

BalanCD CHO Feed 4

Catalog #	Product	Size
94134	BalanCD CHO Feed 4	1 L and 10 L Powder Additional package sizes are available upon request.

Intended Use

For research or further manufacturing use only.

Product Description

BalanCD CHO Feed 4 is a single part dry powder feed medium; developed to be used with any growth medium and has been proven with BalanCD CHO Growth A. This product supports fed-batch cultures using various CHO cell lines. It is formulated with a high nutrient concentration and contains 20 g/L of glucose when hydrated at 1X concentration. This medium is chemically defined, animal-component free, and does not contain proteins or hydrolysates.

Quality Assurance

All quality control test results are reported on a lot specific Certificate of Analysis which is available at www.irvinesci.com or upon request.

Shipping

This product is shipped at room temperature. Upon receipt, store immediately at 2-8°C.

Storage Instructions and Stability

Store dry at 2-8°C. This product is hygroscopic. Bring container to room temperature before opening, and tightly re-seal after opening. The powder should be free flowing; do not use if it is caked. This product is stable for 36 months, when properly stored. Do not use after the assigned expiration date. Avoid opening and closing the container multiple times.

Precautions and Warnings

This product is for research or further manufacturing use only; it is not intended for direct human administration or diagnostic procedures. Please refer to the Safety Data Sheet for information regarding hazards and safe handling practices.

Directions for Use

MEDIUM PREPARATION

BalanCD CHO Feed 4 can be prepared at various concentrations with a minimum batch size of 100 mL; the expected values of pH, osmolality, and liquid stability at 2-8°C are shown below (Table 1). Please note that these are estimated values and not specifications. Proper liquid stability and feeding volume should be considered to determine the concentration of the hydrated medium.

Table 1.* Medium preparation at various concentrations for a 1 L batch size.

Concentration (X)	Glucose (g/L)	WFI (mL/L)	BalanCD CHO Feed 4 Powder (g/L)	Estimated pH	Estimated Osmolality (mOsm/kg)	Recommended Feed Volume		Estimated Liquid Stability at 2-8°C**
						Total %	% per day, 5 events	
1	20	927	112.20	7.0 - 7.6	975-1175	10% - 20%	2-4%	2-3 weeks
0.8	16	944	89.74	7.0 - 7.6	780-930	15% - 25%	3-5%	6-10 weeks
0.6	12	965	67.31	7.0 - 7.6	550-700	20% - 30%	4-6%	6 months

* Values listed in the table are BalanCD CHO Feed 4 hydrated with no additional glucose.

**The hydrated product should be stable per the estimated values listed when prepared and stored properly.

- Determine desired feed medium concentration (Table 1, 0.6X-1X concentration) and desired volume to prepare. NOTE: Estimated liquid stability can be used to determine concentration and volume to prepare. A minimum batch size of 100 mL can be prepared.
- Measure appropriate volume of Water for Injection, WFI (Catalog # 9309 or equivalent) (Table 1) into an appropriately sized container. NOTE: For large scale medium preparation, convert volume of water into weight using the specific density of water.
- Add the appropriate g/L amount of BalanCD CHO Feed 4 powder (Table 1).
- Stir until majority of powder is dissolved and add 2.20 g/L Sodium Bicarbonate to the solution.
- Cover the container and stir at 400rpm, minimizing any foaming until solution is clear. NOTE: Mixing time could vary based on configuration of vessel and volume. For a 1 L batch size, approximate stirring time is 2 hours.
- Measure pH and osmolality. NOTE: Values shown in Table 1 are estimated values and not specifications.
- Sterile filter through <0.22 µm low protein binding filter membrane.
- Store at 2-8°C, protected from light. NOTE: Do not use any prepared liquid medium that shows evidence of particulate matter or cloudiness.

MEDIUM SUPPLEMENT

Additional glucose can be added to the solution, if desired. Additional glucose should be added such that the total glucose in the solution would not exceed 60 g/L. If supplementing with additional glucose, instead of step 2, start with 80% of final volume required and add additional water to bring solution to final volume after completing step 5. Please note that additional glucose will increase osmolality.

RECOMMENDED GUIDELINES FOR FED-BATCH EVALUATION

CULTURE CONDITION

- Growth Medium supplemented with 4-8 mM L-Glutamine (Catalog # 9317)
- Seeding density: $2-3 \times 10^5$ cells/mL
- Incubator setting: 37°C, 5% CO₂, humidified
- Monitor and feed glucose to desired level

FEED METHOD – STANDARD METHOD

- 1 For 14-day fed batch culture: feed recommended volume on days 3, 5, 7, 9, 11 (Table 2).
- 2 For cultures lasting longer than 14 days, additional events can be added in a similar pattern (1 event for every 2 additional culture days).

Table 2

Feed Concentration		Recommended Feed Volume	
X	g/L	Total %	% per day, 5 events
1	112.2	10% - 20%	2-4%
0.8	89.74	15% - 25%	3-5%
0.6	67.31	20% - 30%	4-6%

FEED METHOD – OPTIMIZATION GUIDELINE

- 1 Prepare BalanCD CHO Feed 4 at desired concentration.
- 2 Determine optimal feed volume. Evaluate the total feed volume at a 10-30% range as below in Table 3.
% Feed volume = % of initial culture volume

Table 3

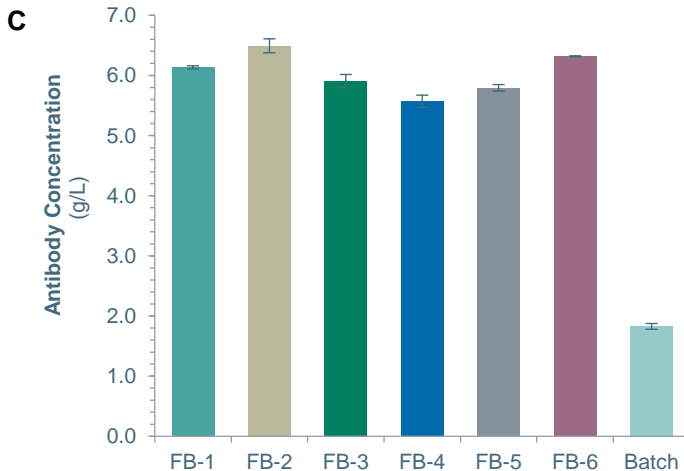
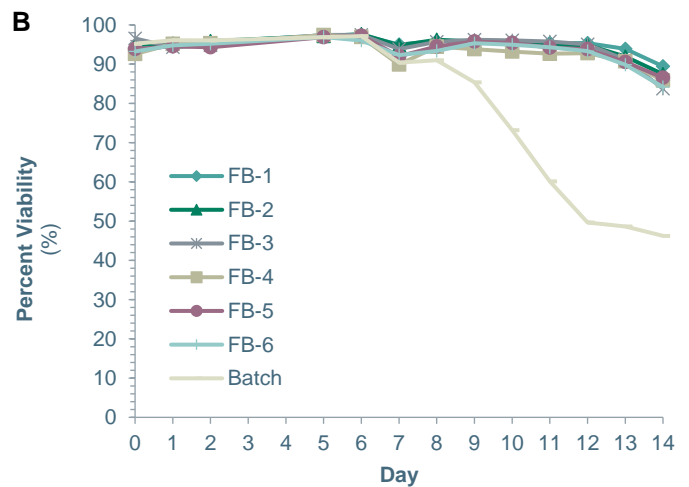
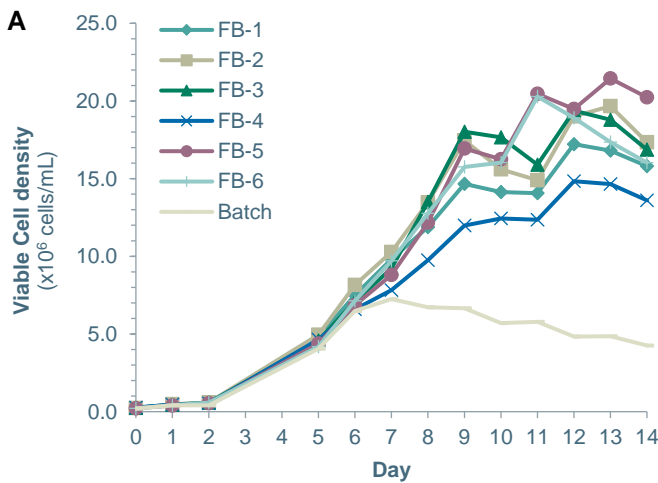
Culture Day									Total Feed Volume
3	4	5	6	7	8	9	10	11	
2%		2%		2%		2%		2%	10%
3%		3%		3%		3%		3%	15%
4%		4%		4%		4%		4%	20%
5%		5%		5%		5%		5%	25%
6%		6%		6%		6%		6%	30%

- 3 Determine feed schedule using feed volume determined from above in step 2. Feeding can be split into 5 events for i.e. 14-day cultures at an equal volume as shown in Table 4. For cultures lasting longer than 14 days, additional events can be added in a similar pattern (1 event for every 2 additional culture days).

Table 4. Feed schedule evaluation using 20% feed volume as example.

Culture Day										
Feed Schedule	3	4	5	6	7	8	9	10	11	12
FB-1	4%	4%	4%	4%	4%					
FB-2		4%	4%	4%	4%	4%				
FB-3			4%	4%	4%	4%	4%			
FB-4				4%	4%	4%	4%	4%		
FB-5	4%		4%		4%		4%		4%	
FB-6		4%		4%		4%		4%		4%
Batch	No feeding, Batch control									

Example Data



BalanCD CHO Feed 4 was fed with various feed schedules. CHO cells were grown in 125 mL Erlenmeyer shaker flasks with 30 mL working volume. Cells were seeded at 3×10^5 cells/mL in BalanCD CHO Growth A medium (supplemented with 4 mM L-Glutamine) in duplicate. BalanCD CHO Feed 4 was reconstituted at 1X and was added at equal volumes per event (total volume of 20%) according to Table 4. Temperature shift was performed from 37°C to 33°C on day 7. Glucose was monitored every other day and supplemented to 8 g/L when it dropped below 3 g/L. Viable cell density (A) and percent viability (B) were measured. Antibody concentration (C) was measured on day 14.

Related Products

Catalog #	Product	Size
91128	BalanCD CHO Growth A, Liquid	1 L
94120	BalanCD CHO Growth A, Powder	10 L, 100 L
9309	Water for Injection (WFI)	1 L, 20 L Carboy
9317	L-Glutamine Solution (200 mM)	100 mL, 500 mL

Technical support

CONTACT US

For more information or assistance contact Customer Service at:

Email: fisitmrequest@fujifilm.com

Direct line: +1 800 577 6097

WEBSITE RESOURCES

Visit the website at www.irvinesci.com for technical resources and information including:

Safety Data Sheets (SDS)

COAs (when available)

FAQs

Product literature

Complete list of offices and contact information by country

FUJIFILM Irvine Scientific, Inc.

2511 Daimler Street, Santa Ana, California 92705 USA

Telephone: 1 949 261 7800 • 1 800 437 5706

Fax: 1 949 261 6522 • www.irvinesci.com

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