

## Operating Instructions

## Gel Filtration Chromatography Media Cellufine GCL-2000

### Description

Cellufine GCL-2000 offers competitive flow rate and resolving power for gel filtration chromatography. The semi-rigid spherical cellulose beads exhibit good flow rates with longer bed length, even with large diameter columns, while the high pore volume allows high capacity. Furthermore, GCL-2000 is chemically stable and can be run with many buffers and solutions.

### Physical-Chemical Characteristics

Support matrix	cellulose
Particle shape	spherical
Particle diameter (µm)	ca. 40 – 130
pH Stability range	1 – 14
Operating pressure	< 1 bar (14.5 psi)
Supplied	suspension in 20 % EtOH

### Molecular Weight Exclusion Limit (kD)

Packing	PEG	Polysaccharide	Globular Proteins
GCL-2000	200	-----	3,000

### Column Packing

The following is a general procedure which can be used to pack gel filtration columns:

1. Calculate volume required for the desired bed height 60 – 80 cm for gel filtration, 15 – 30 cm for desalting / buffer exchange.
2. Prepare a 40 – 60 % (v/v) slurry in buffer (eg. 0.1 M NaH<sub>2</sub>PO<sub>4</sub>, pH 7)
3. With column outlet closed, carefully pour the slurry into the column. Depending on the volume, a filler tube may be necessary.
4. With the inlet open to release air, insert and affix the top adjuster assembly at the slurry interface.
5. Open the column outlet and begin pumping buffer at a rate 10 – 20 % higher than the operational flow rate.

6. After the bed stabilizes, close the column outlet. Then with the inlet open, reposition the end cell on top of the bed.

## Operating Guidelines

### General Operation

Equilibrate column with 2 – 5 volumes of buffer at the appropriate flow rates. The column is run isocratically.

### Sample Preparation and Load

Samples are ideally prepared in the mobile buffer. Samples can also be applied from different buffer, if buffer exchange is desired. Filtration may be necessary to remove insoluble matter. The sample load in gel filtration is a function of column volume. Sample loads of 0.1 % to 1.0 % of total column volume are used for high resolution applications, while for general purpose preparative separations a load up to 5 % total column volume may be used. For buffer exchange or desalting, a load of 15 – 25 % of total column volume is suitable to prevent dilution of the sample. Sample protein concentrations should be between 1 – 20 mg/ml.

**Recommended Flow Rate:** 5 – 50 cm/h

### Elution

Elution occurs under isocratic conditions. If buffer exchange is desired, ensure that the column is equilibrated with the desired buffer before sample loading.

### Chemical Compatibility

pH 1 – 14

Ethanol, methanol, acetone, etc.

6 M Urea

6 M Guanidine/HCl

0.1 M HCl

0.5 M NaOH

Most salts (NaCl, (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, etc.)

Most detergents (SDS, Tween®, Chap, etc.)

**Autoclavable:** 121°C at 1 bar for 20 minutes

### Regeneration

Flush the column with 5 bed volumes of 0.1 M NaOH at a velocity of 5 – 50 cm/h. Remove

caustic by flushing with several bed volumes of DIW or buffer. Measure the pH of the column eluate to ensure that the system has returned to equilibrium.

**Storage**

Store unopened container at ambient temperature. Do not freeze.

Short term storage for bulk and column (2 weeks or less) can be stored in DIW containing 0.02 % sodium azide, 20 % ethanol, or 0.1 M NaOH. Long term storage can be conducted under identical conditions at 2 – 8 °C. Do not freeze.

**Shelf Lifetime:**

5 years from date of manufacture

**Ordering Information** (Catalogue No.)

Media type	Pack Size			
	100ml	500ml	5L	10L
<b>Cellufine GCL-2000</b>	<b>672 000 327</b>	<b>19791</b>	<b>19792</b>	<b>672 000 335</b>
Cellufine GH-25	670 000 327	19711	19712	670 000 335

# JNC CORPORATION

Life Chemicals Launch Office

2-1, Otemachi 2-Chome, Chiyoda-ku, Tokyo 100-8105, Japan

Phone +81-3-3243-6150, Fax+81-3-3234-6219

E-mail : [cellufine@jnc-corp.co.jp](mailto:cellufine@jnc-corp.co.jp)

<http://www.jnc-corp.co.jp/fine/jp/cellufine>

## TERMS AND CONDITIONS OF SALE

1. **Acceptance**-Buyer's placement of this order shall create a contract subject to and expressly limited by these terms and conditions. Acceptance may only be made on the exact terms and conditions hereof and if additional or different terms are proposed by Buyer, such response shall constitute a counteroffer. **THE TERMS OF THIS CONTRACT SHALL SUPERSEDE ANY CONFLICTING TERMS CONTAINED ON BUYERS PURCHASE ORDER OR ANY DOCUMENT OR INSTRUMENT SUBMITTED BY BUYER.**

2. **Prices, Taxes and Payment** - All prices are firm unless otherwise agreed to in writing. JNC Corporation reserves the right to change the prices and specifications of its Products at any time without notice. Any tax, duty, custom or other fee of any nature imposed upon this transaction by any federal, state or local governmental authority shall be paid by Buyer in addition to the price quoted or invoiced. In the event JNC Corporation is required to prepay any such tax, Buyer will reimburse JNC Corporation. Payment terms shall be net 30 days after shipment by JNC Corporation. An interest charge equal to 1½% per month (18% per year) will be added to invoices outstanding beyond 30 days after shipment. In addition JNC Corporation reserves the right to require C.O.D. payment terms from any Buyer whose account is overdue for a period of more than 60 days or who has an unsatisfactory credit or payment record. JNC Corporation may also refuse to sell to any person until overdue accounts are paid in full.

3. **Delivery and shipment** - JNC Corporation will make every effort to ship the Products or provide the services hereunder in accordance with the requested delivery date, provided, that JNC Corporation accepts no liability for any losses or for general, special or consequential damages arising out of delays in delivery. Shipment of all Products shall be F.O.B. point of distribution by JNC Corporation; identification of the Products shall occur when they leave JNC Corporation's point of distribution, at which time title and risk of loss shall pass to Buyer. All shipment costs shall be paid by Buyer and if prepaid by JNC Corporation the amount thereof shall be reimbursed to JNC Corporation.

4. **Inspection** - Buyer shall be responsible for inspecting all Products shipped hereunder prior to acceptance, provided, that if, Buyer shall not have given JNC Corporation written notice of rejection within 30 days following shipment to Buyer, the Products shall be deemed to have been accepted by Buyer.

5. **Disclaimer of Express and Implied Warranties** - The Products shall be covered by the applicable JNC Corporation standard warranty. **NO OTHER EXPRESS OR IMPLIED WARRANTY IS MADE WITH RESPECT TO THE PRODUCTS. JNC CORPORATION EXPRESSLY EXCLUDES THE IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE.** Any model or sample furnished to the Buyer is merely illustrative of the general type and quality of goods and does not represent that the Products will conform to the model or sample. Buyer's remedies under JNC Corporation's warranty shall be limited to repair or replacement of the Product or component which failed to conform to JNC Corporation's warranty. **JNC Corporation shall not be liable for any consequential damages or economic loss or property damage incurred by Buyer.**

6. **Returned Goods** - No Products shipped under this contract may be returned without the express prior authorization of JNC Corporation. All returns of Products are subject to a restocking charge. No returns will be authorized after 120 days following shipment to Buyer.

7. **Technical Advice** - JNC Corporation may, at Buyer's request, furnish technical assistance, advice and information with respect to the Products if and to the extent that such advice, assistance and information is

conveniently available. It is expressly agreed that there is no obligation to provide such information which is provided without charge at the Buyer's risk and which **is provided subject to the disclaimers set forth in paragraph 5 above.**

8. **Agents, etc.** - No agent, employee or other representative has the right to modify or expand JNC Corporation's standard warranty applicable to the Products or to make any representations as to the Products other than those set forth in JNC Corporation's product literature and any such affirmation, representation or warranty, if made, should not be relied upon by Buyer and shall not form a part of this contract.

9. **Fair Labor Standards** - JNC Corporation represents that the Products or services provided hereunder were produced and/or performed in compliance with the requirements of all sections of the Fair Labor Standard Act of 1938, as amended.

10. **Equal Employment Opportunity** - JNC Corporation is an Equal Opportunity Employer. It does not discriminate in any phase of the employment process against any person because of race, color, creed religion, national origin, sex, age, veteran or handicapped status. The JNC Corporation Equal Opportunity Certificate, which is mailed annually to all vendors and vendees, is incorporated into this contract by reference.

11. **Modifications, Waiver, Termination** - This contract may be modified and any breach hereunder may be waived only by a writing signed by the party against whom enforcement thereof is sought.

12. **Governing Law** - This contract shall be governed by and construed in accordance with the laws (other than those relating to conflict of laws questions) of the Commonwealth of Japan.

13. **Arbitration** - Any and all disputes or controversies arising under, out of or in connection with this contract or the sale or performance of the Products shall be resolved by final and binding arbitration in Tokyo under the rules of the Japan Arbitration Association then obtaining. The arbitrators shall have no power to add to, subtract from or modify any of the terms or conditions of this contract. Any award rendered in such arbitration may be enforced by either party in either the courts of the Commonwealth of Japan District Court for the District of Japan, to whose jurisdiction for such purposes JNC Corporation and Buyer each hereby irrevocably consents and submits.