

Economic cartridge design for whole blood plasma separation

Target use: 5 mL whole blood input - target plasma output 400 to 600 uL

K-EDTA

Housing: 60 x 30 x 14.5 mm
Rectangular economic cartridge

PRODUCT INFORMATION	
Product name	Vivid GR Grade K-EDTA
Membrane catalog	T9EXPPA0200S00R
Sheet size	8 x 11 inch (20.3 x 27.9 cm)
Sheet area	approx. 566 cm2
Sheet price	57.88 USD
Variant	Green label - K-EDTA anticoagulant

MEMBRANE SPECIFICATIONS	
Grade	GR
Material	Asymmetric polysulfone
Thickness	330 +/- 20 um
Plasma recovery	up to 80%
Separation time	<= 2 minutes
Application	Whole blood to plasma

EXPECTED PERFORMANCE

Input blood: 5 mL

Plasma output:
400 - 600 uL

Performance depends on diffuser, blood hematocrit, and flow control.

LAYER STRUCTURE AND THICKNESS		
1 Diffuser layer	Nonwoven / polyester	0.6 mm
2 Vivid GR membrane	Asymmetric polysulfone	0.33 mm
3 Support layer	Polymer support mesh	0.6 mm
4 Absorbent layer	Cellulose / absorbent pad	1.2 mm
5 Sealed terminal layer	Polycarbonate body	2.0 mm
Essential terminal layer stack thickness: approx. 4.73 mm		

HOUSING - MANUFACTURING DIMENSIONS

Length	60 mm
Width	30 mm
Total height	14.5 mm (+/- 0.2 mm)
Blood chamber depth	5.0 mm
Inlet	Standard male Luer lock
Outlet	Luer / collection tube
Plasma outlet ID	3.0 mm recommended
Housing material	Medical grade polycarbonate
Seal / gasket	Medical grade silicone

FLOW PATH - TOP VIEW

Flow principle:

1. Blood enters from syringe inlet.

2. Diffuser spreads blood laterally.

3. GR membrane captures cells.

4. Plasma moves down to absorbent layer.

5. Plasma exits through outlet port.

Blood spreads across membrane surface
Top-view diffuser distributes flow evenly

ECONOMIC COST CALCULATION

Active GR membrane used	8 to 10 cm2 per cartridge
Sheet area	approx. 566 cm2
Estimated units per sheet	56 to 70 units before waste
Retail sheet price	57.88 USD
Ideal membrane cost	0.82 to 1.03 USD/unit
Realistic membrane cost	approx. 1.0 to 1.3 USD/unit with waste
Estimated complete unit	approx. 1.5 to 2.5 USD initially

Note: final cost depends on bulk membrane pricing, cutting yield, housing, assembly, sterilization, and packaging.

Vivid(TM) Plasma Separation Membrane - GR Grade

HEPARIN-COATED FILTER

Economic cartridge design for whole blood plasma separation

Target use: 5 mL whole blood input - target plasma output 400 to 600 uL

HEPARIN

Housing: 60 x 30 x 14.5 mm
Rectangular economic cartridge

PRODUCT INFORMATION	
Product name	Vivid GR Grade HEPARIN
Membrane catalog	T9EXPPA0200S00R
Sheet size	8 x 11 inch (20.3 x 27.9 cm)
Sheet area	approx. 566 cm2
Sheet price	57.88 USD
Variant	Blue label - Heparin-coated antithrombogenic

MEMBRANE SPECIFICATIONS	
Grade	GR
Material	Asymmetric polysulfone
Thickness	330 +/- 20 um
Plasma recovery	up to 80%
Separation time	<= 2 minutes
Application	Whole blood to plasma

EXPECTED PERFORMANCE

Input blood: 5 mL

Plasma output:
400 - 600 uL

Performance depends on diffuser, blood hematocrit, and flow control.

LAYER STRUCTURE AND THICKNESS		
1 Diffuser layer	Nonwoven / polyester	0.6 mm
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5 Sealed terminal layer	Polycarbonate body	2.0 mm
Assembled membrane stack thickness: approx. 4.73 mm		

HOUSING - MANUFACTURING DIMENSIONS

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Width	30 mm
Total height	14.5 mm (+/- 0.2 mm)
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Inlet	Standard male Luer lock
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Seal / gasket	Medical grade silicone

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Economic cartridge design for whole blood plasma separation

Target use: 5 mL whole blood input - target plasma output 400 to 600 uL

NO ANTICOAGULANT

Housing: 60 x 30 x 14.5 mm
Rectangular economic cartridge

PRODUCT INFORMATION	
Product name	Vivid GR Grade NO ANTICOAGULANT
Membrane catalog	T9EXPPA0200S00R
Sheet size	8 x 11 inch (20.3 x 27.9 cm)
Sheet area	approx. 566 cm2
Sheet price	57.88 USD
Variant	White label - no anticoagulant

MEMBRANE SPECIFICATIONS	
Grade	GR
Material	Asymmetric polysulfone
Thickness	330 +/- 20 um
Plasma recovery	up to 80%
Separation time	<= 2 minutes
Application	Whole blood to plasma

EXPECTED PERFORMANCE

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400 - 600 uL

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