

## Table Olive Testing: Updated: 27/05/2019

### 1.0 The Voluntary Standard for Table Olives in Australia:

Signatories to *OliveCare® Code of Best Practice* for table olives are required to undertake specified physical, chemical, microbiological and organoleptic testing of a sample taken from each batch identified on table olive product labels to establish eligibility to apply the *Certified Australian Table Olives™* Trademark, in accordance with *The Voluntary Industry Standard for Table Olives in Australia (RIRDC 2012)*<sup>1</sup>:

- Ref Section 3, Table 2: Physico-chemical characteristics of packing brine or juice after osmotic balance.

**Table 2: Physico-chemical characteristics of packing brine or juice after osmotic balance**

Preparation	Minimum sodium chloride content %			Maximum pH limit			Minimum lactic acidity % lactic acid		
	SCC, MAT	PR, R	P, S	SCC, MAT	PR, R	P, S	SCC, MAT	PR, R	P, S
Treated olives	5	4	GMP	4.0	4.0	4.3	0.5	0.4	GMP
Natural olives	6	6	GMP	4.3	4.3	4.3	0.3	0.3	GMP
Dehydrated and/or shrivelled olives	10	10	GMP	GMP	GMP	GMP	GMP	GMP	GMP
Olives darkened by oxidation	GMP	GMP	GMP	GMP	GMP	GMP	GMP	GMP	GMP

**Note:** Refer to the Standard for an explanation of the above acronyms:

**Note:** The relationship between %NaCl and water activity ( $A_w$ ) is set out in the following table:

NaCl (g)	Water (g)	% NaCl	$A_w$
0.9	99.1	0.9	0.995
1.7	98.3	1.7	0.99
3.5	96.5	3.5	0.98
7.0	93.0	7.0	0.96
10.0	90.0	10.0	0.94
13.0	87.0	13.0	0.92
16.0	84.0	16.0	0.90
22.0	78.0	22.0	0.86

- **Water activity** is a ratio of vapour pressures and thus has no **units**. It ranges from 0.0aw (bone dry) to 1.0aw (pure water).
- **Ref Section 9** of the Standard for microbiological criteria for table olives offered for retail sale to the public.  
Industry microbiological testing requirements is *Escherichia coli* as an indicator organism for faecal contamination, *Clostridium botulinum* as an indicator for contamination by soil born spore forming pathogens, and *Lactobacillus* for effectiveness of Pasteurisation.
- All testing must be undertaken by a NATA accredited laboratory.
- The following minimum testing requirements have been incorporated into the Australian International Olive Awards testing of table olive exhibits:

<sup>1</sup> The Voluntary Industry Standard for Table Olives in Australia (NTOC, October 2012) RIRDC 12/111: <https://www.agrifutures.com.au/wp-content/uploads/publications/12-111.pdf>

## 2.0 Minimum Standards: Physico-chemical and microbiological test parameters

### Test Package 1. Table Olives in brine - natural (unpasteurised): Brine tested

- Minimum sodium chloride (NaCl): 6% ( $a_w < 0.975$ )
- Maximum pH: 4.3
- Microbiological Criteria - *Escherichia coli*: Not detectable (<3 cfu/g)
- Microbiological Criteria - *Clostridium perfringens*: Not detectable (<10 cfu/g)

### Test Package 1. Table Olives in brine - treated with sodium hydroxide (NaOH) (unpasteurised): Brine tested

- Minimum sodium chloride (NaCl): 5% ( $a_w < 0.97$ )
- Maximum pH: 4.0
- Microbiological Criteria - *Escherichia coli*: Not detectable (<3 cfu/g)
- Microbiological Criteria - *Clostridium perfringens*: Not detectable (<10 cfu/g)

### Test Package 2. Table Olives in brine (Pasteurised): Brine tested

- Maximum pH: 4.3
- Microbiological Criteria - *Escherichia coli*: Not detectable (<3 cfu/g)
- Microbiological Criteria - *Lactobacillus*: Not detectable (<10 cfu/g)
- Microbiological Criteria - *Clostridium perfringens*: Not detectable (<10 cfu/g)

### Test Package 3. Table Olives not in brine - Dehydrated / Shrivelled (pasteurised or unpasteurised): Olives tested

- Water activity  $a_w < 0.94$  (10% NaCl)
- Microbiological Criteria - *Escherichia coli*: Not detectable (<3 cfu/g)
- Microbiological Criteria - *Clostridium perfringens*: Not detectable (<10 cfu/g)

## 3.0 Table Olive Sensory Assessment:

All table olives must pass sensory and visual assessment undertaken by an approved laboratory (or through participation in a recognised table olive competition).

*In accordance with Section 5.1 IOC Method Sensory Analysis of Table Olives COI/OT/MO No 1/Rev.2, November 2011.*

### **Sensory attributes:**

**Bitterness:** The olive shouldn't be bitter to taste but some bitterness can be balanced by the amount of saltiness and olive flavour.

**Saltiness:** The level of salt governs the flavour of the olive and must be balanced with the bitterness and acidity.

**Flavour:** the olive should have an appealing fruit flavour, which for green olives often is a typical fermentation taste but retaining 'olive' character, and for black olives is a stronger olive flavour.

**No negative attributes:** There should be no taste or aroma faults that would render the product unmarketable: Abnormal fermentation (faecal, putrid, butyric, zapatera), musty, rancid, 'cooked', soapy, metallic, earthy, **winey-vinegary\***, or as reflected in achieving a score of 15 or more out of 30 points.

**Abnormal fermentation** Olfactory sensation perceived directly or retro nasally, characteristic of abnormal fermentations. Such fermentation may be:

- **Putrid:** sensation reminiscent of the odour of decomposing organic matter.
- **Butyric:** sensation reminiscent of butter or cheese.
- **Zapateria:** sensation caused by the combination of volatile fatty acids reminiscent of rotten leather.

**Musty:** Olfactory-gustatory sensation perceived directly or retronasally, characteristic of olives attacked by mould.

**Rancid:** Olfactory sensation perceived directly or retro nasally, characteristic of olives that have undergone a process of rancidity.

**Cooked:** Olfactory sensation perceived directly or retro nasally, characteristic of olives that have undergone excessive heating in terms of temperature and/or duration during pasteurisation or sterilisation.

**Soapy:** Olfactory-gustatory sensation reminiscent of soap.

**Metallic:** Olfactory-gustatory sensation reminiscent of metals.

**Earthy:** Olfactory-gustatory sensation reminiscent of soil or dust.

**Winey-vinegary:** Olfactory-gustatory sensation reminiscent of wine or vinegar. (\*except for table olives pickled using vinegar e.g. traditional Kalamata method)

**Note:** The IOC Trade Standard states that olives may not be sold as table olives where the defect predominantly perceived (DPP)  $\geq 7.0$  (which is astounding given these olives would be inedible!)

#### **Visual attributes:**

Samples must be visually appealing:

**SKIN:** The skin of the fruit should be fine, smooth and not wrinkled, yet elastic and resistant to handling damage.

**FLESH:** Should be firm but not woody or granular. Green olives should have firm, crisp flesh, ripe or black olives will have softer flesh due to the fruit being more mature than green olives, however it shouldn't be soggy or flabby.

**BLEMISHES:** Blemishes should be absent however some white spots on green olives are natural. Others such as gas pockets or blistering are caused by processing and organisms and will reduce the point score.

**COLOUR:** Green olives should be bright green to strawy green colour. Some dulling may occur after several months in brine. Lye treated green olives are very bright green. Olives turning colour should be pale pink, and black olives vary from dark pink to black or winey colour.

## **4.0 Table Olive Labelling Requirements**

The following *Certified Australian Table Olives™* logo is for the exclusive use of Code Signatories, and indicates a product bearing this logo is compliant with the *Voluntary Industry Standard for Table Olives in Australia (RIRDC 2012)*



Table olives must be labelled in accordance Part 11 of the Voluntary Industry Standard for Table Olives in Australia, and consistent with Food Standards Australia New Zealand Food Authority - Food Standards Code, including providing a list of ingredients, the net drained weight and the application of a 'Best Before' date (not exceeding 2 years) to be determined by the producer after which time undesirable changes to the odour, colour, texture or flavour of the product may occur (FSANZ – Food Standards Code Part 1.2.5)

## 5.0 Approved Testing Laboratories:

### Modern Olives Laboratory Services

P.O. Box 92 Lara, Victoria  
3212 - AUSTRALIA

T: +61 (0) 3 5272 9500 | F: +61 (0) 3 5272 9599 |

E: [lab@modernolives.com.au](mailto:lab@modernolives.com.au) | [www.modernolives.com.au](http://www.modernolives.com.au)

### South Australian Analytical Laboratory (SAALS)

Sinan Al Bayati | Business Development & Client Service

51-53 Lavinia Street,  
Athol Park, SA 5012

P: 1300 386 811

E: [lab@saals.com.au](mailto:lab@saals.com.au)

M: 0413 428 428

W: [www.saals.com.au](http://www.saals.com.au)

### ALS Food & Pharmaceutical

22 Dalmore Drive, Scoresby VIC 3179

Phone: +61 3 8756 8111 Fax: +61 3 9763 1234

<http://www.alsglobal.com/>

### Silliker Australia Head Office (lab & office)

(also Brisbane Sydney & Perth)

Kim Manning / Technical Sales Co-ordinator

20-22 King Street, Blackburn

VIC Australia 3130

Tel: +61 (3) 8878 2100

Email: [sales.au@mxns.com](mailto:sales.au@mxns.com)

<http://www.merieuxnutrisciences.com.au/au/eng/contacts/contact>

### National Measurement Institute

1/153 Bertie Street, Port Melbourne Vic 3207

Tel: +61 3 9644 4888 Fax: +61 3 9644 4999

Web: [www.measurement.gov.au](http://www.measurement.gov.au)

Email: [customerservice@measurement.gov.au](mailto:customerservice@measurement.gov.au)

## 6.0 Indicative Test Prices:

Test	Modern Olives (prices include GST) 2018	SAALS 2018	Silliker Australia (prices include GST) 2018	ALS 2018	NMI National Measurement Institute 2017	Uni Adelaide 2018
NaCl	\$31.05	\$63.35+GST	\$43.69	\$20.00+GST		Free: Competition testing only
Water Activity	\$39.00	\$39.04+GST	\$57.97			Free: Competition testing only
pH	\$11.67	\$15.86+GST	\$24.17	\$8.00+GST		Free: Competition testing only
E. coli and coliform	\$26.72	\$16.62+GST	\$24.53 each	\$20.00+GST		
Lactobacillus	Available from August 2018	\$28.82+GST	\$61.42	\$17.00+GST		
Yeast & Mould	\$28.73	\$22.18+GST	\$23.56			
Clostridium perfringens	-	\$26+GST	\$48.57			
Enterobacteriaceae	\$26.72					
Coag +ve Staph	\$33.75	\$25.49+GST	Spread Plate \$31.20			
Salmonella / 25 g	\$46.70	\$44.90+GST	\$57.02			
Lysteria mono / 25 g	-	\$54.88+GST	\$57.02			
*Full Microbiology	MO\$250.00	*\$170.71+GST	*\$218.34			
AOA Test package 1	\$73.40		\$119.40			
AOA Test package 2	Available from August 2018		\$137.14			
AOA Test package 3	\$65.72		\$109.52			
DEHP Method and LOR	\$450.00		\$448.80		\$310 +GST	
Pesticide Residues – supermarket screen	\$745.00	\$327.33+GST	\$448.80		\$300 + GST	
Nutritional Information	@\$430 Table olives \$98.00 Oils only	\$370+GST	Incl Dietary Fibre \$472.43			
Sensory # (defects only)	##\$52.51		##\$14.40			
Physical Analysis %	% \$70.02					

\* Salmonella, *Escherichia coli*, *Cogaulase +*, *Clostridium perfringens*, *Listeria monocytogenes*.

MO Rapid Aerobic Count Plate, *E.coli* and *Coliform*, *Rapid Yeast and Mould* and *Salmonella*

@ Energy, Fat (total and saturated), Sugar, Protein, Sodium

# MO Sensory tasting only will be done if microbiology tests are included, otherwise only visual inspection will be carried out.

% MO flesh/stone ration, size grading

## Silliker Australia sensory testing includes: Container appearance, Sample appearance, Sample colouration, Odor, Texture, Packaging OR Other Organoleptic Observations - Tasting cannot be done in our lab due to OH&S restrictions & SOP