Microplates, foils and septa for use in Biacore systems

Introduction

This document describes the correct microplates, foils and septa for use when running experiments on a Biacore system. A table has been compiled to help find the right combination. Before getting starting it is important to make sure that you use Biacore foils and septa from GE which are designed and verified for use with Biacore systems.

The microplates recommended in the table (See *Summary table, on page 4*) are made of Polypropylene (PP) and Polystyrene (PS). Selection of the appropriate material is crucial for the assay performance, see recommendation below when to use Polypropylene or Polystyrene.

Polystyrene microplates

Polystyrene is compatible with few organic solvents, therefore aqueous solutions are strongly recommended. The surface properties of polystyrene microplates can result in binding of polar molecules, such as proteins and DNA. Microplates with U-bottoms improve mixing and washing.

Standard polystyrene microplates in 96-well and 384-well are available from GE. See See *Summary table, on page 4* for details.

Polypropylene microplates

Polypropylene is more compatible with organic solvents than polystyrene. Polypropylene microplates should be the first choice for work with DMSO, common in small molecule compound sample. Polypropylene has surface properties that bind polar molecules such as protein and DNA less than polystyrene.

Polypropylene microplates are not available from GE. See *Summary table, on page 4* for recommended products.

Deep well microplates

When performing repeated injections from the same deep well, it is recommended to use septa. If deep well microplates are used together with microplate foil, the needle is not wiped off and there is a risk for carry-over when performing more than one injection from the same well.

See *Summary table, on page 4* for recommended products.

Microplate foils

Only use microplate foils from GE for Biacore analyses. These are available in 96- and 384-well formats and are compatible with both polystyrene and polypropylene microplates.

See *Summary table, on page 4* for details.

Microplate septa

Septa are used to cover 96-well microplates in experiments where the injection needles enter each well more than once. Each well is re-sealed and the needles are wiped off when elevated through the septa to minimize the risk of carry-over. The septa are compatible with both polypropylene and polystyrene microplates and are used with 96-well or 96-deep well microplates in **Biacore 8K**.

See *Summary table, on page 4* for details.

Important to know before getting started

No glue over microplate wells.

Acceptable needle penetration force secured.

Methodological compatibility.

Mixing in 384-plates is not recommended.

Summary table

Microplate type	Microplate	Foil	Septa	Instrument compatibility	Plate height (mm)
96-well, normal, U-bottom, polypropylene	Microplate 96-well, 650201,Greiner	A	B[1]	1-7	15
96-well, deep-well, V-bottom, polypropylene, 650 µL	Microplate 96-well, 786201,Greiner	A	B[1]	3-7	27
96-well, deep-well, U-bottom, polypropylene, 1 mL	Microplate 96-well, 780201,Greiner	A	B	7	42
96-well, deep-well, U-bottom, polypropylene, 2 mL	Microplate 96-well, 219020, Porvair	A	B	7	44
384-well, normal, flat bottom, polystyrene	**Microplate 384-well, BR100505, GE** *100-pack*	C	-	3-7	14
384-well, V-bottom, polypropylene	Microplate 384-well, 781280,Greiner	C	-	3-7	14
384-well, deep-well, V-bottom, polypropylene	Microplate 384-well, 781270,Greiner	C	-	3-7	22
96-well, standard, polystyrene, U-bottom	**Microplate 96-well, BR100503, GE** *100-pack*	A	B[1]	1-7	14
96-well, standard, polystyrene, U-bottom	**96-well Microplate and Foil, BR100383, GE** *50 –pack, aluminum foils for 48 wells (perforated for 6 strips for 8 wells each)*		-	1-7	14

[1] For Biacore 8K only.

Foil/Septa

A Microplate Foil (96-well), 28975816, GE, *100-pack, plastic foil*
B Microplate Septa (96 well), 29192561, GE, *10-pack, plastic/elastomer cover*
C Microplate Foil (384-well), BR100577, GE, *100-pack, plastic foil*

Instrument

1 Biacore 3000
2 Biacore C
3 Biacore 4000
4 Biacore T100
5 Biacore T200
6 Biacore S200
7 Biacore 8K

Use of microplates not listed here

Compliance with standards

Biacore users who need microplates other than those listed in the table above should make sure the plates meet the standards ANSI/SLAS 1-2004 through ANSI/SLAS 4-2004 (formerly "SBS standards"),
see http://www.slas.org/education/microplate.cfm.

Additional requirements

Plate height (**C** in the figure below) shall not exceed:

- 34 mm for use in Biacore 4000
- 44 mm for use in Biacore 8K, Biacore T200 and Biacore S200

Well bottom elevation (WBE) is the height from the microplate resting plane to the well bottom (inside the well, **C-F** height in the figure below). This height is not defined in the standards. Therefore, users should check that the **C-F** height is maximum 3.9 mm for 96-well plates and maximum 2.9 mm for 384-well plates. If the well bottom is higher it may cause needle crashes, or injections of air caused by the needle tip being too close to the well bottom/side.

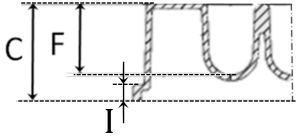
A sufficient volume of sample must be dispensed in the wells. If the well bottom is lower than the heights stated above, the dead volume increases, this has to be compensated for in order to avoid injections of air.

The rack base must be adjusted to the actual microplate flange height (**I** in in the figure below). See the Operating Instructions for information about how to adjust for flange height.

The microplate must be properly fixed in position on the autosampler rack base.

Well bottom shape

A U-shaped well bottom is recommended for best mixing performance and minimum dead volume. A V-shaped bottom does not allow optimal mixing and increases the risk for air bubbles getting stuck on the bottom.



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29235716 AA 11/2016 a84