

## BEL-1 Conductive SEM Coating Fluid

Product # 52-008001

### Introduction

The BEL-1 conductive SEM coating fluid offers a simple cost-effective method to coat non-conductive SEM samples with a conductive surface layer.

Features of the BEL-1 conductive SEM coating fluid are:

- Excellent permeability and high electrical conductivity
- Water-soluble and environmentally friendly coating agent for SEM observation
- Based on polythiophene conductive polymer
- Conductivity: 250 S/cm
- Efficient in use
- Dilution, immersion, and drying procedures can enhance conductivity
- Best results obtained with 1-3 kV setting on the SEM

### Instructions for use

- The BEL-1 conductive SEM coating fluid needs a 10-20x dilution; the sample must be immersed and dried afterwards. Storage should be preferably 4-8 C, but since it is water based: **Do not Freeze.**
- The product is based on a conductive polymer in solution; gently shake before use.
- When making a stock solution for coating only make the amount you are going to use immediately and discard the rest. In the diluted stock solution, some of the components may aggregate during storage, causing a decrease in conductivity and contamination.
- When diluting with water and especially with ethanol, only add the BEL-1 fluid drop by drop to avoid aggregation.
- Only to be used on completely dry sample surfaces. On wet sample surfaces the conductivity will be reduced.
- In a humid environment, allow the sample coating surface to dry sufficiently
- Discard waste in a safe manner.

### Coating procedures for a variety of samples

In the table below you will find coating procedures for a variety of samples; the use of BEL-1 is not limited to these samples. Similar sample can be coated using the same of modified procedures. For solid materials dilution with water suffices, for biological sample dilution with ethanol is needed.

| Sample                           | Fixation | Diluent         | BEL-1 in solution | Immersion time | Drying            |
|----------------------------------|----------|-----------------|-------------------|----------------|-------------------|
| <b>Material Science examples</b> |          |                 |                   |                |                   |
| Contact lens                     | 1% GA    | Distilled Water | 10%               | 10 Minutes     | Blower            |
| Glass shard                      |          | Distilled Water | 5%                | 5 Minutes      | Blower / cold air |
| Kimwipe                          |          | Distilled Water | 7%                | 5 Minutes      | Blower/ cold air  |
| Polypropylene film               |          | Distilled Water | 7%                | 10 Minutes     | Blower / cold air |
| Paper                            |          | Distilled Water | 10%               | 10 Minutes     | Blower / cold air |
| Stockings                        |          | Distilled Water | 10%               | 1 Hour         | Blower / cold air |



| <b>Biological examples</b> |               |              |     |            |                   |
|----------------------------|---------------|--------------|-----|------------|-------------------|
| Rat Kidney                 | Double fixing | 70% Ethanol  | 5%  | 2 Hours    | Blower / cold air |
| Rat Liver                  | Double fixing | 70% Ethanol  | 5%  | 2 Hours    | Blower / cold air |
| Neutrophil                 | 1% GA         | 100% Ethanol | 10% | 10 Minutes | Blower / cold air |
| Diatoms                    | 1% GA         | 70% Ethanol  | 10% | 10 Minutes | Cold air dryer    |
| Megalopa larva             | 1% GA         | 70% Ethanol  | 10% | 10 Minutes | Cold air dryer    |
| Red blood cells            | 1% GA         | 70% Ethanol  | 10% | 10 Minutes | Cold air dryer    |
| Leukocyte                  |               | 100% Ethanol | 10% | 10 Minutes | Cold air dryer    |

**TSB 52-008001 BEL-1 Conductive SEM Coating Fluid 15-04-2022 Revision 3**

