

SLURRY HANDLING MADE SIMPLE

DATA SPECIFICATION SHEET

FOR IMPROVED SAFETY

OLIGONUCLEOTIDE
SYNTHESIS

SLURIPREP™

SLURIPREP™ SYSTEM (SPS)

Efficiently removes small fine particles
that tend to clog column frits

Slurry preparation is a critical step in preparing a well-packed column and achieving a successful bioprocess purification. However, this step can be challenging as different therapeutics require different chromatography media to achieve effective chromatographic separation. For instance, therapeutics in the 5 to 15 kDa range, such as insulins and oligonucleotides, utilize rigid and spherical chromatography media, which can be more difficult to work with. These media are based on a wide range of matrices including silica gel, polystyrene-divinylbenzene, polymethacrylate, agarose and hydroxyapatite, each with its own packing properties. As these processes are scaled up to larger column diameters, packing media becomes more complex and proper handling becomes more crucial for success.

SIMPLIFIED SLURRY PREPARATION

Slurry preparation is a critical step in preparing a well-packed column and achieving a successful bioprocess purification. However, this step can be challenging as different therapeutics require different chromatography media to achieve effective chromatographic separation. For instance, therapeutics in the 5 to 15 kDa range, such as insulins and oligonucleotides, utilize rigid and spherical chromatography media, which can be more difficult to work with. These media are based on a wide range of matrices including silica gel, polystyrene-divinylbenzene, polymethacrylate, agarose and hydroxyapatite, each with its own packing properties. As these processes are scaled up to larger column diameters, packing media becomes more complex and proper handling becomes more crucial for success.

SPS MULTI-FUNCTION DESIGN

The multi-function design of the SPS permits slurry to be mixed, de-fined, recirculated, and charged into LC Columns. This system design enables a reproducible column packing experience every time. The unit is also fully non-electrical, allowing seamless installation into hazardous areas without additional costs for electrical protection or controls validation. SLURIPREP Systems are compatible with LC Columns from 30 to 120 cm diameter and can accommodate nearly any media preparation requirement.

In order to implement a reverse phase chromatography or an ion exchange chromatography resin for clinical and commercial scale oligonucleotide purification, the bulk media must first be successfully packed into the DAC column and qualified via one or more column performance tests. Using a reproducible system platform like AKBA's SLURIPREP System more efficiently removes small fine particles that tend to clog column frits, prematurely increasing column backpressure and reducing the quality of the pack. Additionally, the SPS transfers the complete volume of prepared slurry into the empty column quickly to avoid any preferential settling of large particles prior to compression. Lastly, SPS slurry preparation ensures consistency compared to manual preparation where the conditions in the column can be inconsistent, reducing yield.

Preparing slurry manually is inefficient and increases safety concerns for the operator as larger volumes become unwieldy. Additionally, powdered media presents a risk of inhalation to the operator. In contrast, the closed SPS executes mixing at a decreased risk to the operator – provided that proper precautions are taken when initially charging media to the SPS vessel.



TECHNICAL SPECIFICATIONS

Equipment	Specification
Functionality	Chromatography media slurry preparation
Flow rate	up to 300 L/min
Process temperature	10°C to 30°C
Process pressure	0 to 3 barg
Environmental temperature	10°C to 30°C
Area classification (local to equipment)	ATEX II 2 G Ex IIB T4 Gb

SYSTEM SPECIFICATIONS

Equipment	Specification
Dimensions (standard W x D x H)	SPS-50: approx. 36in x 36in x 56in SPS-100: approx. 42in x 46in x 56in SPS-150: approx. 44in x 46in x 66in SPS-250: approx. 50in x 52 in x 70in SPS-350: approx. approx. 50in x 50in x 80in SPS-450: approx. 56in x 56in x 80in
Weight	SPS-50: approx. 230 kg SPS-100: approx. 290 kg SPS-150: approx. 300 kg SPS-250: approx. 320 kg SPS-350: approx. 430 kg SPS-450: approx. 500 kg
Materials of construction (MOC)	316L SS, PTFE, FFKM (process-contact surfaces)
Surface finish	20 in Ra (process-contact surfaces)

UTILITY SPECIFICATIONS

Equipment	Specification
Compressed Air	6 barg / 225 L/min (8 SCFM)

TECHNICAL SPECIFICATIONS

Component Type	Service	Manufacturer	Specification
Agitator	Tank Mixer	White Mountain Process	WMP series
Manual Valves	Slurry Flow Path	PBM	MIHL series
Manual Valves	Tank Bottom Valve Low-Point Drain	Gemu	P600M series
Diaphragm Pump	Main Pump	Flotronic	A23SS series, A35SS series

TECHNICAL SPECIFICATIONS

Equipment	Specification
SLURIPREP System 50L	SPS-50
SLURIPREP System 100L	SPS-100
SLURIPREP System 150L	SPS-150
SLURIPREP System 250L	SPS-250
SLURIPREP System 350L	SPS-350
SLURIPREP System 450L	SPS-450

