

Rex Materials' TCS

Rapid Cool Down – Emergency Cooling

- TCS systems can incorporate a rapid cool down system, consisting of a high-velocity blower which can be activated manually or by a temperature-controlled relay.
- Blower pulls heat directly off the surface of the barrel and can discharge the hot air where desired.
- Rapid cool down may be added:
 - To support quick material changes when shifting from a very high temperature material, to a low temperature material
 - To eliminate material degradation after shut-down if/when high temperature soaking is detrimental to the material
 - As a safety feature when processing materials such as PVC, where over-temperature conditions may create toxicity and an unsafe working environment
- Thermal models which predict the rate of heat removal are easily generated for any size of barrel diameters and lengths.
 - Plot below show cool down rate for (3) barrel sizes, with a single blower. The middle plot shows a 5 degree/minute temperature drop, at 400F
 - Note: The introduction of additional heat energy, from shear friction, is not accounted for in this analysis.

