RESEARCH PRODUCTS INTERNATIONAL

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TECHNICAL DATA SHEET

Safety-Solve™ Counting Cocktail

111177, 111177-CS, 111178

Safety-Solve™ is a complete liquid scintillaito cocktail designed for counting a wide variety of radioactive samples. With Safety-Solve™ is is possible to count a sample with minimal sample preparation, or in many cases no sample preparation at all:

- Water and aqueous salt solutions
- Biological Materials
- Organic liquids and solutions
- Insoluble solids as powders

Safety-Solve contains a 100% aromatic hydrocarbon solvent with a flash point that exeeds 100°F T.C.C. (Tag Closed Cup) method. This solvent yields high efficiency energy transfer from the readioactive sample to the fluorescent solutes. The fluors used are highly purified and are selected for theri gigh quantry efficiencies and resistance to quench. Safety-Solve also contains a blend of high efficiency emulsifiers. It is a product of exceptional performance and is specificall intended for counting with extremely high efficiencies of water or water soluble samples. Reproducibility of counting and stability of samples is excellent.

Typical Applications Data

Sample in 10 ml Safety-Solve	Sample Volume	Sample Appearance @20°C	^{3}H Counting Efficiency
Neat	0.0 ml	Clear	42-40%
Water	1.0 ml	Clear	38-36%
Water	1.5 ml	Clear	34-32%
1.8% NaCl	1.0 ml	Clear	38-34%
5% TCA	1.0 ml	Clear	32-26%
8M Urea	1.0 ml	Clear	34-32%
Urine	1.0 ml	Clear	32-30%

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 Safety-Solve™ into the counting vial, add sample, cap vial and shake. Addition of some samples to Safety-Solve™ 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

Small aqueous samples result in a clear, stable homogeneous solution with larger aqueous samples resulting in a translucent gel. Safety-Solve™ can accommodate up to 14% aqueous sample by volume and remain in the clear region. Adding approximately 20% aqueous sample produces a stable translucent gel. The cocktail should not be used in the region where a precipitate or phase separation is formed, since this might lead to inaccurate counting. These regions are avoided by altering the sample and Safety-Solve ratio. Since Safety-Solve can incorporate large volumens of water and still give high counting efficiencies, the easiest way to avoid the unstable regions is to add more water to the sample before addition into Safety-Solve™.

Aqueous solutions of salts, sugars, etc. will behave the same as water provided the solutions are sufficiently diluted: 10% solutions 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 it to Safety-Solve.

Biological Materials

Many biological materials such as urine, serum and plasma may be added directly into Safety-Solve™ 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 Safety-Solve™ 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 Safety-Solve™. In such cases the sample should be acidified with 0.2ml diluted glacial acetic acid before adding sample to Safety-Solve™. Excessive background counts may occur if this is not done.

Safety Data

The flash point of this product is 120°F T.C.C. and therefore is classified as a Class II combustible, rather than a flammable liquid. Safety-Solve utilizes a 100% aromatic solvent base with a Threshold Limit Value (TLV) of 100 ppm. Please refer to SDS for more safety instructions.