Suggested Agarose Concentrations and Dye Migration Infomation

Table 1: Suggested agaroses for particular applications

Size Range (Base Pairs)	Agarose Type	Application
20 – 800	MetaPhor® Agarose	High resolution analysis; 2% size differences
50 – 1,000	NuSieve® 3:1 Agarose	Analysis and blotting; 4% – 6% size differences resolved
	NuSieve® GTG® Agarose	Analysis and blotting; In-gel; 6% size differences resolved
1,000 – 10,000	SeaKem® GTG® Agarose	Analysis and blotting; recovery required
	SeaPlaque® GTG® Agarose	In-gel
10,000	SeaKem® Gold Agarose	Analysis

Table 2: Properties of TAE and TBE Buffer Systems

Buffer	Suggested Uses and Comments
TAE Buffer	Use when DNA is to be recovered Use for electrophoresis of large (>12 kb) DNA Low ionic strength Low buffering capacity – recirculation may be necessary for extended electrophoretic times
TBE Buffer	Use for electrophoresis of small (<1 kb) DNA Decreased DNA mobility High ionic strength High buffering capacity – no recirculation required for extended run times

Table 3: Suggested agarose concentrations for DNA sizes

	Final Agarose Concentration % (w/v)	
Size Range (Base Pairs)	1X TAE Buffer	1X TBE Buffer
SeaKem® LE and SeaKem® GTG® Agarose		
1,000 – 23,000	0.60	0.50
800 – 10,000	0.80	0.70
400 – 8,000	1.00	0.85
300 – 7,000	1.20	1.00
200 – 4,000	1.50	1.25
100 – 3,000	2.00	1.75
NuSieve® 3:1 Agarose		
500 – 1,000	3.0	2.0
100 – 500	4.0	3.0
10 – 100	6.0	5.0
MetaPhor® Agarose		
150 – 800	2.0	1.8
100 – 600	3.0	2.0
50 – 250	4.0	3.0
20 – 130	5.0	4.0
<80	—	5.0
SeaPlaque® and SeaPlaque® GTG® Agarose		
500 – 25,000	0.75	0.70
300 – 20,000	1.00	0.85
200 – 12,000	1.25	1.00
150 – 6,000	1.50	1.25
100 – 3,000	1.75	1.50
50 – 2,000	2.00	1.75
NuSieve® GTG® Agarose		
500 – 1,000	2.5	2.0
150 – 700	3.0	2.5
100 – 450	3.5	3.0
70 – 300	4.0	3.5
10 – 100	4.5	4.0
8 – 50	5.0	4.5
SeaKem® Gold Agarose†		
5,000 – 50,000	0.3	—
1,000 – 20,000	0.5	—
800 – 10,000	0.8	—
400 – 8,000	1.0	—

† TBE Buffer is not recommended for separation of DNA >12,000 bp.

Table 4: Migration of double-stranded DNA in relation to Bromophenol Blue (BPB) and Xylene Cyanol (XC) in agarose gels

1X TAE Buffer			1X TBE Buffer	
XC	BPB	% Agarose	XC	BPB
SeaKem® LE and SeaKem® GTG® Agarose				
24,800	2,900	0.30	19,400	2,850
11,000	1,650	0.50	12,000	1,350
10,200	1,000	0.75	9,200	720
6,100	500	1.00	4,100	400
3,560	370	1.25	2,500	260
2,800	300	1.50	1,800	200
1,800	200	1.75	1,100	110
1,300	150	2.00	850	70
NuSieve® 3:1 Agarose				
950	130	2.50	700	70
650	80	3.00	500	40
350	40	4.00	250	20
200	30	5.00	140	8
120	20	6.00	90	4
MetaPhor® Agarose				
480	70	2.00	310	40
200	40	3.00	140	35
120	35	4.00	85	30
85	30	5.00	60	15
SeaPlaque® and SeaPlaque® GTG® Agarose				
11,700	1,020	0.50	6,100	400
4,000	500	0.75	2,850	280
2,300	350	1.00	1,700	180
1,500	200	1.25	1,000	100
1,000	150	1.50	700	70
700	100	1.75	500	50
550	60	2.00	400	30
320	30	2.50	250	10
NuSieve® GTG® Agarose				
750	175	2.50	460	75
400	120	3.00	210	35
115	<20	4.00	150	<20
100	<20	5.00	80	<20
85	<20	6.00	50	<20
SeaKem® Gold Agarose				
24,800	3,550	0.30	19,000	2,550
12,200	2,050	0.50	9,200	1,500
9,200	1,050	0.75	7,100	800
6,100	760	1.00	4,000	500
4,100	600	1.25	2,550	350
2,600	400	1.50	1,900	250
2,000	330	1.75	1,400	180
1,500	250	2.00	1,000	100