

# POPE DISTILLATION AND EVAPORATION SYSTEMS

**For Laboratories, Pilot Plants and Production Processing**

## Wiped-Film Molecular Stills and Evaporators

- ▲ Designed for separations of heat-sensitive, high molecular weight or viscous materials.
- ▲ Throughput range of 0.1 to 1000 kg/hr.

## Fractional Column Distillation Systems and Components

- ▲ Designed for purification, fractionation and solvent recovery.
- ▲ Throughput of range of 0.1 to 500 kg/hr.

## Toll Processing Services

- ▲ Minimizing client's process development costs, risk and time-to-market.
- ▲ Specialties in distillation and evaporation of heat-sensitive materials.
- ▲ 1 kg through truckload quantities – with quick turnaround.
- ▲ Fully equipped new facility.



## APPLICATIONS

- ▲ Speciality Chemical Purification
- ▲ Pharmaceutical/Biomaterial Concentration
- ▲ Polymer Devolatilization
- ▲ Molecular Distillations of Esters, Fatty Acids, Mono, Di, Triglycerides
- ▲ Residue Removal/Decolorization
- ▲ Vitamin/Nutraceutical Isolation
- ▲ Wax Fractionation
- ▲ Oil Deodorization
- ▲ PCB, Insecticide Removal
- ▲ Water Removal - PPM Level
- ▲ Solvent Recovery, Many Others

Shown above: Multi-Stage Wiped-Film Processing Plant for flavors production with 12" Molecular Still, 12" Evaporator and 12" Fractional Column. Explosion proof

Stainless steel, high-purity, Fractional Distillation Batch System with 3" diameter column, 37-gallon boiling vessel



Multi-purpose, 20", high-vacuum, Molecular Distillation Production System



Turnkey, 12", stainless steel Wiped-Film Molecular Still Processing Plant with degassing stage, for edible oil deodorization



2", standard glass laboratory Molecular Still Unit for general R&D

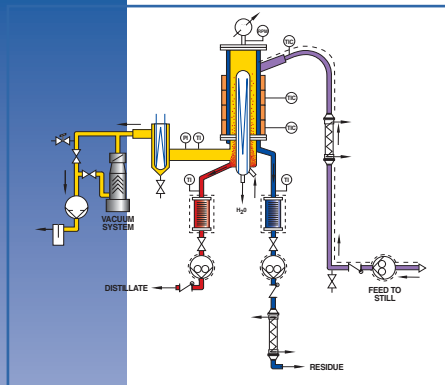


Turnkey, 12", stainless steel Wiped-Film Evaporator for polymer devolatilization



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## WIPED-FILM EVAPORATORS, MOLECULAR STILLS AND HYBRID FRACTIONATORS

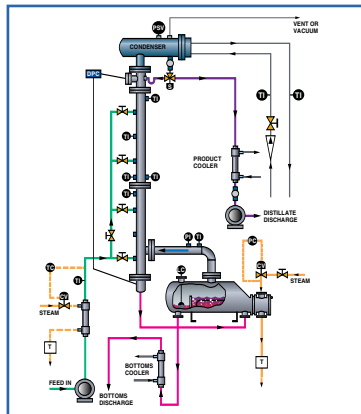


Process and instrumentation diagram of typical Wiped-Film Still System



Turnkey, 6', two-stage Molecular Still Pilot Plant for long chain ester purification

Typical Continuous Mode Fractional Distillation System schematic



- ▲ A complete range of equipment for separations of thermally sensitive materials.
- ▲ Evaporator/Concentrator, Molecular Short-Path, and Fractional Column versions available for application-optimized processing.
- ▲ Consistent method scale-up from lab bench-top units, to pilot plants, to turnkey production processing systems. All available from Pope.
- ▲ Standard lab and pilot units in 2", 4" and 6" diameters for 0.1 to 50kg/hr throughput feature reconfigurable modular design. Interchangeable components available in glass, stainless steel, Hastelloy, other materials.
- ▲ Production processing equipment in 12", 20" and larger diameters for 25 to >1000 kg/hr throughput, available in stainless steel, Hastelloy, other materials.
- ▲ All still sizes are available as basic stand-alone units, partial systems, or as complete, custom-engineered multistage turnkey plants.
- ▲ High vacuum, short residence time for highest quality.
- ▲ Experienced staff on hand to assist with applications testing and process development, through equipment design, fabrication and system startup.



4" glass Pilot Plant Still for Pharmaceutical product development



2" glass combination Molecular Still/Evaporator for polymers R&D

## FRACTIONAL COLUMN DISTILLATION SYSTEMS AND COMPONENTS

- ▲ For purification, fractionation and solvent recovery.
- ▲ Sized for small to mid-sized processing, pilot plants and laboratory work. 1" to 12" diameters, 0.1 to 500kg/hr throughput.
- ▲ Batch or continuous configurations.
- ▲ Wide range of packings and internals, system designs and materials, including stainless steel, Hastelloy, glass, etc.
- ▲ Offered as: individual components, basic system or complete turnkey engineered systems.

3" stainless steel Fractional Column Still for general R&D. Batch configuration with optional continuous reboiler (not shown)



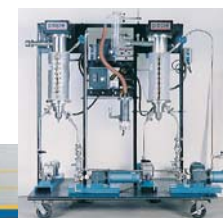
4-gallon, 2" diameter, high vacuum and high temperature Fractional Still for fine chemicals manufacturing

## TOLL PROCESSING SERVICES

- ▲ Custom evaporation, molecular distillation and fractionation operations.
- ▲ Specializing in heat-sensitive and difficult separations, including pharmaceuticals and foods.
- ▲ Lot sizes from 1 liter to truck loads.
- ▲ Fast turn-around time,
- ▲ Fully equipped new facility, experienced staff.



20', 25 sq.ft. Molecular Distillation Toll Processing Station



2-stage, 6', 2.3 sq. ft. Wiped Film Still Tolling System configurable for molecular distillation, evaporation and column fractionation



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