

## Product Information

### Bovine Calf Serum

Australia origin,  $\gamma$ -irradiated, sterile-filtered,  
suitable for cell culture, suitable for hybridoma

Product Number **B7447**

Storage Temperature  $-20\text{ }^{\circ}\text{C}$

Synonyms: BCS, Calf Serum, bovine calf sera, calf sera

#### Product Description

Animal serum is commonly used to supplement basal media formulations for the optimal growth of many cell types *in vitro*.

Bovine Calf Serum (BCS) is collected from calves that are less than 12 months old. The serum contains approximately double the protein of Fetal Bovine Serum (FBS). BCS will promote growth in a variety of mammalian cell lines and is often used as a cost-effective substitute for FBS.

Gamma irradiation has been shown to inactivate up to six logs of many biological contaminants in serum while maintaining growth promotion potential, providing added confidence in the quality and performance of the serum. The standard gamma irradiation of Sigma-Aldrich serum includes exposure under controlled conditions to a  $^{60}\text{Co}$  source with a delivered dose of 25-35 kGy.

#### Raw Serum Process

China eligible animal blood is collected at government inspected facilities located within Australia. Whole fetal blood is aseptically collected and allowed to clot under controlled conditions. After centrifugation, the serum is decanted from the clot. The raw serum is then pooled and immediately frozen. Raw serum is pre-tested, according to established criteria, providing a complete awareness of all serum characteristics prior to filtration and further processing.

#### Filtration and Packaging

Frozen raw serum is thawed under controlled conditions and then processed through a series of membrane filters in descending pore size. Pooled serum is filtered through  $0.2\text{ }\mu\text{m}$  filters. Serum is packaged in sterilized, graduated plastic bottles and sealed with a tamper indicator. Bottles are identified with sequentially numbered labels and are frozen at  $-10$  to  $-40\text{ }^{\circ}\text{C}$ .

#### Traceability

The material used in this product is collected in Australia. The serum is not collected from cattle born, raised, shipped through, or slaughtered in countries where Bovine Spongiform Encephalopathy (BSE) is known to exist. The China eligible material is collected by strict methods from regions south and west of the Blue Tongue Virus (BTV) region of Australia. A Certificate of Analysis indicating the country of origin is available for each lot of serum.

#### Characteristics

*Adventitious Viral Agents (AVA)* (9CFR 113.53)

Not detected

#### Electrophoretic Profile

Normal pattern

#### Endotoxin

$\leq 10.0\text{ EU/mL}$

#### Growth Promotion

$\geq 75\%$  of FCS control

#### Hemoglobin

$\leq 35\text{ mg/dL}$

#### *Mycoplasma* (9CFR 113.28)

Not detected

#### Osmolality

260–330 mOsm/kg  $\text{H}_2\text{O}$

#### pH (at $25\text{ }^{\circ}\text{C}$ )

7.0–8.1

#### Sterility

No microbial growth detected

#### Total Protein

5.8–7.1 g/dL

**Precautions and Disclaimer**

For R&D use only. Not for drug, household, or other uses.

For stability and optimal performance, serum should be stored at  $-20\text{ }^{\circ}\text{C}$  and used prior to the labeled expiration date.

**Preparation Instructions**

Use aseptic technique when handling serum. Refiltering sterile serum before or after being added to sterile medium is not recommended because the growth promoting capability may be reduced.

**Thawing Instructions**

1. Remove the serum bottles from the freezer and allow them to acclimate to room temperature for ~10 minutes.
2. Place each container in a  $30\text{--}37\text{ }^{\circ}\text{C}$  water bath or incubator. Excessive temperatures will degrade heat labile nutrients. If using a water bath, prevent the bottle caps from being completely submerged.
3. Gently swirl the bottles every 10–15 minutes until the serum is completely thawed and homogenous.
4. After thawing, use the serum promptly. Liquid serum may be stored refrigerated ( $2\text{--}8\text{ }^{\circ}\text{C}$ ) up to four weeks. To avoid thaw/freeze cycles or long periods of refrigeration, it is recommended that any unused serum be immediately dispensed into smaller aliquots and refrozen for future use.

Gentle, periodic agitation is crucial for optimal product performance. If a bottle of serum is not periodically swirled as it thaws, gradients containing high concentrations of salts, proteins, and lipids will form throughout the liquid portion and lead to the formation of crystalline or flocculent precipitates. These cryoprecipitates are not toxic to cell cultures, but they affect the appearance and consistency of each bottle of serum. Small amounts of cryoprecipitates are not uncommon, and will not affect product performance. Gently warming and mixing the serum will generally allow the material to go back into solution.

**Storage/Stability**

To effectively preserve the integrity of animal serum, it should be stored frozen and protected from light. Multiple thaw/freeze cycles should be avoided as they will hasten the degradation of serum nutrients and can result in the formation of insoluble precipitates.

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