microtube homogenizer for low to medium throughputs

Microtube Homogenizer is a small sample processing equipment designed for life science and medical research, which is capable of efficiently breaking cells, grinding tissues and mixing and homogenizing samples in one to three 2 ml screw-cap test tubes at the same time.

Microtube Homogenizer

The Microtube Homogenizer provides rapid physical cleavage of samples by high-frequency vibration-driven microbeads. Most samples are processed in about 45 seconds, saving lab time and making it suitable for low- to medium-throughput laboratories.

Features

1. Parallel processing of triplicate samples: supports simultaneous processing of up to 3 samples, improving efficiency while keeping operation simple.
2. Ultra-fast lysis speed: superior to traditional tissue mills, most cells or tissues are homogenized within 45 seconds.
3. Compact and space-saving structure: only 260mm wide, suitable for narrow lab tables or refrigerated workstations.

4. High anti-pollution ability: fully enclosed tube operation eliminates cross contamination between samples, protecting result reliability.
5. Variety of beads compatibility: supports glass, ceramic, stainless steel beads of various sizes for different sample needs.
6. Versatile for different experimental needs: efficiently processes soft tissue, hard bone, eukaryotic cells, and microbial samples.

Working Principle

The microtube homogenizer uses a high-frequency reciprocating vibration system. When activated, it horizontally vibrates at a preset frequency, driving microbeads in the test tube into rapid, random impact motion. Each bead creates multiple high-velocity collision paths, resulting in superimposed shear, crush, and friction effects with the sample. This causes cell membrane rupture, tissue fragmentation, and release of nucleic acids or proteins.

Lysis efficiency can be optimized by changing bead type or run time: glass beads for soft animal tissue, ceramic or steel beads for tougher plant or fungal samples.

Application Areas

1. Molecular Biology: tissue/cell processing before DNA, RNA, protein extraction.
2. Genetic modification research: rapid crushing of plant/animal tissues, seeds, leaves.
3. Microbiology research: cell wall disruption of hard-shelled microorganisms (e.g., Gram-positive bacteria, yeast).
4. Forensic medicine and criminal investigation: processing micro/trace biological samples (hair roots, nails, dried blood).
5. Biopharmaceutical and clinical research: homogenization of clinical samples (e.g., cancer tissue, liver tissue) for drug screening.
6. Food testing and agricultural science: homogenization before microbiological or compositional analysis.
7. Environmental science: pretreatment of sediment and water microbial samples for nucleic acid extraction.

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Model	**D100**
Capacity	3x2.0ml tube
Timer	3 second to 3 minutes
Speed range	2800rpm to 5000rpm
Noise	Less than 65db
motor power	40W
Power supply	230Vac, 50Hz or 110Vac, 60Hz
Dimensions	260x220x190mm
Weight	2.2kg