



LENNOX
EDUCATIONAL

Leaving Certificate Chemistry

2017 Quick Pick Order Booklet

Please pass to the **Chemistry Teacher**

- No extra charge for hazardous chemicals delivery -
- Free delivery on orders over €250.00 -

SCHOOL DETAILS

School Name:

Address:

Order Ref:

Contact Name:

Tel:

Email:

3 EASY STEPS...

1

Download and fill out
order form

2

Send your order to us
via Email, Fax or Post

3

Receive your products



EMAIL

customerservice@lennox.ie



TEL

+353 1 460 7600



WEBSITE

lennoxeducational.ie

ADDRESS

Lennox

John F. Kennedy Drive

Naas Road,

Dublin, Ireland,

D12 FP79

Copyright © by Laboratory Supplies Ltd.
All rights reserved. This booklet or any portion thereof may not be reproduced or used in any manner whatsoever without the express written permission of Laboratory Supplies Ltd.

Prices
Prices are valid until the end of December 2017.
We reserve the right to increase prices in the event of major supplier price increases or major currency fluctuations.
You will be notified in this event.
Prices are in Euro. Prices in **bold** include VAT @ 23% Carriage FREE on orders over €250 excluding VAT. Errors & Omissions Excepted E&OE. Lennox Educational is a registered business name of Laboratory Supplies Ltd.
Registered in Ireland Reg.No. 7217

Goods for Return
Goods are not accepted for return without our prior agreement. A 20% restocking charge will apply. Chemicals and non-stock items ordered specially cannot be accepted for return. Please see our website www.lennoxeducational.ie for terms and conditions.

Waste Management Regulations 2005 (WEEE)
EU legislation in relation to disposal of waste electrical & electronic equipment (WEEE) imposes an environmental management charge (EMC) on some items in this order booklet. We have indicated this charge including VAT with the item. e.g. *(EMC €5). We accept WEEE free of charge on a one-for-one basis as long as it is of equivalent type. Contaminated WEEE that presents a health and safety risk will not be accepted. Please see our website www.lennoxeducational.ie for further details

03.1: To carry out flame tests with salts of lithium, sodium, potassium, barium, strontium and copper

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	SC36040	Platinum Wire On Glass Rod	Each	19.15	23.55		
B	S-PH1064C	Nichrome Wire 22SWG	125g	19.44	23.91		
C	ACM680.60	Inoculating Loop Holder	Each	2.87	3.53		
D	S-EDU740	Wooden Splints	Pk/1000	6.13	7.54		
E	S-EDU1080	Bunsen Burner, LPG Bottle Gas	Each	10.66	13.11		
F	S-EDU1081	or Bunsen Burner, Natural Gas	Each	11.06	13.60		
G	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	7.54	9.27		
H	S-EDU080	Gas Lighter, Piezo Type	Each	7.60	9.35		
I	ABN110.25CPK10	Beaker, Lennox Borosilicate Glass 50cm ³	Pk/10	13.32	16.38		
J	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	50.90	62.61		
K	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	6.40	7.87		
L	AMX150.25P	Mortar & Pestle 100mm	Each	4.64	5.71		
M	SC36100	Flame Test Glass	Each	8.22	10.11		
	CSA4738-J	Lithium Chloride Anhydrous	100g	14.78	18.18		
	CSA7783-N	Sodium Chloride	1kg	7.28	8.95		
	CSA6762-M	Potassium Chloride	500g	5.42	6.67		
	CSA0618-M	Barium Chloride	500g	8.87	10.91		
	CSA8147-J	Strontium Chloride.	100g	5.24	6.45		
	CSA8147-L	Strontium Chloride	250g	19.78	24.33		
	CSA1494-L	Copper (II) Chloride	250g	9.32	11.46		
	CC07102-2.5L	Hydrochloric Acid, Concentrated	2.5lt	17.77	21.86		

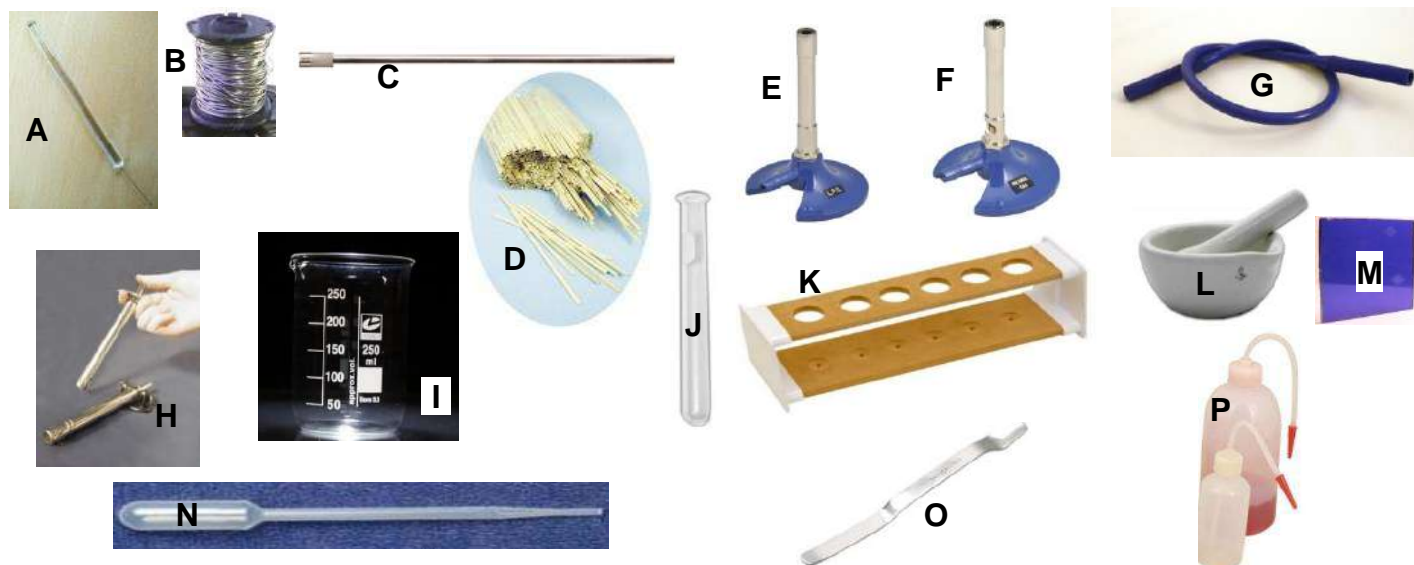

06.1a: To detect the presence of chloride ions in aqueous solution

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
J	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	50.90	62.61		
K	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	6.40	7.87		
N	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
O	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	9.90	12.18		
P	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		
	CSA7783-N	Sodium Chloride	1kg	7.28	8.95		
	CSA6762-M	Potassium Chloride	500g	5.42	6.67		
	CC35375-1L	Silver Nitrate Solution 0.1M	1lt	98.95	121.71		
	CRTSA1361611	Ammonia Solution 3M	1lt	22.49	27.66		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		

06.1b: To detect the presence of sulfate and sulfite ions in aqueous solution

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	50.90	62.61		
B	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	6.40	7.87		
C	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		

images for Experiment 06.1b items on next page

06.1b: To detect the presence of sulfate and sulfite ions in aqueous solution. Contd.

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
D	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	9.90	12.18		
E	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		
F	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	21.79	26.80		
	CSA8023-M	Sodium Sulfate Anhydrous	500g	3.35	4.12		
	CSA6914-M	Potassium Sulfate	500g	5.20	6.40		
	CSA8032-M	Sodium Sulfite Anhydrous	500g	5.34	6.57		
	CC658510-25G	Potassium Sulfite	25g	42.40	52.15		
	CSA0618-M	Barium Chloride	500g	8.87	10.91		
	CRTSH0201611	Hydrochloric Acid Solution 3M	1lt	20.44	25.14		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		

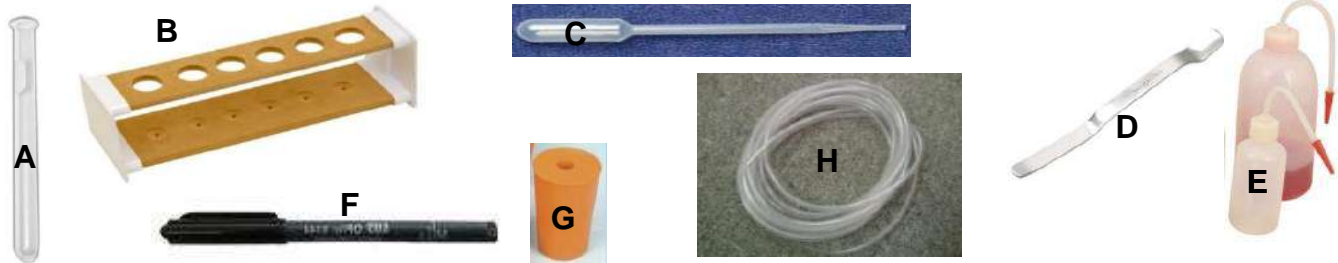

06.1c: To detect the presence of carbonate and hydrogencarbonate ions in aqueous solution

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	50.90	62.61		
B	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	6.40	7.87		
C	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
D	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	9.90	12.18		
E	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		
G	S-RS15	Rubber Stopper, 1-Hole No.15. Fits 16mm Ø test tubes	Pk/10	1.87	2.30		
H	SB55342	Tubing, PVC Plastic 3.5mmØ - fits rubber stopper hole	5 Mt.	3.33	4.10		
	CSA7773-M	Sodium Carbonate Anhydrous	500g	3.14	3.86		
	CSA6756-M	Potassium Carbonate Anhydrous	500g	5.51	6.78		
	CSA7865-M	Sodium Hydrogen Carbonate	500g	2.72	3.35		
	CSA6813-J	Potassium Hydrogen Carbonate	100g	7.20	8.86		
	CRTSL0101612	Lime Water	2.5lt	11.34	13.95		
	CSA5157-M	Magnesium Sulfate Dried	500g	9.00	11.07		
	CRTSM0731611	Magnesium Sulfate Solution 0.25M	1lt	30.34	37.32		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		

06.1d: To detect the presence of nitrate ions in aqueous solution

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	50.90	62.61		
B	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	6.40	7.87		
C	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
D	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	9.90	12.18		
E	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		
	Sodium Nitrate	<i>We regret that we are no longer licenced to supply this product</i>					
	Potassium Nitrate	<i>We regret that we are no longer licenced to supply this product</i>					
	CSA4095-M	Iron (II) Sulfate	500g	11.22	13.80		
	CC30743-2.5L	Sulfuric Acid, Concentrated	2.5lt	18.44	22.68		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		

06.1e: To detect the presence of phosphate ions in aqueous solution

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	50.90	62.61		
B	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	6.40	7.87		
C	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
D	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	9.90	12.18		
E	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		
F	SC41920	Hotplate, Domestic Type 1500W	Each	27.95	34.38		
G	EDHHP-20A	or Hotplate, Laboratory Type	Each	202.65	249.26		
H	S-EDU1080	or Bunsen Burner, LPG Bottle Gas	Each	10.66	13.11		
I	S-EDU1081	or Bunsen Burner, Natural Gas	Each	11.06	13.60		
J	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	7.54	9.27		
K	S-EDU080	Gas Lighter, Piezo Type	Each	7.60	9.35		
	CSA7875-M	Sodium Hydrogen Phosphate	500g	15.54	19.11		
	CLA13766.18	Ammonium Molybdate	100g	22.09	27.17		
	CSA5774-NPM	Nitric Acid, Concentrated	1lt	19.64	24.16		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		



10.1a: To measure the relative molar mass of a volatile liquid using a conical flask

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
L	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
M	AAL200.14	Aluminium Foil	Each	13.53	16.64		
N	SC83180	Rubber Bands Assorted Sizes. 100g	Each	3.09	3.80		
O	ACY126.14V	Graduated Cylinder, Glass 10cm ³	Each	3.08	3.79		
P	ACY126.26V	Graduated Cylinder, Glass 100cm ³	Each	4.49	5.52		
Q	S-PH0246	Barometer, Aneroid 100mm- 720-800mm Hg & 960-1070mb	Each	20.31	24.98		
R	ABN110.55CPK10	Beaker, Lennox Borosilicate Glass 800cm ³	Pk/10	20.22	24.87		
F	SC41920	Hotplate, Domestic Type 1500W	Each	27.95	34.38		
G	EDHHP-20A	or Hotplate, Laboratory Type	Each	202.65	249.26		
H	S-EDU1080	or Bunsen Burner, LPG Bottle Gas	Each	10.66	13.11		
I	S-EDU1081	or Bunsen Burner, Natural Gas	Each	11.06	13.60		
J	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	7.54	9.27		
K	S-EDU080	Gas Lighter, Piezo Type	Each	7.60	9.35		
S	S-TRSTD200/1	Tripod Stand, 200 x 125mm - height x top side	Each	5.60	6.89		
T	S-GUZCR125	Wire Gauze, Ceramic Centre 125 x 125mm	Pk/10	9.37	11.53		
U	S-241-512	Pins, Steel 50mm long	Pk/100	10.55	12.98		
V	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
V1	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
W	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
X	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
Y	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
Z	SOH-NV2101	Balance, Digital 2100g x 0.1g	Each	119.00	146.37		
	CC32201-2.5L	Propanone	2.5lt	17.53	21.56		
	CSA1572-M	Cyclohexane	500ml	10.58	13.01		

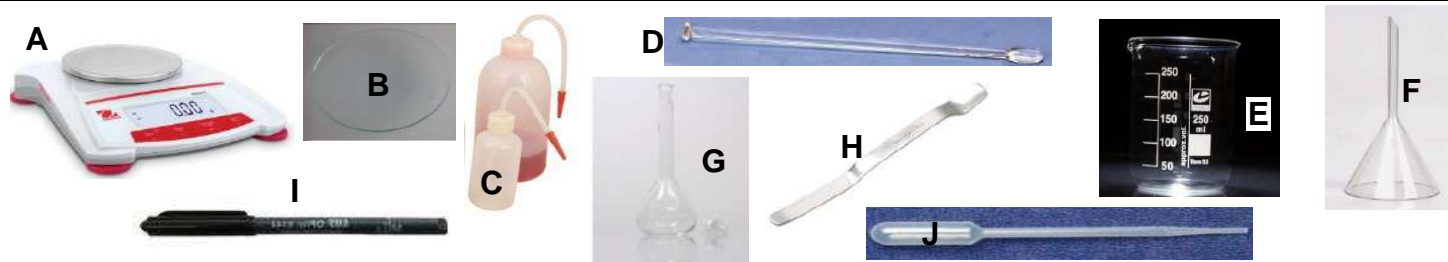
10.1b: To measure the relative molar mass of a volatile liquid using a gas syringe

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	SC40330	Gas Syringe, Glass 100cm ³	Each	22.65	27.86		
B	SCASY225.10S	Syringe, Plastic 1cm ³	Pk/10	1.66	2.04		
C	SCASY230.15S	Syringe Needle, 1.1mm x 40mm. For use with gas syringe	Pk/10	2.70	3.32		
D	SC40355	Rubber Cap for Gas Syringe	Pk/6	11.48	14.12		
E	ABN110.55CPK10	Beaker, Lennox Borosilicate Glass 800cm ³	Pk/10	20.22	24.87		
F	S-PH0246	Barometer, Aneroid 100mm- 720-800mm Hg & 960-1070mb	Each	20.31	24.98		
G	SOH-NV2101	Balance, Digital 2100g x 0.1g	Each	119.00	146.37		
	CC32201-2.5L	Propanone	2.5lt	17.53	21.56		
	CSA1572-M	Cyclohexane	500ml	10.58	13.01		
	CSA3333-M	Hexane	500ml	9.25	11.38		



13.1: To prepare a standard solution of sodium carbonate

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	SOH-SKX622	Balance, Digital 620g x 0.01g	Each	176.04	216.53		
B	S-CH0554E	Clock Glass 100mm	Pk/10	6.07	7.47		
C	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		
D	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	0.73	0.90		
E	ABN110.40CPK10	Beaker, Lennox Borosilicate Glass 250cm ³	Pk/10	14.74	18.13		
F	AFT140.30F	Funnel, Filter, Glass 75mm Ø	Each	5.28	6.49		
G	AFL312.30VPK2	Volumetric Flask, 250cm ³	Pk/2	7.00	8.61		
H	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	9.90	12.18		
I	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	21.79	26.80		
J	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
	CSA7773-M	Sodium Carbonate Anhydrous	500g	3.14	3.86		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		



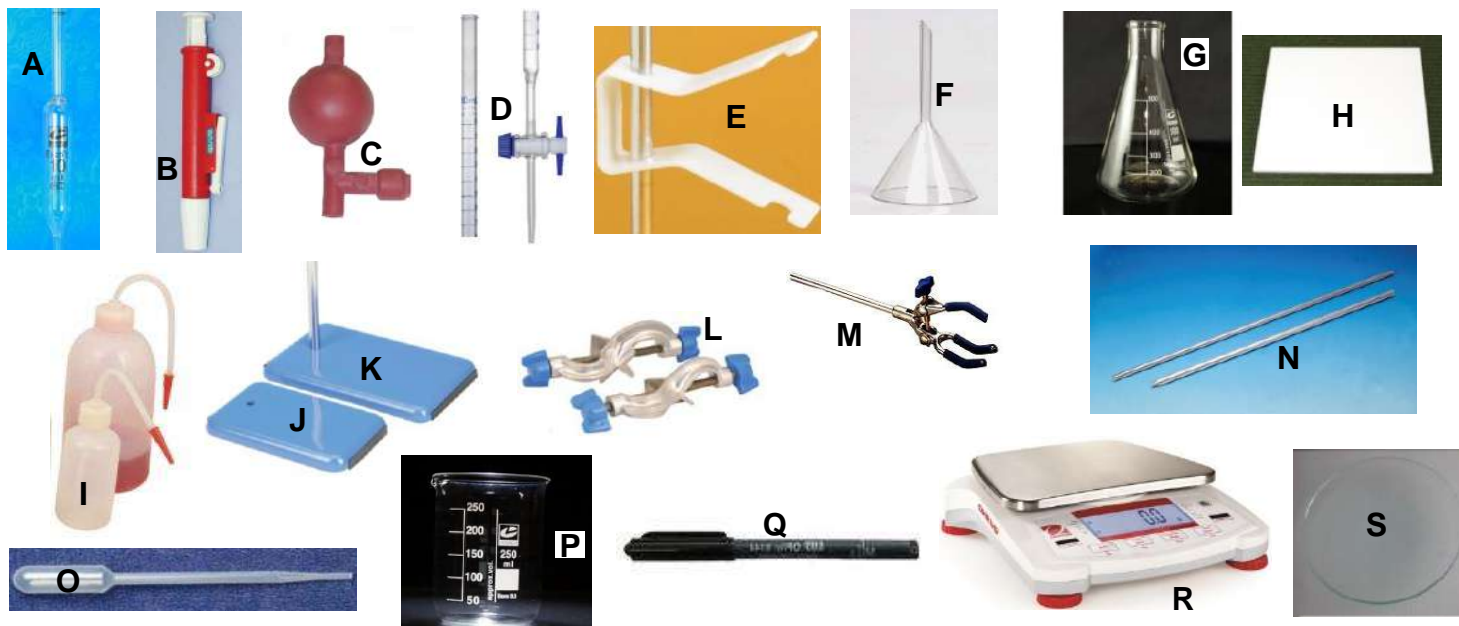
13.2: To use a standard solution of sodium carbonate to standardise a given hydrochloric acid solution

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	APM102.40VPK10	Pipette, Bulb Type 25cm ³	Pk/10	34.49	42.42		
B	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm ³	Each	5.10	6.27		
C	S-C6586A/1	or Pipette Filler, Rubber Bulb Type	Each	4.84	5.95		
D	S-11780A	Burette, Glass with PTFE Stopcock 50cm ³	Each	17.03	20.95		
E	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	3.91	4.81		
F	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	4.37	5.38		
G	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
H	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	12.41	15.26		
I	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		
J	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
K	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
L	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
M	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
N	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		

Images for Experiment 13.2 items on next page

13.2: To use a standard solution of sodium carbonate to standardise a given hydrochloric acid solution. Contd.

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
O	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
P	S-BEAK0250	Beaker PPR 250cm ³	Pk/5	8.16	10.04		
Q	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	21.79	26.80		
	CSA7775-N	Sodium Carbonate 10H ₂ O	1kg	5.30	6.52		
	CRTSH0051614	Hydrochloric Acid Solution 0.1M	5lt	9.24	11.37		
	CSA5355-J	Methyl Orange Indicator Solution	100ml	2.53	3.11		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		



13.3: To make up an approximate 0.1M solution of sodium hydroxide, to standardise it with a standard hydrochloric acid solution and hence to prepare a sample of sodium chloride

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
R	SOH-NV2101	Balance, Digital 2100g x 0.1g	Each	119.00	146.37		
S	S-CH0554E	Clock Glass 100mm	Pk/10	6.07	7.47		
A	APM102.40VPK10	Pipette, Bulb Type 25cm ³	Pk/10	34.49	42.42		
B	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm ³	Each	5.10	6.27		
C	S-C6586A/1	or Pipette Filler, Rubber Bulb Type	Each	4.84	5.95		
D	S-11780A	Burette, Glass with PTFE Stopcock 50cm ³	Each	17.03	20.95		
E	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	3.91	4.81		
F	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	4.37	5.38		
G	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
H	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	12.41	15.26		
I	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		
J	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
K	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
L	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
M	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
N	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
O	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
P	S-BEAK0250	Beaker PPR 250cm ³	Pk/5	8.16	10.04		
Q	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	21.79	26.80		
	CSA7889-M	Sodium Hydroxide	500g	6.04	7.43		
	CRTSH0051614	Hydrochloric Acid Solution 0.1M	5lt	9.24	11.37		
	CSA5355-J	Methyl Orange Indicator Solution	100ml	2.53	3.11		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		

13.4: To determine the concentration of ethanoic acid in vinegar

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	APM102.40VPK10	Pipette, Bulb Type 25cm ³	Pk/10	34.49	42.42		
B	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm ³	Each	5.10	6.27		
C	S-C6586A/1	or Pipette Filler, Rubber Bulb Type	Each	4.84	5.95		
D	S-11780A	Burette, Glass with PTFE Stopcock 50cm ³	Each	17.03	20.95		
E	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	3.91	4.81		
F	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	4.37	5.38		
G	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
H	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	12.41	15.26		
I	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		
J	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
K	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
L	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
M	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
N	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
O	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
P	S-BEAK0250	Beaker PPR 250cm ³	Pk/5	8.16	10.04		
Q	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	21.79	26.80		
	SC96140	Vinegar	284ml	1.66	2.04		
	CRTSS0321614	Sodium Hydroxide Solution 0.1M	5lt	8.82	10.85		
	CSA6619-J	Phenolphthalein Indicator Solution	100ml	2.69	3.31		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		

images for Experiment 13.4 items are the same as those for Experiment 13.3 on previous page

13.5: To determine the amount of water of crystallisation in hydrated sodium carbonate

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	SOH-NV2101	Balance, Digital 2100g x 0.1g	Each	119.00	146.37		
B	S-CH0554E	Clock Glass 100mm	Pk/10	6.07	7.47		
C	APM102.40VPK10	Pipette, Bulb Type 25cm ³	Pk/10	34.49	42.42		
D	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm ³	Each	5.10	6.27		
E	S-C6586A/1	or Pipette Filler, Rubber Bulb Type	Each	4.84	5.95		
F	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	PK/10	9.90	12.18		
G	AFL312.30VPK2	Volumetric Flask, 250cm ³	Pk/2	10.06	12.37		
H	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	0.73	0.90		
I	S-11780A	Burette, Glass with PTFE Stopcock 50cm ³	Each	17.03	20.95		
J	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	3.91	4.81		
K	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	4.37	5.38		
L	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
M	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	12.41	15.26		
N	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		
O	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
P	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
Q	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
R	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
S	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
T	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
U	S-BEAK0250	Beaker PPR 250cm ³	Pk/5	8.16	10.04		
V	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	21.79	26.80		
	CSA7775-N	Sodium Carbonate 10H ₂ O	1kg	5.30	6.52		
	CRTSH0051614	Hydrochloric Acid Solution 0.1M	5lt	9.24	11.37		
	CSA5355-J	Methyl Orange Indicator Solution	100ml	2.53	3.11		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		

Images for Experiment 13.5 items on next page



14.1: To study oxidation-reduction reactions: halogens as oxidising agents and displacement reactions of metals

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
W	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	50.90	62.61		
X	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	6.40	7.87		
Y	S-C314-15	Rubber Stopper, Solid No.15. Fits 16mm Ø test tubes	PK/10	1.85	2.28		
T	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
U	ABN110.40CPK10	Beaker, Lennox Borosilicate Glass 250cm ³	Pk/10	14.74	18.13		
F	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	9.90	12.18		
Z	S-TSMS150/5	Tongs, 150mm. Mild steel with corrugated jaws	Pk/5	7.47	9.19		
B	S-CH0554E	Clock Glass 100mm	Pk/10	6.07	7.47		
	CSA6748-M	Potassium Bromide	500g	18.29	22.50		
	CRTSS0611612	Chlorine Water - Sodium Hypochlorite 10-14% Chlorine	2.5lt	18.52	22.78		
	CSA6853-J	Potassium Iodide	100g	23.65	29.09		
	CC30315-500G	Potassium Iodide	500g	195.26	240.17		
	CS1604	Bromine Water	500ml	27.22	33.48		
	CSA8032-M	Sodium Sulfite Anhydrous	500g	5.34	6.57		
	CSA0618-M	Barium Chloride	500g	8.87	10.91		
	CRTSH0201611	Hydrochloric Acid Solution 3M	1lt	20.44	25.14		
	CSA4095-M	Iron (II) Sulfate	500g	11.22	13.80		
	CRTSS0321614	Sodium Hydroxide Solution 0.1M	5lt	8.82	10.85		
	CSA1511-M	Copper (II) Sulfate	500g	7.83	9.63		
	CSA9818-M	Zinc Granular	500g	20.26	24.92		

15.1: To prepare a solution of ammonium iron (II) sulfate and to standardise it by titration against a solution of potassium permanganate

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
B	S-CH0554E	Clock Glass 100mm	Pk/10	6.07	7.47		
F	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	9.90	12.18		
A	SOH-NV2101	Balance, Digital 2100g x 0.1g	Each	119.00	146.37		
ZA	ACY126.22V	Graduated Cylinder, Glass 50cm ³	Each	3.86	4.75		
U	ABN110.40CPK10	Beaker, Lennox Borosilicate Glass 250cm ³	PK/10	14.74	18.13		
ZB	S-BEAK0250	Beaker PPR 250cm ³	Pk/5	8.16	10.04		

**15.1: To prepare a solution of ammonium iron (II) sulfate
and to standardise it by titration against a solution of potassium permanganate. Contd.**

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
H	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	0.73	0.90		
G	AFL312.30VPK2	Volumetric Flask, 250cm ³	Pk/2	10.06	12.37		
C	APM102.40VPK10	Pipette, Bulb Type 25cm ³	Pk/10	34.49	42.42		
D	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm ³	Each	5.10	6.27		
E	S-C6586A/1	or Pipette Filler, Rubber Bulb Type	Each	4.84	5.95		
I	S-11780A	Burette, Glass with PTFE Stopcock 50cm ³	Each	17.03	20.95		
J	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	3.91	4.81		
K	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	4.37	5.38		
L	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
M	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	12.41	15.26		
N	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		
O	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
P	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
Q	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
R	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
S	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
T	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
V	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	21.79	26.80		
	CSA0380-M	Ammonium Iron (II) Sulfate	500g	17.13	21.07		
	CRTSS0871614	Sulfuric Acid Solution 1M	5lt	9.80	12.05		
	CRTSP0021612	Potassium Permanganate Solution 0.02M	2.5lt	18.38	22.61		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		

images for Experiment 15.1 items are the same as those for Experiment 13.5 on previous page

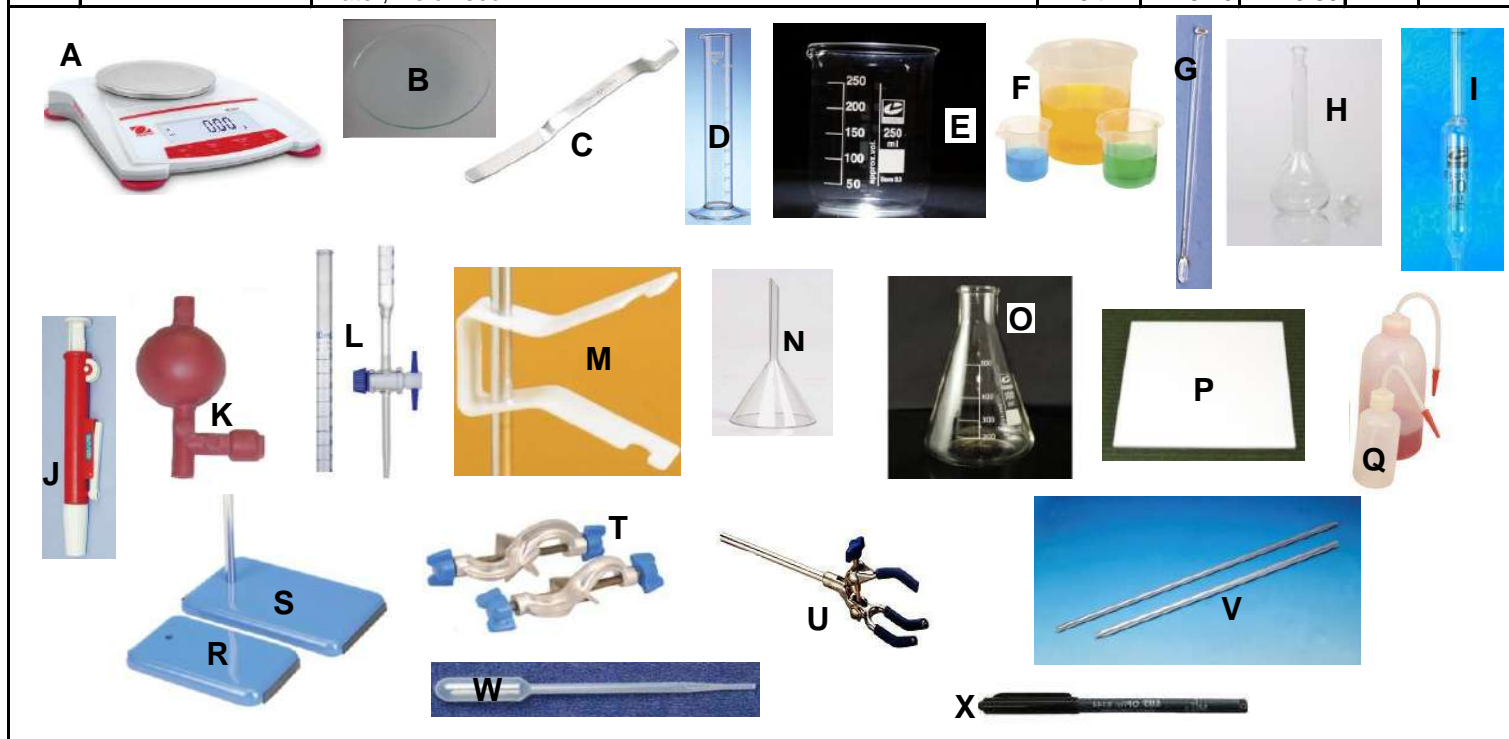
15.2: To determine the amount of iron in an iron tablet

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	SOH-NV2101	Balance, Digital 2100g x 0.1g	Each	119.00	146.37		
B	S-CH0554E	Clock Glass 100mm	Pk/10	6.07	7.47		
C	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	9.90	12.18		
D	ACY126.26V	Graduated Cylinder, Glass 100cm ³	Each	4.49	5.52		
E	ABN110.40CPK10	Beaker, Lennox Borosilicate Glass 250cm ³	Pk/10	14.74	18.13		
F	S-BEAK0250	Beaker PPR 250cm ³	Pk/5	8.16	10.04		
G	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	0.73	0.90		
H	AFL312.30VPK2	Volumetric Flask, 250cm ³	Pk/2	10.06	12.37		
I	APM102.40VPK10	Pipette, Bulb Type 25cm ³	Pk/10	34.49	42.42		
J	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm ³	Each	5.10	6.27		
K	S-C6586A/1	or Pipette Filler, Rubber Bulb Type	Each	4.84	5.95		
L	S-11780A	Burette, Glass with PTFE Stopcock 50cm ³	Each	17.03	20.95		
M	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	3.91	4.81		
N	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	4.37	5.38		
O	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
P	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	12.41	15.26		
Q	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		
R	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
S	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
T	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
U	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
V	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
W	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
X	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	21.79	26.80		
	CS3229P	Iron Tablets	Pk/15	4.77	5.87		
	CSA6883-M	Potassium Permanganate	500g	7.64	9.40		
	CRTSP0021612	Potassium Permanganate Solution 0.02M	2.5lt	18.38	22.61		
	CRTSS0871614	Sulfuric Acid Solution 1M	5lt	9.80	12.05		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		

images for Experiment 15.2 items on next page

15.3: To prepare a solution of sodium thiosulfate and to standardise it by titration against a solution of iodine

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	SOH-SKX622	Balance, Digital 620g x 0.01g	Each	176.04	216.53		
B	S-CH0554E	Clock Glass 100mm	Pk/10	6.07	7.47		
C	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	9.90	12.18		
D	ACY126.26V	Graduated Cylinder, Glass 100cm ³	Each	4.49	5.52		
E	ABN110.40CPK10	Beaker, Lennox Borosilicate Glass 250cm ³	Pk/10	14.74	18.13		
F	S-BEAK0250	Beaker PPR 250cm ³	Pk/5	8.16	10.04		
G	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	0.73	0.90		
H	AFL312.30VPK2	Volumetric Flask, 250cm ³	Pk/2	10.06	12.37		
I	APM102.40VPK10	Pipette, Bulb Type 25cm ³	Pk/10	34.49	42.42		
J	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm ³	Each	5.10	6.27		
K	S-C6586A/1	or Pipette Filler, Rubber Bulb Type	Each	4.84	5.95		
L	S-11780A	Burette, Glass with PTFE Stopcock 50cm ³	Each	17.03	20.95		
M	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	3.91	4.81		
N	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	4.37	5.38		
O	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
P	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	12.41	15.26		
Q	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		
R	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
S	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
T	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
U	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
V	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
W	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
X	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	21.79	26.80		
	CSA8052-M	Sodium Thiosulfate	500g	3.70	4.55		
	CRTSP0021612	Potassium Permanganate Solution 0.02M	2.5lt	18.38	22.61		
	CRTSS0871614	Sulfuric Acid Solution 1M	5lt	9.80	12.05		
	CSA3794-M	Iodine Solution, 1% in Potassium Iodide	500ml	5.64	6.94		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		



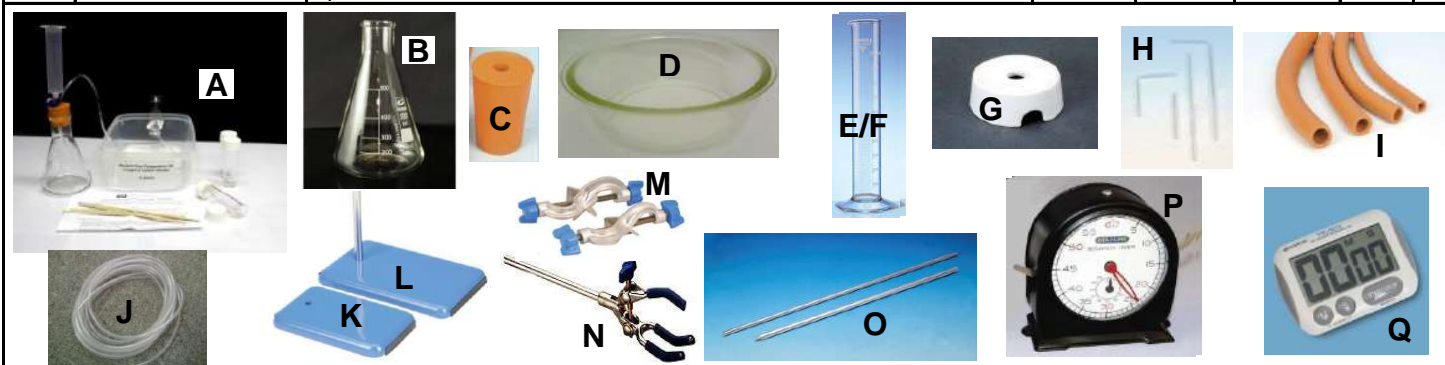
15.4: To determine the percentage (w/v) of hypochlorite in bleach

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
I	APM102.40VPK10	Pipette, Bulb Type 25cm ³	Pk/10	34.49	42.42		
J	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm ³	Each	5.10	6.27		
K	S-C6586A/1	or Pipette Filler, Rubber Bulb Type	Each	4.84	5.95		
L	S-11780A	Burette, Glass with PTFE Stopcock 50cm ³	Each	17.03	20.95		
M	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	3.91	4.81		
N	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	4.37	5.38		
O	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
P	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	12.41	15.26		
Q	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		
R	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
S	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
T	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
U	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
V	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
W	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
E	S-BEAK0250	Beaker PPR 250cm ³	Pk/5	8.16	10.04		
X	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	21.79	26.80		
	CRTSS0721614	Sodium Thiosulfate Solution 0.1M	5lt	11.20	13.78		
	CRTSS0871614	Sulfuric Acid Solution 1M	5lt	9.80	12.05		
	CSA6853-J	Potassium Iodide	100g	23.65	29.09		
	CC30315-500G	Potassium Iodide	500g	195.26	240.17		
	CSA3794-M	Iodine Solution, 1% in Potassium Iodide	500ml	5.64	6.94		
	SC96125	Bleach - Milton Fluid - Sodium Hypochlorite 2%w/v	1250ml	4.55	5.60		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		

images for Experiment 15.4 items are the same as those for Experiment 15.3 on previous page

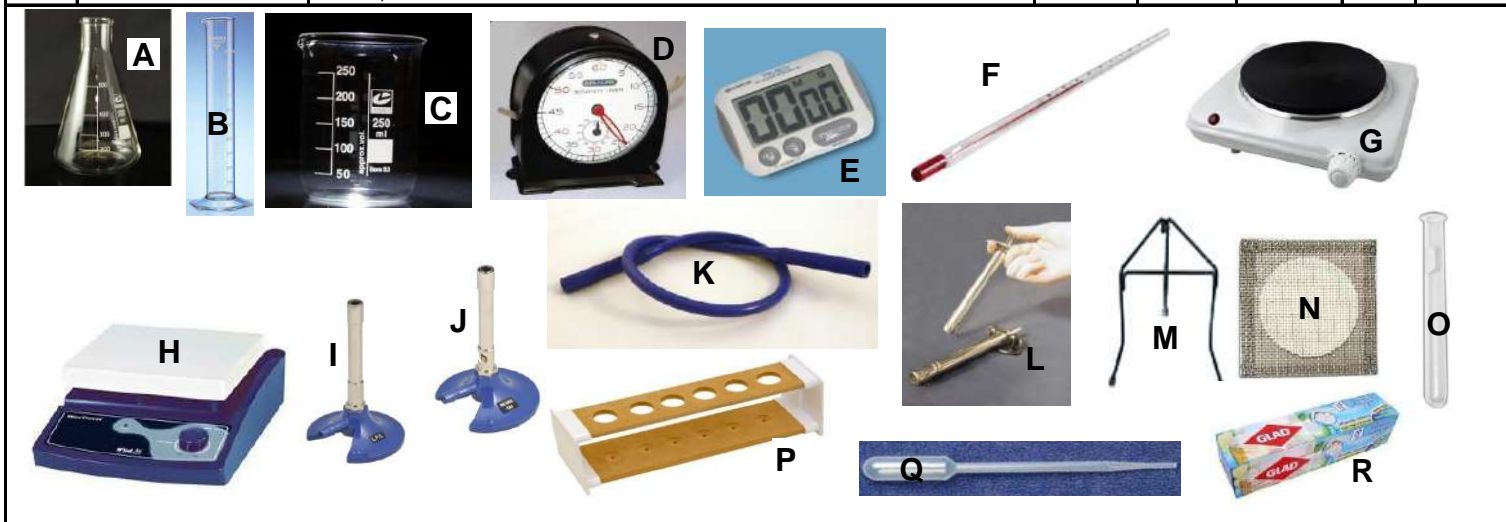
16.1: To monitor the rate of production of oxygen from hydrogen peroxide using manganese dioxide as a catalyst

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	SC40500	Gas Preparation Kit	Each	21.95	27.00		
B	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
C	S-CH0314L/1H	Rubber Stopper, 1-Hole. Fits 250ml conical flask AFK202.30C	Pk/10	6.62	8.14		
D	SC62220	Pneumatic Trough, Glass, 200mmØ x 100mm Deep	Each	33.00	40.59		
E	ACY126.22V	Graduated Cylinder, Glass 50cm ³	Each	3.86	4.75		
F	ACY126.30V	Graduated Cylinder, Glass 250cm ³	Each	6.65	8.18		
G	S-BHSHL07	Beehive Shelf 75mm Ø	Each	1.85	2.28		
H	S-C750	Delivery Tubes 6mm. Set of 4	Each	8.39	10.32		
I	S-C758-5	Tubing, Rubber, 5mm bore - fits 5mm glass tubing	10Mt.	10.00	12.30		
J	SB55342	Tubing, PVC Plastic 3.5mmØ - fits rubber stopper hole	5 Mt.	3.33	4.10		
K	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
L	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
M	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
N	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
O	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
P	S-STPCLCK	Stopclock, 0-60 secs/mins. With start/stop/reset levers	Each	24.41	30.02		
Q	SC80736	Timer Digital, Counts Up/Down 99 mins x 1 second	Each	13.37	16.45		
	CSA3415-Q	Hydrogen Peroxide 20 volume 6%	2lt	6.36	7.82		
	CSA5199-M	Manganese Dioxide Powder	500g	12.77	15.71		
	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	9.90	12.18		



16.2: To study the effect of concentration on the reaction rate of sodium thiosulfate solution and hydrochloric acid

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
B	ACY126.26V	Graduated Cylinder, Glass 100cm ³	Each	4.49	5.52		
C	ABN110.40CPK10	Beaker, Lennox Borosilicate Glass 250cm ³	Pk/10	14.74	18.13		
D	S-STPCLCK	Stopclock, 0-60 secs/mins. With start/stop/reset levers	Each	24.41	30.02		
E	SC80736	Timer Digital, Counts Up/Down 99 mins x 1 second	Each	13.37	16.45		
	CC35233-1L	Sodium Thiosulfate Solution 0.2M	1lt	31.63	38.90		
	CRTSH0201611	Hydrochloric Acid Solution 3M	1lt	20.44	25.14		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		



16.3: To study the effect of temperature on the reaction rate of sodium thiosulfate solution and hydrochloric acid

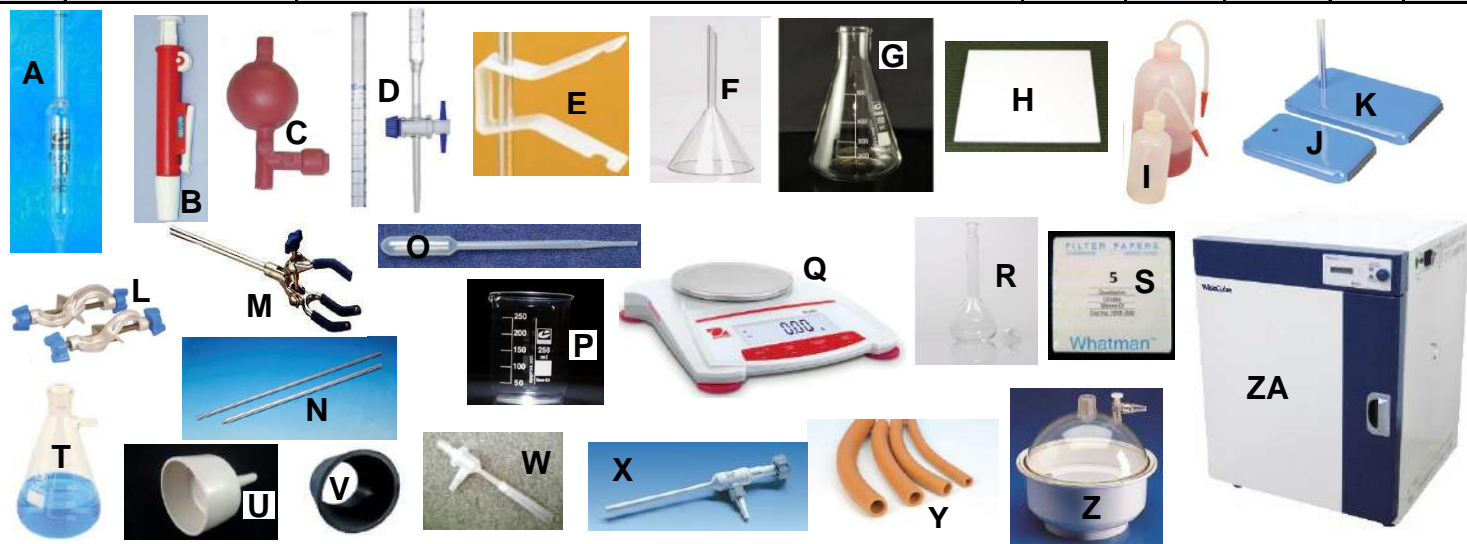
Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
B	ACY126.26V	Graduated Cylinder, Glass 100cm ³	Each	4.49	5.52		
C	ABN110.25CPK10	Beaker, Lennox Borosilicate Glass 50cm ³	Pk/10	13.32	16.38		
C	ABN110.30CPK10	Beaker, Lennox Borosilicate Glass 100cm ³	Pk/10	13.04	16.04		
F	AT69/114/3	Thermometer, Spirit -10°C to +110°C x 1°C	Each	3.03	3.73		
G	SC41920	Hotplate, Domestic Type 1500W	Each	27.95	34.38		
H	EDHHP-20A	or Hotplate, Laboratory Type	Each	202.65	249.26		
I	S-EDU1080	or Bunsen Burner, LPG Bottle Gas	Each	10.66	13.11		
J	S-EDU1081	or Bunsen Burner, Natural Gas	Each	11.06	13.60		
K	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	7.54	9.27		
L	S-EDU080	Gas Lighter, Piezo Type	Each	7.60	9.35		
M	S-TRSTD200/1	Tripod Stand, 200 x 125mm - height x top side	Each	5.60	6.89		
N	S-GUZCR125	Wire Gauze, Ceramic Centre 125 x 125mm	Pk/10	9.37	11.53		
D	S-STPCLCK	Stopclock, 0-60 secs/mins. With start/stop/reset levers	Each	24.41	30.02		
E	SC80736	Timer Digital, Counts Up/Down 99 mins x 1 second	Each	13.37	16.45		
	CRTSS1141611	Sodium Thiosulfate Solution 0.05M	1lt	16.01	19.69		
	CRTSH0201611	Hydrochloric Acid Solution 3M	1lt	20.44	25.14		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		

17.1: To illustrate Le Chatelier's Principle by demonstrating the effects of both concentration changes and temperature changes on the reaction

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
O	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	50.90	62.61		
P	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	6.40	7.87		
Q	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
B	ACY126.14V	Graduated Cylinder, Glass 10cm ³	Each	3.08	3.79		
R	SC66602	Ice Cube Bags	Pk/20	3.14	3.86		
C	ABN110.40CPK10	Beaker, Lennox Borosilicate Glass 250cm ³	Pk/10	14.74	18.13		
	CSA3914-M	Iron (III) Chloride	500g	14.50	17.84		
	CSA6924-J	Potassium Thiocyanate	100g	11.72	14.42		
	CRTSH0201611	Hydrochloric Acid Solution 3M	1lt	20.44	25.14		

19.1: To demonstrate the total hardness in a water sample using ethylenediaminetetraacetic acid (edta)

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	APM102.40VPK10	Pipette, Bulb Type 25cm ³	Pk/10	34.49	42.42		
B	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm ³	Each	5.10	6.27		
C	S-C6586A/1	or Pipette Filler, Rubber Bulb Type	Each	4.84	5.95		
D	S-11780A	Burette, Glass with PTFE Stopcock 50cm ³	Each	17.03	20.95		
E	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	3.91	4.81		
F	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	4.37	5.38		
G	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
H	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	12.41	15.26		
I	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		
J	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
K	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
L	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
M	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
N	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
O	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
P	S-BEAK0250	Beaker PPR 250cm ³	Pk/5	8.16	10.04		
	CSA2192-M	E.D.T.A di-Sodium	500g	17.36	21.35		
	CSA2050-G	Erichrome Black T	25g	8.53	10.49		
	CSA0840-M	Buffer Solution pH 10	500ml	3.78	4.65		
	CRTSW0021614A	Water, Deionised	5lt	8.40	10.33		



19.2a: To determine the total suspended solids (in p.p.m.) of a sample of water by filtration

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
Q	SOH-SKX622	Balance, Digital 620g x 0.01g	Each	176.04	216.53		
P	ABN110.60C	Beaker, Lennox Borosilicate Glass 1000cm ³	Each	3.98	4.90		
R	AFL312.30VPK2	Volumetric Flask, 250cm ³	Pk/2	10.06	12.37		
S	AW1005/090	Filter Paper 90mm - 2.5µm pore size for water analysis	Pk/100	15.09	18.56		
T	S-726-016	Buchner Flask 500cm ³	Each	11.45	14.08		
U	AFT804.34P	Buchner Funnel 90mm	Each	13.10	16.11		
V	ACX125.18	Flask Adaptor, Rubber - for Buchner Funnel to Buchner Flask	Each	6.73	8.28		
W	SC35900	Vacuum Filter Pump, Polypropylene	Each	9.90	12.18		
X	APX180.10	or Vacuum Filter Pump (c/w adaptors to fit water tap)	Each	33.44	41.13		
Y	S-C758-6	Rubber Tubing 6.5mm bore - fit filter pump to Buchner arm	10 Mt.	12.63	15.53		
Y	S-C758-12	Rubber Tubing 12mm - fit filter pump SC35900 to water taps	10 Mt.	25.49	31.35		
J	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
K	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
L	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
M	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
N	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
Z	AKART550	Desiccator Polycarbonate 150mm Ø	Each	36.68	45.12		
ZA	EDHON-50	Oven 50lt.	Each	872.69	1073.41		
	CSA7663-M	Silica Gel	500g	11.39	14.01		

19.2b: To determine the total dissolved solids (in p.p.m.) of a sample of water by evaporation

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	SOH-SKX622	Balance, Digital 620g x 0.01g	Each	176.04	216.53		
B	ABN110.60C	Beaker, Lennox Borosilicate Glass 1000cm ³	Each	3.98	4.90		
C	SC41920	Hotplate, Domestic Type 1500W	Each	27.95	34.38		
D	EDHHP-20A	or Hotplate, Laboratory Type	Each	202.65	249.26		
E	S-EDU1080	or Bunsen Burner, LPG Bottle Gas	Each	10.66	13.11		
F	S-EDU1081	or Bunsen Burner, Natural Gas	Each	11.06	13.60		
G	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	7.54	9.27		
H	S-EDU080	Gas Lighter, Piezo Type	Each	7.60	9.35		
I	S-TRSTD200/1	Tripod Stand, 200 x 125mm - height x top side	Each	5.60	6.89		
J	S-GUZCR125	Wire Gauze, Ceramic Centre 125 x 125mm	PK/10	9.37	11.53		
K	ACY126.26V	Graduated Cylinder, Glass 100cm ³	Each	4.49	5.52		

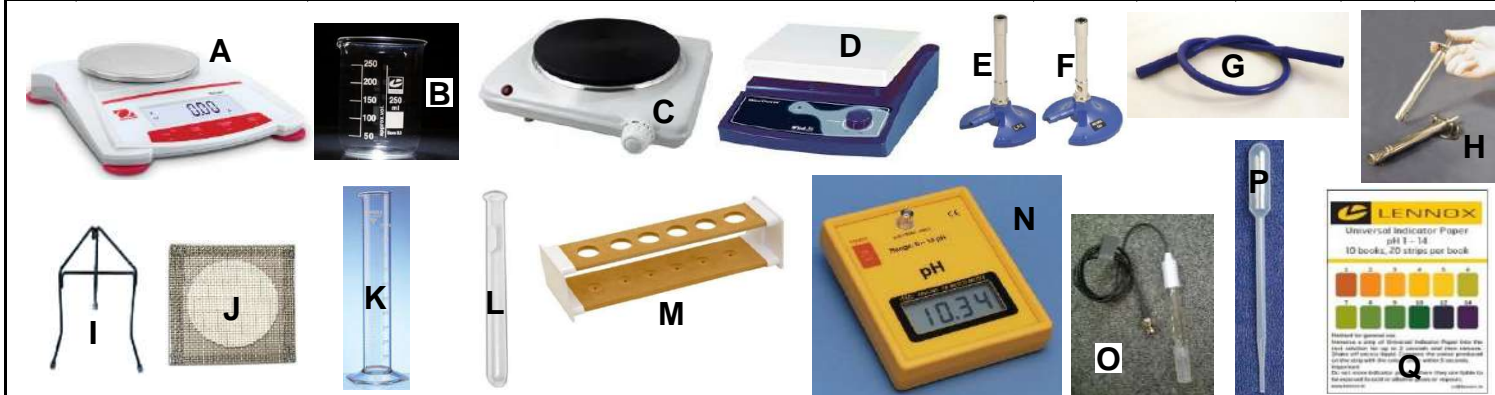

19.2c: To determine the pH of a sample of water

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
L	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	50.90	62.61		
M	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	6.40	7.87		
N	SC58034	pH Meter, Digital - requires pH electrode below	Each	102.91	126.58		
O	SC58035	Electrode for pH Meter	Each	23.53	28.94		
P	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
Q	ATD140.30X	Indicator Paper pH 1-14	Each	4.33	5.33		
	CSA2644-J	Universal Indicator Solution pH 1-14	100ml	3.36	4.13		
	SSC-IN020	Universal Indicator Colour Charts pH 1-14	PK/10	7.70	9.47		

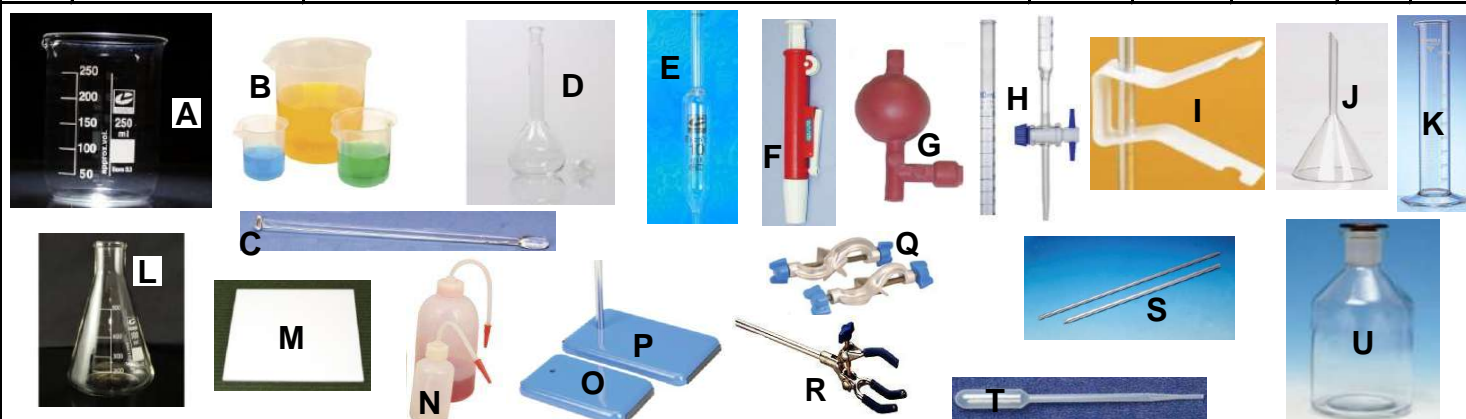
19.3: To measure the amount of dissolved oxygen in a sample of water by means of a redox titration

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	ABN110.40CPK10	Beaker, Lennox Borosilicate Glass 250cm ³	Pk/10	14.74	18.13		
B	S-BEAK0250	Beaker PPR 250cm ³	Pk/5	8.16	10.04		
C	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	0.73	0.90		
D	AFL312.30VPK2	Volumetric Flask 250cm ³	Pk/2	10.06	12.37		
E	APM102.40VPK10	Pipette, Bulb Type 25cm ³	Pk/10	34.49	42.42		
F	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm ³	Each	5.10	6.27		
G	S-C6586A/1	or Pipette Filler, Rubber Bulb Type	Each	4.84	5.95		
H	S-11780A	Burette, Glass with PTFE Stopcock 50cm ³	Each	17.03	20.95		
I	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	3.91	4.81		
J	AFT140.30F	Funnel, Filter, Glass 75mm Ø	Each	5.28	6.49		
K	ACY126.26V	Graduated Cylinder, Glass 100cm ³	Each	4.49	5.52		
L	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
M	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	12.41	15.26		
N	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		
O	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
P	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
Q	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
R	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
S	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
T	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
U	A5070414	Reagent Bottle 250cm ³	Each	6.01	7.39		
	CSA5201-L	Manganese (II) Sulfate	250g	6.30	7.75		

images for Experiment 19.3 items on next page

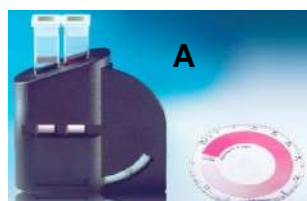
19.3: To measure the amount of dissolved oxygen in a sample of water by means of a redox titration. Contd.

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
	CSA7889-M	Sodium Hydroxide	500g	6.04	7.43		
	CSA6853-J	Potassium Iodide	100g	23.65	29.09		
	CC30315-500G	Potassium Iodide	500g	195.26	240.17		
	CSA8052-M	Sodium Thiosulfate	500g	3.70	4.55		
	CSA3794-M	Iodine Solution, 1% in Potassium Iodide	500ml	5.64	6.94		
	CC30743-2.5L	Sulfuric Acid, Concentrated	2.5lt	18.44	22.68		



19.4: To estimate the concentration of free chlorine in swimming-pool water or bleach using a comparator or a colorimeter

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	ET147020	Chlorine Comparator Kit 0-4 mg/l	Each	48.60	59.78		
B	SC98000	Colorimeter, Digital, - red 630nm, green 525nm & blue 465nm	Each	175.35	215.68		
C	ET511050BT	DPD Tablets No.1	Pk/100	12.41	15.26		
	CSA1176-M	Calcium Hypochlorite	500g	12.22	15.03		
	SC96125	Bleach - Milton Fluid - Sodium Hypochlorite 2%w/v	1250ml	4.55	5.60		



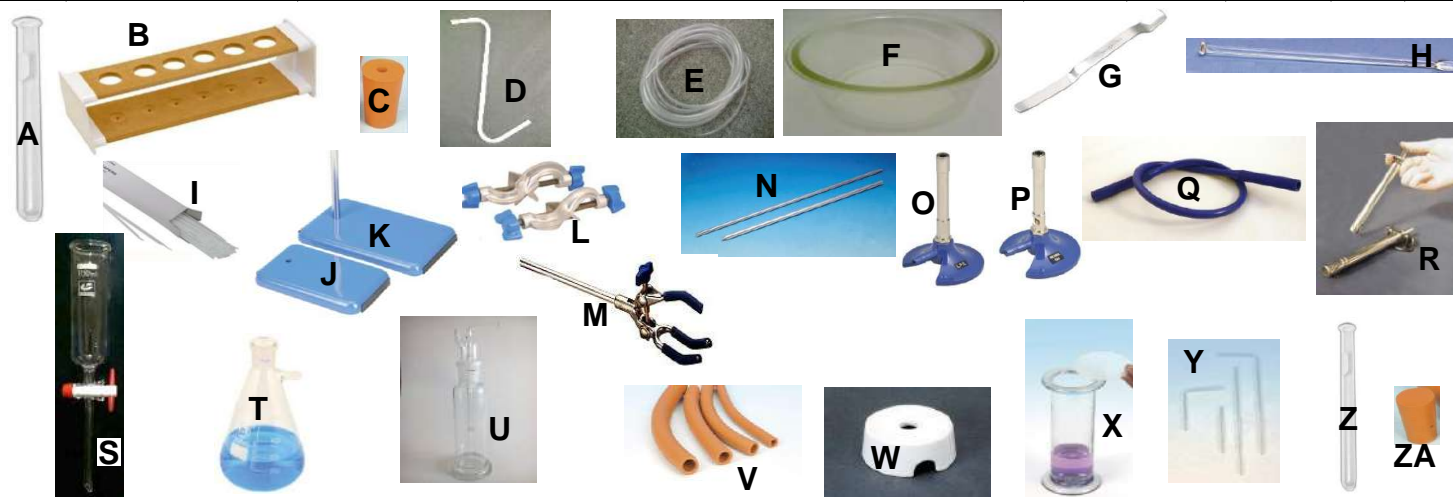
21.1: To prepare ethene and examine its properties

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	S-EDU1014	Test Tube Borosilicate Glass with Rim, 150 x 24mm Ø	Pk/100	50.90	62.61		
B	SC78642	Test Tube Rack 6-Hole 25mm - for 24mm Ø test tubes	Each	7.06	8.68		
C	S-RS21	Rubber Stopper, 1-Hole No.21. Fits 24mm Ø test tubes	Pk/10	3.95	4.86		
D	ADT002	Delivery Tube, PPR -double bend for rubber stopper	Pk/5	20.84	25.63		
E	SB55342	Tubing, PVC Plastic 3.5mmØ - fits rubber stopper hole	5 Mt.	3.33	4.10		
F	SC62220	Pneumatic Trough, Glass, 200mmØ x 100mm Deep	Each	33.00	40.59		
G	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	9.90	12.18		
H	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	0.73	0.90		
I	SC24160	Waxed Tapers	Pk/65	12.89	15.85		
J	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
K	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
L	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
M	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
N	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
O	S-EDU1080	Bunsen Burner, LPG Bottle Gas	Each	10.66	13.11		
P	S-EDU1081	or Bunsen Burner, Natural Gas	Each	11.06	13.60		
Q	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	7.54	9.27		
R	S-EDU080	Gas Lighter, Piezo Type	Each	7.60	9.35		
	CSA2935-L	Glass Wool	250g	43.47	53.47		
	CRTSE0021608	Ethanol 99% - Duty Paid	100ml	13.86	17.05		
	CRTSE0651610	Ethanol 99% - Duty Paid	500ml	58.80	72.32		

images for Experiment 21.1 items on next page

21.1: To prepare ethene and examine its properties. Contd.

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
	CRTSI0331614	Methylated Spirits Clear (IMS) - <i>can only be supplied against form APT2 which is available from your local Customs and Excise office</i>	5lt	11.00	13.53		
	CSA0281-M	Aluminium Oxide	500g	6.57	8.08		
	CRTSL0101612	Lime Water	2.5lt	11.34	13.95		
	CS1604	Bromine Water	500ml	27.22	33.48		
	CSA6883-M	Potassium Permanganate	500g	7.64	9.40		
	CRTSP0021612	Potassium Permanganate Solution 0.02M	2.5lt	18.38	22.61		



21.2: To prepare ethyne and examine its properties

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
S	SC40385	Dropping Funnel, with PTFE Stopcock 100cm ³	Each	18.19	22.37		
T	S-726-015	Buchner Flask 250cm ³	Each	7.25	8.92		
C	S-RS21	Rubber Stopper, 1-Hole No.23. Fits Buchner flask S-726-016	Pk/10	3.95	4.86		
U	SC42410	Gas Washing Bottle - Dreschel's Type 100cm ³	Each	36.26	44.60		
V	S-C758-5	Tubing, Rubber, 5mm bore - fits 5mm glass tubing	10Mt.	10.00	12.30		
F	SC62220	Pneumatic Trough, Glass, 200mmØ x 100mm Deep	Each	33.00	40.59		
W	S-BHSHL07	Beehive Shelf 75mm Ø	Each	1.85	2.28		
X	SC41960C	Gas Jar 15cm High x 50mmØ c/w Lid	Each	4.06	4.99		
D	ADT002	Delivery Tube, PPR -double bend for rubber stopper	Pk/5	20.84	25.63		
Y	S-C750	or Delivery Tubes. Set of 4	Each	8.39	10.32		
I	SC24160	Waxed Tapers	Pk/65	12.89	15.85		
G	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	9.90	12.18		
Z	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	50.90	62.61		
ZA	S-C314-15	Rubber Stopper, Solid No.15. Fits 16mm Ø test tubes	Pk/10	1.85	2.28		
B	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	6.40	7.87		
J	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
K	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
L	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
M	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
N	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
	CSA1145-J	Calcium Carbide - Calcium Dicarbide	100g	12.44	15.30		
	CSA1145-M	Calcium Carbide - Calcium Dicarbide	500g	36.86	45.34		
	CSA1511-M	Copper (II) Sulfate	500g	7.83	9.63		
	CRTSL0101612	Lime Water	2.5lt	11.34	13.95		
	CS1604	Bromine Water	500ml	27.22	33.48		
	CSA6883-M	Potassium Permanganate	500g	7.64	9.40		
	CRTSP0021612	Potassium Permanganate Solution 0.02M	2.5lt	18.38	22.61		

21.3: To determine the heat of reaction of hydrochloric acid with sodium hydroxide

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	S-PH0444	Calorimeter Set. Insulated c/w stirrer & thermometer holder	Each	22.37	27.52		
B	AT69/115/7	Thermometer, Spirit -10°C to +50°C x 0.5°C	Each	3.29	4.05		
C	SRD85-3198	or Thermometer, Digital -50 to +150 °C x 0.1 °C	Each	26.95	33.15		
D	ACY126.26V	Graduated Cylinder, Glass 100cm ³	Each	4.49	5.52		
	CRTSH0121614	Hydrochloric Acid 1M	5lt	13.30	16.36		
	CRTSS0391614	Sodium Hydroxide Solution 1M	5lt	8.82	10.85		

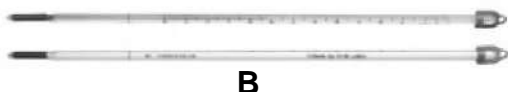
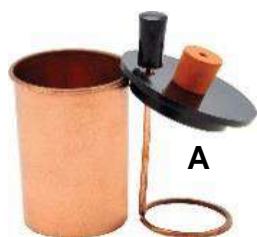

22.1a: To extract clove oil from cloves by steam distillation

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
E	SC41920	Hotplate, Domestic Type 1500W	Each	27.95	34.38		
F	EDHHP-20A	or Hotplate, Laboratory Type	Each	202.65	249.26		
G	S-PH0458	Steam Boiler, Copper 1.5lt	Each	24.29	29.88		
H	S-C758-6	Tubing, Rubber 6.5mm bore - fits Liebig Condenser	10 Mt.	12.63	15.53		
I	S-PH0466	Steam Trap	Each	4.01	4.93		
J	S-CH0876	Jointed Glass Set, 27BU 14/23	Each	75.88	93.33		
K	ACC210-14	Quickfit Joint Clip 14/23	Pk/10	16.32	20.07		
L	ACY126.26V	Graduated Cylinder, Glass 100cm ³	Each	4.49	5.52		
M	SC96150	Cloves	30g	3.97	4.88		

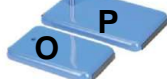
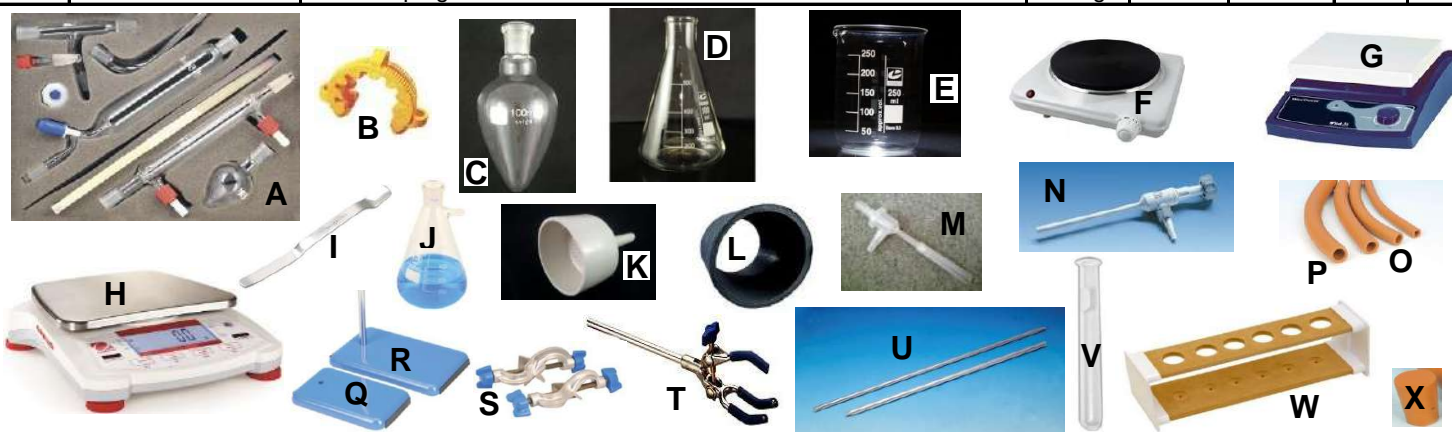

22.1b: To isolate clove oil (eugenol) from an emulsion of clove oil and water by liquid-liquid extraction using cyclohexane

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
N	AFU235.20XPK2	Separating Funnel 100ml	Pk/2	38.54	47.40		
O	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
P	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
Q	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
R	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
S	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
T	ABN110.40CPK10	Beaker, Lennox Borosilicate Glass 250cm ³	Pk/10	14.74	18.13		
U	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
V	ACY126.14V	Graduated Cylinder, Glass 10cm ³	Each	3.08	3.79		
W	S-EDU175/PK10	Filter Funnel, Polypropylene 75mm Ø	Pk/10	7.11	8.75		
X	S-FLP150	Filter Paper, Student Grade, 150mm Ø	Pk/100	4.30	5.29		
Y	AFT140.30F	Funnel, Filter, Glass 75mm Ø	Each	5.28	6.49		
E	SC41920	Hotplate, Domestic Type 1500W	Each	27.95	34.38		
F	EDHHP-20A	or Hotplate, Laboratory Type	Each	202.65	249.26		
Z	SOH-NV2101	Balance, Digital 2100g x 0.1g	Each	119.00	146.37		
	CSA1572-M	Cyclohexane	500ml	10.58	13.01		
	CSA5157-M	Magnesium Sulfate Dried	500g	9.00	11.07		

23.1: To prepare a sample of soap

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	S-CH0876	Jointed Glass Set, 27BU 14/23	Each	75.88	93.33		
B	ACC210-14	Quickfit Joint Clip 14/23	Pk/10	16.32	20.07		
C	APSF100-14/23	Pear Shaped Flask 100cm ³ 14/23	Each	14.04	17.27		
D	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
E	ABN110.40CPK10	Beaker, Lennox Borosilicate Glass 250cm ³	Pk/10	14.74	18.13		
E	ABN110.55CPK10	Beaker, Lennox Borosilicate Glass 800cm ³	Pk/10	20.22	24.87		
F	SC41920	Hotplate, Domestic Type 1500W	Each	27.95	34.38		
G	EDHHP-20A	or Hotplate, Laboratory Type	Each	202.65	249.26		
H	SOH-NV2101	Balance, Digital 2100g x 0.1g	Each	119.00	146.37		
I	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	9.90	12.18		
J	S-726-016	Buchner Flask 500cm ³	Each	11.45	14.08		
K	AFT804.34P	Buchner Funnel 90mm	Each	13.10	16.11		
L	ACX125.18	Flask Adaptor, Rubber - for Buchner Funnel to Buchner Flask	Each	6.73	8.28		
M	SC35900	Vacuum Filter Pump, Polypropylene	Each	9.90	12.18		
N	APX180.10	or Vacuum Filter Pump (c/w adaptors to fit water tap)	Each	33.44	41.13		
O	S-C758-6	Rubber Tubing 6.5mm bore - fit filter pump to Buchner arm	10 Mt.	12.63	15.53		
P	S-C758-12	Rubber Tubing 12mm - fit filter pump SC35900 to water taps	10 Mt.	25.49	31.35		
Q	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
R	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
S	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
T	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
U	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
V	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	50.90	62.61		
W	S-C314-15	Rubber Stopper, Solid No.15. Fits 16mm Ø test tubes	Pk/10	1.85	2.28		
X	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	6.40	7.87		
	SC96130	Vegetable Oil	1lt	4.96	6.10		
	CSA7889-M	Sodium Hydroxide	500g	6.04	7.43		
	CRTSE0021608	Ethanol 99% - Duty Paid	100ml	13.86	17.05		
	CRTSE0651610	Ethanol 99% - Duty Paid	500ml	58.80	72.32		
	CRTSI0331614	Methylated Spirits Clear (IMS) - <i>can only be supplied against form APT2 which is available from your local Customs and Excise office</i>	5lt	11.00	13.53		
	CSA7783-N	Sodium Chloride	1kg	7.28	8.95		
	CSA0495-L	Anti Bumping Granules	250g	13.77	16.94		



23.2a: To study the reactions of ethanal with

(i) acidified potassium permanganate solution, (ii) Fehling's reagent and (iii) ammoniacal silver nitrate

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	SC41920	Hotplate, Domestic Type 1500W	Each	27.95	34.38		
B	EDHHP-20A	or Hotplate, Laboratory Type	Each	202.65	249.26		
C	S-EDU1080	or Bunsen Burner, LPG Bottle Gas	Each	10.66	13.11		
D	S-EDU1081	or Bunsen Burner, Natural Gas	Each	11.06	13.60		
E	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	7.54	9.27		
F	S-EDU080	Gas Lighter, Piezo Type	Each	7.60	9.35		
G	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	50.90	62.61		
H	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	6.40	7.87		
I	SC78340C	Test Tube Holder, Peg Type	Pk/10	5.63	6.92		
J	S-CH0180B	Wash Bottle 250cm ³	Pk/5	4.89	6.01		

images for Experiment 23.2 items on next page

23.2a: To study the reactions of ethanal with

(i) acidified potassium permanganate solution, (ii) Fehling's reagent and (iii) ammoniacal silver nitrate. *Contd.*

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
K	ABN110.45CPK10	Beaker, Lennox Borosilicate Glass 400cm ³	Pk/10	14.07	17.31		
L	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
	CE800004	Ethanal	500ml	42.84	52.69		
	CSA6883-M	Potassium Permanganate	500g	7.64	9.40		
	CRTSP0021612	Potassium Permanganate Solution 0.02M	2.5lt	18.38	22.61		
	CRTSS0871614	Sulfuric Acid Solution 1M	5lt	9.80	12.05		
	CSA2325-M	Fehlings Solution No.1	500ml	3.09	3.80		
	CSA2327-M	Fehlings Solution No.2	500ml	4.66	5.73		
	CC35375-1L	Silver Nitrate Solution 0.1M	1lt	98.95	121.71		
	CSA7889-M	Sodium Hydroxide	500g	6.04	7.43		
	CRTSA1361611	Ammonia Solution 3M	1lt	22.49	27.66		



23.2b: To study the reactions of ethanoic acid with (i) sodium carbonate, (ii) magnesium and (iii) ethanol

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	SC41920	Hotplate, Domestic Type 1500W	Each	27.95	34.38		
B	EDHHP-20A	or Hotplate, Laboratory Type	Each	202.65	249.26		
C	S-EDU1080	or Bunsen Burner, LPG Bottle Gas	Each	10.66	13.11		
D	S-EDU1081	or Bunsen Burner, Natural Gas	Each	11.06	13.60		
E	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	7.54	9.27		
F	S-EDU080	Gas Lighter, Piezo Type	Each	7.60	9.35		
G	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	50.90	62.61		
H	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	6.40	7.87		
I	SC78340C	Test Tube Holder, Peg Type	Pk/10	5.63	6.92		
K	ABN110.45CPK10	Beaker, Lennox Borosilicate Glass 400cm ³	Pk/10	14.07	17.31		
L	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
M	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	9.90	12.18		
N	SC24160	Waxed Tapers	Pk/65	12.89	15.85		
O	SC82729	Sandpaper, Mixed Fine, Medium, Coarse Grades	Pk/30	2.50	3.08		
	CSA7775-N	Sodium Carbonate 10H ₂ O	1kg	5.30	6.52		
	CRTSA0031611	Ethanoic Acid 1M	1lt	23.74	29.20		
	CSA5117-G	Magnesium Ribbon	25g	7.85	9.66		
	CRTSS0441611	Sodium Hydroxide Solution 2M	1lt	22.49	27.66		
	CSA7889-M	Sodium Hydroxide	500g	6.04	7.43		
	CRTSE0021608	Ethanol 99% - Duty Paid	100ml	13.86	17.05		
	CRTSE0651610	Ethanol 99% - Duty Paid	500ml	58.80	72.32		
	CRTSI0331614	Methylated Spirits Clear (IMS) - can only be supplied against form APT2 which is available from your local Customs and Excise office	5lt	11.00	13.53		
	CC30743-2.5L	Sulfuric Acid, Concentrated	2.5lt	18.44	22.68		
	CSA6619-J	Phenolphthalein Indicator Solution	100ml	2.69	3.31		

23.3: To oxidise phenylmethanol to benzoic acid with potassium permanganate solution in alkaline conditions

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
<i>images for Experiment 23.3 items on previous page</i>							
L	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
M	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	9.90	12.18		
P	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
Q	ACY126.14V	Graduated Cylinder, Glass 10cm ³	Each	3.08	3.79		
Q	ACY126.18V	Graduated Cylinder, Glass 25cm ³	Each	3.31	4.07		
K	ABN110.60C	Beaker, Lennox Borosilicate Glass 1000cm ³	Each	3.98	4.90		
A	SC41920	Hotplate, Domestic Type 1500W	Each	27.95	34.38		
B	EDHHP-20A	or Hotplate, Laboratory Type	Each	202.65	249.26		
C	S-EDU1080	or Bunsen Burner, LPG Bottle Gas	Each	10.66	13.11		
D	S-EDU1081	or Bunsen Burner, Natural Gas	Each	11.06	13.60		
E	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	7.54	9.27		
F	S-EDU080	Gas Lighter, Piezo Type	Each	7.60	9.35		
R	S-TRSTD200/1	Tripod Stand, 200 x 125mm - height x top side	Each	5.60	6.89		
S	S-GUZCR125	Wire Gauze, Ceramic Centre 125 x 125mm	Pk/10	9.37	11.53		
T	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
U	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
V	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
W	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
X	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
Y	SOH-NV2101	Balance, Digital 2100g x 0.1g	Each	119.00	146.37		
Z	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	0.73	0.90		
ZA	S-CH0554E	Clock Glass 100mm	Pk/10	6.07	7.47		
ZB	S-726-016	Buchner Flask 500cm ³	Each	11.45	14.08		
ZC	AFT804.34P	Buchner Funnel 90mm	Each	13.10	16.11		
ZD	ACX125.18	Flask Adaptor, Rubber - for Buchner Funnel to Buchner Flask	Each	6.73	8.28		
ZE	SC35900	Vacuum Filter Pump, Polypropylene	Each	9.90	12.18		
ZF	APX180.10	or Vacuum Filter Pump (c/w adaptors to fit water tap)	Each	33.44	41.13		
ZG	S-C758-6	Rubber Tubing 6.5mm bore - fit filter pump to Buchner arm	10 Mt.	12.63	15.53		
ZH	S-C758-12	Rubber Tubing 12mm - fit filter pump SC35900 to water taps	10 Mt.	25.49	31.35		
ZI	SC66602	Ice Cube Bags	Pk/20	3.14	3.86		
	CLL103292.0B	Phenylmethanol (Benzyl Alcohol)	1lt	38.07	46.83		
	CSA6883-M	Potassium Permanganate	500g	7.64	9.40		
	CSA7775-N	Sodium Carbonate 10H ₂ O	1kg	5.30	6.52		
	CC07102-2.5L	Hydrochloric Acid, Concentrated	2.5lt	17.77	21.86		
	CSA8032-M	Sodium Sulfite Anhydrous	500g	5.34	6.57		

23.4a: To recrystallise a sample of benzoic acid

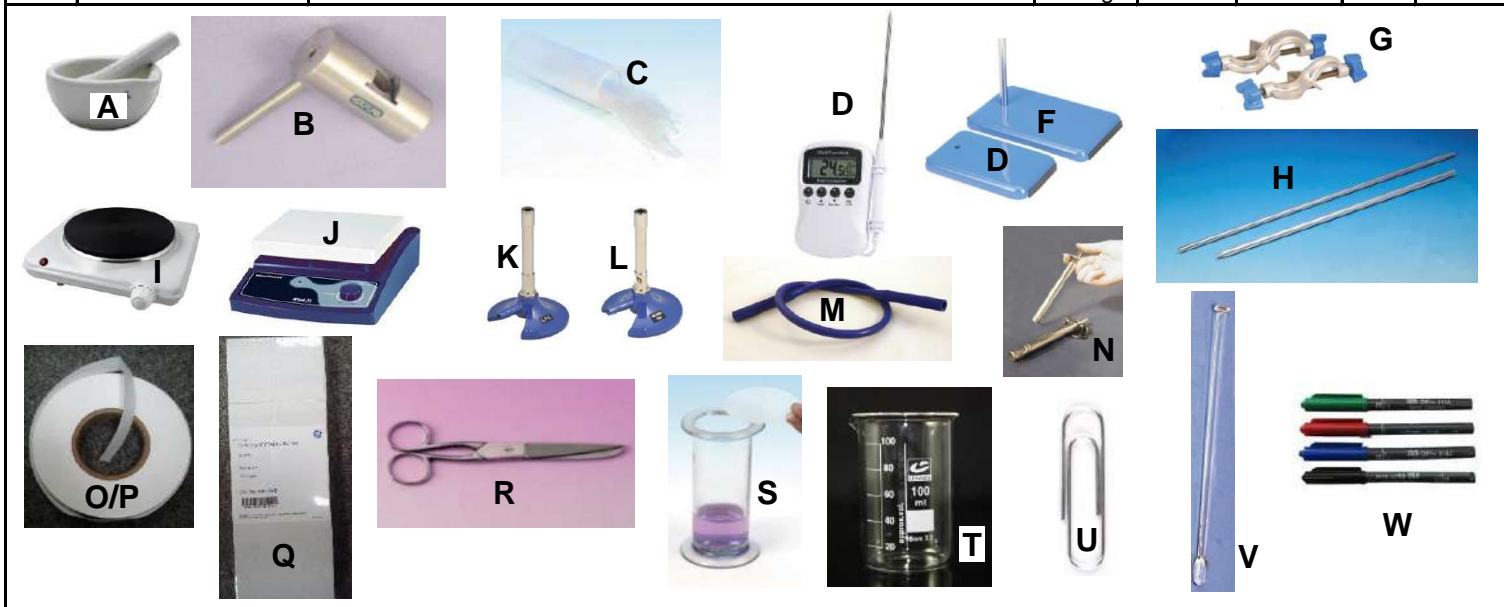
Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
<i>images for Experiment 23.4a items on previous page</i>							
P	AFK202.30CPK10	Conical Flask, 250cm ³	Pk/10	15.36	18.89		
Q	ACY126.14V	Graduated Cylinder, Glass 10cm ³	Each	3.08	3.79		
Z	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	0.73	0.90		
A	SC41920	Hotplate, Domestic Type 1500W	Each	27.95	34.38		
B	EDHHP-20A	or Hotplate, Laboratory Type	Each	202.65	249.26		
C	S-EDU1080	or Bunsen Burner, LPG Bottle Gas	Each	10.66	13.11		
D	S-EDU1081	or Bunsen Burner, Natural Gas	Each	11.06	13.60		
E	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	7.54	9.27		
F	S-EDU080	Gas Lighter, Piezo Type	Each	7.60	9.35		
R	S-TRSTD200/1	Tripod Stand, 200 x 125mm - height x top side	Each	5.60	6.89		
S	S-GUZCR125	Wire Gauze, Ceramic Centre 125 x 125mm	Pk/10	9.37	11.53		
ZJ	AFT140.35F	Filter Funnel, Glass 100mm Ø	Each	5.71	7.02		
ZK	S-FLP150	Filter Paper, Student Grade, 150mm Ø	Pk/100	4.30	5.29		
T	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
U	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
V	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
W	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
X	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
K	ABN110.60C	Beaker, Lennox Borosilicate Glass 1000cm ³	Each	3.98	4.90		
ZI	SC66602	Ice Cube Bags	Pk/20	3.14	3.86		
ZA	S-CH0554E	Clock Glass 100mm	Pk/10	6.07	7.47		
ZB	S-726-016	Buchner Flask 500cm ³	Each	11.45	14.08		

23.4a: To recrystallise a sample of benzoic acid. Contd.

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
<i>images for Experiment 23.4a items on previous pages</i>							
ZD	ACX125.18	Flask Adaptor, Rubber - for Buchner Funnel to Buchner Flask	Each	6.73	8.28		
ZE	SC35900	Vacuum Filter Pump, Polypropylene	Each	9.90	12.18		
ZF	APX180.10	or Vacuum Filter Pump (c/w adaptors to fit water tap)	Each	33.44	41.13		
ZG	S-C758-6	Rubber Tubing 6.5mm bore - fit filter pump to Buchner arm	10 Mt.	12.63	15.53		
ZH	S-C758-12	Rubber Tubing 12mm - fit filter pump SC35900 to water taps	10 Mt.	25.49	31.35		
Y	SOH-NV2101	Balance, Digital 2100g x 0.1g	Each	119.00	146.37		

23.4b: To measure the melting point of benzoic acid

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	AMX150.25P	Mortar and Pestle 100mm	Each	4.64	5.71		
B	S-EDU990T	Melting Point Apparatus, Aluminium Block Type	Each	20.56	25.29		
C	S-CH0882	Capillary Tubes - spot chromatography paper & plate	Pk/100	4.99	6.14		
D	SRD85-3198	Thermometer, Digital -50 to +150 °C x 0.1 °C	Each	26.95	33.15		
E	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
F	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
G	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
H	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
I	SC41920	Hotplate, Domestic Type 1500W	Each	27.95	34.38		
J	EDHHP-20A	or Hotplate, Laboratory Type	Each	202.65	249.26		
K	S-EDU1080	or Bunsen Burner, LPG Bottle Gas	Each	10.66	13.11		
L	S-EDU1081	or Bunsen Burner, Natural Gas	Each	11.06	13.60		
M	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	7.54	9.27		
N	S-EDU080	Gas Lighter, Piezo Type	Each	7.60	9.35		
	CSA0664-L	Benzoic Acid	250g	14.72	18.11		

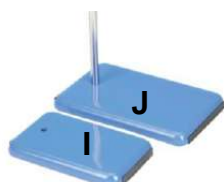
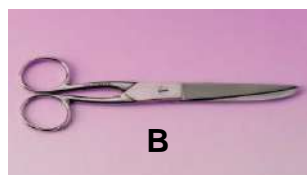


23.5a: To separate the components of ink using paper chromatography

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
O	AW3001/614	Chromatography Paper Roll, 20mm x 100 metres	Each	36.91	45.40		
P	AW3001/640	or Chromatography Paper Roll, 30mm x 100 metres	Each	44.69	54.97		
Q	AW3001/845	or Chromatography Paper Sheet, 100mm x 300mm	Pk/100	56.53	69.53		
R	SC83220	Scissors, General Purpose 175mm	Each	5.28	6.49		
S	SC41960C	Gas Jar 15cm High x 50mmØ c/w Lid	Each	4.06	4.99		
T	ABN125.50CPK6	Beaker, Pyrex Borosilicate Glass, Tall Form 600cm ³	Pk/6	22.73	27.96		
U	ST10000	Paper Clips 32mm	Pk/1000	4.23	5.20		
V	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	0.73	0.90		
W	SP06520	Pen, Water Soluble Medium. Pack/8 Assorted Colours	Pk/10	21.79	26.80		
	CC24229-2.5L	Methanol	2.5lt	15.45	19.00		
	CRTSE0021608	Ethanol 99% - Duty Paid	100ml	13.86	17.05		
	CRTSE0651610	Ethanol 99% - Duty Paid	500ml	58.80	72.32		
	CRTSI0331614	Methylated Spirits Clear (IMS) - <i>can only be supplied against form APT2 which is available from your local Customs and Excise office</i>	5lt	11.00	13.53		
	CSA0841-M	Butan-1-ol	500ml	18.76	23.07		
	CC32201-2.5L	Propanone	2.5lt	17.53	21.56		

23.5b: To separate the components of food dyes using thin layer chromatography

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	CC70643-50	TLC Plates, on aluminium foil 40x80mm.	Pk/50	37.00	45.51		
B	SC83220	Scissors, General Purpose 175mm	Each	5.28	6.49		
C	S-CH0882	Capillary Tubes- spot chromatography paper & plate	Pk/100	4.99	6.14		
D	ABN110.20CPK10	Beaker, Lennox Borosilicate Glass 25cm ³	Pk/10	10.29	12.66		
E	SC96160	Food Colouring - available in red or green	25ml	1.59	1.96		
	CC24229-2.5L	Methanol	2.5lt	15.45	19.00		



23.5c: To separate the components of food dyes using column chromatography

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
F	A711116	Dropper Plastic Graduated 3cm ³	Pk/500	7.84	9.64		
B	SC83220	Scissors, General Purpose 175mm	Each	5.28	6.49		
G	SS79000	Cotton Wool Absorbent Roll	500g	8.80	10.82		
H	SC78340C	Test Tube Holder, Peg Type	Pk/10	5.63	6.92		
I	S-BASE160T	Base for Retort Stand 160 x 100mm	Each	9.11	11.21		
J	S-BASE200T	or Base for Retort Stand 200 x 125mm	Each	11.15	13.71		
K	S-CH0663B/Single	Bosshead for Retort Stand	Each	2.22	2.73		
L	S-CLMP3P	Clamp with Rubber Jaws for Retort Stand	Each	6.09	7.49		
M	S-RDMS0600	Rod for Retort Stand. Mild Steel. Length: 600mm	Each	4.34	5.34		
D	ABN110.20CPK10	Beaker, Borosilicate Glass 25cm ³	Pk/10	10.29	12.66		
	CC24229-2.5L	Methanol	2.5lt	15.45	19.00		

Safety Materials

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	S-EDU652	Safety Spectacles, Fixed Side-Arm	Each	2.16	2.66		
B	ASA962.10	Safety Goggles	Each	3.42	4.21		
C	S-506-055	Safety Visor	Each	33.09	40.70		
D	ASA350.20	Gloves, Disposable Polythene	Pk/100	2.23	2.74		
E	ASA382.15X	Gloves, Surgical Type, Small	Pk/100	2.72	3.35		
E	ASA382.20X	Gloves, Surgical Type, Medium	Pk/100	2.71	3.33		
E	ASA382.25X	Gloves, Surgical Type, Large	Pk/100	2.71	3.33		
F	SF-A79510	Gloves Leather Heat Resistant	Each	13.66	16.80		
G	ASA800.10	Dust Mask	Pk/50	3.22	3.96		
H	SC64962	Laboratory Coat Small 36/38"	Each	13.18	16.21		
H	SC64962A	Laboratory Coat Medium 40/41"	Each	13.18	16.21		
H	SC64963A	Laboratory Coat Large 42/44"	Each	13.18	16.21		
H	SC64965	Laboratory Coat X-Large 46/48"	Each	13.18	16.21		
I	S-EDU994	Safety Screen Perspex 3-Panel (225/300/225mm x 610mm high)	Each	64.41	79.22		
J	A5421726	Eye Wash Bottle, Empty. Capacity: 600cm ³	Each	14.13	17.38		
K	SC67120	Eye Wash Station Wall Mounting c/w 2 x 500cm ³ bottles	Each	37.78	46.47		
L	SC67210	First Aid Kit, 10 Person	Each	34.31	42.20		
L	SC67212	First Aid Kit, 20 Person	Each	50.56	62.19		
L	SC67215	First Aid Kit, 50 Person	Each	66.86	82.24		
M	SC67250	First Aid Cabinet Wall Mounting Lockable - with 20 person kit	Each	227.71	280.08		
N	SC67302	Fire Blanket	Each	16.48	20.27		
O	SF-L75796	Flammable Liquids Storage Cabinet 610x459x459mm - including carriage	Each	295.25	363.16		
O	SF-L76272	Flammable Liquids Storage Cabinet 915x459x459mm - including carriage	Each	356.37	438.34		
O	SF-L76296	Flammable Liquids Storage Cabinet 712x915x459mm - including carriage	Each	427.69	526.06		
O	SF-L76302	Flammable Liquids Storage Cabinet 915x915x459mm - including carriage	Each	448.06	551.11		
O	SF-L76314	Flammable Liquids Storage Cabinet 1220x915x459mm - including carriage	Each	529.56	651.36		
O	SF-L76326	Flammable Liquids Storage Cabinet 1525x915x459mm - including carriage	Each	567.40	697.90		
O	SF-L76338	Flammable Liquids Storage Cabinet 1830x915x459mm - including carriage	Each	590.69	726.55		
P	SF-L76855	Corrosives Storage Cabinet 610x459x459mm - including carriage	Each	323.77	398.24		
P	SF-L76867	Corrosives Storage Cabinet 915x459x459mm - including carriage	Each	369.11	454.01		
P	SF-L76880	Corrosives Storage Cabinet 712x915x459mm - including carriage	Each	448.84	552.07		
P	SF-L76892	Corrosives Storage Cabinet 915x915x459mm - including carriage	Each	468.60	576.38		
P	SF-L76909	Corrosives Storage Cabinet 1220x915x459mm - including carriage	Each	550.30	676.87		
P	SF-L76910	Corrosives Storage Cabinet 1525x915x459mm - including carriage	Each	589.44	725.01		
P	SF-L76922	Corrosives Storage Cabinet 1830x915x459mm - including carriage	Each	599.39	737.25		
NB: above corrosives cabinets are not suitable for hydrochloric, sulfuric or nitric acids as corrosion to door lock mechanism will occur							
Q	SF-A80196	Spill Kit (to absorb up to 3lts of chemicals spillage)	Each	63.01	77.50		
R	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm ³	Each	5.10	6.27		
S	S-C6586A/1	Pipette Filler Rubber Bulb Type	Each	4.84	5.95		

