

# Microparticle Reagent Optimization Manual

## What is it?

Our Microparticle Reagent Optimization Manual presents our basic strategy, protocols, tips, and techniques for coupling proteins to microparticles and subsequent diagnostic reagent development. A review of the literature is provided as an introduction into the world of microparticle technology.

We explain various particle types and their uses, to help you choose a particle to fit your needs. Using a protein-based model system, we proceed through a series of laboratory experiments such as you might do in your own development. The results of each experiment are graphically displayed and thoroughly discussed.

Through this approach, the principles that govern the adsorption of proteins to microparticles are illustrated. Once adsorption is understood, covalent coupling is shown to be a logical next step. Two simple protocols for covalent coupling are advanced, and the microparticle reagents are optimized.

## Benefits

Our Microparticle Reagent Optimization Manual takes you through the critical steps for both antigen and antibody-coated microparticle reagents:

- Preparation
- Characterization
- Evaluation
- Optimization

With over 40 graphs and tables, the Optimization Reagent Manual provides clear-cut principles and procedures. It includes all of our analytical tools, from the Microparticle-Bound Protein Assay to agglutination and inhibition assay techniques. This manual is intended for people just starting out in microparticle technology as well as experienced scientists.

The manual is designed to save you the six months of R&D time usually invested in getting set up and learning the basics. It could also be valuable to sophisticated microparticle users who haven't had the time to do all of the basic experiments they might have liked to do, or who want to change from adsorption of proteins to covalent coupling. This optimization manual has been used by **all** of the leading diagnostic manufacturers around the world.

# **Microparticle Reagent Optimization Outline**

1. Introduction and literature review
  - History of microparticle reagents
  - Cleaning methods
  - Protein adsorption
  - Covalent coupling
2. Materials and Methods
  - Cleaning
  - Coupling
  - Washing
  - Blocking
  - Agglutination and inhibition reactions
3. Adsorption
  - Effect of particle surface type, buffers, pH, and ionic strength
  - Elution of adsorbed protein by detergent or pH
4. Covalent coupling (HSA and IgG coated)
  - EDAC Concentration Optimization
  - Agglutination Reactivity
  - Protein Concentration Optimization
  - Inhibition Reactions
  - Preactivation
5. Strategy
  - Step-by-step microparticle reagent development guide
    - Diameters
    - Acid contents
    - EDAC titrations
    - Blocking
    - Immunoagglutination Reactions
    - Protein concentration
    - Reagent Optimization
6. Calculations - Procedures
  - Surface Area Calculations
7. Procedures
  - Adsorption Procedure: PS-MPs or CM-MPs
  - One-step Covalent Procedure: CM-MPs Only
  - Preactivation Covalent Procedure: CM-MPs Only
  - Microparticle-bound Protein Assay
  - Quick elution technique
  - Microparticle Reagent Development
  - Direct Slide Agglutination
  - Slide Agglutination Inhibition
  - Measuring Percent Solids
8. References - Glossary

## **How to Order the Manual**

Microparticle Reagent Optimization Manual Part No. 0347835

Future versions of the manual will include new data from our applications and technical service departments. Future topics include a complete review of cleaning issues, stability studies on coated microparticles, magnetic microparticle technology, and automated turbidimetric agglutination assays.

## **Other Products**

You are cordially invited to visit our facilities any time you are in the Indianapolis area. We are just minutes from the Indianapolis International Airport. Please inquire about our other exceptional microparticle products. We have a complete range of microparticles to suit your individual requirements.