in achieving a filtration process that delivers a high-quality end product efficiently and cost-effectively. Equally important is to install high-performance filter systems that remove contaminants that can cause corrosion and damage to sensitive equipment.

Chemical plants rely on filtration systems such as filter cartridges, cartridge filter housings, pressure leaf filter systems, and other types of automated filter systems such as the amafilter® Cricketfilter®, to accomplish separation - whether for removing emulsions or solid particulates from chemicals, feedstock purification, filtration for process fluid reuse or other purification.

Contaminated feedstocks can lead to off-specification final products that do not meet consumer or market requirements for clarity or cleanliness, which means the removal of solid particulates from feedstocks and ancillary fluid circulation is particularly important.

During chemical processing, solid contaminants can cause a chemical reaction that decreases the quality of the end product. Not only that, but it can also erode/corrode internal surfaces of the machine and process equipment and can cause unscheduled maintenance, operational downtime, and equipment failure.

Filter cartridges and cartridge filter housings maximize contaminant capture and protect sensitive equipment and machinery during the process. By preventing contaminants from causing damage to equipment further down the processing chain, you can reduce operating costs, extend the life of the equipment, and improve the quality of the end product.

Benefits of an optimized filtration system:

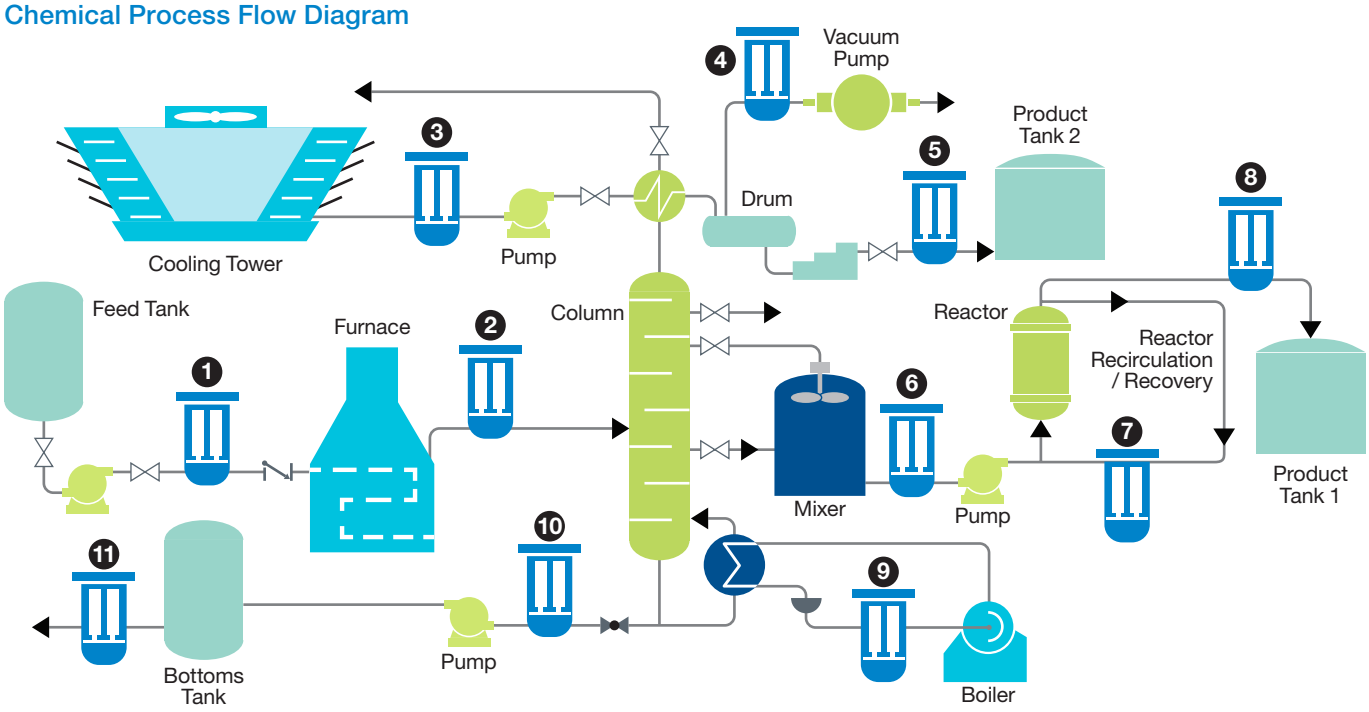
- Improved operation and process efficiencies.
- Lower maintenance costs.
- Reduced equipment fouling.
- Maximized contaminant capture.
- Reduced risk of equipment failure.
- Improved business profitability.
- Extended life of the equipment.

Common filtration problems in chemical processing include:

- Damage and corrosion to sensitive process equipment.
- Unplanned downtime.
- Expensive maintenance and repair.
- Dense cake discharge.

amafilter® Filtration Group®

Chemical Process Flow Diagram



This schematic should be viewed as a general example of where filtration systems could be located within a Chemical Process. These processes will vary between companies and facilities. As such, each application should be reviewed and considered individually in order to choose the correct system technology.

1 - FURNACE

FILTER SOLUTION	PURPOSE	BENEFITS
Cartridge Housings	Prevention of fouling building up	Prevents scale build-up, stopping the flow from being restricted and improving quality. This lowers maintenance interventions by up to 30%.
Cricketfilter®	Removal of solids	The particles are removed efficiently through collection on the cake. Due to the element shape, the Cricketfilter® has up to 40% more filtration area and can hold up to 40% more cake compared to a traditional round shaped element. It can be fully automated, requiring less manual operators, leading to low maintenance and reduced downtime.

2 - COLUMN

FILTER SOLUTION	PURPOSE	BENEFITS
Cartridge Housings	Prevention of fouling building up	Prevents scale build-up, stopping the flow from being restricted and improving quality. This lowers maintenance interventions by up to 30%.
Cricketfilter®	Removal of solids from the feed of the column	Particles are collected as cake in the filter and can be discharged as dry cake or as a slurry. This filter produces the least product waste, reducing residual liquid content down to 20% in specific applications.

3 - COOLING TOWER

FILTER SOLUTION	PURPOSE	BENEFITS
Cartridge Housings	Prevention of scale and organic fouling build-up	Prevents scale build-up, stopping the flow from being restricted and improving quality. This lowers maintenance interventions by up to 30%.

4 - VACUUM PUMP

FILTER SOLUTION	PURPOSE	BENEFITS
Cartridge Housings	Protects the pump by removing dirt and contaminants	Increases the life expectancy of the pump leading to reduced costs and improved sustainability.

5 - PRODUCT TANK 2

FILTER SOLUTION	PURPOSE	BENEFITS
Cartridge Housings	Prevents contamination from settling into the tank	Reduced maintenance intervals, lower operating costs and provides a safer working environment.

6 - MIXER

FILTER SOLUTION	PURPOSE	BENEFITS
Cartridge Housings	Removal of contamination and unwanted particle sizes	Higher product quality, removal of contamination and gel by-products.

7 - REACTOR CATALYST

FILTER SOLUTION	PURPOSE	BENEFITS
Cricketfilter®	Catalyst recovery	The catalyst is collected as cake in the filter and can be discharged as dry cake or as a slurry.

8 - PRODUCT TANK 1

FILTER SOLUTION	PURPOSE	BENEFITS
Cartridge Housings	Prevents contamination from settling into the tank	Reduced maintenance intervals, lower operating costs and provides a safer working environment.

9 - BOILER

FILTER SOLUTION	PURPOSE	BENEFITS
Cartridge Housings	Prevention of fouling building up	Prevents scale build-up, stopping the flow from being restricted and improving quality. This lowers maintenance interventions by up to 30%.

10 - PUMP PROTECTION

FILTER SOLUTION	PURPOSE	BENEFITS
Cartridge Housings	Prevents contamination from settling into the tank	Reduced maintenance intervals, lower operating costs and provides a safer working environment.

11 - BOTTOM TANK

FILTER SOLUTION	PURPOSE	BENEFITS
Cricketfilter® / Pressure Leaf filter systems	Removal of solids	Particles are collected as cake in the filter and can be discharged as dry cake or as a slurry, improving removal efficeincy. The Cricketfilter® is ideal as it produces the least product waste, reducing residual liquid content down to 20% for specific applications. This solution is ideal if you require highly pure solids as the product.

Filtration product replacement

FILTER SOLUTION	PURPOSE	BENEFITS
Cricketfilter® Cloths	Suitable for hazardous chemical applications	
Top cloths	Designed to perform with various liquids at varying temperatures.	Due to the high quality and durability of the cloths, on average these only require replacing every 12 months. This reduces maintenance interventions, improves downtime and makes the operation safer.
Drain cloths	Designed to perform with various liquids at varying temperatures and maximise flux capacity, suitable for hazardous and non-hazardous applications.	Maximise flux capacity and extend the lifetime of the top cloths. Due to the high quality and durability of the cloths, they generally require replacing yearly in chemical applications. The Cricketfilter® requires low spare parts replacements and maintenance interventions, improving downtime and making the operation safer.
Pressure Leaf Filter Elements	They are the heart of every pressure leaf filter system, providing high filtration efficieciencies, filtrate quality and optimal flux rates. Filter leaves can be replaced or re-screened.	The filter leaves can be completely replaced with new or re-screened filter leaves resulting in an immediate efficiency improvement in the filter system.