



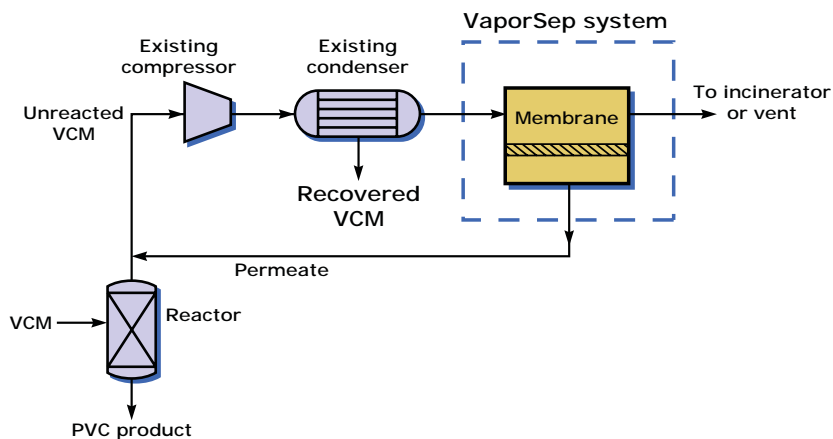
POLYVINYL CHLORIDE (PVC) PRODUCTION

- Recovers valuable VCM with payback of 1 year or less
- Minimizes installation cost with skid-mounted construction
- Contains no moving parts, simple to operate and maintain
- Reduces or eliminates incineration and scrubbing costs

Problem

Polyvinyl chloride (PVC) is produced by polymerization of vinyl chloride monomer (VCM). Unreacted VCM is pumped out of the reactor and condensed, and noncondensable gases are vented from the condenser. Depending on the temperature and pressure of the condenser, the vent stream also contains from 50 to 2,000 lb/h of VCM. As VCM emissions are tightly regulated, the vent stream must typically be scrubbed before release or incinerated.

VaporSep® Solution



“The MTR system on the vinyl chloride process does an excellent job.”

– Process engineer,
Goodyear Tire & Rubber

POLYVINYL CHLORIDE (PVC) PRODUCTION

VaporSep systems allow PVC producers to recover 90% to 99+% of the VCM currently lost in vent streams, providing a significant economic benefit. The vent stream from the existing VCM condenser is sent to the VaporSep system. VCM passes through the membrane at a greater rate than inert gases, producing a VCM-enriched permeate and a VCM-depleted residue. The permeate is recycled to the inlet of the existing compressor and the residue is incinerated. The VCM recovered by the VaporSep system is condensed in the existing condenser. The VaporSep system is simple to install and operate because it contains no moving parts.

VaporSep systems are currently used by major PVC producers including Oxyvinyls, Westlake, Solvay, and Aiscondel.

Benefits

- **Recovers valuable vinyl chloride monomer with typical payback time of less than 1 year**
- **Minimizes installation cost with skid-mounted construction**
- **Reduces or eliminates incineration and scrubbing costs**
- **Achieves significantly higher VCM recovery than possible by condensation alone**
- **Achieves recovery at more moderate temperatures and pressures than condensation alone**
- **Minimizes footprint and weight**
- **Minimizes maintenance with no moving parts**

System Description

- **Complete, skid-mounted unit includes all necessary instrumentation and controls**
- **Typical material of construction is 304 stainless steel**
- **Unit dimensions: 6 to 15 ft (L) x 6 ft (W) x 6 ft (H); 1,000 to 5,000 lb**

System Performance

- **Suitable for vent streams from 50 lb/h to greater than 2,000 lb/h, with VCM concentrations from 20 to 80 vol%**
- **VCM recovery up to 99+%**

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