LALLEMAND WINE BACTERIA
KEY SELECTION CRITERIA FOR 1-STEP®, MBR® and STANDARD BACTERIA

	MBR process direct inoculation		1-STEP®		MBR process direct inoculation		Co-inoculation ONLY		Standard - build up culture
ENVIRONMENTAL LIMITS	**ALPHA™**	**OMEGA™**	**PN4™**	**VP41™**	**31™**	**Elios 1™**	**BETA COINOC™**	**ML PRIME™**	**INOBACTER™**
	Oenococcus oeni	*Oenococcus oeni*	*Oenococcus oeni*	*Oenococcus oeni*	*Oenococcus oeni*	*Oenococcus oeni*	*Oenococcus oeni*	*Lactobacillus plantarum*	*Oenococcus oeni*
ALCOHOL (%V/V)	≤ 15.5	16-17	≤ 15.5	near 16.5	≤ 14.0	14	15	10	14
pH	> 3.2	> 3.1	> 3.1	> 3.1	> 3.1	> 3.4	> 3.2	> 3.4	> 2.9
TOTAL SO_2 (mg/L)	< 50	< 60	< 60	< 60	< 45	< 50	< 60	Maximum 50ppm at crush	<50
TEMPERATURE (^{0}C)	> 14	> 14	> 16	> 16	> 13	> 17	> 14	20-26	> 15
NUTRIENT DEMAND	LOW	LOW	MEDIUM	LOW	HIGH	LOW	NA	NA	MEDIUM
IMPACT ON FRUITINESS	+++	-+++	+	++++	+++	++	+++	++++	+++
DIACETYL PRODUCTION	**ALPHA™**	**OMEGA™**	**PN4™**	**VP41™**	**31™**	**Elios 1™**	**BETA COINOC™**	**ML PRIME™**	**INOBACTER™**
CO-INOCULATION	LOW	LOW	MODERATE TO HIGH	LOW	LOW	LOW	LOW	LOW	LOW
SEQUENTIAL INOCULATION	MODERATE	LOW	MODERATE TO HIGH	LOW	LOW MODERATE	MODERATE	HIGH	NA	VERY LOW

IMPORTANT NOTE REGARDING ENVIRONMENTAL LIMITS: This table lists the individual limits for alcohol, temperature, pH and SO_2 for each of the Lallemand malolactic bacterial strains. However it does not detail the numerous inter-relationships existing between these parameters. The **'additive inhibitory effects'** of **multiple limiting conditions** such as high temperature with high alcohol, or low pH with high SO_2 must NOT be ignored. For example, Lalvin VP41 has been shown to conduct MLF at 17.3% v/v alcohol, although under such harsh conditions other parameters should not be inhibitory. Further advice available from Lallemand staff.