# CDFS12™

## Chemically Defined CHO Feed Supplement

## A. Product Description

### Components

CDFS12 is a chemically defined feed supplement formulated for CHO cell cultures. It is hydrolysate-free, animal-origin free (AOF), and does not contain L-glutamine.

### Application

- Designed for high-density fed-batch processes across multiple Chinese hamster ovary (CHO) cell subtypes.
- Recommended CHO subtypes: CHOZN GS$^{-/-}$, etc.
- Recommended companion media: StarCHO™, StarCHO™ Plus and StarCHO™ Feed Plus.
- This product is intended for research use or further manufacturing, including large-scale biopharmaceutical production. It is not intended for direct human administration or use as a drug substance or drug product.

### Storage and Shipping conditions

Storage: 2-8°C, dry and protected from light.
Shipping conditions: insulated foam container with ice packs.

### Shelf Life

Liquid: 12 months | Powder: 24 months

## B. Dry Powder Reconstitution Method

1. Use a clean container.
2. Measure out 70% of the final volume of ultrapure water or WFI (Water for Injection) with temperature at 25°C to 35°C.
3. Add 85 mL of 5 N NaOH to the water for each liter of CDFS12 to be prepared.
4. Add 93.0 g/L CDFS12 Dry Powder Medium (DPM) slowly to the water. Keep stirring for 20 minutes.
5. Add 5 N NaOH slowly to increase the PH to 11.40-11.60. Keep stirring for 20 minutes. The solution will become clear. After 20 minutes, ensure the pH is in the range of 11.40-11.60 and adjust with 5N NaOH as needed.
6. Adjust to the final volume with ultrapure water or WFI and continue stirring for 10 minutes. Measure the final pH and osmolality and ensure the final pH is 11.40-11.60.
7. Sterilize immediately by filtration through a low-protein binding membrane, such as polyethersulfone (PES), with a pore size of 0.20-0.22 μm.
8. Label and store the reconstituted medium at 2°C to 8°C, protected from light.

## C. Volume Adjustment

1. **Volumetric adjustment:** During medium preparation, adjust the solution to the target volume based on the actual volume ($V_{actual}$). This method is recommended for small-scale preparations.
2. **Gravimetric adjustment:** During medium preparation, adjust the solution by weight ($m = \rho \times V_{actual}$). This method is recommended for large-scale preparations. Recommended density for CDFS12: $\rho = 1.052\ g/cm^3$.

## D. Culture Conditions

- Temperature: 37°C
- Humidity: 80%
- $CO_2$ concentration: 5–8%
- Shaker settings:
  - 120 rpm with a 50 mm orbital diameter
  - 170 rpm with a 25 mm orbital diameter

## E. Recommended Protocol for Fed-Batch Process

1. The seed cell density should be between 3-6×10$^6$ cells/mL, with viability above 95% and a stable population doubling time (PDT).

2. Day 0: Inoculate cells at a viable cell density of $1.0\times10^6$ cells/mL into OPM basal medium.

3. When the viable cell density reaches $\geq3.5\times10^6$ cells/mL (typically by day 2), perform the first feeding.

4. Addition of CDFS12 is recommended between 0.3-0.6% of the initial culture volume, with feeding every other day after feeding is initiated. For best results, CDFS12 should be paired with an appropriate OPM basal medium and OPM feed medium based on the OPM Medium & Feed Selection Guide as below: http://opmbio.com/media-selection-guide-na

5. Glucose should be monitored and adjusted daily. A suggested feeding strategy for CDFS12 is displayed in Table 1.

Table 1. Suggested feeding strategy for CDFS12

| Culture Day | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
|---|---|---|---|---|---|---|---|---|
| OPM Feed Medium | 5% | 5% | 6% | 6% | 6% | 6% | 5% | Harvest |
| CDFS12 | 0.5% | 0.5% | 0.6% | 0.6% | 0.6% | 0.6% | 0.5% | Harvest |

** Optimization of feed volumes and timing of feedings should be based on actual process performance and requirements. Other process parameters such as temperature downshift should be followed based on platform development or clone performance.*

## F. Ordering Information

| Product Name | SKU | Volume |
|---|---|---|
| CDFS12 Medium | C251240-01 | 500 mL |
| | C251240-02 | 1000 mL |
| CDFS12 DPM | C259320-01 | 1 L |
| | C259320-02 | 10 L |
| | C259320-03 | 50 L |
| | C259320-04 | 100 L |