# Quality Microfluidics Simplified:
## Optimizing Material and Process Technology

# SpeedMixer™ for Microfluidics

FlackTek Dual Asymmetric Centrifugal (DAC) SpeedMixer™ is a bladeless centrifugal mixer capable of uniform blending of multiple materials with variable batch sizes. Two complementary forces are applied to the mixing cup in the SpeedMixer™: (1) the centrifugal force of the mixing cup orbiting the SpeedMixer™ central axis and (2) the centrifugal force of the mixing cup rotating around its own central axis in an angular position. These forces create unique flow patterns that result in superior mixing and disrupt air-cell formation associated with foams and voids.


- FlackTek DAC SpeedMixer™ offers perfect uniform mixing of microfluidic materials, including silicone elastomers.
- Gelest offers Microfluidic Silicone Elastomer kits designed for defect-free performance in premeasured mixing cups ready to use in the SpeedMixer™.
- Using premeasured packages, it takes less than 5 minutes from kit assembly to bubble-free molding with less waste, no cleanup, and reproducible material properties optimized for your microfluidic application.

  Typical mixing conditions for Gelest Reprographic Silicone Kits in FlackTek Inc. SpeedMixer™:
  1) 30 seconds ramp to 2500 rpm;
  2) Hold at 2500 rpm for 3 minutes;
  3) Pour silicone mix into mold.
- FlackTek DAC SpeedMixer™ also has mixing advantages in dispersion/grinding of semi-solids, pastes, liquids, particles and powders.

## SpeedMixer™ DAC150.1 FVZ-K Specifications

**Dimensions:**
Width: 27.5 cm (10.8 in)
Depth: 27.5 cm (10.8 in)
Height: 45.5 cm (17.9 in)
Weight: 30.5 kg (67 lbs)

**Features:**
Speed: Variable from 300 to 3,500 RPM
Timer: 5 seconds to 5 minutes
Mixing Capacity: 100 grams maximum
Viewing Window, Tachometer, Motor Cooling Fan

**SpeedMixer™ models available with mixing capacities ranging from <1g – 10 kg.**

**For more information, contact FlackTek Inc.:**

**PHONE:** 864-895-7441 • **FAX:** 864-895-7442
**EMAIL:** speedmixer@flacktek.net • **WEB:** speedmixer.com

Gelest
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# Silicone Materials for Microfluidics

Gelest offers reprographic-grade silicone-based elastomer kits for use in the fabrication of microfluidic devices. Gelest Reprographic Silicones are specifically formulated to overcome limitations of conventional PDMS base stocks used in microfluidic fabrication. These materials are available in premeasured kits designed for FlackTek Inc. DAC SpeedMixer™. Gelest SpeedMixer™ kits offer perfect uniform mixing and eliminate the need for a separate deaeration step, aiding in the production of reproducible microfluidic devices with less waste and no cleanup.

## Gelest Reprographic Grade Silicone Kits Available in FlackTek Inc. SpeedMixer™ Cups

| Product | Description | Features | SpeedMixer™ Kits Part A:B / Size | Bulk Kit Sizes |
|---|---|---|---|---|
| Gelest RG01 | Standard Grade | Standard Reprographic | 10:1 / 100 g | 220 g - 1.1 kg |
| Gelest RG02 | Oleophilic | Maximum Hydrocarbon Absorption | 10:1 / 100 g | 220 g - 1.1 kg |
| Gelest RG03 | Hydrophilic | Intrinsic Hydrophilic Surface | 10:1 / 100 g | 220 g - 1.1 kg |
| Gelest RG04 | Oleophobic | Minimum Swell in Hydrocarbons | 10:1 / 100 g | 220 g - 1.1 kg |
| Gelest RG05 | Low Volatiles | Low Extractables and Dimensionally Stable | 10:1 / 100 g | 220 g - 1.1 kg |
| Gelest RG06 | Overcoatable | Suitable for Multilayer Fabrication | 10:1 / 100 g | 220 g - 1.1 kg |
| Gelest RG07 | High Modulus | Increased Surface Hardness | 1:1 / 100 g | 1 kg |

1


**Gelest SpeedMixer™ Kit:** Premeasured Part A & B cups.

2


**Kit Assembly:** Carefully pour Parts A & B into bottom of mixing cup.

3


**Mixing:** Place SpeedMixer™ cup into mixer and use suggested conditions.*

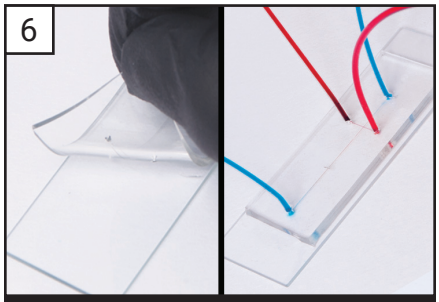
4


**Pouring:** Pour mix into mold, avoid entrapment of air.

5

**Curing:** Follow the recommended cure schedule.

6



**Post-Cure:** Demold and construct device.


**For more information, contact Gelest:**

**PHONE:** 215-547-1015 • **FAX:** 215-547-2484
**EMAIL:** info@gelest.com • **WEB:** gelest.com


***Suggested mixing conditions for Gelest SpeedMixer™ Kit:**
1) 30sec. ramp to 2500rpm 2) Hold at 2500rpm for 3min. 3) Pour silicone mix into mold. Gelest RG04 may require vacuum degassing. Vacuum SpeedMixers™ are available.