

Purolite® OL100

Coalescing agent designed for the removal of oil from condensate.

Introduction

Purolite® OL100 is a premium grade, oleophilic resin which acts as a coalescing agent designed for the removal of oil from condensate. This specially treated ion exchange resin is a copolymer of styrene and divinylbenzene which has a high capacity for oil removal and excellent kinetics. Purolite OL100 has very good mechanical strength with bead breaking weight values averaging over 300g per bead. It has superior physical and chemical stability. Purolite resins have a closely controlled particle size range which ensures that fines which could easily block strainers are absent from the product.

Chemical Stability

Purolite OL100 is insoluble in acids, alkalies, and all common solvents. However, exposure to free chlorine and other strong oxidizing agents over a long period of time will attack the polymer matrix, causing the resin moisture retention to increase.

Typical Physical & Chemical Characteristics	
Ionic Form, as shipped	Na ⁺
Polymer Matrix Structure	Gel polystyrene crosslinked with divinylbenzene
Functional Groups	Sulfonic Acid
Physical Form and Appearance	Spherical Beads
Total Capacity (Na ⁺ Form)	2.0 eq/l min
Moisture Retention (Na ⁺ Form)	44 – 48%
Shipping Weight (approx.)	850 kg/m ³ (53 lb/ft ³)
Specific Gravity (H ⁺ form)	1.24
Uniformity Coefficient	1.7
Mean Diameter	0.6 – 0.85 mm
Reversible Swelling Na ⁺ - → H ⁺	5%
Temp Limit	120 °C (248 °F)
pH Limits (Stability)	0 – 14

Process Description

The coalescing agent has two distinct zones of operation:

The Zone of Coalescence

Micro-droplets of oil are captured by the oleophilic resin Purolite OL100 forming a film of hydrocarbon around the material. Continuous film drainage occurs in the resin bed and large droplets of oil are sheared off at the exit face by the upward velocity of the water. The broken film reforms itself perpetually making the process self-regenerating.

The Zone of Decantation

The large oil droplets rise to the top of the unit through a “chimney” which is installed to direct the flow of droplets away from the treated water outlet. Separation is further assisted by reduction in water velocity which occurs as the water leaves the top of the chimney and begins its downward passage. The oil droplets combine at the top of the unit to form a separated layer of hydrocarbon which is discharged continuously via an automatic liquid level controller.

The treated condensate is taken off continuously at a low level through a side outlet.

Operating Conditions	
Maximum Temperature	120°C (248°F)
pH	0 – 12
Flow Rate	8 – 12 m/h
Influent suspended solids	< 5 mg/l

Oil Coalescer Vessel Design

