

Name: GVBE (GVB^o with EDTA)
Catalog Numbers: B105 and B104
Sizes Available: 1000 mL and 250 mL
Composition: 0.1 % gelatin, 5 mM Veronal, 145 mM NaCl, 0.025 % NaN₃, 10 mM EDTA, pH 7.3.
Form: Liquid
Buffer: Sodium veronal
Preservative: Sterile filtered with 0.025% sodium azide as a bactericidal agent
Storage: +4°C. Avoid freezing which causes gelatin to gel. **If frozen, do not microwave or heat the buffer on a hot plate instead heat the buffer in a water bath at 100 °C to redissolve gelatin.**
Precautions: Azide is poisonous to all living organisms.
Origin: Manufactured in the USA.

General Description

GVBE is an isotonic buffer used in complement assays to prevent complement activation or to stop ongoing complement activation when added at the end of an incubation (Morgan, B.P. (2000); Dodds, A.W. and Sim, R.B. (1997)).

Ordering Requirements

Buffers such as GVB⁺⁺, GVB^o, and GVBE need to be ordered by Friday in order to receive them the next week. They are shipped Monday afternoon by overnight courier for delivery on Tuesday or Wednesday. They can usually be used for 3 months after preparation if kept cold @ 4°C. They are shipped cold, but are not harmed at room temperature and must be warmed to 37°C for assays.

Buffer Components

EDTA is used in this buffer to chelate calcium and magnesium and thereby inhibit complement activation by all three pathways. Veronal is used as the buffer because in the mid-1900s this was the only buffer for pH range 7.2-7.4 that did not chelate metal ions and did not inhibit complement reactions as did other buffers. Sodium chloride is present to provide an isotonic environment so that cells do not lyse due to osmotic pressure. Gelatin is present to prevent loss of protein components due to adsorption onto tips or tubes during dilutions and in the assays themselves. Azide is present to prevent bacterial growth.

Physical Characteristics

The concentration of gelatin in this buffer is below the concentration that forms solid gels. However, because of the gelatin is close to its gelling concentration at 4°C some strings of gelatin form during standing at this temperature. They can be redissolved easily by heating to 37°C or by brief heating in a microwave oven.

Applications

GVBE is often used as the buffer added at the end of an assay to stop complement activation and dilute the reaction to levels that can be read spectrophotometrically. It is

also used in setting up control assays where no complement activation should occur (background control assays).

References

Morgan, B.P. ed. (2000) Complement Methods and Protocols. Humana Press.

Dodds, A.W. and Sim, R.B. editors (1997). Complement A Practical Approach (ISBN 019963539) Oxford University Press, Oxford.

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