OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

HALF FRASER SELECTIVE SUPPLEMENT SR0166E

HALF FRASER SELECTIVE SUPPLEMENT **SR0166E**

Formula

Vial contents (each vial is sufficient to supplement 225ml of medium)

Ammonium iron (III) citrate	112.50 mg
Nalidixic acid	2.25 mg
Acriflavine	2.8125 mg

Description

A selective supplement for the isolation of *Listeria* spp.

Directions

Aseptically add 4ml 1:1 ethanol:sterile distilled water to 1 vial and invert gently to dissolve. Aseptically add the vial contents to 225ml of sterile Fraser Broth Base (CM0895) prepared as directed and cooled to 50°C. Mix well and aseptically dispense into sterile containers.

Physical Characteristics

Orange/green pellet
Sterility - passes test

Microbiological Tests Using Optimum Inoculum Dilution

Control Media: Brilliance™ Listeria Agar (ISO), Tryptone Soya Agar or Columbia Blood Agar Base enriched with 5% v/v horse blood, where appropriate

Tested in Fraser Broth Base CM0895

Reactions after incubation at 30 ± 2°C for 24 ± 2 hours

Inoculate 10ml quantities of medium to achieve 1-10 colony-forming units/ml (cfu/ml) of *Listeria monocytogenes*. Incubate broths at 30 ± 2°C for 24 ± 2 hours. Subculture onto Brilliance™ Listeria Agar (ISO) (CM1212, SR0257 & SR0258) and incubate plates at 37 ± 2°C for 24 ± 2 hours.

Listeria monocytogenes	ATCC®7644
Listeria monocytogenes	ATCC®13932

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A satisfactory result is represented by recovery of positive strains equal to or greater than a 4 log(10) increase.

Positive strains shall produce aesculin hydrolysis after 24 hours.

Reactions after incubation at 30 ± 2°C for 24 ± 2 hours

Inoculate 10ml quantities of medium to achieve >1E+03 cfu/ml. Incubate broths at 30 ± 2°C for 24 ± 2 hours.

Bacillus cereus	ATCC®10876	No aesculin hydrolysis (no blackening)

Negative strains are inhibited or shall produce a negative diagnostic reaction.

Productivity determined by qualitative testing in accordance with the methods and criteria described in ISO 11133:2014

Inoculation with mixed cultures

Inoculate 10ml quantities of medium to achieve 1-10 colony-forming units/ml (cfu/ml) of *Listeria monocytogenes*, to each add 1E+02 to 1E+03 cfu/ml of *Escherichia coli* and 1E+02 to 1E+03 cfu/ml of *Enterococcus faecalis.* Incubate broths at 30 ± 2°C for 25 ± 1 hour. Subculture onto Brilliance™ Listeria Agar (ISO) (CM1212, SR0257 & SR0258) and incubate plates at 37 ± 2°C for 24 ± 2 hours

Reactions after incubation at 30 ± 2°C for 25 ± 1 hour

Listeria monocytogenes	ATCC®13932	WDCM00021	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®8739	WDCM00012	No growth
+ *Enterococcus faecalis*	ATCC®19433	WDCM00009	No growth
Listeria monocytogenes	ATCC®13932	WDCM00021	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®25922	WDCM00013	No growth
+ *Enterococcus faecalis*	ATCC®19433	WDCM00009	No growth
Listeria monocytogenes	ATCC®13932	WDCM00021	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®8739	WDCM00012	No growth
+ *Enterococcus faecalis*	ATCC®29212	WDCM00087	No growth

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

HALF FRASER SELECTIVE SUPPLEMENT SR0166E

Listeria monocytogenes	ATCC®13932	WDCM00021	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®25922	WDCM00013	No growth
+ *Enterococcus faecalis*	ATCC®29212	WDCM00087	No growth
Listeria monocytogenes	ATCC®35152	WDCM00109	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®8739	WDCM00012	No growth
+ *Enterococcus faecalis*	ATCC®19433	WDCM00009	No growth
Listeria monocytogenes	ATCC®35152	WDCM00109	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®25922	WDCM00013	No growth
+ *Enterococcus faecalis*	ATCC®19433	WDCM00009	No growth
Listeria monocytogenes	ATCC®35152	WDCM00109	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®8739	WDCM00012	No growth
+ *Enterococcus faecalis*	ATCC®29212	WDCM00087	No growth
Listeria monocytogenes	ATCC®35152	WDCM00109	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®25922	WDCM00013	No growth
+ *Enterococcus faecalis*	ATCC®29212	WDCM00087	No growth

A satisfactory result is represented by recovery of >10 cfu of *Listeria monocytogenes* on Brilliance™ Listeria Agar (ISO).

Selectivity determined by qualitative testing based on the methods described in ISO 11133:2014

Inoculation with pure cultures

Inoculate 10ml quantities of medium to achieve 1E+03 to 1E+04 colony-forming units/ml (cfu/ml) of *Escherichia coli* and *Enterococcus faecalis.* Incubate broths at 30 ± 2°C for 25 ± 1 hour. Subculture onto Brilliance™ Listeria Agar (ISO) (CM1212, SR0257 & SR0258) and Tryptone Soya Agar (CM0131) and incubate plates at 37 ± 2°C for 24 ± 2 hours.

Reactions after incubation at 30 ± 2°C for 25 ± 1 hour

Escherichia coli	ATCC®8739	WDCM00012	No growth (CM1212, SR0257 & SR0258) No growth or cream colonies (CM0131)
Escherichia coli	ATCC®25922	WDCM00013	No growth (CM1212, SR0257 & SR0258) No growth or cream colonies (CM0131)

Enterococcus faecalis	ATCC®19433	WDCM00009	No growth (CM1212, SR0257 & SR0258) No growth or cream colonies (CM0131)
Enterococcus faecalis	ATCC®29212	WDCM00087	No growth (CM1212, SR0257 & SR0258) No growth or cream colonies (CM0131)

A satisfactory result is represented by no growth of *Escherichia coli* and *Enterococcus faecalis* on Brilliance™ Listeria Agar (ISO).

On Tryptone Soya Agar, a satisfactory result is represented by less than or equal to 1E+04 cfu/ml (equivalent to less than or equal to 100 cfu/10µl) for *Escherichia coli* and by less than or equal to 1E+06 cfu/ml (equivalent to less than or equal to 1E+04 cfu/10µl) for *Enterococcus faecalis*.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

HALF FRASER SELECTIVE SUPPLEMENT SR0166E

Revision History

Section / Step	Description of Change	Reason for Change	Reference
Microbiological characteristics	Change of Listeria plating medium	Change control	MOC-2023-0965

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

NUTRIENT AGAR CM0003

NUTRIENT AGAR CM0003

Typical Formula*

'Lab-Lemco' powder	grams per litre	1.0
Yeast extract		2.0
Peptone		5.0
Sodium chloride		5.0
Agar		15.0

* adjusted as required to meet performance standards

Directions

Suspend 28g in 1 litre of distilled water. Bring to the boil to dissolve completely. Sterilize by autoclaving at 121°C for 15 minutes. Cool to 50°C. Mix well and pour into sterile Petri dishes.

Physical Characteristics

Straw, free-flowing powder
Colour on reconstitution - straw 1-2
Moisture level - less than 7%
pH 7.4 ± 0.2 at 25°C
Clarity - clear
Gel strength - firm, comparable to 15.0g/litre of agar

The medium is tested for compatibility using 7% v/v oxalated horse blood, defibrinated horse blood or defibrinated sheep blood. There shall be no evidence of lysis or darkening, after incubation at 37°C, 25°C and 4°C for 72 hours.

Thermophiles shall be absent after incubation at 55°C for 3 days.

Microbiological Tests Using Optimum Inoculum Dilution

Control Medium: Nutrient Agar

Medium is challenged with 10-100 colony-forming units

Reactions after incubation at 37 ± 2°C for 24 ± 2 hours

Plain plates

Staphylococcus aureus	ATCC® 25923	1-2mm white/straw colonies
Pseudomonas aeruginosa	ATCC® 27853	1-3mm straw colonies

A satisfactory result is represented by recovery of positive strains equal to or greater than 70% of the control medium.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

NUTRIENT AGAR CM0003

Enriched with 7% v/v horse blood

Streptococcus pyogenes	ATCC® 19615	0.25-1mm colourless colonies, β haemolysis
Streptococcus pneumoniae	ATCC® 6303	1-2mm grey/green colonies, α haemolysis
Streptococcus pneumoniae	ATCC® 6305	0.5-1mm grey/green colonies, α haemolysis

A satisfactory result is represented by recovery of positive strains equal to or greater than 70% of the control medium.

Reactions after incubation in 5% CO_2 at 37 ± 2°C for 24 ± 2 hours
(for details, refer to Oxoid Manual - Atmosphere Generation Systems)

Enriched with 7% v/v horse blood

Haemophilus influenzae	ATCC® 19418	Pinpoint-0.25mm colourless colonies

A satisfactory result is represented by recovery of positive strains equal to or greater than 70% of the control medium.

Testing performed in accordance with ISO11133:2014

Medium is challenged with 50-120 colony-forming units

Reactions after incubation at 30 ± 2°C for 24 ± 2 hours

Yersinia enterocolitica	ATCC® 23715	WDCM00160	1-3mm straw colonies
Yersinia enterocolitica	ATCC® 9610	WDCM00038	1-3mm straw colonies

A satisfactory result is represented by recovery of positive strains equal to or greater than 70% of the control medium.

Reactions after incubation at 37 ± 2°C for 24 ± 2 hours

Escherichia coli	ATCC® 25922	WDCM00013	1-3mm straw colonies
Escherichia coli	ATCC® 8739	WDCM00012	1-3mm straw colonies
Salmonella typhimurium	ATCC® 14028	WDCM00031	1-3mm straw colonies
Salmonella enteritidis	ATCC® 13076	WDCM00030	1-3mm straw colonies

A satisfactory result is represented by recovery of positive strains equal to or greater than 70% of the control medium.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

NUTRIENT AGAR CM0003

Revision History

Section / Step	Description of Change	Reason for Change	Reference
Creation of ISO11133 section	Update to include testing of ISO11133:2014	Change control	BT-CC-1196

Distribution: Central File

Date: 27/08/14
Supersedes: 05/10/12

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

UREA AGAR BASE — CM0053

Typical Formula*

Peptone	grams per litre	1.0
Glucose		1.0
Sodium chloride		5.0
Di-sodium phosphate		1.2
Potassium dihydrogen phosphate		0.8
Phenol red		0.012
Agar		15.0

* adjusted as required to meet performance standards

Directions

Suspend 2.4g in 95ml of distilled water. Bring to the boil to dissolve completely. Sterilize by autoclaving at 115°C for 20 minutes. Cool to 50°C and aseptically add the contents of 1 vial of Urea 40% Solution (SR0020K). Mix well, aseptically dispense 10ml amounts into sterile containers and allow to set in the slope position.

Physical Characteristics

Orange/pink, free-flowing powder
Colour on reconstitution - orange
Moisture level - less than 7%
pH 6.8 ± 0.2 at 25°C
Clarity - clear
Gel strength - firm, comparable to 15.0g/litre of agar

Microbiological Tests Using Optimum Inoculum Dilution

Inoculate slopes of the medium with the test organisms.

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Reactions after incubation at 30°C for 6 hours

Morganella morganii	ATCC® 25830	Weak urease +ve, pale pink slope, or negative
Proteus mirabilis	ATCC® 29906	Urease +ve, pink slope

Reactions after incubation at 30°C for 24 hours

Morganella morganii	ATCC® 25830	Urease +ve, pink slope
Klebsiella pneumoniae	ATCC® 13883	Weak urease +ve, pale pink slope
Shigella sonnei	ATCC® 25931	Urease -ve, no colour change
Enterobacter aerogenes	ATCC® 13048	Urease -ve, no colour change
Escherichia coli	ATCC® 25922	Urease -ve, no colour change
Escherichia coli	ATCC® 11775	Urease -ve, no colour change

Salmonella nottingham	NCTC 7832	Urease -ve, no colour change

Reactions after incubation at 30°C for up to 72 hours

Candida albicans	ATCC® 10231	Urease -ve, no colour change
Cryptococcus albidus	ATCC® 34140	Weak urease +ve, pink slope

A satisfactory result is represented by reactions in accordance with the specification.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

BLOOD AGAR BASE NO.2 (CM0271)

BLOOD AGAR BASE NO.2 **CM0271**

Typical Formula*

Proteose peptone	grams per litre	15.0
Liver digest		2.5
Yeast extract		5.0
Sodium chloride		5.0
Agar		12.0

* adjusted as required to meet performance standards

Directions

Suspend 40g in 1 litre of distilled water. Bring to the boil to dissolve completely. Sterilize by autoclaving at 121°C for 15 minutes. Cool to 50°C. Mix well and pour into sterile Petri dishes. For blood agar, enrich with 7% v/v sterile defibrinated blood.

Physical Characteristics

Straw, free-flowing powder
Colour on reconstitution - straw 2-3
Moisture level - less than 7%
pH 7.4 ± 0.2 at 25°C
Clarity - clear
Gel strength - firm, comparable to 12.0g/litre of agar

The medium is tested for compatibility using 7% v/v oxalated horse blood, defibrinated horse blood or defibrinated sheep blood. There shall be no evidence of lysis or darkening, after incubation at 37°C, 25°C and 4°C for 72 hours.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

BLOOD AGAR BASE NO.2 (CM0271)

Microbiological Tests Using Optimum Inoculum Dilution

Control Medium: Blood Agar Base No.2

Medium is challenged with 10-100 colony-forming units

Reactions after incubation at 37°C for 18 hours

Plain plates

Staphylococcus aureus	ATCC® 25923	1-2mm cream colonies
Staphylococcus aureus	ATCC® 9144	0.5-1.5mm cream colonies
Pseudomonas aeruginosa	ATCC® 27853	1-4mm irregular straw or straw/green colonies
Escherichia coli	ATCC® 25922	1-2mm straw colonies

Enriched with 7% v/v horse blood

Streptococcus pyogenes	ATCC® 19615	0.25-1mm pale straw colonies, β haemolysis
Streptococcus pneumoniae	ATCC® 6303	1-4mm grey/green colonies, α haemolysis
Streptococcus pneumoniae	ATCC® 6305	pinpoint-0.25mm grey/green colonies, α haemolysis
Haemophilus influenzae	ATCC® 19418	pinpoint-0.25mm colourless colonies

NOTE: White centre may be present in colonies of *Streptococcus pneumoniae* when grown in aerobic conditions which is due to hydrogen peroxide production.

A satisfactory result is represented by recovery of positive strains equal to or greater than 70% of the control medium.

Zones of growth/no growth surrounding X, V and X+V factor discs (DD0003, DD0004 and DD0005) when plain plates are inoculated with the following organisms and incubated at 37°C for 18 hours:

		X	**V**	**X+V**
Haemophilus influenzae	ATCC® 49247	0	0	≥ 15mm
Haemophilus parainfluenzae	ATCC® 33392	0	≥ 20mm	≥ 20mm

Zones of inhibition with Bacitracin discs (DD0002) shall be 10-20mm when 7% v/v horse blood plates are inoculated with *Streptococcus pyogenes* ATCC® 19615 and incubated at 37°C for 18 hours.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

BLOOD AGAR BASE NO.2 (CM0271)

Revision History

Section / Step	Description of Change	Reason for Change	Reference
Entire Document	• Update to new document template • Inclusion of statement regarding *S. pneumoniae* growth	Change control	BT-CC-1845

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

TRIPLE SUGAR IRON AGAR (ISO) (CM0277)

TRIPLE SUGAR IRON AGAR (ISO) **CM0277**

Typical Formula*

Meat extract	grams per litre	3.0
Yeast extract		3.0
Peptone		20.0
Sodium chloride		5.0
Lactose		10.0
Sucrose		10.0
Glucose		1.0
Iron (III) citrate		0.3
Sodium thiosulphate		0.3
Phenol red		0.024
Agar		12.0

* adjusted as required to meet performance standards

Directions

Suspend 65g in 1 litre of distilled water. Bring to the boil to dissolve completely. Mix well and distribute into final containers. Sterilize by autoclaving at 121°C for 15 minutes. Allow to set as slopes with 2.5cm butts.

Physical Characteristics

Straw, free-flowing powder
Colour on reconstitution - red
Moisture level - less than 7%
pH 7.4 ± 0.2 at 25°C
Clarity - clear
Gel strength - firm, comparable to 12.0g/litre of agar

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

TRIPLE SUGAR IRON AGAR (ISO) (CM0277)

Microbiological Tests Using Optimum Inoculum Dilution

Reactions after incubation at 37°C for 18 hours

Medium is challenged with 1E+04 to 1E+06 colony-forming units

	Slope	**Butt**	**H_2S**	**Gas**
Escherichia coli ATCC® 8739	A	AG	Negative	Positive
Escherichia coli ATCC® 11775	A	AG	Negative	Positive
Shigella sonnei ATCC® 25931	NC	A	Negative	Negative
Salmonella enteritidis ATCC® 13076	NC	AG	Positive	Positive

	Slope	**Butt**	**H_2S**	**Gas**
Salmonella typhimurium ATCC® 14028	NC	AG	Positive	Positive
Salmonella abony NCTC 6017	NC	AG	Positive	Positive
Salmonella nottingham NCTC 7832	NC	AG	Positive	Positive
Proteus hauseri ATCC® 13315	A	A	Positive	Negative
Enterobacter aerogenes ATCC® 13048	A	AG	Negative	Positive
Pseudomonas aeruginosa ATCC® 9027	Alk	Alk	Negative	Negative
Staphylococcus aureus ATCC® 6538	A	A	Negative	Negative

A satisfactory result is represented by reactions in accordance with the specification.

Equivalent results obtained after incubation at 30-35°C for 18-24 hours.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

TRIPLE SUGAR IRON AGAR (ISO) (CM0277)

Key

AG	=	Acid (yellow) with gas formation
A	=	Acid (yellow)
NC	=	No change
Alk	=	Alkaline (red)

Hydrogen sulphide (H_2S)

Positive	=	Blackening
Negative	=	No blackening

Gas

Positive	=	Bubbles or splitting of agar
Negative	=	No bubbles or splitting of agar

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

TRIPLE SUGAR IRON AGAR (ISO) (CM0277)

Revision History

Section / Step	Description of Change	Reason for Change	Reference
N/A	Update to template and ISO	Change control	BT-CC-1901

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

X.L.D. MEDIUM CM0469

X.L.D. MEDIUM **CM0469**

Typical Formula*

Yeast extract	grams per litre	3.0
L-Lysine HCl		5.0
Xylose		3.75
Lactose		7.5
Sucrose		7.5
Sodium desoxycholate		1.0
Sodium chloride		5.0
Sodium thiosulphate		6.8
Ammonium iron (III) citrate		0.8
Phenol red		0.08
Agar		12.5

* adjusted as required to meet performance standards

Directions

Suspend 53g in 1 litre of distilled water. With frequent agitation, bring to the boil to dissolve completely. Cool to 50°C. Mix well and pour into sterile Petri dishes. DO NOT AUTOCLAVE. DO NOT OVERHEAT.

Physical Characteristics

Straw/pink, free-flowing powder
Colour on reconstitution - red
Moisture level - less than or equal to 7%
pH 7.4 ± 0.2 at 25°C
Clarity - clear
Gel strength - firm, comparable to 12.5g/litre of agar

Microbiological Tests Using Optimum Inoculum Dilution

Control Medium: Tryptone Soya Agar

Reactions after incubation at 37 ± 2°C for 24 ± 3 hours

Inoculation with mixed cultures using diminishing sweep technique

Medium is challenged with 1E+03 to 1E+05 colony-forming units (cfu) of *Salmonella* and *Shigella* spp. and 1E+05 to 1E+07 cfu for *Escherichia coli* ATCC®8739.

Salmonella abony	NCTC6017	1-3mm red colonies, black centre

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X.L.D. MEDIUM CM0469

Salmonella enteritidis	ATCC®13076	1-2mm red colonies, black centre
Salmonella typhimurium	ATCC®14028	1-2mm red colonies, black centre
Salmonella virchow	NCTC5742	1-2mm red colonies, black centre
Salmonella arizonae	ATCC®13314	1-3mm red colonies, black centre
Salmonella nottingham	NCTC7832	1-3mm red colonies, black centre
Shigella sonnei	ATCC®9290	0.5-7mm irregular/smooth red colonies
Shigella flexneri	ATCC®12022	0.5-2mm irregular, red colonies

In mixed culture, using the diminishing sweep technique, a satisfactory result is represented by diagnostic reactions of Salmonellae and Shigellae strains and *Escherichia coli*. Clear differentiation must be seen and is based on the colour and morphology of the colonies.

Inoculation with pure cultures

Medium is challenged with 10-100 colony-forming units

Pseudomonas aeruginosa	ATCC®9027	No growth or 0.5-2mm red colonies

For *Pseudomonas aeruginosa* ATCC®9027, a satisfactory result is represented by recovery equal to or less than 90% of the control medium.

Proteus mirabilis	ATCC®12453	0.5-2mm orange/red colonies, with or without black centre, no swarming
Proteus mirabilis	ATCC®29906	0.5-2mm orange/red colonies, with or without black centre, no swarming
Serratia marcescens	ATCC®8100	1-2mm orange/yellow colonies
Citrobacter freundii	ATCC®8090	0.5-2mm yellow colonies
Klebsiella pneumoniae	ATCC®29665	2-4mm yellow, mucoid colonies

Other pure cultures are inhibited or shall produce colonies with a negative diagnostic reaction.

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Staphylococcus aureus	ATCC®6538	No growth

Negative strains are inhibited.

Inoculation using diminishing sweep technique

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Escherichia coli	ATCC®11775	No growth or 0.5-4mm yellow colonies

Escherichia coli ATCC®11775 is inhibited or shall produce colonies with a negative diagnostic reaction.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

X.L.D. MEDIUM CM0469

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Shigella sonnei	ATCC®25931	0.5-7mm irregular/smooth red colonies

Shigella sonnei ATCC®25931 shall produce colonies with a positive diagnostic reaction.

Equivalent results are obtained after incubation at 30-35°C for 24 hours.

Testing performed in accordance with ISO11133:2014

Reactions after incubation at 37 ± 2°C for 24 ± 3 hours

Medium is challenged with 50-120 colony-forming units

Salmonella enteritidis	ATCC®13076	WDCM00030	1-3mm red colonies, black centre
Salmonella typhimurium	ATCC®14028	WDCM00031	1-3mm red colonies, black centre

A satisfactory result is represented by recovery of equal to or greater than 70% of the control medium.

Medium is challenged with 1E+04 to 1E+05 colony-forming units

Escherichia coli	ATCC®8739	WDCM00012	No growth or 0.5-4mm yellow cols
Escherichia coli	ATCC®25922	WDCM00013	No growth or 0.5-4mm yellow cols

Inhibited strains shall produce no growth or at least a 1 log (10) reduction with a negative diagnostic reaction when compared to the control medium.

Inoculation using diminishing sweep technique

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Enterococcus faecalis	ATCC®29212	WDCM00087	No growth
Enterococcus faecalis	ATCC®19433	WDCM00009	No growth

Negative strains are inhibited.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

X.L.D. MEDIUM CM0469

Testing performed in accordance with current CLSI M22 A

Reactions after incubation at 35°C for 18-24 hours

Medium is challenged with 10-100 colony-forming units

Shigella flexneri	ATCC®12022	0.5-2mm irregular, red colonies
Salmonella typhimurium	ATCC®14028	1-2mm red colonies, black centre

A satisfactory result is represented by recovery of equal to or greater than 70% of the control medium.

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Enterococcus faecalis	ATCC®29212	No growth

Negative strains are inhibited.

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Escherichia coli	ATCC®25922	No growth or 0.5-4mm yellow cols

Inhibited strains shall produce no growth or at least a 1 log (10) reduction with a negative diagnostic reaction when compared to the control medium.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

X.L.D. MEDIUM CM0469

Revision History

Section / Step	Description of Change	Reason for Change	Reference
Microbiological Tests	Update to specification for *Shigella sonnei*	Change control	BT-CC-1911
Microbiological Tests	Salmonella and Shigella mixed culture testing changed from low number quantitative to high number qualitative testing.	Change control	BT-CC-2398

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

CAMPYLOBACTER BLOOD-FREE SELECTIVE AGAR BASE CM0739

CAMPYLOBACTER BLOOD-FREE SELECTIVE AGAR BASE **CM0739**

Typical Formula*

Nutrient Broth No. 2	grams per litre	25.0
Activated carbon		4.0
Casein hydrolysate		3.0
Sodium desoxycholate		1.0
Iron (II) sulphate		0.25
Sodium pyruvate		0.25
Agar		12.0

*adjusted to meet performance standards

Directions

Suspend 22.75g in 500ml of distilled water. Bring to the boil to dissolve completely. Sterilize by autoclaving at 121°C for 15 minutes. Cool to 50°C and aseptically add the contents of 1 vial of CCDA Selective Supplement (SR0155E) reconstituted as directed. Mix well and pour into sterile Petri dishes.

Physical Characteristics

Black, free-flowing powder
Colour on reconstitution - black
pH 7.4 ± 0.2 at 25°C
Clarity - opaque
Gel strength – firm, comparable to 12g/litre of agar

Microbiological Tests Using Optimum Inoculum Dilution

Control Medium : Columbia Blood Agar Base enriched with 7% v/v laked horse blood and Campylobacter Growth Supplement SR0232

Reactions after incubation at 37 ± 2°C for 48 hours under microaerophilic conditions

Tested with the addition of CCDA Selective Supplement SR0155

Medium is challenged with 10-100 colony-forming units

Campylobacter jejuni	ATCC®33560	0.5-2mm grey colonies

A satisfactory result is represented by recovery of positive strains equal to or greater than 50% of the control medium.

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Campylobacter lari	ATCC®35221	0.5-2mm grey colonies

For *Campylobacter lari* ATCC®35221, a satisfactory result is represented by growth and a positive diagnostic reaction in accordance with the specification.

Testing performed in accordance with ISO11133:2014

Reactions after incubation at 41.5 ± 2°C for 44 ± 4 hours

Medium is challenged with 50-120 colony-forming units

Campylobacter jejuni	ATCC®29428	WDCM00156	0.5-2mm grey colonies
Campylobacter jejuni	ATCC®33291	WDCM00005	0.5-2mm grey colonies
Campylobacter coli	ATCC®43478	WDCM00004	0.5-2mm grey colonies

A satisfactory result is represented by recovery of positive strains equal to or greater than 50% of the control medium.

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Escherichia coli	ATCC®25922	WDCM00013	No growth
Escherichia coli	ATCC®8739	WDCM00012	No growth
Staphylococcus aureus	ATCC®25923	WDCM00034	No growth

Negative strains are inhibited.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

CAMPYLOBACTER BLOOD-FREE SELECTIVE AGAR BASE CM0739

Revision History

Section / Step	Description of Change	Reason for Change	Reference
Physical Characteristics	Removal of moisture value	Change control	BT-CC-1617
Microbiological Characteristics	Change of testing for *Campylobacter lari* ATCC®35221 changed from low number quantitative to high number qualitative testing.	Change control	BT-CC-2939

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

LISTERIA SELECTIVE AGAR BASE (OXFORD FORMULATION) CM0856

LISTERIA SELECTIVE AGAR BASE (OXFORD FORMULATION) **CM0856**

Typical Formula*

	grams per litre
Columbia Blood Agar Base	39.0
Aesculin	1.0
Ferric ammonium citrate	0.5
Lithium chloride	15.0

* adjusted as required to meet performance standards

Directions

Suspend 27.75g in 500ml of distilled water. Bring to the boil to dissolve completely. Sterilize by autoclaving at 121°C for 15 minutes. Cool to 50°C and aseptically add the contents of 1 vial of Listeria Selective Supplement (SR0206E or SR0140E) reconstituted as directed. Mix well and pour into sterile Petri dishes.

Physical Characteristics

Straw, free-flowing powder
Colour on reconstitution - pale green
Moisture level - less than or equal to 7%
pH - 7.0 ± 0.2 at 25°C
Clarity - clear
Gel strength - firm, comparable to 10.0g/litre of agar

Microbiological Tests Using Optimum Inoculum Dilution

Control Medium: Columbia Blood Agar Base enriched with 5% v/v horse blood

Reactions after incubation at 37°C for 48 hours

Tested with the addition of Listeria Selective Supplement (Oxford Formulation) SR0140

Medium is challenged with 10-100 colony-forming units

Listeria monocytogenes	ATCC®7644	0.25-1.0mm brown/black dimpled colonies and halo
Listeria monocytogenes	ATCC®13932	0.25-1.0mm brown/black dimpled colonies and halo

A satisfactory result is represented by recovery of positive strains equal to or greater than 50% of the control medium.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

LISTERIA SELECTIVE AGAR BASE (OXFORD FORMULATION) CM0856

Medium is challenged with 10-100 colony-forming units

Staphylococcus aureus	ATCC®25923	No growth or pinpoint-1.5mm yellow colonies

Staphylococcus aureus ATCC®25923 is inhibited or shall produce a negative diagnostic reaction from an inoculum of 10-100 cfu

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Enterococcus faecalis	ATCC®29212	No growth
Enterococcus faecalis	ATCC®19433	No growth
Escherichia coli	ATCC®25922	No growth
Escherichia coli	ATCC®8739	No growth
Candida albicans	ATCC®10231	No growth or minimal growth

Negative strains are inhibited. *Candida albicans* ATCC®10231 shall be inhibited or produce pinpoint colourless colonies with no blackening of the media.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

LISTERIA SELECTIVE AGAR BASE (OXFORD FORMULATION) CM0856

Revision History

Section / Step	Description of Change	Reason for Change	Reference
Microbiological characteristics	Change to *Staphylococcus aureus* growth characteristics	Change control	MOC-2022-0180

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

FRASER BROTH BASE (ISO) CM0895

FRASER BROTH BASE (ISO) **CM0895**

Typical Formula*

Proteose peptone	grams per litre	5.0
Tryptone		5.0
Meat extract		5.0
Yeast extract		5.0
Sodium chloride		20.0
Di-sodium hydrogen phosphate		12.0
Potassium dihydrogen phosphate		1.35
Aesculin		1.0
Lithium chloride		3.0

* adjusted as required to meet performance standards

Directions

To make Half Fraser Broth
Dissolve 12.9g in 225ml of distilled water. Sterilize by autoclaving at 121°C for 15 minutes. Cool to 50°C and aseptically add the contents of 1 vial of Half Fraser Selective Supplement (SR0166E) reconstituted as directed. Mix well and dispense into sterile containers.

Alternatively, dissolve 129.2g in 2.25 litres of distilled water. Sterilize by autoclaving at 121°C for 15 minutes. Cool to 50°C and aseptically add the contents of 1 vial of Half Fraser Selective Supplement (SR0166G) reconstituted as directed. Mix well and dispense into sterile containers.

To make Fraser Broth
Dissolve 28.7g in 500ml of distilled water. Sterilize by autoclaving at 121°C for 15 minutes. Cool to 50°C and aseptically add the contents of 1 vial of Fraser Selective Supplement (SR0156E) reconstituted as directed. Mix well and dispense into sterile containers.

Physical Characteristics

Straw, free-flowing powder
Colour on reconstitution - straw 2-3
Moisture level - less than or equal to 7%
pH 7.2 ± 0.2 at 25°C
Clarity - clear

Microbiological Tests Using Optimum Inoculum Dilution

Control Media: Brilliance™ Listeria Agar (ISO) or Columbia Blood Agar Base enriched with 5% v/v horse blood, where appropriate.

Tested with the addition of Fraser Selective Supplement SR0156

Reactions after incubation at 37 ± 2°C for 24 ± 2 hours

Inoculate 10ml quantities of medium to achieve 1-10 colony-forming units/ml (cfu/ml) of *Listeria* spp. Incubate broths at 37 ± 2°C for 24 ± 2 hours. Subculture onto Brilliance™ Listeria Agar (ISO) (CM1212, SR0257 & SR0258) and incubate plates at 37 ± 2°C for 24 - 48 hours.

Listeria monocytogenes	ATCC®7644
Listeria monocytogenes	ATCC®13932

A satisfactory result is represented by recovery of positive strains equal to or greater than a 3 log(10) increase.

Positive strains shall produce aesculin hydrolysis after 48 hours.

Reactions after incubation at 37 ± 2°C for 48 ± 2 hours

Inoculate 10ml quantities of medium to achieve 1E+03 to 1E+04 cfu/ml. Incubate broths at 37°C for 48 hours.

Bacillus cereus	ATCC®10876	No aesculin hydrolysis (no blackening)

Negative strains shall produce no aesculin hydrolysis after 48 hours.

Testing performed in accordance with ISO11133:2014

Tested with the addition of Fraser Selective Supplement SR0156. For testing with the addition of Half Fraser Selective Supplement SR0166 refer to Half Fraser Selective Supplement SR0166E or SR0166G product specifications.

Inoculation with mixed cultures

Inoculate 10ml quantities of medium to achieve 1-10 colony-forming units/ml (cfu/ml) of *Listeria* spp., to each add 1E+02 to 1E+03 cfu/ml of *Escherichia coli* and 1E+02 to 1E+03 cfu/ml of

Enterococcus faecalis. Incubate broths at 37 ± 2°C for 24 ± 2 hours. Subculture onto Brilliance™ Listeria Agar (ISO) (CM1212, SR0257 & SR0258) and incubate plates at 37 ± 2°C for 24 ± 2 hours.

Reactions after incubation at 37 ± 2°C for 24 ± 2 hours

Listeria monocytogenes	ATCC®13932	WDCM00021	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®8739	WDCM00012	No growth
+ *Enterococcus faecalis*	ATCC®19433	WDCM00009	No growth
Listeria monocytogenes	ATCC®13932	WDCM00021	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®25922	WDCM00013	No growth
+ *Enterococcus faecalis*	ATCC®19433	WDCM00009	No growth
Listeria monocytogenes	ATCC®13932	WDCM00021	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®8739	WDCM00012	No growth
+ *Enterococcus faecalis*	ATCC®29212	WDCM00087	No growth
Listeria monocytogenes	ATCC®13932	WDCM00021	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®25922	WDCM00013	No growth
+ *Enterococcus faecalis*	ATCC®29212	WDCM00087	No growth
Listeria monocytogenes	ATCC®35152	WDCM00109	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®8739	WDCM00012	No growth
+ *Enterococcus faecalis*	ATCC®19433	WDCM00009	No growth
Listeria monocytogenes	ATCC®35152	WDCM00109	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®25922	WDCM00013	No growth
+ *Enterococcus faecalis*	ATCC®19433	WDCM00009	No growth
Listeria monocytogenes	ATCC®35152	WDCM00109	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®8739	WDCM00012	No growth
+ *Enterococcus faecalis*	ATCC®29212	WDCM00087	No growth
Listeria monocytogenes	ATCC®35152	WDCM00109	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®25922	WDCM00013	No growth
+ *Enterococcus faecalis*	ATCC®29212	WDCM00087	No growth

A satisfactory result is represented by recovery of >10 cfu of *Listeria monocytogenes* on Brilliance™ Listeria Agar (ISO).

Inoculation with pure cultures

Inoculate 10ml quantities of medium to achieve 1E+03 to 1E+04 colony-forming units/ml (cfu/ml) of *Escherichia coli* and *Enterococcus faecalis.* Incubate broths at 37 ± 2°C for 24 ± 2 hours. Subculture onto Brilliance™ Listeria Agar (ISO) (CM1212, SR0257 & SR0258) and Tryptone Soya Agar (CM0131) then incubate plates at 37 ± 2°C for 24 ± 2 hours.

Reactions after incubation at 37 ± 2°C for 24 ± 2 hours

Escherichia coli	ATCC®8739	WDCM00012	No growth (CM1212, SR0257 & SR0258)
Escherichia coli	ATCC®8739	WDCM00012	No growth or cream colonies (CM0131)
Escherichia coli	ATCC®25922	WDCM00013	No growth (CM1212, SR0257 & SR0258)
Escherichia coli	ATCC®25922	WDCM00013	No growth or cream colonies (CM0131)
Enterococcus faecalis	ATCC®19433	WDCM00009	No growth (CM1212, SR0257 & SR0258)
Enterococcus faecalis	ATCC®19433	WDCM00009	No growth or straw colonies (CM0131)
Enterococcus faecalis	ATCC®29212	WDCM00087	No growth (CM1212, SR0257 & SR0258)
Enterococcus faecalis	ATCC®29212	WDCM00087	No growth or straw colonies (CM0131)

A satisfactory result is represented by no growth of *Escherichia coli* and *Enterococcus faecalis* on Brilliance™ Listeria Agar (ISO) and <100 cfu on Tryptone Soya Agar.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

FRASER BROTH BASE (ISO) CM0895

Revision History

Section / Step	Description of Change	Reason for Change	Reference
Microbiological Characteristics	Change of Listeria plating medium	Change control	MOC-2023-0965

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

TRYPTONE BILE X-GLUCURONIDE MEDIUM (TBX) CM0945

TRYPTONE BILE X-GLUCURONIDE MEDIUM (TBX) **CM0945**

Typical Formula*

Tryptone	grams per litre	20.0
Bile salts No.3		1.5
X-glucuronide		0.075
Agar		15.0

* adjusted as required to meet performance standards

Directions

Suspend 36.6g in 1 litre of distilled water. Bring gently to the boil to dissolve completely. Sterilize by autoclaving at 121°C for 15 minutes. Cool to 50°C and pour 15ml of the medium into sterile Petri dishes or hold at 45°C when using the pour plate technique.

Physical Characteristics

Straw, free-flowing powder
Colour on reconstitution - straw 2-3
Moisture level - less than 7%
pH 7.2 ± 0.2 at 25°C
Clarity - clear
Gel strength - firm, comparable to 15.0g/litre of agar

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

TRYPTONE BILE X-GLUCURONIDE MEDIUM (TBX) CM0945

Microbiological Tests Using Optimum Inoculum Dilution

Control Medium: Tryptone Soya Agar

Reactions after incubation at 44 ± 2°C for 21 ± 3 hours

Stack all plates not more than 3 high in plastic bags containing damp cotton wool, seal bags with tape.

Inoculation using pour plate technique

Medium is challenged with 30-100 colony-forming units

Escherichia coli	ATCC®11775	1-2mm blue/green colonies
Klebsiella pneumoniae	ATCC®29665	1-2mm straw colonies

A satisfactory result for *Escherichia coli* strains is represented by recovery equal to or greater than 70% of the control medium.

For *Klebsiella pneumoniae* ATCC®29665, a satisfactory result is represented by recovery of positive strains equal to or greater than 50% of the control medium.

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Klebsiella aerogenes	NCTC9528	No growth

Negative strains are inhibited.

Testing performed in accordance with ISO11133: 2014

Reactions after incubation at 44 ± 2°C for 21 ± 3 hours

Inoculation using pour plate technique

Medium is challenged with 50-120 colony-forming units

Escherichia coli	ATCC®25922	WDCM00013	1-2mm blue/green colonies
Escherichia coli	ATCC®8739	WDCM00012	1-2mm blue/green colonies
Escherichia coli	NCTC13216	WDCM00202	1-2mm blue/green colonies

A satisfactory result for *Escherichia coli* strains is represented by recovery equal to or greater than 70% of the control medium.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

TRYPTONE BILE X-GLUCURONIDE MEDIUM (TBX) CM0945

Inoculation using surface plate technique

Medium is challenged with 50-120 colony-forming units

Escherichia coli	ATCC®25922	WDCM00013	1-2mm blue/green colonies
Escherichia coli	ATCC®8739	WDCM00012	1-2mm blue/green colonies
Escherichia coli	NCTC13216	WDCM00202	1-2mm blue/green colonies

A satisfactory result for *Escherichia coli* strains is represented by recovery equal to or greater than 70% of the control medium.

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Enterococcus faecalis	ATCC®19433	WDCM00009	No growth

Negative strains are inhibited.

Medium is challenged with 1E+04 to 1E+05 colony-forming units

Enterococcus faecalis	ATCC®29212	WDCM00087	No growth

Negative strains are inhibited.

Medium is challenged with 1E+03 to 1E+04 colony-forming units

Citrobacter freundii	ATCC®43864	WDCM00006	No growth or 1-2mm white to green/beige colonies
Pseudomonas aeruginosa	ATCC®27853	WDCM00025	No growth or 1-2mm white to green/beige colonies

Inoculation using membrane filtration technique

Medium is challenged with 50-120 colony-forming units

Escherichia coli	ATCC®25922	WDCM00013	1-2mm blue/green colonies
Escherichia coli	ATCC®8739	WDCM00012	1-2mm blue/green colonies
Escherichia coli	NCTC13216	WDCM00202	1-2mm blue/green colonies

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

TRYPTONE BILE X-GLUCURONIDE MEDIUM (TBX) CM0945

A satisfactory result for *Escherichia coli* strains is represented by recovery equal to or greater than 70% of the control medium.

Revision History

Section / Step	Description of Change	Reason for Change	Reference
Entire Document	Reformatting to new template Update to test specification	Change control	BT-CC-1561
Entire document	Change title typographical error. Addition of *Klebsiella aerogenes* NCTC9528	Change control	BT-CC-2204

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

BRAIN HEART INFUSION CM1135

BRAIN HEART INFUSION CM1135

Typical Formula*

Brain infusion solids	grams per litre	12.5
Beef heart infusion solids		5.0
Proteose peptone		10.0
Glucose		2.0
Sodium chloride		5.0
Di-sodium phosphate		2.5

* adjusted as required to meet performance standards

Directions

Dissolve 37g in 1 litre of distilled water. Mix well and distribute into final containers. Sterilize by autoclaving at 121°C for 15 minutes.

Physical Characteristics

Straw, free-flowing powder
Colour on reconstitution - straw 3-4
Moisture level - less than 7%
pH 7.4 ± 0.2 at 25°C
Clarity - clear

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

BRAIN HEART INFUSION CM1135

Microbiological Tests Using Optimum Inoculum Dilution

Control Media: Tryptone Soya Agar, Columbia Blood Agar Base enriched with 5% v/v horse blood, Columbia Blood Agar Base enriched with 5% v/v chocolated horse blood or Sabouraud Dextrose Agar, where appropriate

Reactions after incubation at 37 ± 2°C for 18 hours

Medium is challenged with 10-100 colony-forming units

Streptococcus pyogenes	ATCC® 19615	Turbid growth
Streptococcus pneumoniae	ATCC® 6303	Turbid growth
Streptococcus pneumoniae	ATCC® 6305	Turbid growth
Enterococcus faecalis	ATCC® 19433	Turbid growth
Pseudomonas aeruginosa	ATCC® 27853	Turbid growth

A satisfactory result is represented by visible growth.

Reactions after incubation at 37 ± 2°C for 18 hours under anaerobic conditions (for details, refer to Oxoid Manual - Atmosphere Generation Systems)

Medium is challenged with 10-100 colony-forming units

Streptococcus pneumoniae	ATCC® 6305	Turbid growth

A satisfactory result is represented by visible growth.

Reactions after incubation at 37 ± 2°C for 48 hours

Medium is challenged with 10-100 colony-forming units

Candida albicans	ATCC® 10231	Turbid growth

A satisfactory result is represented by visible growth.

Reactions after incubation at 37 ± 2°C for 48-72 hours

Tested with the addition of 0.1% w/v bacteriological agar (1 Agar Tablet (CM0049) in 100ml medium)

Medium is challenged with 10-100 colony-forming units

Bacteroides fragilis	ATCC® 25285	Turbid growth

A satisfactory result is represented by visible growth.

Reactions after incubation at 37 ± 2°C for 24 hours

Enriched 1 x 10ml volume with two X factor discs (DD0003) and two V factor discs (DD0004)

Medium is challenged with 10-100 colony-forming units

Haemophilus influenzae	ATCC® 33391	Turbid growth

A satisfactory result is represented by visible growth.

Enriched with 10% v/v horse blood

Reactions after incubation at 37 ± 2°C for 48 hours and subculture onto chocolate agar plates
Incubate plates at 37 ± 2°C for 24-48 hours in CO_2 atmosphere
(for details, refer to Oxoid Manual - Atmosphere Generation Systems)

Neisseria meningitidis	ATCC® 13077	1-2mm grey/brown colonies
Neisseria gonorrhoeae	NCTC 11148	1-2mm grey/brown colonies
Neisseria gonorrhoeae	ATCC® 19424	1-2mm grey/brown colonies

A satisfactory result is represented by a positive diagnostic reaction, on subculture.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

BRAIN HEART INFUSION CM1135

Reactions after incubation at 37 ± 2°C for 4 hours

Tube Coagulase Test

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Staphylococcus aureus	ATCC® 9144	Coagulase positive
Staphylococcus epidermidis	ATCC® 14990	Coagulase negative

A satisfactory result is represented by the appropriate coagulase reaction.

Testing performed in accordance with ISO11133:2014

Reactions after incubation at 37 ± 2°C for 24 ± 2 hours

Medium is challenged with 10-100 colony-forming units

Staphylococcus aureus	ATCC® 25923	WDCM00034	Turbid growth

A satisfactory result is represented by visible growth.

Tested in accordance with current CLSI M22 A

Reactions after incubation at 35 ± 2°C for 18 hours

Medium is challenged with 10-100 colony-forming units

Escherichia coli	ATCC® 25922	Turbid growth
Staphylococcus aureus	ATCC® 25923	Turbid growth

A satisfactory result is represented by visible growth.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

BRAIN HEART INFUSION CM1135

Revision History

Section / Step	Description of Change	Reason for Change	Reference
Update to 10% Horse Blood Reactions	Change of incubation parameters	Change control	BT-CC-1736

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

M.R.S. (ISO) AGAR CM1153

M.R.S. (ISO) AGAR **CM1153**

Typical Formula*

Enzymatic digest of casein	grams per litre	10.0
Meat extract		10.0
Yeast extract		4.0
Tri-ammonium citrate		2.0
Sodium acetate		5.0
Magnesium sulphate heptahydrate		0.2
Manganese sulphate tetrahydrate		0.05
Di-potassium hydrogen phosphate		2.0
Sorbitan mono-oleate		1.08
Glucose		20.0
Agar		12.37

*adjusted to meet performance standards

Directions

Suspend 66.7g in 1 litre of distilled water. Bring to the boil to dissolve completely. Sterilize by autoclaving at 121°C for 15 minutes. Mix well and pour into sterile Petri dishes.

Physical Characteristics

Dark straw, free-flowing powder
Colour on reconstitution – brown/orange
Moisture level- less than or equal to 7%
pH 5.7 ± 0.1 at 25°C
Clarity - clear
Gel strength - firm comparable to 12.37g/litre of agar

Microbiological Tests Using Optimum Inoculum Dilution

Control Medium: M.R.S. Agar or Tryptone Soya Agar

Reactions after incubation at 30 ± 2°C for 72 ± 3 hours under microaerophilic conditions

Medium is challenged with 10-100 colony-forming units

Lactobacillus gasseri	ATCC®19992	0.5-2mm pale straw colonies

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

M.R.S. (ISO) AGAR CM1153

A satisfactory result is represented by recovery of positive strains equal to or greater than 70% of the control medium.

Testing performed in accordance with ISO11133:2014

Reactions after incubation at 30 ± 2°C for 72 ± 3 hours under microaerophilic conditions

Medium is challenged with 50-120 colony-forming units

Lactobacillus sakei	ATCC®15521	WDCM00015	0.5-2mm pale straw colonies
Lactococcus lactis	ATCC®19435	WDCM00016	0.5-2mm cream colonies
Pediococcus pentosaceus	ATCC®33316	WDCM00158	ppt-3mm cream colonies

A satisfactory result is represented by recovery of positive strains equal to or greater than 70% of the control medium.

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Escherichia coli	ATCC®25922	WDCM00013	No growth
Escherichia coli	ATCC®8739	WDCM00012	No growth
Bacillus cereus	ATCC®11778	WDCM00001	No growth

Negative strains are inhibited.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

M.R.S. (ISO) AGAR CM1153

Revision History

Section / Step	Description of Change	Reason for Change	Reference
Entire document	Creation of new document	Change control	BT-CC-1368
Typical formula/ Physical characteristics	Correction of typographical errors. pH range changed to the correct limits.	Change control	BT-CC-2783

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

BRILLIANCE™ LISTERIA AGAR BASE (ISO) CM1212

BRILLIANCE™ LISTERIA AGAR BASE (ISO) **CM1212**

Typical Formula*

Enzymatic digest of animal tissues	grams per litre	18.0
Enzymatic digest of casein		6.0
Yeast extract		10.0
Sodium pyruvate		2.0
Glucose		2.0
Magnesium glycerophosphate		1.0
Magnesium sulphate (anhydrous)		0.5
Sodium chloride		5.0
Lithium chloride		10.0
Di-sodium hydrogen phosphate (anhydrous)		2.5
5-Bromo-4-chloro-3-indolyl-β-D-glucopyranoside		0.05
Agar		12.0

* adjusted as required to meet performance standards

Directions

Suspend 34.5g in 480ml of distilled water. Mix well and sterilize by autoclaving at 121°C for 15 minutes. Cool to 48°C. Aseptically add the contents of 1 vial of Brilliance™ Listeria Selective Supplement (ISO) (SR0257E) reconstituted as directed, and 1 vial of Brilliance™ Listeria Differential Supplement (ISO) (SR0258E) warmed to 48°C. Mix well and pour into sterile Petri dishes.

Physical Characteristics

Straw, free-flowing powder
Colour on reconstitution - orange/brown
Moisture level - less than or equal to 7%
pH 7.2 ± 0.2 at 25°C
Clarity - clear
Gel strength - firm, comparable to 12.0g/litre of agar

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

BRILLIANCE™ LISTERIA AGAR BASE (ISO) CM1212

Microbiological Tests Using Optimum Inoculum Dilution

Control Media: Tryptone Soya Agar, Columbia Blood Agar Base enriched with 5% v/v horse blood or Sabouraud Dextrose Agar, where appropriate

Tested with the addition of Brilliance™ Listeria Selective Supplement (ISO) SR0257 and Brilliance™ Listeria Differential Supplement (ISO) SR0258

Reactions after incubation at 37 ± 2°C for 24 ± 2 hours

Medium is challenged with 30-120 colony-forming units

Listeria monocytogenes	NCTC11994	0.5-2mm blue-green colonies with halo
Listeria monocytogenes	ATCC®7644	0.5-2mm blue-green colonies with halo

A satisfactory result is represented by recovery of positive strains equal to or greater than 50% of the control medium.

Reactions after incubation at 37 ± 2°C for 48 ± 4 hours

Medium is challenged with 30-120 colony-forming units

Listeria monocytogenes	NCTC11994	1-3mm blue-green colonies with halo
Listeria monocytogenes	ATCC®7644	1-3mm blue-green colonies with halo
Listeria ivanovii	NCTC12701	0.5-3mm blue-green colonies with or without halo

A satisfactory result is represented by recovery of positive strains equal to or greater than 70% of the control medium. For *Listeria ivanovii* NCTC12701, a satisfactory result is represented by recovery equal to or greater than 50% of the control medium.

Medium is challenged with 1E+04 to 1E+05 colony-forming units

Bacillus cereus	ATCC®10876	No growth or 1-2mm cream/blue colonies
Staphylococcus aureus	ATCC®25923	No growth or 0.5-1mm yellow colonies
Saccharomyces cerevisiae	ATCC®9763	No growth or 1-2mm cream/blue colonies

Negative strains are inhibited or shall produce at least a 2 log(10) reduction when compared to the control medium.

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Proteus mirabilis	NCTC10975	No growth

Negative strains are inhibited.

Testing performed in accordance with ISO11133:2014

Table B.1
ISO Standard 11290-1:2017 tested with the addition of Brilliance™ Listeria Selective Supplement (ISO) SR0257 and Brilliance™ Listeria Differential Supplement (ISO) SR0258

Reactions after incubation at 37 ± 2°C for 24 ± 2 hours

Medium is challenged with 50-120 colony-forming units

Listeria monocytogenes	ATCC®13932	WDCM00021	0.5-2mm blue-green colonies with halo

A satisfactory result is represented by recovery of positive strains equal to or greater than 50% of the control medium.

Reactions after incubation at 37 ± 2°C for 48 ± 4 hours

Medium is challenged with 50-120 colony-forming units

Listeria monocytogenes	ATCC®13932	WDCM00021	1-3mm blue-green colonies with halo
Listeria monocytogenes	ATCC®35152	WDCM00109	1-3mm blue-green colonies with halo

A satisfactory result is represented by recovery of positive strains equal to or greater than 70% of the control medium.

Medium is challenged with 1E+03 to 1E+04 colony-forming units

Listeria innocua	ATCC®33090	WDCM00017	0.5-3mm blue-green colonies without halo

A satisfactory result is represented by good growth with a negative diagnostic reaction.

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Escherichia coli	ATCC®25922	WDCM00013	No growth
Escherichia coli	ATCC®8739	WDCM00012	No growth
Enterococcus faecalis	ATCC®29212	WDCM00087	No growth
Enterococcus faecalis	ATCC®19433	WDCM00009	No growth

Negative strains are inhibited.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

BRILLIANCE™ LISTERIA AGAR BASE (ISO) CM1212

Revision History

Section / Step	Description of Change	Reason for Change	Reference
Physical Characteristics	Clarity change from opaque to clear	Change control	MOC-2023-0118

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

LISTERIA SELECTIVE SUPPLEMENT (OXFORD FORMULATION) SR0140E

LISTERIA SELECTIVE SUPPLEMENT (OXFORD FORMULATION) **SR0140E**

Formula

Vial contents (each vial is sufficient to supplement 500ml of medium)

Cycloheximide	200.0 mg
Colistin sulphate	10.0 mg
Acriflavine	2.5 mg
Cefotetan	1.0 mg
Fosfomycin	5.0 mg

Description

A selective supplement for the isolation of *Listeria monocytogenes*.

Directions

Aseptically add 5ml of 70% ethanol to 1 vial and mix gently to dissolve. Avoid frothing. Aseptically add the vial contents to 500ml of sterile Listeria Selective Agar Base (CM0856) prepared as directed and cooled to 50°C. Mix well and pour into sterile Petri dishes.

Physical Characteristics

Yellow powder/pellet
Sterility - passes test

Microbiological Tests Using Optimum Inoculum Dilution

Control Medium: Columbia Blood Agar Base enriched with 5% v/v horse blood

Reactions after incubation at 37°C for 48 hours

Tested in Listeria Selective Agar Base CM0856

Medium is challenged with 10-100 colony-forming units

Listeria monocytogenes	ATCC®7644	0.25-1.0mm brown/black dimpled colonies and halo
Listeria monocytogenes	ATCC®13932	0.25-1.0mm brown/black dimpled colonies and halo

A satisfactory result is represented by recovery of positive strains equal to or greater than 50% of the control medium.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

LISTERIA SELECTIVE SUPPLEMENT (OXFORD FORMULATION) SR0140E

Medium is challenged with 10-100 colony-forming units

Staphylococcus aureus	ATCC®25923	No growth or pinpoint-1.5mm yellow colonies

Staphylococcus aureus ATCC®25923 is inhibited or shall produce a negative diagnostic reaction from an inoculum of 10-100 cfu.

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Enterococcus faecalis	ATCC®29212	No growth
Enterococcus faecalis	ATCC®19433	No growth
Escherichia coli	ATCC®25922	No growth
Escherichia coli	ATCC®8739	No growth
Candida albicans	ATCC®10231	No growth or minimal growth

Negative strains are inhibited. *Candida albicans* ATCC®10231 shall be inhibited or produce pinpoint colourless colonies with no blackening of the media.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

LISTERIA SELECTIVE SUPPLEMENT (OXFORD FORMULATION) SR0140E

Revision History

Section / Step	Description of Change	Reason for Change	Reference
Microbiological characteristics	Change to *Staphylococcus aureus* growth characteristics	Change control	MOC-2022-0180

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

FRASER SELECTIVE SUPPLEMENT SR0156E

FRASER SELECTIVE SUPPLEMENT **SR0156E**

Formula

Vial contents (each vial is sufficient to supplement 500ml of medium)

Ammonium iron (III) citrate	250.0 mg
Nalidixic acid	10.0 mg
Acriflavine hydrochloride	12.5 mg

Description

A selective supplement for the detection of *Listeria monocytogenes*.

Directions

Aseptically add 5ml of 1:1 ethanol:sterile distilled water to 1 vial and mix gently to dissolve. Aseptically add the vial contents to 500ml of sterile Fraser Broth Base (CM0895) prepared as directed and cooled to 50°C. Mix well and aseptically dispense into sterile containers.

Physical Characteristics

Orange/green pellet
Sterility - passes test

Microbiological Tests Using Optimum Inoculum Dilution

Control Media: Brilliance™ Listeria Agar (ISO) or Columbia Blood Agar Base enriched with 5% v/v horse blood, where appropriate.

Tested in Fraser Broth Base CM0895

Reactions after incubation at 37 ± 2°C for 24 ± 2 hours

Inoculate 10ml quantities of medium to achieve 1-10 colony-forming units/ml (cfu/ml) of *Listeria* spp. Incubate broths at 37 ± 2°C for 24 ± 2 hours. Subculture onto Brilliance™ Listeria Agar (ISO) (CM1212, SR0257 & SR0258) and incubate plates at 37 ± 2°C for 24 to 48 hours.

Listeria monocytogenes	ATCC®7644
Listeria monocytogenes	ATCC®13932

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

FRASER SELECTIVE SUPPLEMENT SR0156E

A satisfactory result is represented by recovery of positive strains equal to or greater than a 3 log(10) increase.

Positive strains shall produce aesculin hydrolysis after 48 hours.

Reactions after incubation at 37 ± 2°C for 48 ± 2 hours

Inoculate 10ml quantities of medium to achieve 1E+03 to 1E+04 cfu/ml. Incubate broths at 37°C for 48 hours.

Bacillus cereus	ATCC®10876	No aesculin hydrolysis (no blackening)

Negative strains shall produce no aesculin hydrolysis after 48 hours.

Testing performed in accordance with ISO11133:2014

Inoculation with mixed cultures

Inoculate 10ml quantities of medium to achieve 1-10 colony-forming units/ml (cfu/ml) of *Listeria* spp., to each add 1E+02 to 1E+03 cfu/ml of *Escherichia coli* and 1E+02 to 1E+03 cfu/ml of *Enterococcus faecalis.* Incubate broths at 37 ± 2°C for 24 ± 2 hours. Subculture onto Brilliance™ Listeria Agar (ISO) (CM1212, SR0257 & SR0258) and incubate plates at 37 ± 2°C for 24 ± 2 hours

Reactions after incubation at 37 ± 2°C for 24 ± 2 hours

Listeria monocytogenes	ATCC®13932	WDCM00021	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®8739	WDCM00012	No growth
+ *Enterococcus faecalis*	ATCC®19433	WDCM00009	No growth
Listeria monocytogenes	ATCC®13932	WDCM00021	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®25922	WDCM00013	No growth
+ *Enterococcus faecalis*	ATCC®19433	WDCM00009	No growth
Listeria monocytogenes	ATCC®13932	WDCM00021	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®8739	WDCM00012	No growth
+ *Enterococcus faecalis*	ATCC®29212	WDCM00087	No growth

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

FRASER SELECTIVE SUPPLEMENT SR0156E

Listeria monocytogenes	ATCC®13932	WDCM00021	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®25922	WDCM00013	No growth
+ *Enterococcus faecalis*	ATCC®29212	WDCM00087	No growth
Listeria monocytogenes	ATCC®35152	WDCM00109	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®8739	WDCM00012	No growth
+ *Enterococcus faecalis*	ATCC®19433	WDCM00009	No growth
Listeria monocytogenes	ATCC®35152	WDCM00109	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®25922	WDCM00013	No growth
+ *Enterococcus faecalis*	ATCC®19433	WDCM00009	No growth
Listeria monocytogenes	ATCC®35152	WDCM00109	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®8739	WDCM00012	No growth
+ *Enterococcus faecalis*	ATCC®29212	WDCM00087	No growth
Listeria monocytogenes	ATCC®35152	WDCM00109	0.5-1.0mm blue colonies with halo
+ *Escherichia coli*	ATCC®25922	WDCM00013	No growth
+ *Enterococcus faecalis*	ATCC®29212	WDCM00087	No growth

A satisfactory result is represented by recovery of >10 cfu of *Listeria monocytogenes* on Brilliance™ Listeria Agar (ISO).

Inoculation with pure cultures

Inoculate 10ml quantities of medium to achieve 1E+03 to 1E+04 colony-forming units/ml (cfu/ml) of *Escherichia coli* and *Enterococcus faecalis.* Incubate broths at 37 ± 2°C for 24 ± 2 hours. Subculture onto Brilliance™ Listeria Agar (ISO) (CM1212, SR0257 & SR0258) and Tryptone Soya Agar (CM0131) then incubate plates at 37 ± 2°C for 24 ± 2 hours.

Reactions after incubation at 37 ± 2°C for 24 ± 2 hours

Escherichia coli	ATCC®8739	WDCM00012	No growth (CM1212, SR0257 & SR0258)
Escherichia coli	ATCC®8739	WDCM00012	Cream colonies (CM0131)
Escherichia coli	ATCC®25922	WDCM00013	No growth (CM1212, SR0257 & SR0258)
Escherichia coli	ATCC®25922	WDCM00013	Cream colonies (CM0131)
Enterococcus faecalis	ATCC®19433	WDCM00009	No growth (CM1212, SR0257 & SR0258)
Enterococcus faecalis	ATCC®19433	WDCM00009	Cream colonies (CM0131)

Enterococcus faecalis	ATCC®29212	WDCM00087	No growth (CM1212, SR0257 & SR0258)
Enterococcus faecalis	ATCC®29212	WDCM00087	Cream colonies (CM0131)

A satisfactory result is represented by no growth of *Escherichia coli* and *Enterococcus faecalis* on Brilliance™ Listeria Agar (ISO) and <100 cfu on Tryptone Soya Agar.

OXOID QUALITY ASSURANCE PRODUCT SPECIFICATION

FRASER SELECTIVE SUPPLEMENT SR0156E

Revision History

Section / Step	Description of Change	Reason for Change	Reference
Microbiological Characteristics	Change of Listeria plating medium	Change control	MOC-2023-0965

BT-SPEC-0521

Distribution: Central File

Date: 04/08/11
Supersedes: 12/11/10

OXOID QUALITY ASSURANCE
PRODUCT SPECIFICATION

NOVOBIOCIN SUPPLEMENT SR0181E

Formula

Vial contents (each vial is sufficient to supplement 500ml of medium at 20mg/l)

Novobiocin	10.0 mg

Directions

Aseptically add 2ml of sterile distilled water to 1 vial and invert gently to dissolve. Aseptically add the vial contents to 500ml of sterile Modified Tryptone Soya Broth (CM0989) prepared as directed and cooled to 50°C. Mix well and aseptically dispense into sterile containers.

Physical Characteristics

White pellet
Sterility - passes test

Microbiological Tests Using Optimum Inoculum Dilution

Control Medium: Tryptone Soya Agar

Medium is challenged with 10-100 colony-forming units

Reactions after incubation at 41.5°C for 18-24 hours

Tested in Modified Tryptone Soya Broth CM0989

Escherichia coli (O157:H7)	NCTC 12079	Turbid growth
Escherichia coli (O157:H7) (Verotoxin negative)	NCTC 12900	Turbid growth
Escherichia coli	ATCC® 25922	Turbid growth
Escherichia coli	ATCC® 8739	Turbid growth
Klebsiella pneumoniae	ATCC® 29665	Turbid growth

Medium is challenged with 1E+04 to 1E+06 colony-forming units

Bacillus subtilis	ATCC® 6633	No growth to minimal growth
Staphylococcus aureus	ATCC® 25923	No growth to minimal growth

Negative strains are inhibited or shall produce minimal growth