




QZ-H-S-M-S



C1970 - CEPHALEXIN MONOHYDRATE	
An antibiotic used with XTS Medium (X8454) and <i>PhytoSelect</i> Medium (P6800) for the isolation of <i>Xanthomonas translucens</i> from Barley and Wheat seeds, <i>Xanthomonas campestris</i> from <i>Brassicac</i> s, and other plant pathogens.	
<ul style="list-style-type: none"> • Powder • CAS Number: 23325-78-2 • Formula: C₁₆H₁₇N₃O₄S•H₂O • Molecular Weight: 365.4 • Soluble in Water, DMSO • Store at Room Temperature 	
AVAILABLE PACKAGE SIZES	
5g	10g 25g
C2112 - CEPHALEXIN SOLUTION (100 MG/ML)	
A solution of Cephalexin Monohydrate (C1970) at 100 milligrams per milliliter of DMSO. An antibiotic used with XTS Medium (X8454) and <i>PhytoSelect</i> Medium (P6800) for the isolation of <i>Xanthomonas translucens</i> from Barley and Wheat seeds, <i>Xanthomonas campestris</i> from <i>Brassicac</i> s, and other plant pathogens.	
<ul style="list-style-type: none"> • Liquid • CAS Number: 23325-78-2 • Formula: C₁₆H₁₇N₃O₄S•H₂O • Molecular Weight: 365.4 • Miscible with Water • Store at -20 to 0 °C 	
	
AVAILABLE PACKAGE SIZES	
10mL	100mL
C252 - CHLORAMPHENICOL	
See Molecular Biology Section for Complete Listing	
C2010 - CHLORAMPHENICOL SOLUTION (10 MG/ML)	
See Molecular Biology Section for Complete Listing	
C1830 - CRYSTAL VIOLET	
Hexamethylpararosaniline Chloride, Gentian Violet, Basic Violet 3	
A biological stain used in <i>PhytoSelect</i> Medium (P6800) for plant pathogen selection; also used in gram staining, usually with Safranin O (Product Number S7400).	
<ul style="list-style-type: none"> • Powder • CAS Number: 548-62-9 • Formula: C₂₅H₃₀ClN₃ • Molecular Weight: 407.98 • Soluble in Water • Store at Room Temperature 	
AVAILABLE PACKAGE SIZES	
25g	100g
H276 - CTAB	
See Molecular Biology Section for Complete Listing	

H3818 - CTAB SOLUTION (100 MG/ML)	
See Molecular Biology Section for Complete Listing	
C375 - CUPRIC SULFATE	
See Biochemicals Section for Complete Listing	
C1989 - CYCLOHEXIMIDE	
See Molecular Biology Section for Complete Listing	
C1796 - CYCLOHEXIMIDE SOLUTION (100 MG/ML)	
See Molecular Biology Section for Complete Listing	
E2799 - EVANS BLUE	
See Biochemicals Section for Complete Listing	
F3178 - FAST GREEN (FCF)	
ethyl-[4-[[4-[ethyl-[(3-sulfophenyl)methyl]amino]phenyl]- (4-hydroxy-2-sulfophenyl)methylidene]-1-cyclohexa-2,5-dienylidene]-[(3-sulfophenyl)methyl]azanium, C.I. 42053	
<ul style="list-style-type: none"> • Powder • CAS Number: 2353-45-9 • Formula: C₃₇H₃₄N₂O₁₀S₃Na₂ • Molecular Weight: 808.85 • Soluble in Water • Store at Room Temperature 	
AVAILABLE PACKAGE SIZES	
5g	10g 25g 100g
G570 - GENTAMICIN SULFATE	
See Molecular Biology Section for Complete Listing	
G3350 - GENTAMICIN SOLUTION (50 MG/ML)	
See Molecular Biology Section for Complete Listing	
G3410 - GENTAMICIN SOLUTION (100 MG/ML)	
See Molecular Biology Section for Complete Listing	
G399 - L-GLUTAMIC ACID	
See Biochemicals Section for Complete Listing	
G381 - GLYCEROL	
See Biochemicals Section for Complete Listing	
G503 - GLYCINE	
See Biochemicals Section for Complete Listing	
FOR MORE INFORMATION ABOUT ANTIBIOTICS	
See "Figure 30. Antibiotics/Antimycotics/Selection Agent Guide" on page 258 in the Technical Section.	

G3574 - GUAIACOL

2-methoxyphenol

Used in peroxidase assays as a colorimetric agent; used in cultivar separation of soybeans, and alternatively to detect *H. oryzae* in rice seeds.

The melting point of this product can be as low as 26.1°C, so it can be either a fine powder or a liquid at room temperature.

- Liquid or Powder
- CAS Number: 90-05-1
- Formula: C₇H₈O₂
- Molecular Weight: 124.14
- Miscible with and Soluble in Water
- Store at Room Temperature

AVAILABLE PACKAGE SIZES

25g	50g	100g	250g
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I4068 - INDIGO CARMINE

5,5'-Indigodisulfonic Acid Sodium Salt, Indigotine, Acid Blue 74, CI#: 73015

Used in viability tests to stain seeds to detect dead tissues; stain will penetrate dead cells, but will not stain living cells.

Can also be used as a pH indicator: it is blue at pH 11.4 and yellow at 13.0.

- Powder
- CAS Number: 860-22-0
- Formula: C₁₆H₈N₂Na₂O₈S₂
- Molecular Weight: 466.35
- Soluble in Water, Ethanol
- Store at Room Temperature

AVAILABLE PACKAGE SIZES

25g	100g
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K5013 - KING'S B MEDIUM

Also known as King's B Agar or KB.

A non-selective medium for the subculture of suspected isolates. Glycerol (G381) is often added as a carbon source.

- Store at Room Temperature
- Soluble in Boiling Water
- Use at 37.23 grams per liter of medium

Components (mg/L)

Peptone	20,000
Potassium Phosphate, Dibasic	1500
Magnesium Sulfate	730
Agar	15,000

AVAILABLE PACKAGE SIZES

1L	500g
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NEW PRODUCT

L5356 - LACTIC ACID

2-Hydroxypropionic acid; Propanoic acid

Used in seed testing in place of phenol for seed clearing.

Also used in microbiology/phytopathology media for pH adjustments. Recommended in ISTA seed testing protocols.

- Liquid
- CAS Number: 50-21-5
- Formula: C₃H₆O₃
- Molecular Weight: 90.08
- Miscible with Water
- Store at Room Temperature
- Merck 13, 5351



AVAILABLE PACKAGE SIZES

500mL	1L
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M562 - D-MANNITOL

See Biochemicals Section for Complete Listing

M573 - MALACHITE GREEN OXALATE

See Biochemicals Section for Complete Listing

M5516 - mD5A MEDIUM

Modified D-5 Agar Medium.

Used for detecting seedborne *Xanthomonas campestris pv. carotae* on carrot seeds. Recommended in ISTA method 7-020.

- Store at Room Temperature
- Soluble in Boiling Water
- Use at 20.45 grams per liter of medium

Components (mg/L)

Magnesium Sulfate, Heptahydrate	300
Sodium Phosphate, Monohydrate	1150
Ammonium Chloride	1000
Potassium Phosphate, Dibasic	3000
Agar	15,000

AVAILABLE PACKAGE SIZES

1L	10L
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M539 - L-METHIONINE

See Biochemicals Section for Complete Listing

M5781 - METHYLENE BLUE

3,7-bis(Dimethylamino)-phenothiazin-5-ium chloride, Basic Blue 9, Tetramethylthionine chloride.
A biological stain, redox indicator and cationic dye.

- Powder
- CAS Number: 7220-79-3
- Formula: C₁₆H₁₈ClN₃S • 3H₂O
- Molecular Weight: 373.9
- Soluble in Water
- Store at Room Temperature

AVAILABLE PACKAGE SIZES

25g 100g

N6179 - 1-NAPHTHOL

See Biochemicals Section for Complete Listing

N581 - NYSTATIN

See Molecular Biology Section for Complete Listing

P6737 - PENTACHLORONITROBENZENE (PCNB)

Quintozene
An antimycotic used in seed testing, specifically for the detection of *Fusarium circinatum*.

- Powder
- CAS Number: 82-68-8
- Formula: C₆Cl₅NO₂
- Molecular Weight: 295.33
- Soluble in DMSO
- Store at Room Temperature

AVAILABLE PACKAGE SIZES

25g 100g

P777 - PENICILLIN G, SODIUM SALT

(2S,5R,6R)-3,3-Dimethyl-7-oxo-6-[(phenylacetyl)amino]-4-thia-1-azabicyclo-[3.2.0]heptane-2-carboxylic Acid, Sodium Salt

- Powder
- CAS Number: 69-57-8
- Formula: C₁₆H₁₇N₂O₄SNa
- Molecular Weight: 356.4
- Soluble in Water
- Store at Room Temperature
- Merck 13, 7165



AVAILABLE PACKAGE SIZES

25g 100g

P6767 - PENICILLIN G SOLUTION (10 MG/ML)

(2S,5R,6R)-3,3-Dimethyl-7-oxo-6-[(phenylacetyl)amino]-4-thia-1-azabicyclo-[3.2.0]heptane-2-carboxylic Acid, Sodium Salt

An aqueous solution of Penicillin G Sodium Salt (P777) at 10 milligrams per milliliter. Used with *PhytoSelect* Basal Medium (P6800) for the selection of *Xanthomonas campestris*.

- Liquid
- CAS Number: 69-57-8
- Formula: C₁₆H₁₇N₂O₄SNa
- Molecular Weight: 356.4
- Miscible with Water
- Store at -20 to 0 °C
- Sterile Filtered
- Ships on Dry Ice



AVAILABLE PACKAGE SIZES

10mL 100mL

FOR MORE INFORMATION ON THE PHYTOSELECT BASAL MEDIUM

See "Seed Testing – P6800 *PhytoSelect* Basal Medium & SMART Media" on page 263 in the Technical Section.

P6800 - PHYTOSELECT BASAL MEDIUM

PhytoSelect Basal Medium is formulated based on the SMART media system developed by Kawanishi *et al.* (2011) It requires the addition of antibiotics and a specific carbon source to be a complete selection medium. See the Product Information Sheet available online for more information.

- Store at Room Temperature
- Soluble in Boiling Water
- Use at 24.93 grams per liter of medium

Components (mg/L)

Sodium Phosphate, Monohydrate	5665
Potassium Phosphate, Monobasic, Anhydrous	3000
Ammonium Chloride	1000
Magnesium Sulfate, Heptahydrate	250
Ferrous Sulfate, Heptahydrate	9
Agar	15,000
Crystal Violet	3

AVAILABLE PACKAGE SIZES

1L 5L 10L 50L

P6809 - POLYMYXIN B SULFATE

An antibiotic used with *PhytoSelect* Medium (P6800) for the selection of plant pathogens.

- Powder
- CAS Number: 1405-20-5
- Formula: $C_{55}H_{96}N_{16}O_{13} \cdot 2H_2SO_4$
- Molecular Weight: 1385.61
- Soluble in Water
- Store at 2 to 6 °C

AVAILABLE PACKAGE SIZES

100mg	500mg	1g
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P6719 - POLYMYXIN B SOLUTION (10 MG/ML)

An aqueous solution of Polymyxin B Sulfate (P6809) at 10 milligrams per milliliter. An antibiotic used with *PhytoSelect* Medium (P6800) for the selection of plant pathogens.

- Liquid
- Sterile Filtered
- CAS Number: 1405-20-5
- Formula: $C_{55}H_{96}N_{16}O_{13} \cdot 2H_2SO_4$
- Molecular Weight: 1385.61
- Miscible with Water
- Store at -20 to 0 °C



AVAILABLE PACKAGE SIZES

10mL	100mL
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P672 - POTASSIUM HYDROXIDE

See Biochemicals Section for Complete Listing

P682 - POTASSIUM HYDROXIDE SOLUTION 1.0 N

See Biochemicals Section for Complete Listing

P646 - POTASSIUM PHOSPHATE, MONOBASIC ANHYDROUS

See Biochemicals Section for Complete Listing

P6780 - POTASSIUM SODIUM TARTRATE

Rochelle Salt, Seignette Salt, L(+)-Tartaric acid Potassium Sodium salt

A component of Fehling's solution, used to differentiate between water-soluble carbohydrate and ketone functional groups, and as a test for monosaccharides. Fehling's solution can be used to determine whether a carbonyl-containing compound is an aldehyde or a ketone.

- Powder
- CAS Number: 6381-59-5
- Formula: $C_4H_4KNaO_6 \cdot 4H_2O$
- Molecular Weight: 282.22
- Soluble in Water
- Store at Room Temperature

AVAILABLE PACKAGE SIZES

100g	500g	1kg
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R7171 - ROSE BENGAL

4,5,6,7-tetrachloro-2',4',5',7'-tetraiodofluorescein disodium salt, Acid Red 94, Bengal Rose B sodium salt, Rose Bengal sodium salt

- Powder
- CAS Number: 632-69-9
- Formula: $C_{20}H_2Cl_4I_4Na_2O_5$
- Molecular Weight: 1017.64
- Soluble in Water
- Store at Room Temperature

AVAILABLE PACKAGE SIZES

5g	25g
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R7278 - RUTHENIUM RED

Ammoniated Ruthenium Oxochloride, CI# 77800

Ruthenium Red is used to stain pectins, mucilages and gums within plant material. Can be used to stain seed mucilage when using a concentration of 0.01% solution.

- Powder
- CAS Number: 11103-72-3
- Formula: $H_{42}Cl_6N_{14}O_2Ru_3$
- Molecular Weight: 786.35
- Soluble in Water
- Store at Room Temperature

AVAILABLE PACKAGE SIZES

100mg	1g	5g	25g
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S7775 - SALINE SOLUTION (0.85%)

Used for the extraction of plant pathogens from tissue; can be diluted and plated for pathogen identification. Recommended for ISTA methods 7-019, 7-020, and 7-021.

- Store at Room Temperature
- Sterile Filtered
- Miscible with Water



Components (mg/L)

Sodium Chloride	8500
Tween 20 [®]	0.2 mL

AVAILABLE PACKAGE SIZES

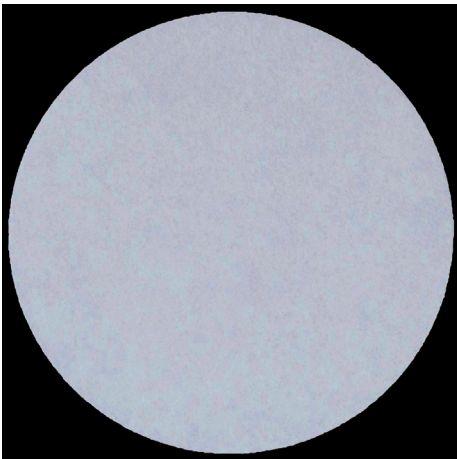
100mL	500mL	1L
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S7400 - SAFRANIN O

See Biochemicals Section for Complete Listing

SEED TESTING PAPERS, ROUND

Whatman® Seed Germination Papers.
100 per pack.
• Pore Size: 4-7 µm
• Average Width: 180 µm



PRODUCT NUMBER	PAPER SIZE	AVAILABLE PACKAGE SIZES
P6635	70 mm	1 Each
P6645	90 mm	1 Each

S515 - SODIUM PHOSPHATE, MONOBASIC MONOHYDRATE

See Biochemicals Section for Complete Listing

S744 - D-SORBITOL

See Biochemicals Section for Complete Listing

S804 - SULFURIC ACID SOLUTION 1.0 N

See Biochemicals Section for Complete Listing

T8199 - TETRAZOLIUM BLUE

See Biochemicals Section for Complete Listing

T7982 - THIOUREA

Thiocarbamide, Sulfoarea
Thiourea is commonly used to increase the stress tolerance in plants, and also to increase germination rate or to break dormancy in seeds. It has been used as a substitute for stratification in a number of tree species.

- Powder
- CAS Number: 62-56-6
- Formula: CH₄N₂S
- Molecular Weight: 76.12
- Soluble in Water
- Store at Room Temperature

AVAILABLE PACKAGE SIZES		
25g	100g	500g

FOR MORE INFORMATION ON STAINS & DYES

See "Figure 35. Stains & Dyes Usage Table" on page 264 in the Technical Section.

T8092 - TOLUIDINE BLUE O

Tolonium Chloride, C.I. 52040
A biological stain.

- Powder
- CAS Number: 92-31-9
- Formula: C₁₅H₁₆ClN₃S
- Molecular Weight: 305.83
- Soluble in Water
- Store at Room Temperature

AVAILABLE PACKAGE SIZES			
1g	5g	25g	100g

T7968 - TREHALOSE DIHYDRATE

α-D-Glucopyranosyl-α-D-glucopyranoside
Used as a carbon source in the *PhytoSelect* Basal Media (P6800) to select for *Xanthomonas hortorum*.

- Powder
- CAS Number: 6138-23-4
- Formula: C₁₂H₂₂O₁₁•2H₂O
- Molecular Weight: 378.33
- Soluble in Water
- Store at Room Temperature

AVAILABLE PACKAGE SIZES		
5g	25g	100g

T8164 - TRIPHENYL TETRAZOLIUM CHLORIDE (TTC)

2,3,5-Triphenyl-tetrazolium chloride, Tetrazolium chloride

- Powder
- CAS Number: 298-96-4
- Formula: C₁₉H₁₅ClN₄
- Molecular Weight: 334.8
- Soluble in Water
- Store at 2 to 6 °C

AVAILABLE PACKAGE SIZES			
5g	10g	25g	100g

T8110 - TYROTHRIN

Also known as Tyrothricin.
An antibiotic used with *PhytoSelect* Basal Medium (P6800); a combination of about 20% Gramicidin and 80% Tyrocidine.

- Powder
- CAS Number: 1404-88-2
- Formula: C₆₅H₈₅N₁₁O₁₃
- Molecular Weight: 1228.44
- Soluble in Ethanol
- Store at Room Temperature

AVAILABLE PACKAGE SIZES		
1g	5g	25g

T8020 - TYROTHRICIN SOLUTION (10 MG/ML)

A solution of Tyrothricin (T8110) - also known as Tyrothricinum - at 10 milligrams per milliliter of Ethanol. An antibiotic used with PhytoSelect Basal Medium (P6800); a combination of about 20% Gramicidin and 80% Tyrocidine.

- Liquid
- CAS Number: 1404-88-2
- Formula: $C_{65}H_{85}N_{11}O_{13}$
- Molecular Weight: 1228.44
- Miscible with Water
- Store at -20 to 0°C



AVAILABLE PACKAGE SIZES

10mL	25mL	100mL
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X8454 - XTS MEDIUM

A semi-selective medium for the isolation of *Xanthomonas translucens* from barley and wheat seeds as described by Schaad and Forster (1985).

- Store at Room Temperature
- Soluble in Water
- Use at 28.0 grams per liter of medium

Components (mg/L)

Meat Extract	3000
Peptone	5000
Agar	15,000
D-Glucose, Anhydrous	5000

AVAILABLE PACKAGE SIZES

1L	500g
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FIND PLANT TISSUE CULTURE MEDIA ON PAGES 57 TO 130

- *MS Media*
- *Crop Specific Media*
- *Vitamin Solutions*
- *Orchid Media*
- *Stock Solutions*

