RESEARCH PRODUCTS INTERNATIONAL

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Technical Data Sheet

Name: TS-2™ Tissue & Gel Solubilizer
No. 112001

TS-2™ is a strong organic base product formulated to solubilize many biological materials. Most radioactive labelled biological samples that require assaying by liquid scintillation are not directly miscible in aromatic hydrocarbon solvents such as toluene or xylene. A solubilizer such as our TS-2 is required to obtain a homogeneous solution. This method ensures accurate measurement of the radioactivity incorporated in the sample.

TS-2 has a high water holding capacity and will accommodate up to 450mg of aqueous volume in 1ml of solubilizer. This allows counting of wet tissue and other aqueous homogenates directly in organic solvent based cocktails such as our 3a20™ (toluene base) or 4a20™ (xylene base). In addition to yielding higher counting efficiencies with TS-2 digests, 3a20 and 4a20 eliminate chemiluminescence problems.

General Uses for TS-2

- **Rapid tissue digestion**
- **Solubilizing aqueous biological materials, proteins, nucleotides**
- **Extracting radioactivity from polyacrylamide gel slices**
- **Trapping CO_2**

Suggested Sample Preparation Procedures

1. Use a glass 20ml scintillation vial with a poly lined cap such as RPI Nos. 121001, 121053, or 121002. Metal foil cap liners are not recommended, as they will react with strong alkaline solutions and cause discoloration of the sample.
2. Place sample into vial and add required amount of TS-2, usually 1ml. Cap vial and gently swirl contents.
3. If incubation is required, follow recommended time procedures. Normally 2-4 hours at +50C will be sufficient for most samples. Allow sample to cool to room temperature.
4. Add liquid scintillation cocktail. Our 3a20 or 4a20 cocktails are most compatible with TS-2 providing that the water content of the sample is fully incorporated by the TS-2. If the sample contains an excessive amount of water an aqueous type cocktail such as our 3a70 is recommended.
5. If chemiluminescence occurs, some samples and cocktail combinations may require neutraliza tion before accurate counting results can be obtained. The digest can be neutralized using 0.1ml-0.2ml dilute glacial acetic acid (10%).
6. If sample digest is not colorless, bleaching can be used to remove any color. This process will also improve counting efficiency. A 7% w/w solution of benzoyl peroxide in toluene will normally decolorize most samples.

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Applications

Whole Tissue

Up to 100mg of whole moist tissue can be added to 1.0ml of TS-2. Heat sample and solubilizer mixture inside a glass scintillation vial at +50C for up to 4 hours or until solution becomes homogeneous. Allow to cool then add 10-15ml scintillation cocktail and count. Dry tissue will require the addition of water prior to adding TS-2. For up to 50mg dry samples, add 0.2ml water and allow up to 30 minutes for absorption.

Macerating or grinding tissue samples will expose more surface area to the solubilizer and will decrease the solubilization time required.

Proteins

Sample must be wet prior to adding TS-2.

Up to 0.2ml aqueous volume may be added to 1.0ml TS-2.

Nucleic Acids – DNA, RNA and other large molecular structures are commonly counted on glass microfiber filter discs.

To elute radioactivity from these discs, place disc in a scintillation vial and add enough TS-2 to completely cover filter.

Incubate up to 1 hour at 20C and allow to cool.

Add 10 ml of 3a20 or 4a20 and count.

Polyacrylamide Gels

Radioactivity incorporated in wet polyacrylamide gel slices can be extracted for measuring by liquid scintillation counting using TS-2.

Place gel slice in a glass scintillation vial adding enough TS-2 to completely cover gel.

Incubate up to 4 hours at +50C.

Allow sample to cool and add 10ml 3a20 or 4a20 cocktail.