



## Biotechnology People Can Use

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## Milk or other High Protein Samples Assayed for Nitrate in Standard Range Kits

Most applications for measuring nitrate in samples with high protein content will require using a Low Range kit, because very low levels of nitrate (below 1.0 ppm or 5  $\mu$ M) will be expected. In the Low Range kits, the sample volume is much larger in relation to total assay volume, so interference effects are more common. The attached sheets describe standard procedures for sample preparation when handling samples with high protein content. These procedures will eliminate potential interference from proteins.

We do not expect you to have problems from protein interference when using the Standard Range Nitrate Test Kits. Just use 50  $\mu$ l of your sample (one drop when using the Field kits), the same as you would for water. If your sample is very thick, full of particles, or highly colored, you may want to dilute it before assaying. The best way to do this is to take one volume of sample and add an equal amount of Assay Buffer. Be sure to mix **thoroughly**. Remember to multiply your final result by the dilution factor (in this case, multiply your result by 2).

**For Labs doing highly quantitative work:** Typical procedure for preparing samples with high nitrate (e.g. bodily fluids, tissue culture media, meat extracts).

1. Dilute each sample 1:1 with Assay Buffer, mix well.
2. Filter using a 10,000 MWCO (molecular weight cutoff) filter.
3. Assay!

Notes: Suppliers of these filters include Millipore, Whatman, Fisher Scientific, etc. The filters are designed to be used on the end of a syringe. The sample is taken up in the syringe, the filter is attached to the outlet end, and the sample is pushed through the filter and into a clean receiving vessel. You will need to purchase syringes separately. Another type of filter requires use of a microcentrifuge. These procedures are outside the capabilities of most high school labs.

**If additional information is required, please visit our website.  
Or call our tech line for help at 906/296-1115.**