

All material is continuously and completely mixed, eliminating radial gradients in temperature, velocity and material composition.

The Thermogenizer delivers a homogenized melt stream to your processing die. Distributive mixing is complete once through the mixing elements. A Thermogenizer installation assures near perfect color and additive distribution and uniform temperatures over a broad range of thermoplastics, including nylons, polyethylenes, styrenes, acrylics, cellulose and vinyl resins. The Thermogenizer virtually eliminates melt stream temperature gradients created by either the extruder or other process equipment. A thermally homogenized melt stream provides uniform viscosity and precise gauge control, resulting in increased output (up to 20% for some customers), increased yields and proven reductions in pigment and additive requirements.

Benefits

- Furnished with flanges suitable for coupling with transition sections
- Five basic diameters are available for immediate delivery: 1", 1.5", 2", 3", and 4"
- All units are equipped with special non-moving Kenics mixer element assemblies which are easily removed for cleaning
- Uniform cross section to the melt stream throughout the unit's entire length
- Mixing element surfaces are highly polished to eliminate material hang up and avoid thermal degradation
- Can be supplied with electrical band heaters of the correct watt density and with thermocouple ports for wall temperature control
- Production increases of 10% to 20%
- Elimination of temperature gradient
- Consistent physical properties
- Quicker color change over

Materials

- Styrene, PVC, Polypropylene
- Polyethylene
- Nylon, acrylic
- Polycarbonates
- ABS
- Vinyl resins

Applications

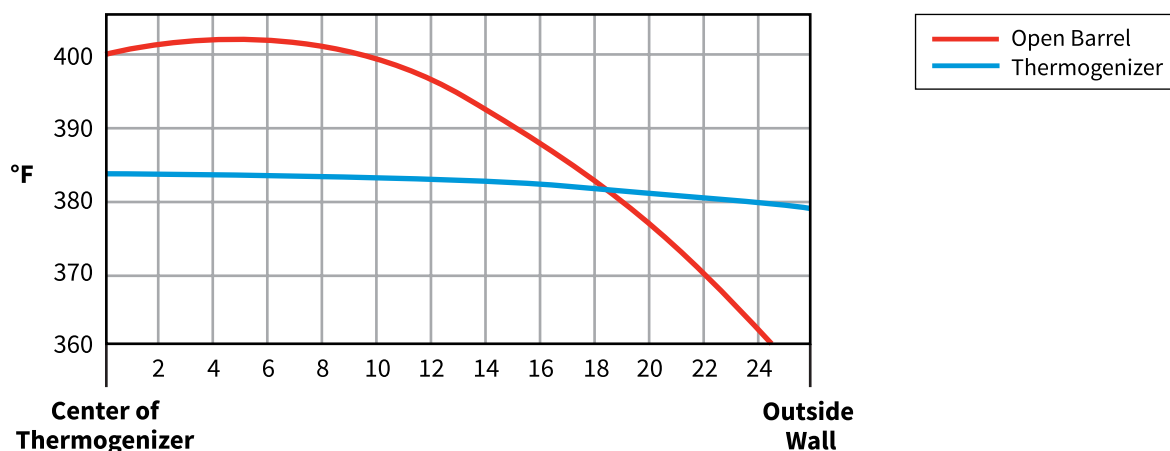
- Sheet
- Profiles
- Blown Film
- Pipe
- Wire Coating
- Extrusion Blow Molding
- Compounding

Principles of Operation

The Thermogenizer is a non-moving part, post-extrusion mixing device which is designed to provide distributive mixing of additives (color, flame retardants, etc.) in the melt stream and to eliminate radial temperature gradients. Mixing is accomplished by a series of stationary helical blades (elements) which induce flow divisions in

the melt stream. This flow splitting is combined with axial rotation of the stream which assures continuous transfer of material from the wall to the center of the stream and vice versa (radial mixing). Two basic models are available: 6 element and 9 element.

Thermogenizer Temperature Profile



Operating Characteristics

The Thermogenizer allows you to accurately control die inlet melt temperature by providing a flat temperature profile (see chart). Thus, the temperature measured at virtually any point on the melt stream cross section is representative of the bulk average temperature. Because temperature and melt viscosity variations are eliminated, the process can be operated at higher output with improved dimensional control of the extruded product.

The energy requirement of the Thermogenizer is simply the minimal pressure drop across the unit. This is offset by the increased output possible due to the improved flow characteristics of the melt stream.

Improved color mixing permits the operator to reduce color concentrate “let-down” without sacrificing product opacity, surface finish, etc. Color changes are faster because the previous color left in the screw is more quickly distributed in the new color due to the additional downstream mixing of the Thermogenizer.

Other benefits such as uniform product density, freedom from color streaks, reduction or elimination of melt lines in the machine direction, etc., vary in significance from process to process. However, the principle benefits of increased productivity, higher yield from raw material and improved physical characteristics of the product amply justify the investment in a Thermogenizer.