

Cell Boost 1 Supplement

HYCLONE MEDIA AND SUPPLEMENTS

Improve productivity and cell growth in fed-batch cultures by supplementing the cell culture medium to boost nutrients depleted during culture. HyClone™ Cell Boost™ 1 Supplement provides nutrients such as amino acids and glucose that are suitable for research and bioprocessing applications. It is available as a convenient ready-to-use liquid solution or as a dry powder supplement to be hydrated before use (Fig 1). This cell culture medium supplement has been developed for recombinant protein production with various cell lines including Chinese hamster ovary (CHO) and human embryonic kidney (HEK) 293 cells.

Features and benefits

- Designed to support modern cell culture manufacturing processes, Cell Boost 1 is chemically defined (CD), animal-derived component-free (ADCF), and protein-free. It does not contain L-glutamine, poloxamer 188, or hydrolysates.
- For convenience, this cell culture supplement is available as a ready-to-use liquid feed solution in addition to the dry powder format.

Cell Boost 1 Supplement has been tested with a variety of cell lines including CHO and HEK 293 cells. Figure 2 shows tissue plasminogen activator (tPA) production from CHO cells cultured in CDM4CHO basal medium supplemented with Cell Boost 1.

The supplement is available as a ready to use liquid and in dry powder format for research, process development and manufacturing. The liquid feed supplement meets testing specifications and is stable up to 3 months at 2°C to 8°C. This supplement is part of an ongoing stability study (see Fig 3).

Specifications

Cell Boost 1 specifications for liquid feed solution and dry powder formats:

- CD
- ADCF
- Hydrolysate-free
- Without poloxamer 188 and L-glutamine



Fig 1. Cell Boost 1 supplements are chemically defined and animal-derived component-free.

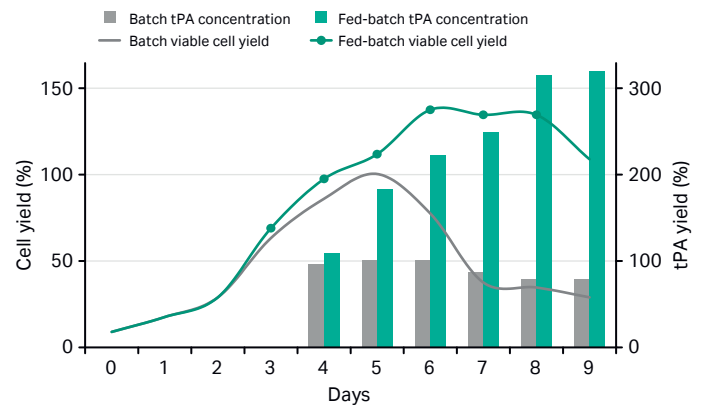


Fig 2. Production of recombinant tPA using a CHO cell line cultured in HyClone CDM4CHO medium during a 3 L stirred tank bioreactor culture. Fed-batch culture employed using Cell Boost 1 Supplement on days 3 to 8.

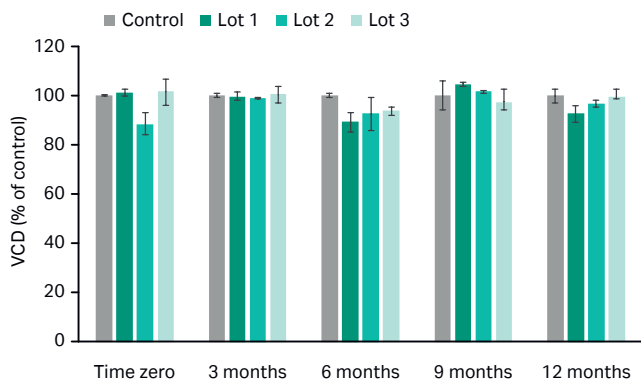


Fig 3. Stability study testing of the Cell Boost 1 liquid feed supplement was performed using CHO-S cell line to determine viable cell density (VCD) compared with control (freshly hydrated powder). The study was conducted using three separate batches of Cell Boost 1 liquid feed supplement stored at 2°C to 8°C and used in fed-batch cultures of CHO-S cells 0, 3, 6, 9, and 12 months after preparation.

Quality control testing for liquids

Quality control test specifications for Cell Boost 1 liquid formats are listed in Table 1.

Table 1. Test specifications*

Appearance	Clear solution
Endotoxin (EU/mL)	≤ 1 EU/mL
Sterility	No growth
pH	9.9–10.4
Osmolality (mOsmol/kg)	230–282
HPLC amino acid profile	Complies with profile

*Refer to certificate of analysis for actual results.

Suggested hydration of dry powder

1. Add 35 g of Cell Boost 1 Supplement to 900 mL of cell culture-grade water. If your water source is normally cool, it might be useful to adjust the water temperature. Using warmer room temperature water (22°C to 25°C) will improve solubilization time. Mix for 20 min or until dissolved.
2. Adjust volume to 1 L and filter through a 0.2 µm sterile filter.

Preparation notes

Alternatively, powder can be hydrated in water and then adjusted to pH 9.9 to 10.4 with 5 N NaOH to solubilize the formulation.

Product handling

Store dry powder supplement protected from moisture in a tightly sealed container at 2°C to 8°C, away from light.

Store the ready-to-use liquid feed supplement at 2°C to 8°C, away from light.

General culture recommendations

Supplement 100 to 200 mL/L, one or more times, starting during early- to mid-growth phase. This is expected to be day 2 to 4. Start the culture at a reduced volume according to anticipated feed volumes. Continue supplementation daily until the final volume is reached. It is recommended to monitor L- glutamine separately and supplement as needed.

Related products

Cell Boost 1–6 along with supplements 7a and 7b have been designed to provide rich nutrients suitable for multiple mammalian cell types, see Table 2 for an overview of HyClone supplements. In addition to Cell Boost supplements we offer concentrated liquid supplements designed to provide lipids and cholesterol to cell lines such as NS0, as well as specific nutrients for those cells using the glutamine synthetase (GS) gene expression system.

HyClone Cell Boost powder kit

Cell Boost Process Supplements 1–6 (100 g each) contain samples of supplements designed to increase cell productivity in a variety of cell lines. Each supplement is chemically defined and protein- and hydrolysate-free with no animal-derived components.

HyClone LS250 supplement

LS250 is a chemically defined, animal-derived component-free lipid supplement developed to stimulate cell growth and monoclonal antibody (mAb) production in NS0 cell cultures using traditional hybridoma serum-free media.

HyClone LS1000 supplement

LS1000 supplement is a chemically defined, animal-derived component-free lipid supplement developed to stimulate cell growth and mAb production in NS0 cell cultures using traditional hybridoma serum-free media.

The supplement is formulated using a proprietary complexing process for enhanced cholesterol delivery. LS1000 has been successfully tested in a variety of serum-free medium cultures, including HyClone CDM4NS0 and CDM4MAb media.

HyClone GS-Max supplement

Developed based upon traditional GS supplement formulations to provide the additional nutrients needed for high productivity in GS-cloned CHO and NS0 cell lines.

HyClone CDM4CHO medium

Increases process yields in the manufacture of recombinant proteins using a variety of CHO cell clones.

Table 2. Supplement matrix

Supplement	Cell type	Amino acids	Vitamins	Glucose	Trace elements	Growth factors	Hypoxanthine/thymidine	ADCF* lipids	ADCF* cholesterol	Poloxamer 188	Product code	
											Liquid supplement	Powder supplement
Cell Boost 1 Supplement (R05.2)	CHO HEK293	●	●	●							SH31113	SH30584
Cell Boost 2 Supplement (R15.4)	CHO PER.C6	●		●							SH31114	SH30596
Cell Boost 3 Supplement (JM3.5)	Hybridoma Myeloma	●	●	●	●		●				SH31115	SH30825
Cell Boost 4 Supplement (PS307)	CHO	●	●	●	●	●		●	●		SH31116	SH30857
Cell Boost 5 Supplement (CN-F)	CHO HEK293 Hybridoma NS0	●	●	●	●	●	●	●	●		SH31117	SH30865
Cell Boost 6 Supplement (CN-T)	CHO HEK293 Hybridoma NS0 T cells	●	●	●	●	●	●	●	●		SH31118	SH30866
Cell Boost 7a Supplement	CHO	●	●	●	●					●	SH31119	SH31026
Cell Boost 7b Supplement	CHO	●									SH31120	SH31027
LS250 supplement	NS0							●	●		NA	SH30554
LS1000 supplement	NS0								●		NA	SH30555

*Animal-derived component-free. NA is not applicable. †10% concentrate.

HyClone CDM4NS0 medium

Increases process yields in the manufacture of mAbs using a variety of NS0 cell clones. Has also been shown to work with CHO cell clones.

HyClone CDM4MAb medium

Increases process yields in the manufacture of mAbs for therapeutic use in a variety of engineered hybridoma and recombinant myeloma cell lines.

HyClone CDM4PERMAb medium

Increases process yields in the production of human antibodies and recombinant proteins when using PER.C6® technology. Has also been shown to work with CHO and hybridoma cell lines.

HyClone CDM4HEK293 medium

Supports high cell density and specific cell productivity in suspension cultures.

HyClone ActiPro cell culture medium

HyClone ActiPro™ cell culture medium has been formulated to provide high yields of recombinant proteins in processes using Chinese hamster ovary (CHO) cell lines. The medium is chemically defined, animal-derived component-free (ADCF), and optimized for high-yield protein production in batch or fed-batch processes.

HyClone ActiSM cell culture medium

A chemically defined ADCF medium optimized for high-yield protein production. Designed for use with ActiPro medium.

Ordering information

Product	Pack size	Format	Product code	Related products	Product code
HyClone Cell Boost 1 liquid supplement	500 mL bottle*	Liquid	SH31113.01	HyClone Cell Boost powder kit	SH30890
	1000 mL bottle*	Liquid	SH31113.02	HyClone LS250 supplement	SH30555
	1 L bag*	Liquid	SH31113.03	HyClone LS1000 supplement	SH30554
	5 L bag*	Liquid	SH31113.04	HyClone GS-Max supplement	SH30586
	10 L bag*	Liquid	SH31113.05	HyClone CDM4CHO powder medium	SH30556
	20 L bag*	Liquid	SH31113.06	HyClone CDM4CHO liquid medium	SH30557, SH30558
	50 L bag*	Liquid	SH31113.07	HyClone CDM4NS0 powder medium	SH30578
	100 L bag*	Liquid	SH31113.08	HyClone CDM4NS0 liquid medium	SH30579
	200 L bag*	Liquid	SH31113.09	HyClone CDM4MAb powder medium	SH30800
HyClone Cell Boost 1 dry powder supplement	100 g bottle	Powder	SH30584.02	HyClone CDM4MAb liquid medium	SH30801, SH30802
	500 g bottle	Powder	SH30584.03	HyClone CDM4PERMAb powder medium	SH30872
	1000 g bottle	Powder	SH30584.04	HyClone CDM4PERMAb liquid medium	SH30871
	5000 g bottle	Powder	SH30584.05	HyClone CDM4HEK293 powder medium	SH30859
				HyClone CDM4HEK293 liquid medium	SH30858
				HyClone ActiPro powder medium	SH31037
				HyClone ActiPro liquid medium	SH31039
				HyClone ActiSM™ powder medium	SH31038
				HyClone ActiSM liquid medium	SH31040

*Item is made to order. Lead times and minimum order quantities apply.

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