

# Phytoplankton Homogenization Using the Bullet Blender

RS18-0238C.5PHY

## Materials

- [Bullet Blender](#)® for 5 mL tubes
- Homogenization Buffer
- [FoamBlocker](#) (Optional)
- [Lysis Kit](#) or [Lysis Beads](#)
  - PINK or RED Lysis Kit
  - 2.0 mm Zirconium Oxide Beads in Eppendorf or GATOR tubes
- Sample — up to 1000 mg

Table 1. Proper sample, bead and buffer volume ratios for 5 mL tubes.

| Lysis Kit and Bead Choices   | Sample Volume | Bead Volume   | Buffer Volume |
|------------------------------|---------------|---------------|---------------|
| PINK                         | Up to 300 mg  | Pre-filled    | 0.5 - 1.2 mL  |
| RED                          | 300 - 1000 mg | Pre-filled    | 1.2 - 2.5 mL  |
| 2.0 mm Zirconium Oxide Beads | Up to 1000 mg | 500 - 1000 µL | 1.2 - 2.5 mL  |

## Procedure

1. Use the pre-filled bead lysis kit tubes OR prepare a tube with the recommended volume of beads from the table above.
2. Prepare the sample by pelleting the sample in a tube, resuspending it in appropriate amount of lysis buffer and then transfer it into the lysis tubes.
3. (Optional) To avoid excess foaming, add FoamBlocker up to 1-2% of the total volume of the homogenization buffer.
4. Close the tubes tightly and place into the Bullet Blender sample chamber. If using the Gold or Gold<sup>+</sup> models, pre-cool the chamber before adding sample tubes.
5. Set the controls to speed 8, time 4 minutes then press Start.  
*Note: Using single-size beads instead of pre-filled lysis kits may require additional time.*
6. After the run, remove the tubes from the instrument and visually inspect the samples. If homogenization is incomplete, homogenize for an additional 30 seconds, or repeat the homogenization step with a higher speed.
7. Using a pipette, transfer the homogenized samples into new tubes.
8. Proceed with downstream application.

### Notes

This protocol does not specify a particular buffer – choose a buffer that is most appropriate for the downstream application.

The provided homogenization conditions serve as a general guideline. Homogenization times, speeds, or beads may need to be optimized based on sample characteristics and desired outcomes.