

Product Data Sheet

DIAION™ HP21

DIAION™ HP21 is based on a unique rigid polystyrene/divinylbenzene matrix. A controlled pore size distribution and large surface area offer excellent resolution and the capacity for a wide range of molecules, from small peptides and oligonucleotides up to large proteins. DIAION™ HP21 has relatively smaller pore radius and larger specific surface area than DIAION™ HP20.

Product

| | |
|------------|-----------------------|
| Grade Name | DIAION™ HP21 |
| Type | Synthetic Adsorbents |
| Matrix | Styrene-DVB, Poursous |

Specification

| | | |
|--|----|-----------|
| Water content | % | 50 - 60 |
| Particle Size Distribution thr. 250 µm | % | 10 max. |
| Effective size | mm | 0.25 min. |
| Uniformity Coefficient | - | 1.6 max. |

Properties

| | | |
|-----------------------|-------------------|------|
| Shipping Density | g/L | 680 |
| Particle Density | g/mL | 1.01 |
| Specific Surface Area | m ² /g | 640 |
| Pore Volume | mL/g | 1.3 |
| Pore Radius | Å | 110 |

Recommended Operating Conditions

| | | |
|-------------------------------|------|--|
| Maximum Operating Temperature | °C | 130 |
| Operating pH Range | | 0 - 14 |
| Minimum Bed Depth | mm | 800 |
| Flow rate | BV/h | Loading 0.5 - 5 |
| | BV/h | Displacement 0.5 - 2 |
| | BV/h | Regeneration 0.5 - 2 |
| | BV/h | Rinse 1 - 5 |
| Regenerant | | |
| | | Organic solvents for hydrophobic compounds |
| | | Bases for acidic compounds |
| | | Acids for basic compounds |
| | | Buffer solution for pH sensitive compounds |
| | | Water for an ionic solution |
| | | Hot steam for volatile compounds |



Pore size distribution

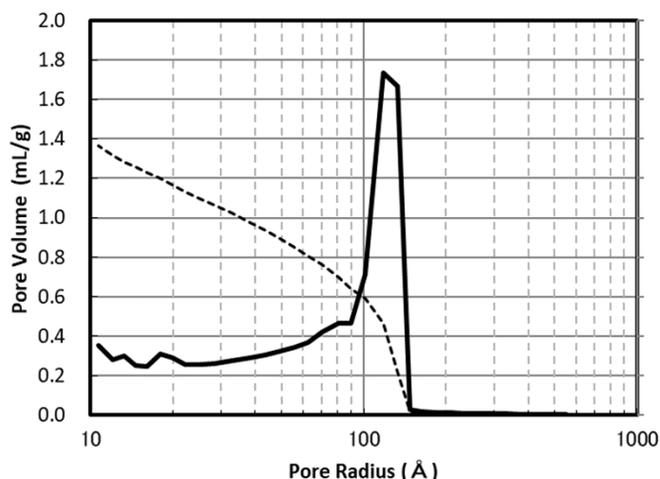


Fig. 1 Pore size distribution of HP21

Swelling Ratio In Various Solvents

| | |
|--------------|------|
| Methanol | 1.22 |
| Ethanol | 1.35 |
| 2-Propanol | 1.32 |
| Acetone | 1.32 |
| Toluene | 1.40 |
| Acetonitrile | 1.32 |
| Water | 1.00 |

Hydraulic Characteristics

The approximate pressure drop at various temperatures and flow rates for each meter of bed depth of DIAION™ HP21 resin in normal down flow operation is shown in the graph below.

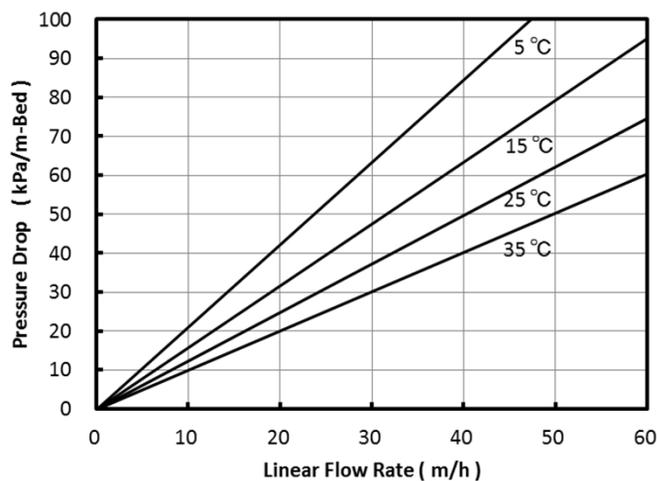


Fig. 2 Pressure Drop of HP21



Indicative Applications

- Purification of small peptides, oligonucleotides and proteins
- Adsorption of vitamins, antibiotics, enzymes, steroids and other substance from fermentation solutions
- Decolorization of various sugar solutions
- Adsorption of fatty acids
- Removal of phenol
- Adsorption of various perfume
- Decolorization and purification of various chemicals

Storage condition

Synthetic adsorbents are at high risk of mold growth. Accordingly, synthetic adsorbents should be stored properly. Properly stored synthetic adsorbent resins may be stored for up to one year after production before the onset of any mold growth is detected. Optimal storage is with a 20% alcohol solution such as ethanol or isopropanol. A 10% or higher concentration of salt solution, such as NaCl, is also recommended to preserve new or used resin for storage. In case salt cannot be used, a 0.01 to 0.02 N NaOH solution may be acceptable as mold cannot withstand survival at pH higher than 12. Storage at freezing temperatures should be avoided as it may cause breakage or crush certain resin particles.

Notice

DIAION™ is a registered trademark of Mitsubishi Chemical Corporation. The information contained herein is believed to be true and accurate, but all data, recommendations and suggestions are provided without guarantee, since the conditions of use are beyond our control and can affect the performance and properties of our products. The user is solely responsible for confirming that our product is suitable for the intended end use, and for compliance with all legal regulations and patents. Other than compliance with published Mitsubishi Chemical Corporation specifications agreed to pursuant to a signed writing during the warranty period, and except as required by law, MITSUBISHI CHEMICAL CORPORATION AND ITS AFFILIATES MAKE NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY WARRANTY ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If a product is found to be defective during the warranty period, user's sole remedy and our sole obligation is, at our option, replacement of the affected product or refund of the purchase price. Except as required by law, we are not liable for any damage, harm or loss resulting from our product, whether direct, indirect, consequential, incidental or special, and irrespective of legal theory asserted, including strict liability, contract, warranty, or negligence.

