

MetaCell® Feed-500A High Glucose

Chemically Defined Feed Medium

User Manual

Product Description

MetaCell® Feed-500A High Glucose is a chemically defined cell culture feed medium designed to be synergistically used with MetaCell® CHO-500 basal medium and MetaCell® Feed-500B feed medium to maximize recombinant protein expression in Chinese Hamster Ovary (CHO) cell fed-batch culture. Free from hydrolysates, proteins, growth factors and any animal-derived components, this feed medium is tailored to accommodate diverse CHO cell lines in high-density fed-batch processes, ensuring robust and high-yield protein expression.

MetaCell® Feed-500A High Glucose is intended for research or further manufacturing but not for human or therapeutic use.

MetaCell® Feed-500A High Glucose contains no L-glutamine.

Product Name	Cat No.	Form	Size	Storage	Shelf Life	Application
MetaCell® Feed-500A High Glucose	P1017-X001	Powder	1L	2-8°C, protected from light	12 months	Fed-batch cell culture with CHOK1, DG44, CHO-S cells
	P1017-X010		10L			
	P1017-X050		50L			

General instructions

Powdered media are hygroscopic and should be protected from moisture. The entire contents of each package should be used immediately after opening. Preparing a concentrated solution of medium is not recommended as precipitates may form. The liquid medium should be at a final concentration of 180.40g/L.

MetaCell® Feed-500A High Glucose contains no L-glutamine or its derivatives. Please add L-glutamine or its derivatives according to your needs. Please find recommended products at the end of this document.

Media preparation instruction by weight (1kg of final net weight of liquid medium)

1. Use a clean container, add 780 - 820g of ultrapure water or water for injection (temperature 18-25°C).
2. Weigh out 179.48g - 181.32g of powdered medium, slowly add it to the container and stir (for at least 30min) until no lumps are present. The result of this step is a turbid and red solution. The labeled amount of the medium is 23.294g/L.
3. Add 22mL of 5mol/L sodium hydroxide solution and stir for 20 minutes until the solution has become clear and red. In case that residual powder adheres to the inner walls of the container, use the solution to rinse the interior surfaces during the procedure. The pH at this moment should be around 6.3.

4. Adjust the pH to the desired range (recommended PH 6.55 – 6.75) using 5mol/L sodium hydroxide solution or 5mol/L hydrochloric acid solution, and stir for 5 minutes.
5. Add water to a net weight of 998-1002g and stir for 5-10 minutes.

Note: As stirring time progresses, the pH of the solution will gradually increase. When adjusting the pH, be mindful of the adjustment increments; employ a stepwise approach with small volumes as you near the target pH. Excessive adjustment may cause the osmotic pressure to exceed the specified limits.

6. Sterile filter the medium solution using a 0.22µm sterile membrane filter into a suitable container, seal, and store at 2-8°C protected from light. We recommend to use the sterile filtered medium within 90 days.
7. The acceptance range of the final pH and the osmolality:
 - pH: 6.55-6.75
 - Osmolality: 280 – 340 mOsmol/kg (For accurate measurements, take 10mL of MetaCell® Feed-500A High Glucose, add 40mL of ultra-pure water to achieve a 1:5 dilution)

Recommended Feeding Strategy

1. Inoculate at 0.5×10^6 cells/mL to initiate cultivation (e.g. 30 mL culture volume in a 125 mL shaking flask).
2. Begin feeding when the viable cell density reaches $4.0\text{--}7.0 \times 10^6$ cells/mL. Maintain glucose concentration within the range of 2.0-6.0 g/L throughout the culture process.
3. For MetaCell® Feed-500A High Glucose, a total feeding volume (V/V) of 20%-30% is recommended; for MetaCell® Feed-500B, a total feeding volume (V/V) of 2%-3% is recommended.
4. Refer to the process parameters in the table below and adjust according to the actual cell growth conditions.

Product Name	Time (Days)													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
MetaCell® Feed-500A High Glucose (V/V)	NA	NA	3%	NA	4%	NA	4%	NA	4%	NA	4%	NA	4%	NA
MetaCell® Feed-500B (V/V)	NA	NA	0.3%	NA	0.4%	NA	0.4%	NA	0.4%	NA	0.4%	NA	0.4%	NA

Note:

1. During the preparation of MetaCell® Feed-500A High Glucose using dry powder, before the addition of sodium hydroxide solution, the culture medium will be an opaque & turbid suspension.
2. pH adjustment: If the pH deviates from the target range, it can be corrected (use 5 M hydrochloric acid for pH that is too high; use 5 M sodium hydroxide for pH that is too low). However, frequent adjustments may cause an increase in the osmotic pressure of the feed medium, potentially exceeding acceptable limits. Therefore, precision in control is crucial.
3. MetaCell® Feed-500A High Glucose and MetaCell® Feed-500B components should not be added simultaneously.

- Add MetaCell® Feed-500A High Glucose first, then add MetaCell® Feed-500B.
- Ensure thorough mixing by shaking during the addition, with an interval of at least 5 minutes between the addition of each component.

Related Products

Products	Product Type	Form	Cat No.	Size
MetaCell® CHO-500	Basal Medium	Liquid	L1010-1000	1000mL
		Powder	P1010-X010	10L
			P1010-X100	100L
			P1010-X500	500L
MetaCell® Feed-500B	Feed B	Liquid	L1012-0100	100mL
			L1012-1000	1000mL
		Powder	P1012-X001	1L
			P1012-X010	10L
MetaCell® Feed-500A High Glucose	Feed A	Liquid	L1017-0500	500mL
			L1017-1000	1000mL
		Powder	P1017-X001	1L
			P1017-X010	10L
			P1017-X050	50L