

# Ni Sepharose and IMAC Sepharose

## Total solutions for preparation of histidine-tagged proteins

higher binding capacity,  
lower costs per prep

Selection guide



- Purification from unclarified lysates
- Batch/gravity flow purification
- Protein preps and mini-preps
- High-throughput screening
- Scale-up



Product	Product code no.	Data File code no.	Pack size	Approx. protein binding capacity*	High-throughput screening	Minipreps	Batch/Gravity flow	Syringe	ÄKTAdesign, FPLC™ System
<b>Precharged Ni Sepharose</b>									
Ni Sepharose High Performance	17-5268-01	18-1174-40	25 ml 100 ml	40 mg/ml	• •				• •
	17-5268-02								
HisTrap HP	17-5247-01	18-1174-40	5 x 1 ml 100 x 1 ml <sup>†</sup>	40 mg/column					• • •
	17-5248-01								
	17-5248-02 17-5248-05								
His MultiTrap HP	28-4009-89	11-0036-63	4 x 96-well filter plates	1000 µg/well	•				
His SpinTrap	28-4013-53	28-4046-59	50 x 100 µl	750 µg/column		•			
Ni Sepharose 6 Fast Flow	17-5318-06	11-0008-86	5 ml 25 ml 100 ml 500 ml	40 mg/ml	• • • •	•	•		• • • •
	17-5318-01								
	17-5318-02								
	17-5318-04								
HisTrap FF	17-5319-01	11-0008-86	5 x 1 ml 100 x 1 ml <sup>†</sup>	40 mg/column				• •	• •
	17-5319-02								
HisTrap FF crude	17-5255-01	11-0008-86	5 x 5 ml 100 x 5 ml <sup>†</sup>	200 mg/column				• •	• •
	17-5255-02								
HisTrap FF crude	11-0004-58	11-0012-37	5 x 1 ml 100 x 1 ml <sup>†</sup>	40 mg/column				• •	• •
	11-0004-59								
HisTrap FF crude	17-5286-01	11-0012-37	5 x 5 ml 100 x 5 ml <sup>†</sup>	200 mg/column				• •	• •
	17-5286-02								
HisTrap FF crude Kit <sup>‡</sup>	28-4014-77	11-0012-37	3 x 1 ml	40 mg/column				•	
HisPrep FF 16/10	17-5256-01	11-0008-86	1 x 20 ml	800 mg/column					•
His MultiTrap FF	28-4009-90	11-0036-63	4 x 96-well filter plates	800 µg/well	•				
His GraviTrap	11-0033-99	11-0036-90	10 x 1 ml	40 mg/column			•		
His GraviTrap Kit <sup>‡</sup>	28-4015-31	11-0036-90	20 x 1 ml	40 mg/column			•		
<b>Uncharged IMAC Sepharose</b>									
IMAC Sepharose High Performance	17-0920-06	28-4041-05	25 ml 100 ml	40 mg/ml (Ni <sup>2+</sup> ) <sup>§</sup>	• •				• •
	17-0920-07								
HiTrap IMAC HP	17-0920-03 17-0920-05	28-4041-05	5 x 1 ml 5 x 5 ml	40 mg/column (Ni <sup>2+</sup> ) <sup>§</sup> 200 mg/column (Ni <sup>2+</sup> ) <sup>§</sup>					• •
IMAC Sepharose 6 Fast Flow	17-0921-07	28-4041-06	25 ml 100 ml	40 mg/ml (Ni <sup>2+</sup> ) <sup>§</sup> 25 mg/ml (Cu <sup>2+</sup> ) <sup>§</sup> 15 mg/ml (Zn <sup>2+</sup> ) <sup>§</sup>	• •	•	•		• •
	17-0921-08								
HiTrap IMAC FF	17-0921-02 17-0921-04	28-4041-06	5 x 1 ml 5 x 5 ml	40 mg/column (Ni <sup>2+</sup> ) <sup>§</sup> 200 mg/column (Ni <sup>2+</sup> ) <sup>§</sup> 125 mg/column (Cu <sup>2+</sup> ) <sup>§</sup> 75 mg/column (Zn <sup>2+</sup> ) <sup>§</sup>				• •	• •
HiPrep IMAC FF 16/10	17-0921-06	28-4041-06	1 x 20 ml	800 mg/ml column (Ni <sup>2+</sup> ) <sup>§</sup> 500 mg/column (Cu <sup>2+</sup> ) <sup>§</sup> 300 mg/columns (Zn <sup>2+</sup> ) <sup>§</sup>					•
<b>Buffer kit</b>									
His Buffer Kit	11-0034-00	11-0036-90					•	•	•

\* Protein-dependent.

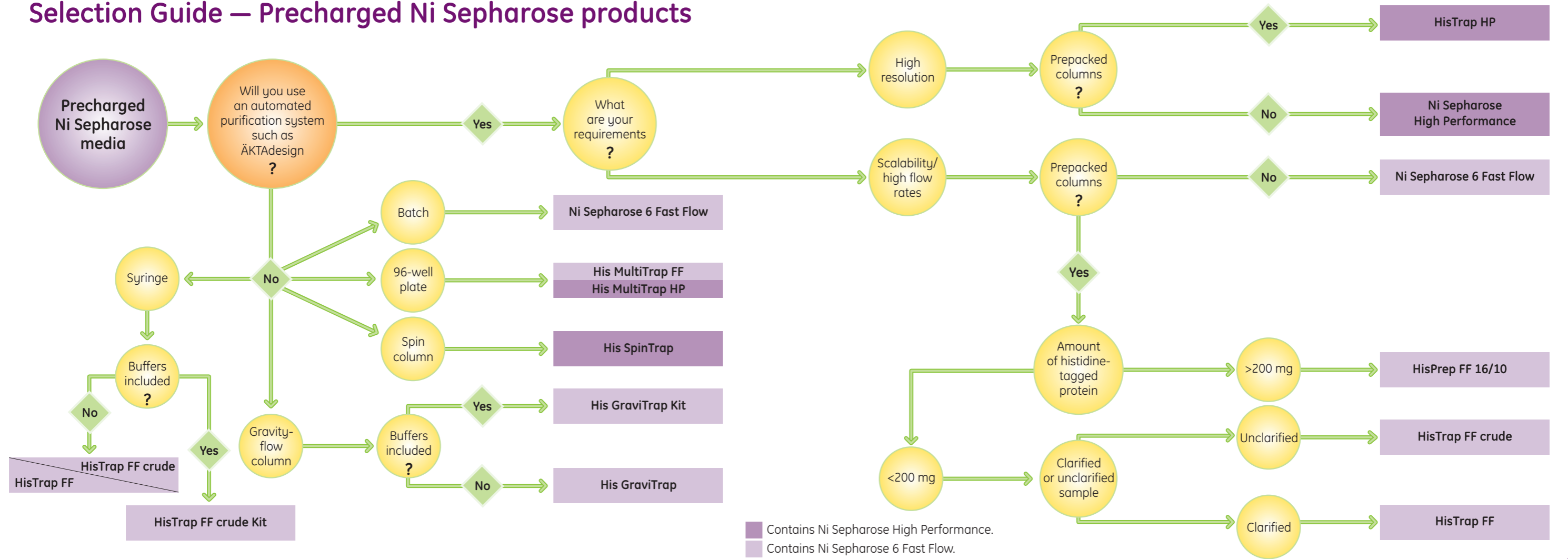
<sup>†</sup> Includes buffer stock solutions for approximately 10 preps using a syringe.

<sup>‡</sup> Includes buffer stock solutions for approximately 20 preps.

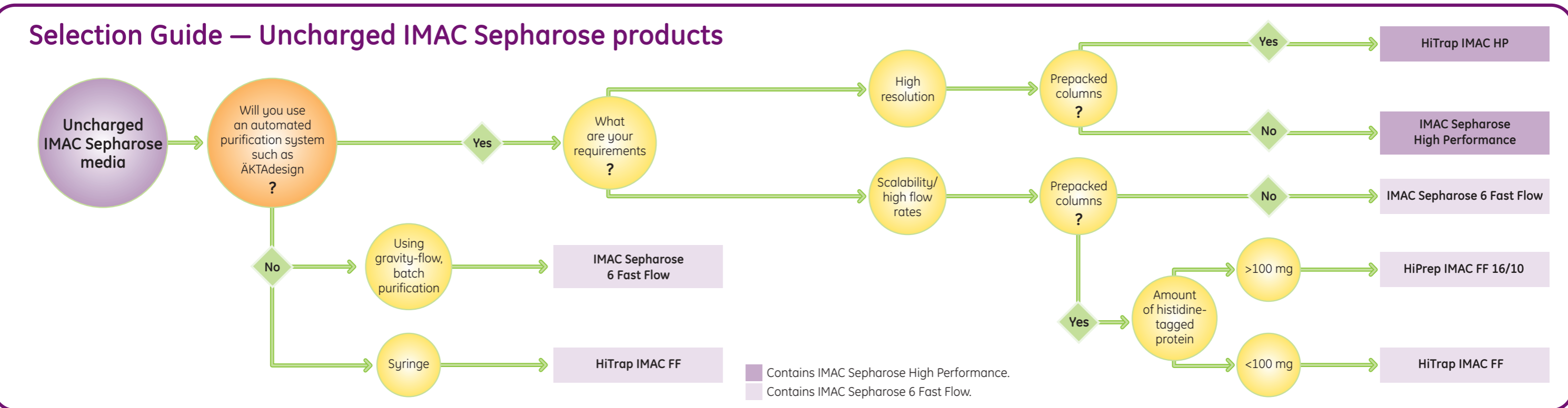
<sup>§</sup> Protein- and metal-ion dependent.

<sup>¶</sup> Available by specific customer order.

## Selection Guide – Precharged Ni Sepharose products



## Selection Guide – Uncharged IMAC Sepharose products



## Ni Sepharose High Performance

### Ni Sepharose High Performance—precharged medium for high-resolution purification

Ni Sepharose™ High Performance is precharged with Ni<sup>2+</sup> ions for convenience. High binding capacity combined with lower leakage of Ni<sup>2+</sup> ions compared to products from other suppliers\* ensures reliable capture of histidine-tagged proteins in repeated purifications. Ni Sepharose High Performance ensures the lowest sample dilution and best separation. Ni Sepharose High Performance is available in lab packs and convenient, prepacked, HisTrap™ HP 1-ml and 5-ml columns, as well as His SpinTrap™ and His MultiTrap™ HP (see below).

\* See Data File 18-1174-40 for details.

### HisTrap HP columns for convenient and reproducible purification

HisTrap HP 1-ml and 5-ml columns are prepacked with Ni Sepharose High Performance for reliable, high-resolution purification of histidine-tagged proteins at laboratory scale.

### His MultiTrap HP 96-well filter plates for high-throughput screening and parallel purification

His MultiTrap HP are prepacked 96-well filter plates for convenient screening and rapid, high-throughput parallel purification of histidine-tagged proteins. Each well is packed with 50 µl of Ni Sepharose High Performance. Unclarified cell lysates are loaded directly and purification of 96 samples with up to 1-mg histidine-tagged protein/well is possible. Consistent well-to-well and plate-to-plate performance ensures high reproducibility. His MultiTrap HP filter plates simplify and shorten the time for expression screening, which minimizes degradation and oxidation of sensitive target proteins. Operation is possible with robotic systems or manually by centrifugation or vacuum. For scaling up, use HisTrap HP columns.

### His SpinTrap columns for protein mini-preps

His SpinTrap are spin columns prepacked with 100 µl of Ni Sepharose High Performance. These spin columns are designed for small-scale purification of histidine-tagged proteins directly from clarified or unclarified cell lysates. The columns are also used for screening of bacterial lysates, as well as optimization of purification conditions. His SpinTrap columns are used together with a standard microcentrifuge and one purification run takes approximately 10 min.

## Ni Sepharose 6 Fast Flow

### Ni Sepharose 6 Fast Flow—precharged medium for batch purification, protein preps, and scale-up

Ni Sepharose 6 Fast Flow is precharged with Ni<sup>2+</sup> ions, the first-choice metal ion for purifying most histidine-tagged protein. Ni Sepharose 6 Fast Flow has very high protein binding capacity, which converts to lower costs per prep as a result of the lower medium requirement. Lower leakage of Ni<sup>2+</sup> ions compared to products from other suppliers\* ensures reliable capture of histidine-tagged proteins in repeated purifications. The high flow properties of the highly cross-linked agarose matrix make it an excellent choice for batch purification/protein preps and scale-up. His GraviTrap™ columns (see below), prepacked with Ni Sepharose 6 Fast Flow, can be used for reproducible gravity flow preparations.

Ni Sepharose 6 Fast Flow is also available prepacked in His MultiTrap FF 96-well filter plates for screening purposes and in convenient column formats for scale-up, as well as for purifying histidine-tagged proteins directly from unclarified cell lysates (HisTrap FF crude).

\* See Data File 11-0008-86 for details.

### HisTrap FF and HisPrep FF 16/10 prepacked columns for fast and easy scale-up

HisTrap FF 1-ml and 5-ml columns are prepacked with Ni Sepharose 6 Fast Flow for scaling up purification of histidine-tagged proteins at laboratory scale. Operation of the columns is with a simple syringe, pump, or chromatography system such as ÄKTAdesign™. The high flow rates made possible by the Ni Sepharose 6 Fast Flow matrix make HisTrap FF columns an excellent choice for scale-up. In addition, multiple HisTrap FF columns can be easily connected in series for increased purification capacity. HisPrep™ FF 16/10 are 20-ml columns for further simple and reproducible scale-up using a chromatography system, when higher capacity is needed.

### HisTrap FF crude prepacked columns—purify target proteins directly from unclarified cell lysate

HisTrap FF crude 1-ml and 5-ml columns enable direct loading of unclarified cell lysates for fast and convenient purification of histidine-tagged proteins. The columns are prepacked with Ni Sepharose 6 Fast Flow. Cell debris and particulate matter of homogenized or sonicated cell lysate pass through the column without affecting binding capacity and purity of the purified target protein. This allows fast purifications and reduces sample preparation time, which minimizes degradation of sensitive target proteins by proteases present in the cell lysate. HisTrap FF crude Kit contains both columns and ready-made buffers for added convenience and for making a quick start to purifying histidine-tagged proteins.

### His MultiTrap FF 96-well filter plates—high-throughput screening and parallel purification

His MultiTrap FF are prepacked 96-well filter plates for convenient screening and rapid, high-throughput parallel purification of histidine-tagged proteins. Each well is packed with 50 µl of Ni Sepharose 6 Fast Flow. Unclarified cell lysates are loaded directly and purification of 96 samples with up to 0.8 mg of histidine-tagged protein/well is possible. Consistent well-to-well and plate-to-plate performance ensures high reproducibility. His MultiTrap FF filter plates simplify and shorten the time for expression screening, which minimizes degradation and oxidation of sensitive target proteins. Operation is possible with robotic systems or manually by centrifugation or vacuum. For scaling up, use HisTrap FF and HisPrep FF 16/10 columns.

### His GraviTrap—easy purification and fast results

His GraviTrap is a prepacked, single-use column containing Ni Sepharose 6 Fast Flow. The column gives fast and simple gravity-flow purifications without the need for a purification system. Large sample volumes of either clarified or unclarified sample can be applied in one go, and the histidine-tagged protein is effectively eluted in a small volume. One purification run takes approximately 30 min (depending on sample volume and viscosity of the solutions). His GraviTrap columns are also available in His GraviTrap Kit, which contains columns and optimized buffers for up to 20 purifications.

## IMAC Sepharose High Performance

### IMAC Sepharose High Performance and HiTrap IMAC HP—uncharged medium and prepacked columns for high-resolution purification

IMAC Sepharose High Performance is supplied free of metal ions. The medium can be charged with a metal ion of choice, which allows screening to select the most suitable metal ion and purification conditions for specific histidine-tagged and untagged target proteins. IMAC Sepharose High Performance ensures the lowest sample dilution and best separation. The medium is available in lab packs and in convenient, prepacked, HiTrap™ IMAC HP 1-ml and 5-ml columns.

## IMAC Sepharose 6 Fast Flow

### IMAC Sepharose 6 Fast Flow, HiTrap IMAC FF, HiPrep IMAC FF 16/10—uncharged medium and prepacked columns for scale-up

IMAC Sepharose 6 Fast Flow is an uncharged medium for screening for optimal purification conditions and scaling up purification of histidine-tagged and untagged proteins. The medium is supplied free of metal ions and can be charged with metal ions that deliver the best possible purity of target protein. The excellent flow properties of IMAC Sepharose 6 Fast Flow allows easy scale-up and the medium is also available in convenient, prepacked HiTrap IMAC FF 1-ml and 5-ml columns. Further scale-up can be achieved with HiPrep™ IMAC FF 16/10, 20-ml columns.

## His Buffer Kit

### His Buffer Kit—ready-made buffers for added convenience

His Buffer Kit consists of ready-made stock solutions of buffers optimized for histidine-tagged protein purification under native conditions. This convenient kit is specially adapted for use with Ni Sepharose and IMAC Sepharose products. The kit contains buffer concentrates for binding, washing, and elution of histidine-tagged proteins according to recommended protocols. This buffer kit eliminates time-consuming buffer preparations and promotes fast and reliable purification of target protein.

## Ni Sepharose and IMAC Sepharose—convenience, reliability, and flexibility

Ni Sepharose and IMAC Sepharose are the latest additions to the GE Healthcare range of convenient and reliable solutions for purifying histidine-tagged proteins. Ni Sepharose is precharged with Ni<sup>2+</sup> for greater convenience and simplicity. IMAC Sepharose can be charged with a metal ion of choice, for example Co<sup>2+</sup>, Cu<sup>2+</sup>, Zn<sup>2+</sup>, Ni<sup>2+</sup>, which allows screening to select the most suitable metal ion and purification conditions for specific target proteins.

### Ni Sepharose and IMAC Sepharose media offer these benefits\*:

- Stable in a wide range of denaturants, detergents, and buffer systems.
- Compatible with commonly used reducing agents, such as DTT, DTE, TCEP, and β-mercaptoethanol.
- High protein binding capacity.
- Low Ni<sup>2+</sup> ion leakage.

\* See Data Files 18-1174-40, 11-0008-86, 28-4041-05, and 28-4041-06 for details.



[www.gehealthcare.com/his](http://www.gehealthcare.com/his)

[www.gehealthcare.com/protein-purification](http://www.gehealthcare.com/protein-purification)

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Purification and preparation of fusion proteins and affinity peptides comprising at least two adjacent histidine residues may require a license under US pat 5,284,933 and US pat 5,310,663, including corresponding foreign patents (assigne: Hoffman La Roche, Inc).

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