

# GS-Max

## HYCLONE MEDIA AND SUPPLEMENTS

HyClone™ GS-Max supplement is a chemically defined, animal-derived component-free (ADCF) glutamine synthetase (GS) supplement specifically designed to be added to sterile liquid media at the time of use and as a fed-batch supplement (Fig 1).

GS-Max supplement has been developed to meet the specific requirements of GS-NS0 cells, providing nutrients necessary for achieving high level of monoclonal antibody (MAb) production. The GS-Max supplement has been specifically formulated for use with HyClone CDM4NS0 medium and other serum-free media.

Key features of HyClone GS-Max supplement include

- Chemically defined ADCF formulation
- Contains no L-glutamine
- Developed to meet the supplement requirements of NS0 cells using the GS selection system
- Manufactured according to cGMP guidelines

## Specifications

HyClone GS-Max supplement is designed to support high levels of MAb production from NS0 cells using the GS selection system. Figure 2 shows IgG production from GS-NS0 cells cultured in CDM4NS0 medium supplemented with HyClone LS1000 and GS-Max supplements.

### Product handling

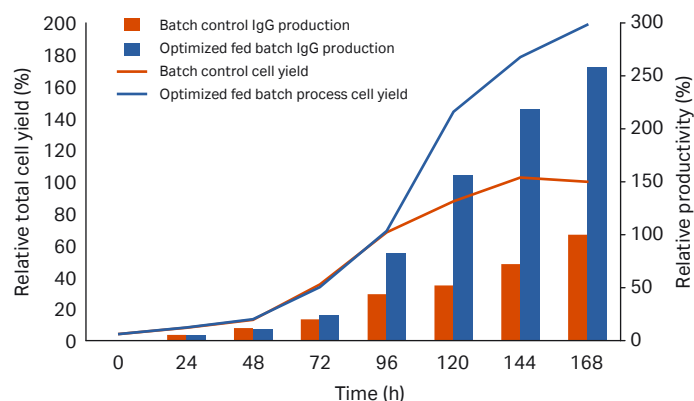
Store medium at 2°C to 8°C, away from light.

## General culture recommendations

While each application of GS-Max supplement will be unique, suggested supplementation ratio is 1:50. Fed-batch additions beginning at day 3 to 4 of cell culture and subsequent additional feeds have been shown to boost MAb expression.



**Fig 1.** HyClone GS-Max supplement is chemically defined and animal-derived component-free GS supplement.



**Fig 2.** Production of IgG using a proprietary GS-NS0 cell line cultured in CDM4NS0 medium in 100 mL shaker flask cultures. Fed-batch culture employed LS1000 and GS-Max supplementation at 72 hours.

# Quality control testing

Quality control test specifications are listed in Table 1.

Table 1. Test specifications<sup>1</sup>

Appearance	Clear solution
pH	9.0 to 10.0
Sterility	No growth (bacteria or fungi)
Endotoxin	For information only <sup>1</sup>

<sup>1</sup> Refer to certificate of analysis for actual results.

## Custom production

Formulations and delivery systems can be customized to your specific process requirements or optimized to maximize process yields.

## Related products

### Supplements

Table 2 gives an overview of HyClone supplements.

#### HyClone Cell Boost kit

Cell Boost™ Process Supplements (100 g each) contain samples of supplements designed to increase cell productivity in a variety of cell lines. Each supplement is developed through the Metabolic Pathway Design process and is chemically defined and protein-free with no animal derived components.

Table 2. Supplement matrix

	Amino acids	Vitamins	Glucose	Trace elements	Growth factors	Hypoxanthine/thymidine	ADCF* lipids	ADCF* cholesterol	Suitable for	Product code
Cell Boost 1 Supplement (R05.2)	•	•	•						HEK293 CHO	SH30584
Cell Boost 2 Supplement (R15.4)	•		•						PER.C6™ CHO	SH30596
Cell Boost 3 Supplement (JM3.5)	•	•	•	•		•			Hybridoma Myeloma	SH30825
Cell Boost 4 Supplement (PS307)	•	•	•	•	•		•	•	CHO	SH30857
Cell Boost 5 Supplement (CN-F)	•	•	•	•	•	•	•	•	Hybridoma NS0 HEK293 CHO	SH30865
Cell Boost 6 Supplement (CN-T)	•	•	•	•	•	•	•	•	T-Cells Hybridoma NS0 HEK293 CHO	SH30866
LS250 supplement							•	•	NS0	SH30554
LS1000 supplement								•	NS0	SH30555

\* Animal-derived component-free

### HyClone LS250 supplement

LS250 is a chemically defined, ADCF 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, ADCF 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.

### CDM4NS0 medium

CDM4NS0 medium is chemically defined and contains no animal-derived components. This regulatory-friendly medium is developed through the Metabolic Pathway Design process to increase process yields in the manufacture of MAbs using a variety of NS0 cell clones. The medium has been successfully tested in a variety of culture systems, including T-flasks, shaker flasks and bioreactors using batch and fed-batch strategies.

# Ordering information

GS-Max supplement is manufactured in homogenous liquid lot sizes up to 10 000.

Product	Size	Product code
HyClone GS-Max supplement	100 mL bottle	SH30586.01
	500 mL bottle	SH30586.02
	1000 mL bottle	SH30586.03

Related products	Size	Product code
HyClone Cell Boost Kit	6 × 100 g	SH30890
HyClone LS1000 cholesterol supplement	50 mL bottle	SH30554.01
	100 mL bottle	SH30554.02
	500 mL bottle	SH30554.03
	1000 mL bottle	SH30554.04
HyClone LS250 lipid supplement	100 mL bottle	SH30555.01
	500 mL bottle	SH30555.02
	1000 mL bottle	SH30555.03
HyClone CDM4NS0 powder medium		SH30578
HyClone CDM4NS0 liquid medium		SH30579

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