

**PURPOSE**

A simple way to determine cell density in a yeast slurry is to determine the packed cell volume (PCV) of a sample, and then to relate the PCV to cell density using a standard curve. At this station, you will determine the packed cell volume of a yeast solution.

**MATERIALS**

- 1 liter of Stock yeast slurry (this same stock slurry will be used for the entire group today)
- Diluted yeast slurry (same diluted sample for this station **and** the microscope station)
  - Sample 1: 150 ml slurry + 50 ml water (3:4 dilution factor)
  - Sample 2: 100 ml slurry + 50 ml water (2:3 dilution factor)
  - Sample 3: 100 ml slurry + 100 ml water (1:2 dilution factor)
  - Sample 4: 50 ml slurry + 100 ml water (1:3 dilution factor)
- Centrifuge
- Centrifuge tubes

**BASIC STEPS**

1. Fill centrifuge tube to to 10 ml line (1 tube per participant or more if required to balance centrifuge)
  - a. Each group will perform this method on the diluted sample and on the stock solution
2. Evenly load centrifuge
3. Spin samples for 15 minutes
4. Record total volume and packed cell volume (verbal direction will be provided about determining volume).
5. We will use the data collected in a group exercise to do the following:
  - a. Develop standard curve from PCV data and microscope data
  - b. Demonstrate how to use standard curve to determine cell density in the diluted sample used by your group

**DATA TABLE (EXAMPLE)**

Sample Description	Dilution Factor	Sample Volume (Total)	Packed Cell Volume	% Solids (PCV ÷ Total)	Cell Density
Stock sample	None	x ml	y ml	z%	Station #4
Dilute sample	1:3	x ml	y ml	z%	Station #4