SepraSol™
Liquid/Gas Coalescer

Provides Liquid and Solid Free Gas

The Answer to Gas Filtration Applications

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

Coalescer Technical Information

Oleophobic/Hydrophobic Treatment -
All of Pall’s SepraSol 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.
Features, Advantages and Benefits of the Pall SepraSol Liquid/Gas Coalescer

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

<table>
<thead>
<tr>
<th>Features</th>
<th>Advantages</th>
<th>Benefits</th>
</tr>
</thead>
</table>
| Patented Oleophobic/Hydrophobic Media Treatment | • More rapid liquid drainage  
• Lower saturated pressure drop  
• Faster recovery from liquid slugs  
• Minimized vessel diameter due to less restrictions on annular velocity  
| • Fewer element changeouts needed  
• High solids removal efficiency  
| • Reduced capital and operating cost  
• Improved product quality and consistency |
| High Effective Filtration Area | • Consistent high-efficiency liquid removal  
• Reduced liquid losses  
• Optimum protection of downstream equipment | • Lower operating and maintenance costs  
| High-efficiency Media and Draining Materials | | • Lower maintenance costs and improved availability |

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

Additional Features of the Pall SepraSol Liquid/Gas Coalescing Filter

Pall coalescing filter cartridges operate economically with high separation efficiency and long life.

Positive Seal: Single o-ring prevents contamination bypass. Seal materials compatible with petroleum-based and synthetic compressor oils and oil field chemicals and gases are available.

Metal Support Core: Axial strength and protection against slugs are provided by a perforated stainless steel inner support core.

Coalescer’s Pleated Medium: The coalescer is a high area, resin-bonded, pleated proprietary medium surrounded by non-woven polymeric support and drainage layers. This provides unsurpassed separation efficiency over a wide range of flow conditions with minimum pressure drop.

Outer Drainage Layer: Drainage of coalesced liquid and protection from re-entrainment is provided by a polymeric outer wrap. This provides consistent, high-efficiency performance independent of flow rate and aerosol concentration fluctuations.

Outer Cage: Supports media during use to ensure no element damage in high pressure applications.

Patented Oleophobic/Hydrophobic Treatment: A patented, proprietary oleophobic/hydrophobic treatment lowers the surface energy of the media, thereby providing superior drainage and preventing liquid re-entrainment even at high flow rates. The effect of this treatment also allows Pall to size smaller coalescer units.

Fluid Compatibility: Some of the fluids the coalescer is compatible with in oil and gas applications include:  
• Natural gas - amine  
• Hydrogen - ammonia  
• Carbon dioxide  
• Hydrogen sulfide  
• Lube oils  
• Triethylene glycol  
• Ethylene glycol  
• Water  
• Gasoline

Polypropylene End Caps: The entire filter is melt welded into polypropylene end caps using a Pall patented process. This prevents contaminant bypass and contributes to cartridge strength.
Technical Information

Nominal Cartridge Dimensions

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Outer Diameter (mm/in)</th>
<th>Length (mm/in)</th>
<th>Surface Area (m²/ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC3LGA7H13</td>
<td>70/2.75</td>
<td>762/30</td>
<td>0.88/9.5</td>
</tr>
<tr>
<td>CC3LGB7H13</td>
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</tr>
</tbody>
</table>

Performance Specification

Solid Removal Rating 0.3 µm (99.99%)
Temperature Rating 180˚F (82˚C)
Clean & Saturated Pressure Drop Sized to your specification

Figure 1: Effect of Pressure Drop on Compressor Operating Costs

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.

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. For further details on the LASE test, see Pall literature GAS-4300b, “Recent Developments in Performance Ratings of Gas/Liquid Coalescers.”

Pall LASE Test vs. Conventional DOP

<table>
<thead>
<tr>
<th>Efficiency Rating</th>
<th>Pall LASE Test</th>
<th>DOP Test</th>
<th>LASE Advantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Contaminant</td>
<td>Measures ppmw of total downstream aerosol concentration</td>
<td>Measures only the capture efficiency of 0.3 µm DOP aerosols</td>
<td>Specifies performance based on total liquid removal</td>
</tr>
<tr>
<td>Downstream Contaminant Measurement</td>
<td>Polydispersed 20 wt. compressor lube oil (size range 0.1-1.0 µm)</td>
<td>Monodispersed dioctyl phthalate (size range at 0.3 µm only)</td>
<td>Closely simulates actual process contamination</td>
</tr>
<tr>
<td>Pressure Conditions</td>
<td>Performed under positive pressure conditions</td>
<td>Performed under vacuum</td>
<td>More closely reflects actual process pressure conditions</td>
</tr>
<tr>
<td>Cartridge Condition</td>
<td>Performed on a saturated cartridge</td>
<td>Performed on dry cartridge</td>
<td>Reflects actual process cartridge service</td>
</tr>
<tr>
<td>Pressure Drop Measurement</td>
<td>Measures operating saturated cartridge pressure drop</td>
<td>Measures dry cartridge pressure drop</td>
<td>Provides a more realistic service pressure drop</td>
</tr>
</tbody>
</table>

3 CC3LGA can replace CC3LG7 in existing Pall coalescing housings.
4 Completely compatible with amines and ammonia.
5 Conditions: Delta P on inlet pressure
Inlet Pressure = 20 psia
Outlet Pressure = 200 psia
Gas compressed is methane
Costs based on $0.07/kwhr
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