Relative Activity of OPTIZYME™ Restriction Enzymes in 1X Buffers

The 10X Buffer supplied with each restriction enzyme is optimized to give 100% activity at the 1X concentration. This table may be used to select the best buffer for digestions with multiple restriction enzymes. Enzyme activity is expressed as a percent of the activity obtained with the optimized buffer for each enzyme in a one-hour digest.

Part Number	OPTIZYME* Restriction Enzyme	Recommended buffer for 100% activity	Enzyme activity in 1X OPTIZYME* buffers, %					Optimal reaction temperature	Activity at 37° C, %
			Buffer 1	Buffer 2	Buffer 3	Buffer 4	Buffer 5		
BP8069	AarI	**Unique**	NR (+oligo)	NR (+oligo)	0-20 (+oligo)	NR (+oligo)	0-20 (+oligo)	37°C	100%
BP8041	AatII	**Buffer 4**	50-100	20-50	0-20	**100**	0-20	37°C	100%
BP8075	AloI	**Buffer 5**	0-20	0-20	0-20	20-50	**100**	30°C	20%
BP8015	AluI	**Buffer 4**	50-100	0-20	0-20	**100**	0-20	37°C	100%
BP8059	Alw44I (ApaLI)	**Buffer 4**	50-100	100	0-20	**100**	50-100	37°C	100%
BP8025	ApaI	**Buffer 1**	**100**	20-50	0-20	20-50	0-20	37°C	100%
BP8035	AvaI (Eco88I)	**Buffer 4**	100	50-100	0-20	**100**	0-20	37°C	100%
BP8043	AvaII (Eco47I)	**Buffer 5**	0-20	50-100	50-100	50-100	**100**	37°C	100%
BP8039	BalI (MscI)	**Buffer 5**	0-20	20-50	0-20	20-50	**100**	37°C	100%
BP8005	BamHI	**Unique**	20-50*	100	20-50	100*	50-100*	37°C	100%
BP8053	BclI	**Buffer 2**	20-50	**100**	20-50	100*	20-50	55°C	50%
BP8046	BglI	**Buffer 3**	0-20	50-100	**100**	0-20	100	37°C	100%
BP8014	BglII	**Buffer 3**	0-20	20-50	**100**	0-20	50-100	37°C	100%
BP8072	BpiI (BbsI)	**Buffer 2**	20-50	**100**	50-100	50-100	50-100	37°C	100%
BP8071	Bsh1236I (BstUI)	**Buffer 5**	0-20	0-20	50-100	20-50	**100**	37°C	100%
BP8078	BshTI (AgeI)	**Buffer 3**	0-20	20-50	**100**	20-50	50-100	37°C	100%
BP8036	BssHII (PauI)	**Buffer 5**	0-20	0-20	100	0-20	**100**	37°C	100%
BP8038	BstEII (Eco91I)	**Buffer 3**	20-50	20-50	**100**	NR	50-100	37°C	100%
BP8081	Cfr9I (XmaI)	**Unique**	0-20	0-20	0-20	20-50	0-20	37°C	100%
BP8024	ClaI	**Buffer 4**	20-50	20-50	20-50	**100**	20-50	37°C	100%
BP8068	Csp6I (CviQI)	**Buffer 1**	**100**	50-100	0-20	50-100	0-20	37°C	100%
BP8060	DdeI (HpyF31)	**Buffer 4**	20-50	20-50	20-50	**100**	20-50	37°C	100%
BP8009	DpnI	**Buffer 4**	100	100	50-100	**100**	50-100	37°C	100%
BP8026	DraI	**Buffer 4**	50-100	50-100	20-50	**100**	20-50	37°C	100%
BP8080	Ecl136II	**Unique**	50-100	20-50	0-20	50-100	0-20	37°C	100%
BP8066	Eco57I (AcuI)	**Buffer 2 +SAM**	100 (+SAM)	**100 (+SAM)**	20-50 (+SAM)	50-100 (+SAM)	20-50 (+SAM)	37°C	100%

Relative Activity of OPTIZYME™ Restriction Enzymes in 1X Buffers

The 10X Buffer supplied with each restriction enzyme is optimized to give 100% activity at the 1X concentration. This table may be used to select the best buffer for digestions with multiple restriction enzymes. Enzyme activity is expressed as a percent of the activity obtained with the optimized buffer for each enzyme in a one-hour digest.

Part Number	OPTIZYME* Restriction Enzyme	Recommended buffer for 100% activity	Enzyme activity in 1X OPTIZYME* buffers, %					Optimal reaction temperature	Activity at 37° C, %
			Buffer 1	Buffer 2	Buffer 3	Buffer 4	Buffer 5		
BP8003	EcoRI	**Unique**	0-20	NR	100	NR	100*	37°C	100%
BP8054	EcoRI (HC)	**Unique**	0-20	NR	100	NR	100*	37°C	100%
BP8012	EcoRV (Eco32I)	**Buffer 5**	0-20	50-100	50-100	20-50	**100**	37°C	100%
BP8070	Esp3I (BsmBI)	**Buffer 4**	100 (+DTT)	20-50 (+DTT)	0-20 (+DTT)	**100 (+DDT)**	0-20 (+DTT)	37°C	100%
BP8002	HaeIII (BsuRI)	**Buffer 5**	0-20	0-20	0-20	50-100	**100**	37°C	100%
BP8034	HincII (HindII)	**Buffer 4**	50-100	50-100	20-50	**100**	50-100	37°C	100%
BP8006	HindIII	**Buffer 5**	0-20	20-50	0-20	50-100	**100**	37°C	100%
BP8051	HinfI	**Buffer 5**	0-20	20-50	50-100	50-100	**100**	37°C	100%
BP8049	HpaI (KspAI)	**Buffer 1**	**100**	50-100*	20-50	100*	20-50	37°C	100%
BP8032	HpaII (MspI)	**Buffer 4**	50-100	50-100	0-20	**100**	20-50	37°C	100%
BP8079	Hpy8I (MjaIV)	**Buffer 4**	50-100	50-100	0-20	**100**	20-50	37°C	100%
BP8083	KpnI	**Unique**	20-50	0-20	0-20	20-50	0-20	37°C	100%
BP8067	LguI (SapI)	**Buffer 4**	20-50	50-100	20-50	**100**	20-50	37°C	100%
BP8021	MluI	**Buffer 5**	0-20	20-50	50-100	20-50	**100**	37°C	100%
BP8048	MspI (HpaII)	**Buffer 4**	50-100	50-100	0-20	**100**	0-20	37°C	100%
BP8057	NaeI	**Buffer 4**	50-100	20-50	0-20	**100**	0-20	37°C	100%
BP8017	NcoI	**Buffer 4**	20-50	20-50	20-50	**100**	50-100	37°C	100%
BP8020	NdeI	**Buffer 3**	0-20	0-20	**100**	0-20	50-100	37°C	100%
BP8019	NheI	**Buffer 4**	100	20-50	0-20	**100**	0-20	37°C	100%
BP8004	NotI	**Buffer 3**	0-20	20-50	**100**	0-20	20-50	37°C	100%
BP8058	NsiI (Mph1103I)	**Buffer 5**	0-20	50-100	20-50	50-100	**100**	37°C	100%
BP8073	PasI	**Unique**	NR	NR	NR	NR	NR	55°C	30%
BP8077	PfoI	**Buffer 4**	0-20	20-50	50-100	**100**	0-20	37°C	100%
BP8001	PstI	**Buffer 3**	50-100	50-100	**100**	50-100	100	37°C	100%
BP8050	PvuI	**Buffer 5**	0-20	20-50	50-100	50-100	**100**	37°C	100%
BP8022	PvuII	**Buffer 2**	50-100*	**100**	20-50	**20-50***	50-100	37°C	100%

Relative Activity of OPTIZYME™ Restriction Enzymes in 1X Buffers

The 10X Buffer supplied with each restriction enzyme is optimized to give 100% activity at the 1X concentration. This table may be used to select the best buffer for digestions with multiple restriction enzymes. Enzyme activity is expressed as a percent of the activity obtained with the optimized buffer for each enzyme in a one-hour digest.

Part Number	OPTIZYME* Restriction Enzyme	Recommended buffer for 100% activity	Enzyme activity in 1X OPTIZYME* buffers, %					Optimal reaction temperature	Activity at 37° C, %
			Buffer 1	Buffer 2	Buffer 3	Buffer 4	Buffer 5		
BP8000	RsaI	**Buffer 4**	50-100	20-50	0-20	**100**	0-20	37°C	100%
BP8016	SacI	**Unique**	50-100	20-50	0-20	50-100	0-20	37°C	100%
BP8023	SacII (Cfr42I)	**Buffer 1**	**100**	50-100	0-20	50-100	0-20	37°C	100%
BP8013	SalI	**Buffer 3**	0-20	0-20	**100**	0-20	20-50	37°C	100%
BP8030	Sau3AI (Bsp143I)	**Unique**	20-50	20-50	0-20	50-100	0-20	37°C	100%
BP8037	ScaI	**Unique**	0-20	0-20	0-20	0-20	0-20	37°C	100%
BP8076	SfaAI (AsiSI)	**Buffer 4**	50-100	0-20	0-20	**100**	0-20	37°C	100%
BP8011	SmaI	**Buffer 4**	50-100	0-20	0-20	**100**	0-20	30°C	50%
BP8018	SpeI (BcuI)	**Buffer 4**	50-100	50-100	0-20	**100**	20-50	37°C	100%
BP8029	SphI (PaeI)	**Buffer 1**	**100**	50-100	0-20	50-100	0-20	37°C	100%
BP8027	StuI (Eco147I)	**Buffer 1**	**100**	50-100	20-50	50-100	20-50	37°C	100%
BP8007	TaqI	**Unique**	0-20	20-50	20-50	20-50	20-50	65°C	10%
BP8064	Tru9I (MseI)	**Buffer 5**	50-100	50-100	20-50	50-100	**100**	65°C	10%
BP8055	VspI (AseI)	**Buffer 3**	0-20	50-100	**100**	100	20-50	37°C	100%
BP8008	XbaI	**Buffer 4**	50-100	50-100	20-50	**100**	0-20	37°C	100%
BP8010	XhoI	**Buffer 5**	0-20	50-100	50-100	20-50	**100**	37°C	100%
BP8082	XmaJI (AvrII)	**Buffer 4**	20-50	50-100	50-100	**100**	50-100	37°C	100%
BP8052	XmnI (PdmI)	**Buffer 4**	20-50	50-100	0-20	**100**	0-20	37°C	100%

Note

* Star activity appears at a greater than 5-fold overdigestion (5 units x 1 hour).

NR – buffer is not recommended, because of high star activity.