



TECHNICAL DATA SHEET

Bio-Safe II™ Economical Biodegradable Counting Cocktail

111195, 111195-CS, 111196

Bio-Safe II™ is a new generation ready-to-use cocktail for counting aqueous and non-aqueous samples. All components of Bio-Safe II™ are classified as non-hazardous for disposal as ordinary liquid waste.

The high purity scintillation fluors contained in Bio-Safe II™ are selected for their high quantum efficiencies and resistance to quench. This results in the best possible energy transfer from the radioactive samples to the fluorescent solutes. Bio-Safe II is designed for counting a wide range of samples such as:

- Water and aqueous salt solutions
- Biological Materials
- Organic liquids and solutions
- Filters

Bio-Safe II™ Advantages

High Flash Point	Flash point exceeds 300°F, facilitates easy handling and storage
Non-Hazardous	No limit as to quantity that can be stored or transported
Easy Disposal	Bio-Safe II is biodegradable and suitable for sanitary sewer disposal when containing 0.05 microcurie or less of ³ H or ¹⁴ C per gram. Prior to disposal, however, refer to NRC Regulation 10CFR20.306 and all other applicable local, state and federal regulations governing disposal of radioactive material. Contact your Radiation Safety Department regarding recored keeping for isotope disposal.

Typical Applications Data

Sample in 10 ml Bio-Safe II	Sample	Sample Appearance @20°C	³ H Counting Efficiency
Neat	0.0 ml	Clear	45-40%
Water	1.0 ml	Clear	36-32%
Water	1.5 ml	Clear	32-30%
1.8% NaCl	1.0 ml	Clear	36-32%
5% TCA	1.0 ml	Clear	34-30%
8M Urea	1.0 ml	Clear	32-30%
Urine	1.0 ml	Clear	30-28%

Addition of Sample

Performance will depend on many factors, including type of counter, temperature, and type of sample. The best way to prepare the solution for counting is to dispense the required volume of Bio-Safe II™ into the counting vial, add sample, cap vial and shake.

Addition of some samples to Bio-Safe II™ can cause a change in temperature and other effects within the mixture. It may be necessary for the mixture to stand after sample addition and before counting. Trials will indicate if this is necessary and the time required.

Water and Aqueous Solutions

Bio-Safe II™ will accommodate up to 25% aqueous sample by volume and remain in the clear region. Aqueous solutions of salts, sugars, etc. will behave the same as water provided the solutions are sufficiently diluted; 10% solution of some salts will be accommodated whereas other salts will precipitate with concentrations as low as 2%. If precipitation occurs, the sample should be diluted with water before adding Bio-Safe II™.

Biological Materials

Many biological materials such as urine, serum and plasma may be added directly into Bio-Safe II™ without any preparation. These systems will behave as described under “Water and Aqueous Solutions”. Not more than 1ml of colored sample should be added to 10ml of Bio-Safe II™ since considerable color quenching of the scintillation process will occur.

Some materials, such as blood, will require treatment with a solubilizing agent (e.g.: TS-2™, tissue and gel solubilizer) before counting with Bio-Safe II™. In such cases the sample should be acidified with 0.2ml diluted glacial acetic acid before adding sample to Bio-Safe II™. Excessive background counts may occur if this is not done.

Safety Data

The flash point of this product is >300°F T.C.C. and therefore is classified as a combustible liquid, rather than a flammable liquid. There are no restrictions for transportation or storage. A low vapor pressure of <0.5mm Hg reduces exposure to personnel and the environment. Refer to Safety Data Sheet for this product for proper handling procedures or precautions. It is recommended that all good laboratory safety and working practices be observed when using Bio-Safe II™.