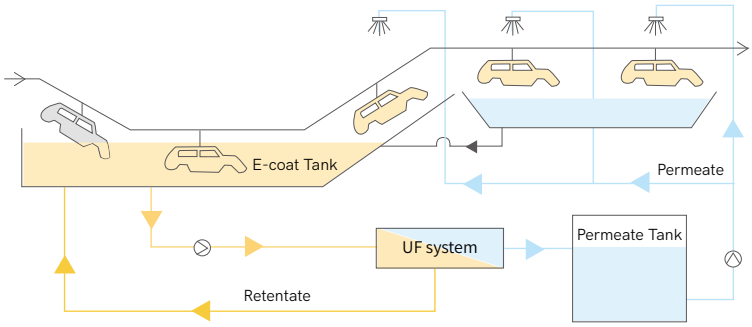
E-coat

UF Spiral Wound Membranes

Electro-coating is a new surface treatment technology, which has uniform film thickness, strong adhesion and good coating quality. Various parts of the workpiece, such as the inner layer, depression and weld seam, can obtain a uniform and smooth paint film, it suitable for fixed colors production. Due to its unique advantages such as high production efficiency, high-quality corrosion-resistant coatings, safety and economy, it has been widely favored in the coating industry.

The UF system is a key part of the electro-coating line, which obtains ultrafiltrate from the electrophoretic paint tank, provides washing water for the electrophoretic parts and rinse off the excess paint attached to the workpiece and return it to paint tank. In this way, the recycled ultrafiltrate is instead of deionized water as washing water, avoiding the high cost of water and wastewater treatment. Simultaneously recycling and utilizing the paint taken away from the surface of the workpiece in a closed-loop circulation, saving 30% cost of paint. Eliminate paint discharge, reducing environmental pollution.



UF system in Automotive Electro-coating Prosess

The Role of UF Systems in Electro-coating Processes

- Maintain system stability, improve coating quality
  The UF system can effectively regulate and control the impurity content generated during the coating process, keeping the conductivity and pH value of the tank working solution within the specified process range, ensuring continuous and stable production.
- Recycling coating materials, increasing the repeat using rate
  Using the UF permeate to wash the electrophoretic coating adhered to the coated object, forming a closed-loop system with multiple stages of washing, increasing the recovery rate of the coating to over 90%~95%, and reducing the coating cost.
- Reduce incoming water and wastewater
  It greatly reduces the amount of deionized water and the generation of coating wastewater, saves the cost of production water and wastewater treatment, and also protects the environment.

Why Choose UNISOL

UNISOL has developed a full range of spiral wound membranes for different application fields, including MF, UF, NF, and RO. Using high-quality materials, adopting a multi-membrane and short-process structural design, combined with highly automated production lines, to form a series of high-stability membrane products.

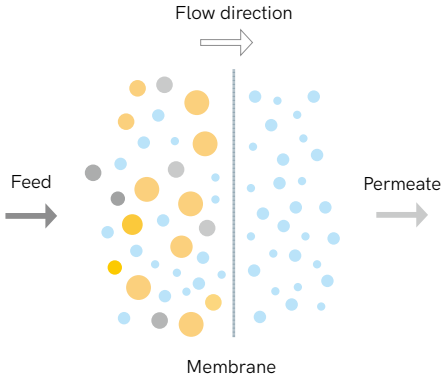
The E-coat series is a polyvinylidene flouride membrane that is suited for process separations, especially for electro-coating application. It shows excellent performance for different kinds of paints application environment.

E-coat UF Element

Membrane Chemistry	PVDF
MWCO	80 KDa
Outer wrap	FRP or Net wrap
Max. Operating Pressure	10 bar (145 psi)
Max. Pressure Drop	1 bar (14.5 psi)
Max. Operating Temperature	50℃ (122 °F)
Max. Cleaning Temperature	55℃ (131 °F)
Cleaning pH Range	2-11

Integrated PVC Housing

Membrane Chemistry	PVDF
MWCO	80 KDa
Material for pressure vessel	PVC
O-ring	EPDM
Max. Feed pressure	5.5 bar (at 50℃)
Min. Outlet pressure	0.7 bar
Max. Operating temperature	50℃ (122 °F)
Max. Permeate pressure	0.25 bar
Max. pressure loss	2.4 bar
Long term pH Range	2.0-10.0
Short term pH Range	1.5-10.5



When the electrophoretic paint passes through the membrane, the polymer resin and color paste are intercepted, and water and small molecule substances are allowed to pass, thereby achieving the purpose of purifying the electrophoretic paint and dewatering.

Advantages

- High quality membrane material with high chemical stability
- Multiple size specifications available
- Supports multiple types of outer wrap style: fiberglass, net wrap, integrated PVC housing
- Customizable

Applications

Electro-coating is most widely used in the automotive industry, and then the decoration & hardware accessories industry. The coating of automotive bodies & components, marine components, transformers, agricultural equipment, electrical appliances, metal office furniture, and other products can all be achieved through electro-coating.

Under the increasingly strict environmental protection policy requirements, the electro-coating process has attracted attention due to its absolute advantages and the E-coat UF membrane is the core of it.

Nowadays, membrane separation technology has become an indispensable part of the electro-coating systems. It helps to improve the utilization rate of coatings, while further improving the quality of coatings, saving production costs and reducing environmental pollution. It has a wide range of significant economic and social benefits.

UNISOL Membrane Technology

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