

SmartNotes

QA

How does the load distribution on an orbital shaker platform affect optimal growth and reproducibility for cells and samples?

Proper loading of the orbital shaker platform will provide smooth and consistent shaking for proper aeration and help extend the lifespan of your shaker.

When a platform is loaded such that the weight is equally distributed, this will help to minimize vibration and promote a swirling – rather than a sloshing – motion. Sloshing and vibration increase foaming and shear forces on the samples being mixed and increase wear on the shaker drive mechanism and other parts.

Improper loading also increases the chance of the shaker “walking” which can lead to damage and breakage of the sample vessels and the shaker itself, and danger to lab personnel.



Thermo Scientific Solaris 2000 and 4000 Series Orbital Shakers

What should I consider when loading my platform?

Weight distribution

Proper and equal distribution of vessels and loads is the most important consideration when loading your shaker platform. Think of it as you do a centrifuge; if you have unevenly distributed weight, damage and breakage can result. Like a centrifuge, use blank vessels as needed to provide counterbalance weight (see Figure 1). If a shaker is unevenly loaded, it may not provide the proper swirl which promotes best mixing and reduces shear on cells.

Watch for potential overloading shaker platforms

Different shakers feature varied weight limits. Check and follow the maximum weight limit for your shaker and speed. Include in your calculations the weight of the platform, the vessels, sample or cultures, and vessel clamps. If you anticipate heavier loads, it is worth choosing a shaker that will handle the work.

Use correct accessories

Using accessories that are not up to the job puts your work, your shaker, and your labmates at risk. Do the right thing and use only accessories that are designed for your specific shaker. Use the proper clamps for each flask size, rather than stuffing over-sized clamps with packing materials to accommodate the wrong flask size. A shaker with clamps that are easily and quickly changed helps promote safety and best mixing. When using sticky mats or dual platforms, be sure to check the weight, cleaning recommendations, and size limits for use.



Figure 1: Different vessel types can be used on a shaker as long as they are balanced such that the weight is evenly distributed. If necessary, use a blank vessel as a counterbalance.

Summary

Ensuring your orbital shaker is loaded properly will help promote proper mixing and optimal cell growth, while helping reduce shaker wear and hazards.

Find your ideal orbital shaker at thermofisher.com/shakers