
Spraying Device for Fine Fractions: Quick Start Guide

V1.1; S. Herrmann (4/8/2011); rev. (12/20/2013)

Introduction

Spraying is a simple and fast method for evenly distributing fine fraction sediment particles on glass slides for microscopic viewing. This method can be used to prepare nannofossil slides or fine fractions of sediments. Spraying improves the overview of the actual assemblage (small vs. large specimens, as opposed to the usual sorting bias with smear slides).

Figure 1 illustrates how a sprayed slide shows the variation of sample densities on the slide (from left to right), whereas the smeared slide shows the usual distribution of particles in thicker and thinner bands over the entire slide. Figure 1 images are as follows:

- Top left: sprayed sample, bright field;
- Top right: sprayed sample, crossed nicols;
- Bottom left: smeared sample, bright field;
- Bottom right: smeared sample, crossed nicols.

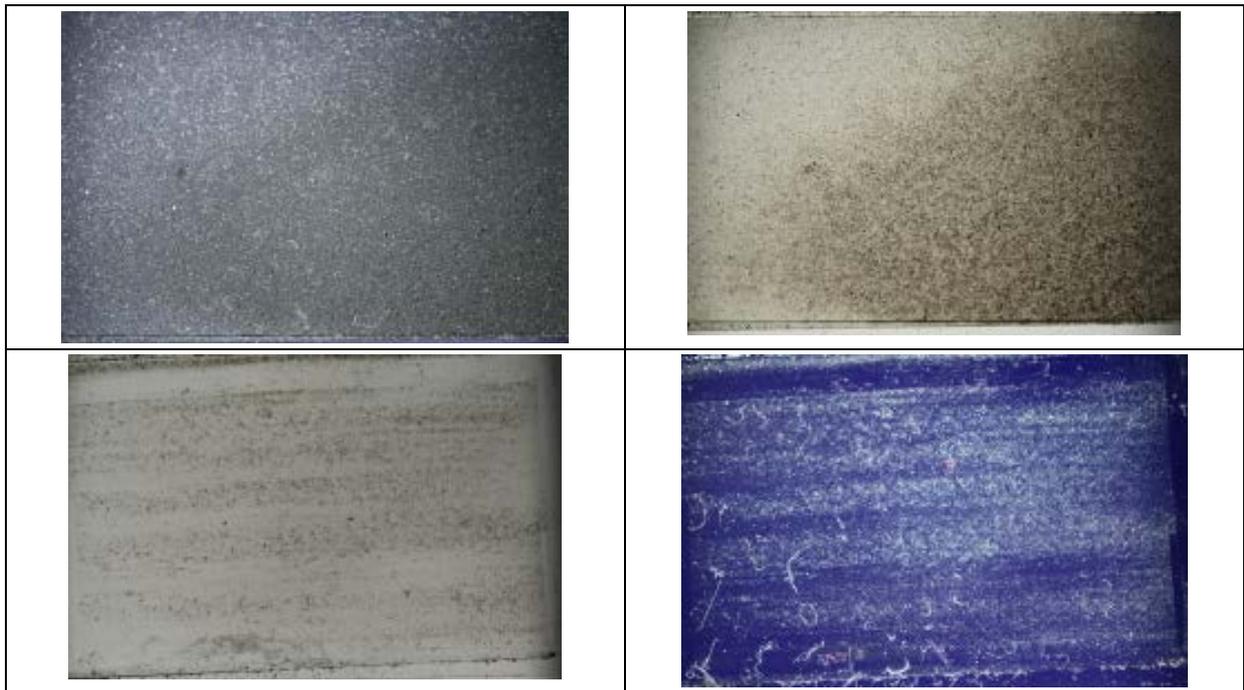


Figure 1.

Apparatus and Materials

- Spray gun and Target holder
- Syringe (SUN-Sri 400029; CM0580) and Needle (BD 21G2; LS1253)
- Ethanol
- Glass slide and Cover glass
- Norland optical adhesive

Assembly

Assemble the apparatus as follows shown in **Figure 2**.

1. Connect the spray gun to an air pressure connection.
2. Set the target holder ~30–35 cm from the spray gun.
3. Mount glass slide or cover slide on the target holder; or mount an SEM stub with a small strip of double-sided tape.

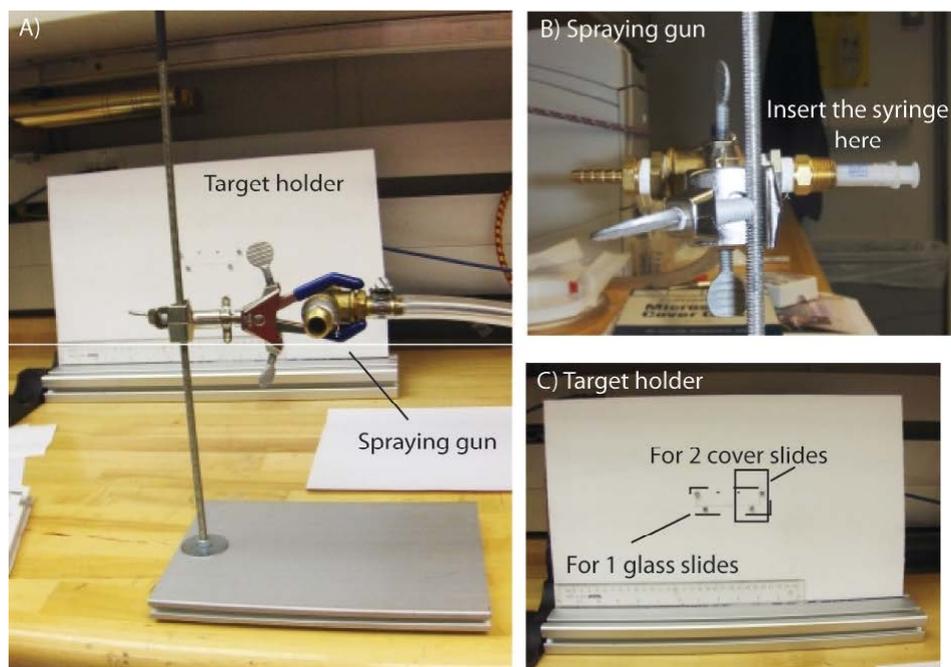


Figure 2.

Preparing Samples for Analysis

1. Add the sediment sample (~7–8 mg) to 8–10 mL ethanol in the syringe.
2. Briefly treat with ultrasonic agitation to loosen coagulated particles.
3. Insert the syringe into the spraying device (see **Figure 2B**).
4. Open the compressed air supply fully (~120 psi).
5. Gently press the syringe plunger to spray slowly (no drops should appear on the slide mounted on the target holder) (see **Figure 1**).
6. Dry on a hot plate or allow moisture to evaporate.
7. Prepare the glass slide with adhesive and a coverslip.
8. Carefully clean the barrel of the spray gun to remove sediment contamination.