ThermoFisher SCIENTIFIC

Large capacity centrifuges

Q A

How can blood banks eliminate potential variables to enable consistent product yield and reproducibility?

Run-to-run repeatability and product consistency are important objectives of every blood component facility. In fact, the first centrifugation step for platelet production is critical to the final result. For example, if the run is too long, platelets separate into red blood cells and buffy coat. Conversely, if the run is too short, red and white cells are not separated completely from platelet-rich plasma. The Thermo Scientific™ Accumulated Centrifugal Effect (ACE™) Integrator Function on Thermo Scientific Large Capacity Centrifuges eliminates potential variables to enable consistent run performance.

Designed for precise, reproducible separations, run after run

Traditional centrifuge run settings – speed and time – do not take into consideration instrument and environmental factors, such as centrifuge load, instrument age or altitude, and as a result, reproducibility can be compromised. The ACE integrator function automatically compensates for variations by ensuring that separating g-forces are calculated and adjusted during run time for protocol consistency – across runs, labs and even sites.

ACE integrator function is available with the Thermo Scientific™ Cryofuge™ 8 and 16 Centrifuges with GreenCool Technology

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Why

Run-to-run repeatability and product consistency are critical for every blood component facility

How ACE integrator function works

How centrifugation runs involve speed and time, along with variables influencing instrument performance, such as full or partial rotor load, voltage fluctuations, loss of instrument calibration and environmental factors including altitude and extreme ambient temperatures. The ACE integrator function calculates the g-force experienced during the run in increments of speed over time to give a value representing the overall separating g-force. This value can be substituted for the "TIME" setting, therefore duplicating the overall separating g-force for every run.

Best practices for product consistency

Obtaining a consistent product requires understanding and controlling process variables. By eliminating variables inherent in centrifugation, such as rotor load, the ACE integrator function allows best practices to be established and maintained from operator-to-operator, run-to-run, instrument-to-instrument and site-to-site. The ACE integrator function is a useful and powerful feature of Thermo Scientific large capacity centrifuges to enable process control and ultimately sample protection.

Summary

The ACE integrator function on Thermo Scientific large capacity centrifuges eliminates potential variables to enable consistent product yield and reproducibility.

Results without the ACE integrator function

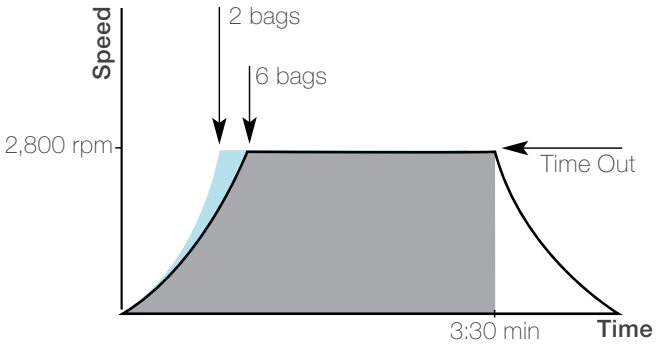

Figure 1: In a typical first centrifugation step, a two-bag rotor load attains set speed faster than a six-bag load. Since both loads will time out at the set time of 3:30 minutes, different g-forces are achieved during the run. By using the ACE integrator function, the time for 2 bags would be changed to 3:00 minutes to obtain the same overall g-force for both loads.

Results with the ACE integrator function

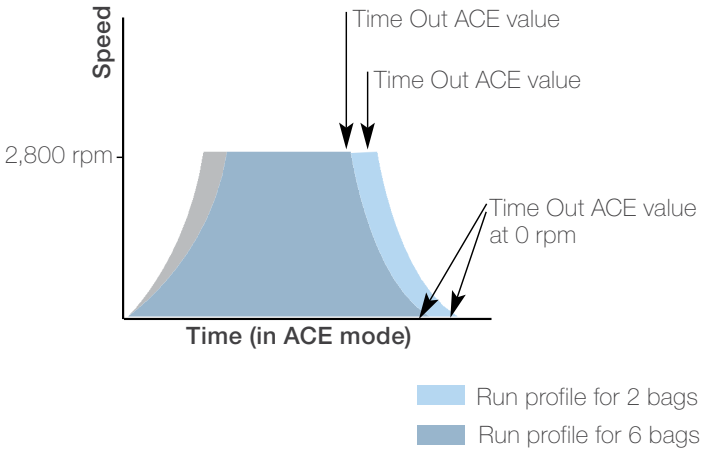

Figure 2: With an ACE value and speed set at the start of a run, times were adjusted to achieve the same overall g-force regardless of the rotor load.

Find out more at **thermofisher.com/bloodbankcentrifuge**

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