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# PETRECO METERCELL distillate treater

Fast, efficient, cost-effective electrostatic precipitation to remove contaminants

## How it is used

- Refining and processing of a wide variety of hydrocarbons
- Dehydration, strong or weak caustic treating, acid treating, and water washing of hydrocarbon distillate streams

## How it improves processing

- Maximizes reaction or washing with consistent emulsification
- Reduces chemical costs
- Minimizes lost product and contamination of settled material
- Ensures plug flow and 100% treatment of all hydrocarbons
- Limits energy consumption (<1 kW/h) and operating costs
- Separates with efficiency up to 99.9%

## How it works

The PETRECO METERCELL* distillate treater produces intimate contact between the reagent or washwater and the distillate to be treated. Inside the precipitator, the reagent-in-distillate mixture flows into the pretreater electrode zone, where dipolar coalescence (the attraction of one droplet to another) removes the bulk of the reagent and reagent-soluble impurities. Small droplets coalesce into larger droplets and separate from the distillate.

In the next zone, the fluid passes through the electrode assembly, where a DC electrical field sets the fluid droplets into rapid motion. As this occurs, the small reagent droplets that were not removed in the first zone collide and combine into larger droplets, which then separate from the distillate. The treating reagent, carrying with it the impurities, is removed by gravity.

The resulting product is clear and bright, enhancing marketability. Aqueous-phase carryover is usually 10 ppm or less.

## What else I should know

METERCELL treaters are designed for a wide range of distillate streams and processes from butane and propane to LNG, alkylates, gasoline, naphtha, kerosene, jet fuel, and diesel and furnace oil. Whether they are processing straight-run to thermal- or cat-cracked products, slightly or highly contaminated, these precipitators ensure optimal product quality, day after day, run after run.

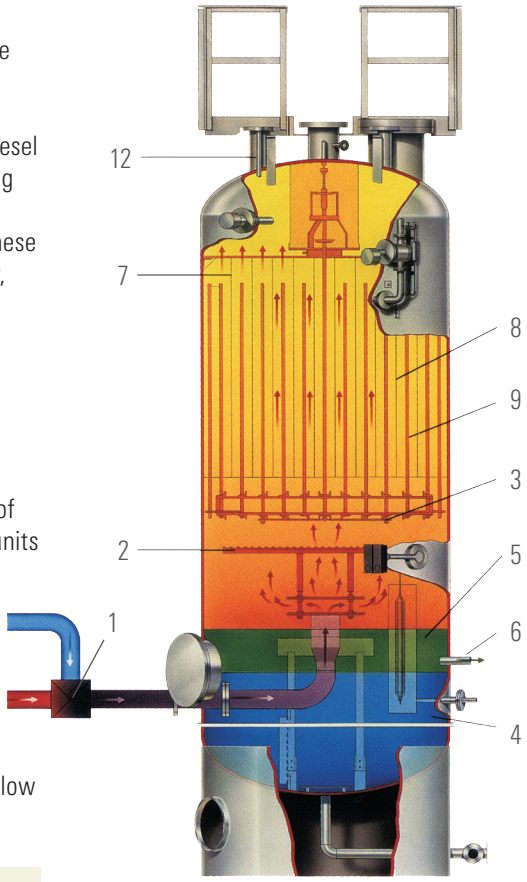
Because it combines emulsification with advanced electrostatic precipitation technology, its performance is exceptional and it requires little or no maintenance.

Individual units can be used for flow rates of 1,000 bbl/d to 100,000 bbl/d, or multiuple units can be combined to achieve unlimited flow rates. Units can be configured for vertical or horizontal use.

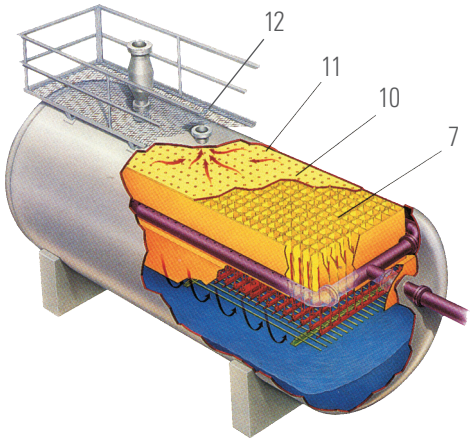
The METERCELL treater is the product of nearly 100 years of evolution and research and is the industry's choice for high-efficiency treating and purification at low operating costs.

### Key to Diagrams

1. Emulsifying valve
2. Grounded pretreat electrodes
3. Energized pretreat electrodes
4. Aqueous solution holding volume
5. Interface
6. Interface outlet, if applicable
7. Cell electrode assembly
8. Grounded electrode
9. Energized electrode
10. Meterplate
11. Meter orifice
12. Distillate outlet




*Vertically configured METERCELL treater.*




*Horizontally configured METERCELL treater.*

# PETRECO METERCELL

| Specifications | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Distillate** | **Treatment** | **Results** | | | | | | | | | | | | | | | |
| | | $H_2S$ removal | <1-ppm Na | <10-ppm insoluble aqueous phase | Sulfur reduction | Naphthenic acid reduction | Chloride removal | RSH and phenol reduction | Cresol and thiophenol reduction | Stability improvement | RSH removal | Catalyst poison removal | Water removal | Ester and neutral ester removal | Acidity neutralization | Neutral ester removal |
| Straight run naptha | Caustic wash | ● | ● | ● | | | | | | | ● | | | | | |
| Straight run naptha | Sulfuric acid or caustic | | ● | ● | ● | | | | | | | | | | | |
| Kerosene | Caustic wash | | ● | ● | | ● | | | | | | | | | | |
| Diesel | Caustic wash | | ● | ● | | ● | | | | | | | | | | |
| Atmospheric gas oil | Caustic wash | | ● | ● | | ● | | | | | | | | | | |
| Stabilizer feed | Alkaline water wash | | ● | ● | | | ● | | | | | | | | | |
| Coker naptha | Caustic wash | | ● | ● | | | | ● | ● | ● | | | | | | |
| Coker gas oil | Caustic wash | | ● | ● | | | | ● | ● | ● | | | | | | |
| LPG | Caustic wash | ● | ● | ● | | | | | | | ● | | | | | |
| Light olefins | Caustic wash | ● | ● | ● | | | | | | | ● | | | | | |
| Fluid catalytic cracking (FCC) gasoline | Caustic wash | | ● | ● | | | | ● | ● | ● | | | | | | |
| FCC light catalytic gas oil (LCGO) | Caustic wash | | ● | ● | | | | ● | ● | ● | | | | | | |
| MTBE feed | Water wash | | | ● | | | | | | | | ● | | | | |
| Alkylation olefin feed | Dehydration | | | ● | | | | | | | | | ● | | | |
| Alkylation reactor effluent | Fresh sulfuric acid | | | ● | | | | | | | | | | ● | | |
| Alkylation reactor effluent | Alkaline water or caustic | | ● | ● | | | | | | | | | | | ● | ● |
| Alkylation depropanizer | Caustic | ● | ● | ● | | | | | | | ● | | | | | |
| Alkylation recycle isobutane | Dehydration | | | ● | | | | | | | | | | | | |

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