

SepraSol™ Liquid/Gas Coalescers



PISEPRASOLEN

Introduction

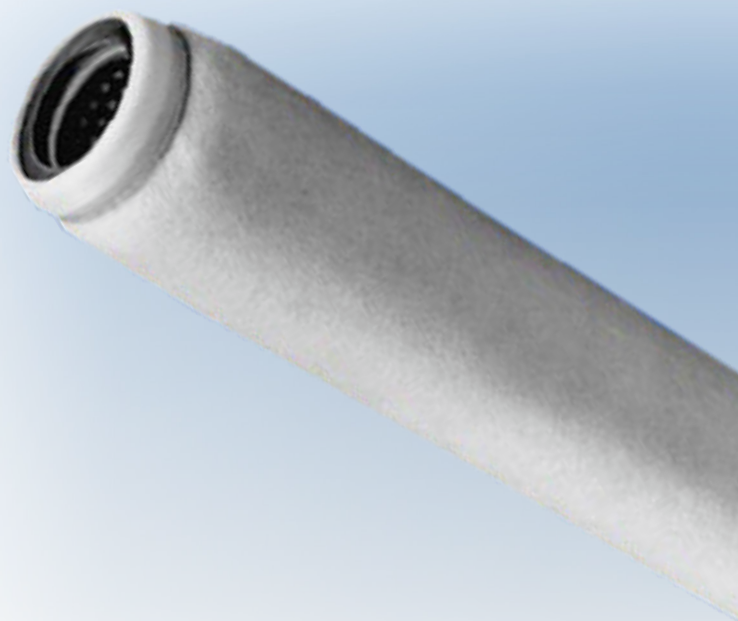
Clean, aerosol free gas is critical to equipment reliability and optimized operations in the refinery and chemical industries. Pall's SepraSol liquid/gas coalescers provide high-efficiency liquid and solid removal from contaminated gases reducing maintenance and operating costs. A patented chemical surface treatment enhances the coalescer drainage properties leading to improved performance allowing for smaller systems, lower pressure drop, and improved ability to recover from liquid slugs.

Pall's high-efficiency SepraSol coalescer is recommended for a wide range of gas filtration applications, including:

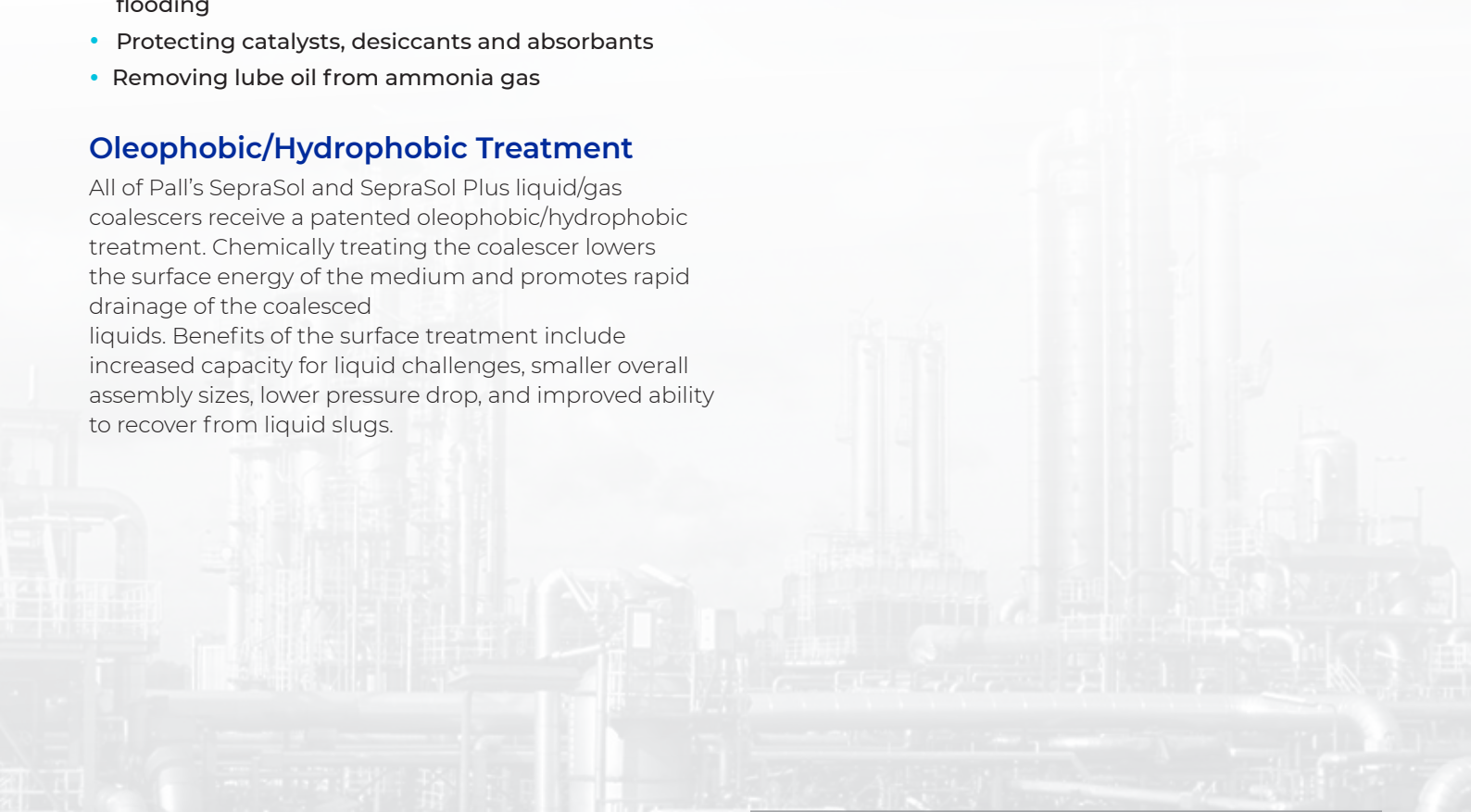
- Protecting compressors and turbines
- Protecting low and ultra-low NOx burners by cleaning fuel gas
- Removing lubrication oil, water, compressor wear products, corrosion products, and other solids from effluent gas streams
- Minimizing foaming tendencies in sweetening and dehydration units
- Minimizing amine and glycol losses downstream of gas sweetening and dehydration units
- Cleaning dirty fuel gas and instrument gas
- Controlling injection well plugging during gas flooding
- Protecting catalysts, desiccants and absorbants
- Removing lube oil from ammonia gas

Oleophobic/Hydrophobic Treatment

All of Pall's SepraSol and SepraSol Plus liquid/gas coalescers receive a patented oleophobic/hydrophobic treatment. Chemically treating the coalescer lowers the surface energy of the medium and promotes rapid drainage of the coalesced liquids. Benefits of the surface treatment include increased capacity for liquid challenges, smaller overall assembly sizes, lower pressure drop, and improved ability to recover from liquid slugs.



Pall SepraSol liquid/gas coalescers



Features, Advantages and Benefits of the Pall SepraSol Liquid/Gas Coalescers

Pall's SepraSol liquid/gas coalescers eliminate virtually all solids and liquids in a gas stream. Downstream liquid levels are as low as 0.003 ppmw¹ and the solids removal rating is 0.3 micron (µm) (99.99% efficiency).²

Features	Advantages	Benefits
Patented Oleophobic/Hydrophobic Media Treatment	<ul style="list-style-type: none"> • More rapid liquid drainage • Lower saturated pressure drop • Quicker recovery from liquid slugs • Minimized vessel diameter due to fewer restrictions on annular velocity 	<ul style="list-style-type: none"> • Reduced capital and operating cost • Improved product quality and consistency
Large Filtration Area	<ul style="list-style-type: none"> • Fewer element changeouts needed • High solids removal efficiency 	<ul style="list-style-type: none"> • Lower operating and maintenance costs
High-efficiency Media	<ul style="list-style-type: none"> • Consistent high-efficiency liquid equipment removal • Reduced liquid losses • Optimum protection of downstream equipment 	<ul style="list-style-type: none"> • Lower operating and maintenance cost • Increased equipment / process uptime

¹ Test conditions used to measure efficiency area as follows:

Flow rate: 900 SCF/minute per 30 in. element at 37.8°C (100°F) and 6.9 bar (100 psig)

Liquid inlet: 50 ppmw oil

² Per sodium chloride test

About Coalescer Efficiency Ratings

The measurement of the efficiency and the pressure drop of a coalescer should reflect operating conditions. Many manufacturers of coalescers measure efficiency using the dioctyl phthalate (DOP) test. The DOP test was not originally designed to measure the performance of a coalescer under operating conditions seen in the oil and gas industry. Rather, the DOP test is performed under the following conditions:

- Measures only capture efficiency and does not indicate how much liquid is at the filter outlet. It is the outlet concentration, which will indicate whether downstream equipment and processes are vulnerable to damage.

- Measures only the percent removal of DOP aerosols that are 0.3 µm compared to a range of sizes normally seen in oil and gas applications.
- Measures the removal of DOP, a liquid not typically found in oil and gas applications.
- Performed under a vacuum, not typical of operating conditions.
- Performed on a dry coalescing element; the effectiveness of a coalescer should be measured when a coalescer is completely saturated.

Pall has developed a test called the Liquid Aerosol Separation Efficiency (LASE) Test to specially measure the performance of a coalescer under operating conditions.

The table below compares the LASE and DOP tests.

Pall LASE Test vs. Conventional DOP

	Pall LASE Test	DOP Test	LASE Advantage
Efficiency Rating	Measures ppmw of total downstream aerosol concentration	Measures only the capture efficiency of 0.3 µm DOP aerosols	Specifies performance based on total liquid removal
Test Contaminant	Polydispersed 20 wt. compressor lube oil (size range 0.1-1.0 µm)	Monodispersed dioctyl phthalate (size range at 0.3 µm only)	Closely simulates actual process contamination
Downstream Contaminant Measurement	Full flow membrane sampling of all size contaminants	Indirect light scattering of 0.3 µm contaminants	Directly measures the amount of all liquid downstream
Pressure Conditions	Performed under positive pressure conditions	Performed under vacuum	More closely reflects actual process pressure conditions
Cartridge Condition	Performed on a saturated cartridge	Performed on dry cartridge	Reflects actual process cartridge service
Pressure Drop Measurement	Measures operating saturated cartridge pressure drop	Measures dry cartridge pressure drop	Provides a more realistic service pressure drop

Ordering Information

CC **1** LG **2** **3**

Table 1

Code	Description
1	254 mm (10 in) length, 70 mm (2.75 in) outer diameter
3	762 mm (30 in) length, 70 mm (2.75 in) outer diameter

Table 2

Code	Description
A7	Single open ended
B7	Single open ended, Amine/Ammonia compatible
O2	Double open ended

Table 3

Code	Description
H	Viton
H1	Viton encapsulated fluorocarbon
H13	Nitrile
J	Ethylene Propylene

Performance Specification

Solid Removal Rating*	99.7 % @ $\geq 0.3\mu\text{m}$
Liquid Removal Ratings	.01ppm downstream liquids (LASE)** 1 ppb downstream liquids (CAGI)*** 99.999 % efficient at 0.3 micron (DOP)****
Recommended change-out pressure	12 psid
Temperature Rating	82 °C (180 °F) 65 °C (150 °F) with water
Clean and Saturated Pressure Drop	Sized to your specification

* Per sodium chloride challenge test

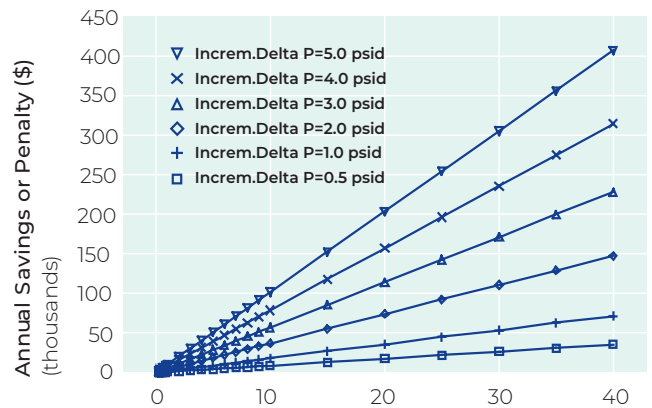
** Per the Pall Liquid Aerosol Separation Efficiency (LASE) Test

*** Per the modified ANSI/CAGI-400-1999 test procedure

**** Per the Di-Octyl Phthalate (DOP) test using a monodisperse 0.3 micron aerosol

Pall Corporation applies a patented oleophobic/hydrophobic chemical treatment on all of its SepraSol liquid/gas coalescers. This allows the coalescers to operate at a lower saturated pressure drop. As shown on Figure 1, a small difference in saturated pressure drop can result in significant savings in operating costs.

Figure 1: Effect of Pressure Drop on Compressor Operating Costs³



³ Conditions: Delta P on inlet pressure
Inlet Pressure = 20 psia
Outlet Pressure = 200 psia
Gas compressed is methane
Costs based on \$0.07/kwh

Please reach out to your local Sales Representative and / or Technical Solutions team to determine a vessels design that is appropriate for your application.



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IF APPLICABLE Please contact Pall Corporation to verify that the product conforms to your national legislation and/or regional regulatory requirements for water and food contact use.

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