
Fetal Bovine Serum FAQs

- **What is the difference between Fetal Bovine Serum and Fetal Calf Serum?**

Fetal Bovine Serum (FBS) was once known as Fetal Calf Serum (FCS). They are one and the same thing.

- **My FBS contains flocculence. What could it be?**

Flocculence may appear in FBS for a variety of reasons. The most common reason is the denaturation of serum lipoproteins. You may observe fibrin, one of the clot-forming proteins present in the serum, after the serum has been thawed. This should not affect product performance.

To remove the flocculence, transfer the serum to sterile tubes and centrifuge the material briefly at 400 g. Then filter the resulting supernatant along with your media. Do not attempt to filter serum containing flocculence, it may clog filters.

- **How should I thaw FBS to ensure that the performance is not compromised?**

We recommend you remove serum from the freezer and allow it to thaw in the refrigerator at 2-8°C. The thawing process may then be completed at room temperature. *Note:* The serum must be regularly mixed during this process.

We do not recommend that you incubate FBS at 37°C for extended periods of time to verify product sterility. FBS treated in this manner will appear cloudy. Under these conditions, the product's performance may be affected due to the liability of many serum components.

- **If my FBS arrives partially thawed, can I still use it?**

All GIBCO™ FBS is shipped frozen and packaged in dry ice, so it should arrive frozen. You can still use FBS that is partially thawed, but at least 2/3 frozen.

- **What does heat-inactivation do to the serum?**

The heating process inactivates portions of the complement cascade. Complement occurs in the following events: cytolytic activities, contraction of smooth muscle, release of histamine from mast cells and platelets, enhanced phagocytosis, chemotaxis, and activation of lymphocytic and macrophage cell types.

- **At what temperature, and for how long, should serum be heat-inactivated?**

You can incubate the thawed product at a thermostatically controlled temperature of 56°C for 30 minutes. Serum can be heat-inactivated in both our plastic and glass bottles. *Warning:* Do not attempt to heat-inactivate at a higher temperature for prolonged periods as this may compromise the product's performance through protein denaturation.

- **What is the importance of gamma-irradiated sera?**

Gamma irradiation is recognized as an effective method for inactivating viruses in animal-origin material. Based on USDA regulations for the general requirements for antibody products (9CFR, Section 113.450), the minimum dosage for blood derivatives of animal origin is 25 kGy. Certain European countries require products to be treated prior to importation with a minimum dose of 25 kGy.

We will gamma-irradiate serum on request. We have validated a process for utilizing gamma irradiation in the range of 30-45 kGy to inactivate the most common bovine viruses and mycoplasmas which may be present in FBS. The level of inactivation is 6-8 logs for viruses and 6-7 logs for mycoplasmas. We have also demonstrated that physiochemical properties and cell culture performance of serum is not altered by gamma irradiation at levels of 30-45 kGy.

- **What size packaging is available?**

GIBCO™ FBS is available in 100 ml, 500 ml, and 1,000 ml bottles and by special order in 3.5 L and 4 L volumes.

United States Headquarters

Invitrogen Corporation
1600 Faraday Avenue • Carlsbad • CA 92008
Phone: 1 760 603 7200 • Fax: 1 760 603 7229
Toll Free: 1 800 955 6288 • Email: tech_service@invitrogen.com

European Headquarters

Invitrogen Ltd
3 Fountain Drive • Inchinnan Business Park • Paisley PA4 9RF • UK
Phone (General Enquiries): 0800 5345 5345 • Fax: +44 (0) 141 814 6287
Phone (Free Phone Orders): 0800 269 210 • Email: eurotech@invitrogen.com

For specific country contact information, please see our website: www.invitrogen.com

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