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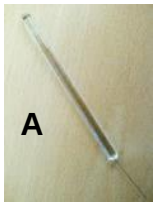
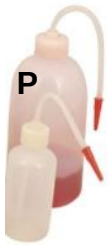
03.1: To carry out flame tests with salts of lithium, sodium, potassium, barium, strontium and copper

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	SC36040	Platinum Wire On Glass Rod	Each	22.60	**27.80**		
B	S-PH1064C	Nichrome Wire 22SWG	125g	23.15	**28.47**		
C	ACM680.60	Inoculating Loop Holder	Each	2.95	**3.63**		
D	S-EDU740	Wooden Splints	Pk/1000	7.55	**9.29**		
E	S-EDU1080	Bunsen Burner, LPG Bottle Gas	Each	12.90	**15.87**		
F	S-EDU1081	**or** Bunsen Burner, Natural Gas	Each	12.90	**15.87**		
G	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	9.15	**11.25**		
H	S-EDU080	Gas Lighter, Piezo Type	Each	9.15	**11.25**		
I	ABN110.25CPK10	Beaker, **Lennox** Borosilicate Glass 50cm^3	Pk/10	15.30	**18.82**		
J	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	54.85	**67.47**		
K	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	7.55	**9.29**		
L	AMX150.25P-S	Mortar & Pestle 100mm	Each	5.35	**6.58**		
M	SC36100	Flame Test Glass	Each	9.70	**11.93**		
	CSA4738-J	Lithium Chloride Anhydrous	100g	17.55	**21.59**		
	CSA7783-N	Sodium Chloride	1kg	8.70	**10.70**		
	CSA6762-M	Potassium Chloride	500g	6.45	**7.93**		
	CSA0618-M	Barium Chloride	500g	10.55	**12.98**		
	CSA8147-J	Strontium Chloride	100g	6.25	**7.69**		
	CSA8147-L	Strontium Chloride	250g	23.45	**28.84**		
	CSA1494-L	Copper (II) Chloride	250g	11.10	**13.65**		
	CC07102-2.5L	Hydrochloric Acid, Concentrated	2.5lt	21.05	**25.89**		





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	54.85	**67.47**		
K	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	7.55	**9.29**		
N	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
O	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	11.30	**13.90**		
P	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		
	CSA7783-N	Sodium Chloride	1kg	8.70	**10.70**		
	CSA6762-M	Potassium Chloride	500g	6.45	**7.93**		
	CC35375-1L	Silver Nitrate Solution 0.1M	1lt	23.99	**29.51**		
	CRTSA1361611	Ammonia Solution 3M	1lt	61.50	**75.65**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		

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	54.85	**67.47**		
B	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	7.55	**9.29**		
C	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		

images for investigation 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	11.30	**13.90**		
E	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		
F	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	25.80	**31.73**		
	CSA8023-M	Sodium Sulfate Anhydrous	500g	4.00	**4.92**		
	CSA6914-M	Potassium Sulfate	500g	6.20	**7.63**		
	CSA8032-M	Sodium Sulfite Anhydrous	500g	15.20	**18.70**		
	CC658510-25G	Potassium Sulfite	25g	50.15	**61.68**		
	CSA0618-M	Barium Chloride	500g	10.55	**12.98**		
	CRTSH0201611	Hydrochloric Acid Solution 3M	1lt	24.20	**29.77**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		

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

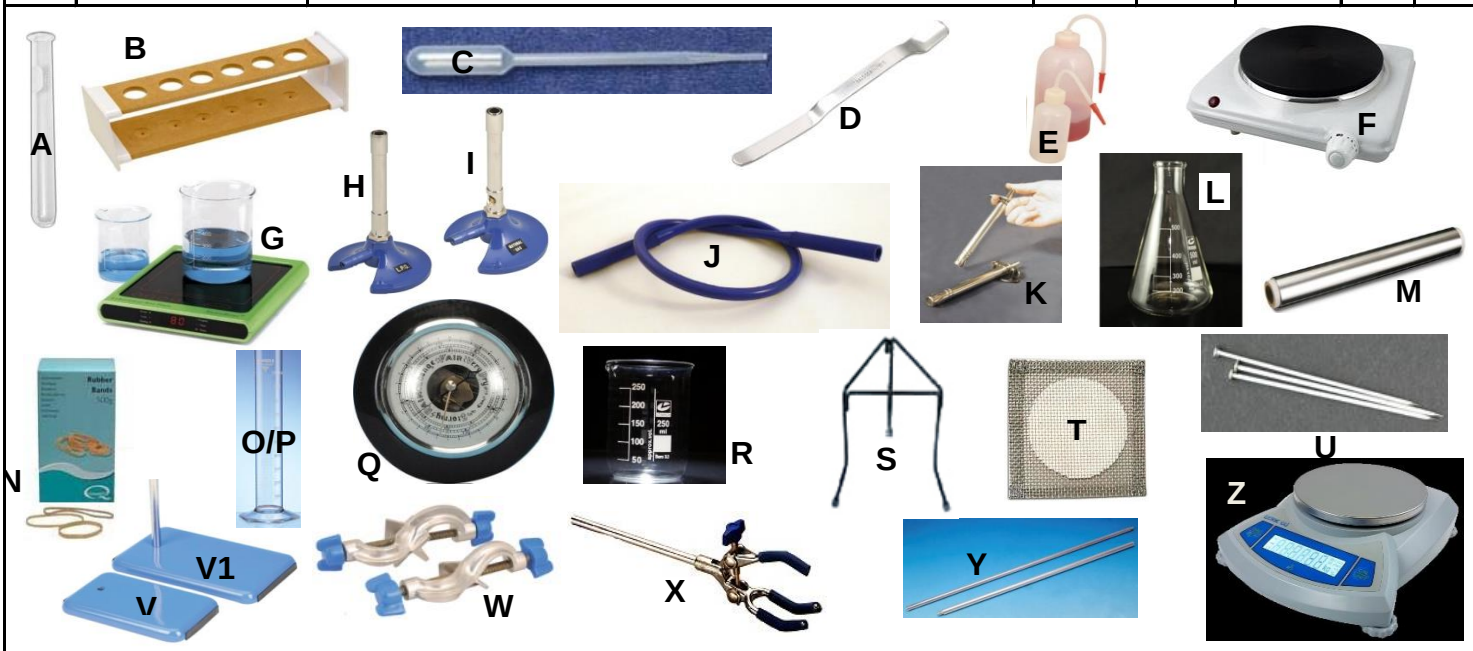
Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	54.85	**67.47**		
B	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	7.55	**9.29**		
C	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
D	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	11.30	**13.90**		
E	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		
G	S-RS13	Rubber Stopper, 1-Hole No.13. Fits 16mm Ø test tubes	Pk/10	2.35	**2.89**		
H	SB55342	Tubing, PVC Plastic 3.5mmØ - fits rubber stopper hole	5 Mt.	4.30	**5.29**		
	CSA7773-M	Sodium Carbonate Anhydrous	500g	4.70	**5.78**		
	CSA6756-M	Potassium Carbonate Anhydrous	500g	15.60	**19.19**		
	CSA7865-M	Sodium Hydrogen Carbonate	500g	3.25	**4.00**		
	CSA6813-J	Potassium Hydrogen Carbonate	100g	8.55	**10.52**		
	CRTSL0101612	Lime Water	2.5lt	13.45	**16.54**		
	CSA5157-M	Magnesium Sulfate Dried	500g	10.65	**13.10**		
	CRTSM0731611	Magnesium Sulfate Solution 0.25M	1lt	61.50	**75.65**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		

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	54.85	**67.47**		
B	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	7.55	**9.29**		
C	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
D	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	11.30	**13.90**		
E	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		
	CSA0628-M	Barium Nitrate	500g	24.45	**30.07**		
	CSA1186-M	Calcium Nitrate	500g	21.05	**25.89**		
	CSA4095-M	Iron (II) Sulfate	500g	13.30	**16.36**		
	CC30743-2.5L	Sulfuric Acid, Concentrated	2.5lt	21.85	**26.88**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		

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	54.85	**67.47**		
B	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	7.55	**9.29**		
C	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
D	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	11.30	**13.90**		
E	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		
F	SC41920	Hotplate, Domestic Type 1500W	Each	32.80	**40.34**		
G	S-607-020	**or** Hotplate, Laboratory Type	Each	299.00	**367.77**		
H	S-EDU1080	**or** Bunsen Burner, LPG Bottle Gas	Each	12.90	**15.87**		
I	S-EDU1081	**or** Bunsen Burner, Natural Gas	Each	12.90	**15.87**		
J	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	9.15	**11.25**		
K	S-EDU080	Gas Lighter, Piezo Type	Each	9.15	**11.25**		
	CSA7875-M	Sodium Hydrogen Phosphate	500g	18.40	**22.63**		
	CLA13766.18	Ammonium Molybdate	100g	30.05	**36.96**		
	CSA5774-NPM	Nitric Acid, Concentrated	1lt	23.30	**28.66**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		

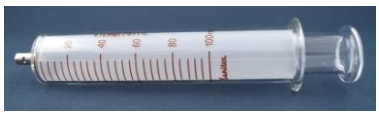


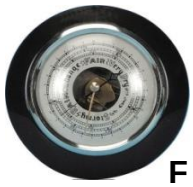
10.1a: To measure the relative molar mass of a volatile liquid using a conical flask

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
L	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
M	AAL200.14	Aluminium Foil	Each	15.25	**18.76**		
N	SC83180	Rubber Bands Assorted Sizes. 100g	Each	3.80	**4.67**		
O	ACY126.14V-S	Graduated Cylinder, Glass 10cm^3	Each	3.55	**4.37**		
P	ACY126.26V-S	Graduated Cylinder, Glass 100cm^3	Each	5.20	**6.40**		
Q	S-PH0246	Barometer, Aneroid 100mm- 720-800mm Hg & 960-1070mb	Each	31.20	**38.38**		
R	ABN110.55CPK6-S	Beaker, **Lennox** Borosilicate Glass 800cm^3	Pk/6	14.65	**18.02**		
F	SC41920	Hotplate, Domestic Type 1500W	Each	32.80	**40.34**		
G	S-607-020	**or** Hotplate, Laboratory Type	Each	299.00	**367.77**		
H	S-EDU1080	**or** Bunsen Burner, LPG Bottle Gas	Each	12.90	**15.87**		
I	S-EDU1081	**or** Bunsen Burner, Natural Gas	Each	12.90	**15.87**		
J	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	9.15	**11.25**		
K	S-EDU080	Gas Lighter, Piezo Type	Each	9.15	**11.25**		
S	S-TRSTD200/1	Tripod Stand, 200 x 125mm - height x top side	Each	7.00	**8.61**		
T	S-GUZCR125	Wire Gauze, Ceramic Centre 125 x 125mm	Pk/10	10.75	**13.22**		
U	S-241-512	Pins, Steel 50mm long	Pk/100	12.40	**15.25**		
V	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
V1	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
W	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
X	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
Y	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
Z	S-602-106	Balance, Digital 2000g x 0.1g c/w mains adapter	Each	61.85	**76.08**		
	CC32201-2.5L	Propanone	2.5lt	20.75	**25.52**		
	CSA1572-M	Cyclohexane	500ml	12.55	**15.44**		

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

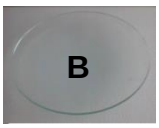
Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	SC40330	Gas Syringe, Glass 100cm^3	Each	26.35	**32.41**		
B	SCASY225.10S	Syringe, Plastic 1cm^3	Pk/10	2.15	**2.64**		
C	SCASY230.15S	Syringe Needle, 1.1mm x 40mm. For use with gas syringe	Pk/10	3.25	**4.00**		
D	SC40355	Rubber Cap for Gas Syringe	Pk/6	13.45	**16.54**		
E	ABN110.55CPK6-S	Beaker, **Lennox** Borosilicate Glass 800cm^3	Pk/6	14.65	**18.02**		
F	S-PH0246	Barometer, Aneroid 100mm- 720-800mm Hg & 960-1070mb	Each	31.20	**38.38**		
G	S-602-106	Balance, Digital 2000g x 0.1g c/w mains adapter	Each	61.85	**76.08**		
	CC32201-2.5L	Propanone	2.5lt	20.75	**25.52**		
	CSA1572-M	Cyclohexane	500ml	12.55	**15.44**		
	CSA3333-M	Hexane	500ml	11.00	**13.53**		

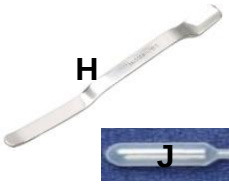


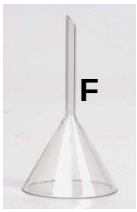


13.1: To prepare a standard solution of sodium carbonate

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	S-602-112	Balance, Digital 2000g x 0.01g c/w Mains Adapter	Each	145.15	**178.53**		
B	S-CH0554E	Clock Glass 100mm	Pk/10	7.55	**9.29**		
C	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		
D	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	1.10	**1.35**		
E	ABN110.40CPK12-S	Beaker, **Lennox** Borosilicate Glass 250cm^3	Pk/12	20.30	**24.97**		
F	AFT140.30F	Funnel, Filter, Glass 75mm Ø	Each	6.10	**7.50**		
G	AFL312.30VPK2	Volumetric Flask, 250cm^3	Pk/2	11.60	**14.27**		
H	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	11.30	**13.90**		
I	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	25.80	**31.73**		
J	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
	CSA7773-M	Sodium Carbonate Anhydrous	500g	4.70	**5.78**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		







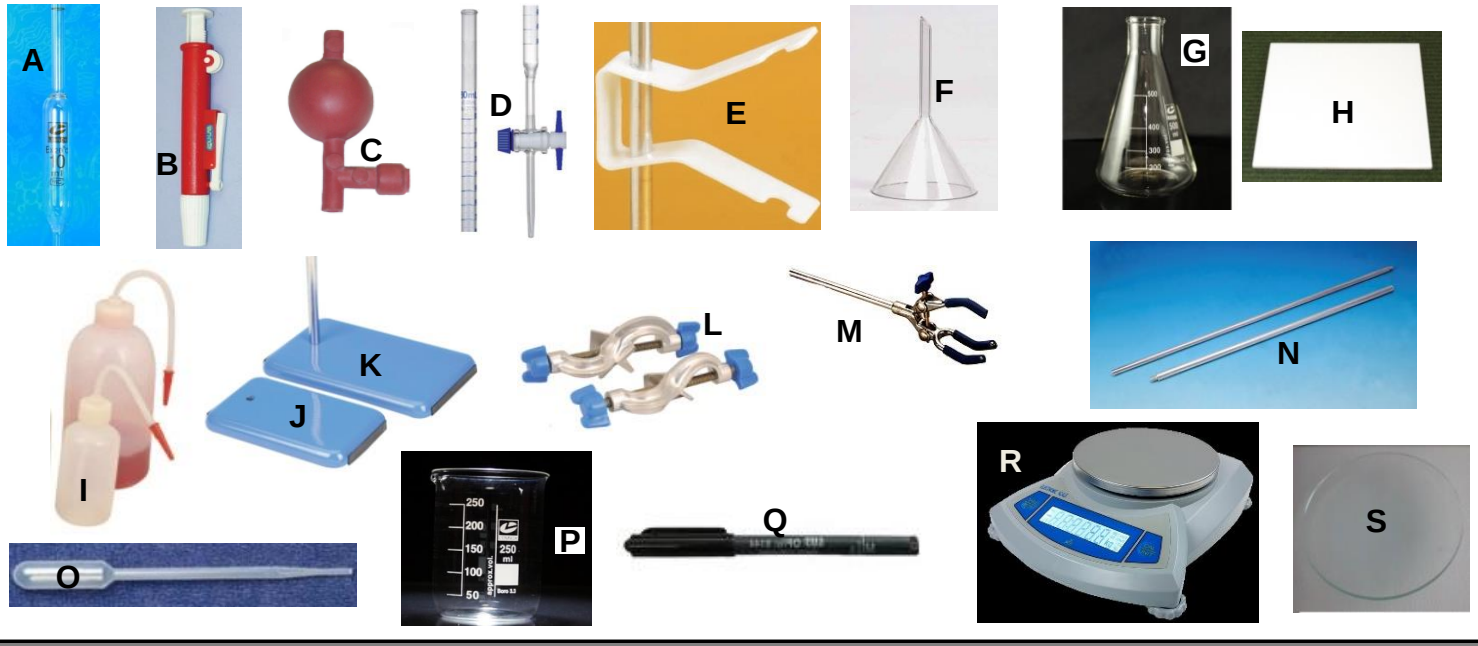
13.2: To use a standard solution of sodium carbonate to standardise a given hydrochloric acid solution

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	APM102.40VPK10-S	Pipette, Bulb Type 25cm^3	Pk/10	39.55	**48.65**		
B	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm^3	Each	6.45	**7.93**		
C	S-C6586A/1	**or** Pipette Filler, Rubber Bulb Type	Each	5.95	**7.32**		
D	S-11780A	Burette, Glass with PTFE Stopcock 50cm^3	Each	19.35	**23.80**		
E	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	4.00	**4.92**		
F	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	5.10	**6.27**		
G	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
H	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	7.00	**8.61**		
I	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		
J	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
K	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
L	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
M	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
N	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		

Images for investigation 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	9.45	**11.62**		
P	S-616-009	Beaker PPR 250cm^3	Pk/10	7.75	**9.53**		
Q	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	25.80	**31.73**		
	CSA7775-N	Sodium Carbonate $10H_20$	1kg	6.30	**7.75**		
	CRTSH0051614	Hydrochloric Acid Solution 0.1M	5lt	11.00	**13.53**		
	CSA5355-J	Methyl Orange Indicator Solution	100ml	3.05	**3.75**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		



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	S-602-106	Balance, Digital 2000g x 0.1g c/w mains adapter	Each	61.85	**76.08**		
S	S-CH0554E	Clock Glass 100mm	Pk/10	7.55	**9.29**		
A	APM102.40VPK10-S	Pipette, Bulb Type 25cm^3	Pk/10	39.55	**48.65**		
B	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm^3	Each	6.45	**7.93**		
C	S-C6586A/1	**or** Pipette Filler, Rubber Bulb Type	Each	5.95	**7.32**		
D	S-11780A	Burette, Glass with PTFE Stopcock 50cm^3	Each	19.35	**23.80**		
E	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	4.00	**4.92**		
F	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	5.10	**6.27**		
G	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
H	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	7.00	**8.61**		
I	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		
J	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
K	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
L	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
M	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
N	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
O	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
P	S-616-009	Beaker PPR 250cm^3	Pk/10	7.75	**9.53**		
Q	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	25.80	**31.73**		
	CSA7889-M	Sodium Hydroxide	500g	7.15	**8.79**		
	CRTSH0051614	Hydrochloric Acid Solution 0.1M	5lt	11.00	**13.53**		
	CSA5355-J	Methyl Orange Indicator Solution	100ml	3.05	**3.75**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		

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-S	Pipette, Bulb Type 25cm^3	Pk/10	39.55	**48.65**		
B	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm^3	Each	6.45	**7.93**		
C	S-C6586A/1	**or** Pipette Filler, Rubber Bulb Type	Each	5.95	**7.32**		
D	S-11780A	Burette, Glass with PTFE Stopcock 50cm^3	Each	19.35	**23.80**		
E	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	4.00	**4.92**		
F	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	5.10	**6.27**		
G	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
H	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	7.00	**8.61**		
I	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		
J	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
K	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
L	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
M	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
N	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
O	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
P	S-616-009	Beaker PPR 250cm^3	Pk/10	7.75	**9.53**		
Q	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	25.80	**31.73**		
	SC96140	Vinegar	284ml	2.15	**2.64**		
	CRTSS0321614	Sodium Hydroxide Solution 0.1M	5lt	10.50	**12.92**		
	CSA6619-J	Phenolphthalein Indicator Solution	100ml	3.50	**4.31**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		

images for investigation 13.4 items are the same as those for investigation 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	S-602-106	Balance, Digital 2000g x 0.1g c/w mains adapter	Each	61.85	**76.08**		
B	S-CH0554E	Clock Glass 100mm	Pk/10	7.55	**9.29**		
C	APM102.40VPK10-S	Pipette, Bulb Type 25cm^3	Pk/10	39.55	**48.65**		
D	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm^3	Each	6.45	**7.93**		
E	S-C6586A/1	**or** Pipette Filler, Rubber Bulb Type	Each	5.95	**7.32**		
F	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	11.30	**13.90**		
G	AFL312.30VPK2	Volumetric Flask, 250cm^3	Pk/2	11.60	**14.27**		
H	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	1.10	**1.35**		
I	S-11780A	Burette, Glass with PTFE Stopcock 50cm^3	Each	19.35	**23.80**		
J	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	4.00	**4.92**		
K	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	5.10	**6.27**		
L	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
M	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	7.00	**8.61**		
N	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		
O	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
P	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
Q	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
R	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
S	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
T	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
U	S-616-009	Beaker PPR 250cm^3	Pk/10	7.75	**9.53**		
V	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	25.80	**31.73**		
	CSA7775-N	Sodium Carbonate $10H_20$	1kg	6.30	**7.75**		
	CRTSH0051614	Hydrochloric Acid Solution 0.1M	5lt	11.00	**13.53**		
	CSA5355-J	Methyl Orange Indicator Solution	100ml	3.05	**3.75**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		

Images for investigation 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	54.85	**67.47**		
X	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	7.55	**9.29**		
Y	S-C314-13	Rubber Stopper, Solid No.13. Fits 16mm Ø test tubes	Pk/10	2.70	**3.32**		
T	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
U	ABN110.40CPK12-S	Beaker, **Lennox** Borosilicate Glass 250cm^3	Pk/12	20.30	**24.97**		
F	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	11.30	**13.90**		
Z	S-TSMS150	Tongs, 150mm. Mild steel with corrugated jaws	Pk/10	8.60	**10.58**		
B	S-CH0554E	Clock Glass 100mm	Pk/10	7.55	**9.29**		
	CSA6748-M	Potassium Bromide	500g	21.70	**26.69**		
	CRTSS0611612	Chlorine Water - Sodium Hypochlorite 10-14% Chlorine	2.5lt	21.95	**27.00**		
	CSA6853-J	Potassium Iodide	100g	32.25	**39.67**		
	CC30315-500G	Potassium Iodide	500g	38.90	**47.85**		
	CRTSCHB0191608	Bromine Water	100ml	10.10	**12.42**		
	CSA8032-M	Sodium Sulfite Anhydrous	500g	15.20	**18.70**		
	CSA0618-M	Barium Chloride	500g	10.55	**12.98**		
	CRTSH0201611	Hydrochloric Acid Solution 3M	1lt	24.20	**29.77**		
	CSA4095-M	Iron (II) Sulfate	500g	13.30	**16.36**		
	CRTSS0321614	Sodium Hydroxide Solution 0.1M	5lt	10.50	**12.92**		
	CSA1511-M	Copper (II) Sulfate	500g	9.30	**11.44**		
	CSA9818-M	Zinc Granular	500g	24.00	**29.52**		

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	7.55	**9.29**		
F	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	11.30	**13.90**		
A	S-602-106	Balance, Digital 2000g x 0.1g c/w mains adapter	Each	61.85	**76.08**		
ZA	ACY126.22V	Graduated Cylinder, Glass 50cm^3	Each	4.50	**5.54**		
U	ABN110.40CPK12-S	Beaker, **Lennox** Borosilicate Glass 250cm^3	Pk/12	20.30	**24.97**		
ZB	S-616-009	Beaker PPR 250cm^3	Pk/10	7.75	**9.53**		

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	1.10	**1.35**		
G	AFL312.30VPK2	Volumetric Flask, 250cm^3	Pk/2	11.60	**14.27**		
C	APM102.40VPK10-S	Pipette, Bulb Type 25cm^3	Pk/10	39.55	**48.65**		
D	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm^3	Each	6.45	**7.93**		
E	S-C6586A/1	**or** Pipette Filler, Rubber Bulb Type	Each	5.95	**7.32**		
I	S-11780A	Burette, Glass with PTFE Stopcock 50cm^3	Each	19.35	**23.80**		
J	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	4.00	**4.92**		
K	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	5.10	**6.27**		
L	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
M	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	7.00	**8.61**		
N	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		
O	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
P	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
Q	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
R	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
S	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
T	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
V	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	25.80	**31.73**		
	CSA0380-M	Ammonium Iron (II) Sulfate	500g	20.30	**24.97**		
	CRTSS0871614	Sulfuric Acid Solution 1M	5lt	11.65	**14.33**		
	CRTSP0021612	Potassium Permanganate Solution 0.02M	2.5lt	21.80	**26.81**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		

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

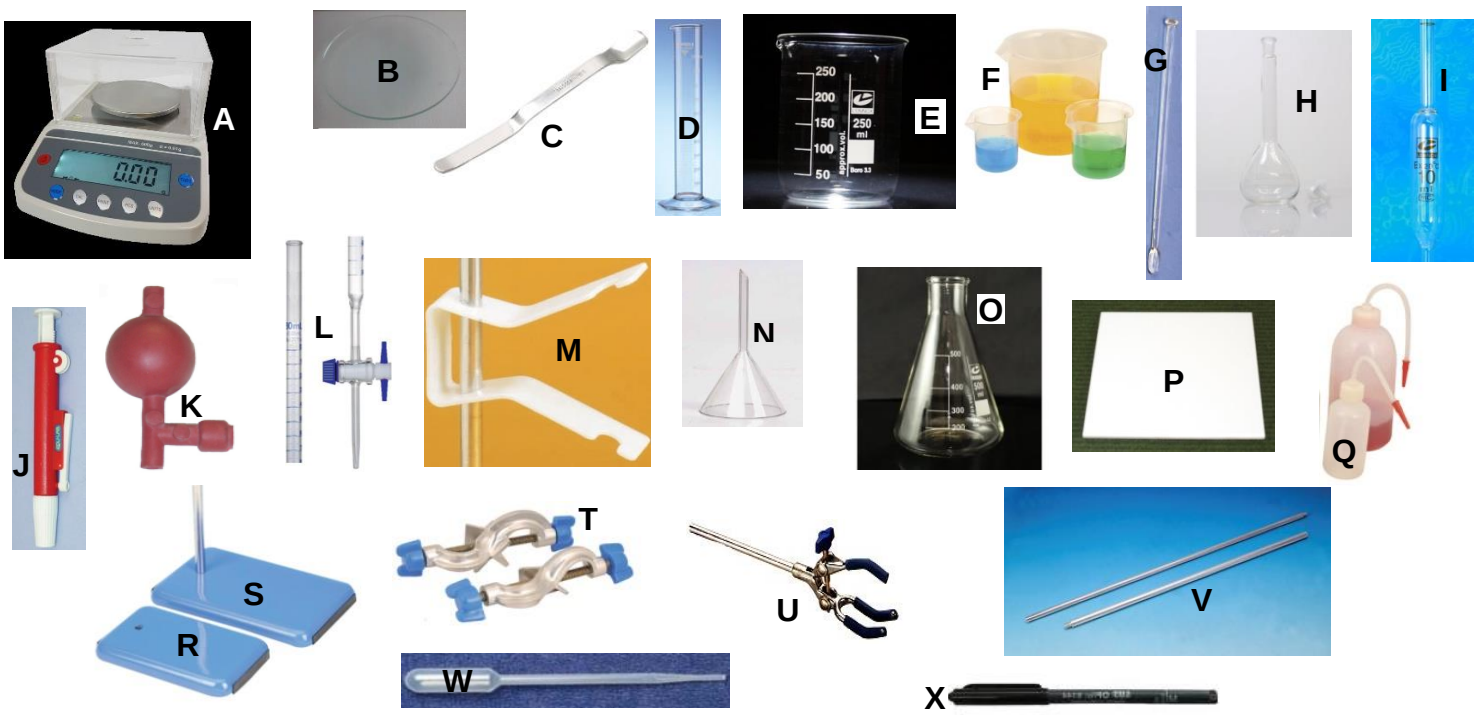
15.2: To determine the amount of iron in an iron tablet

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	S-602-106	Balance, Digital 2000g x 0.1g c/w mains adapter	Each	61.85	**76.08**		
B	S-CH0554E	Clock Glass 100mm	Pk/10	7.55	**9.29**		
C	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	11.30	**13.90**		
D	ACY126.26V-S	Graduated Cylinder, Glass 100cm^3	Each	5.20	**6.40**		
E	ABN110.40CPK12-S	Beaker, **Lennox** Borosilicate Glass 250cm^3	Pk/12	20.30	**24.97**		
F	S-616-009	Beaker PPR 250cm^3	Pk/10	7.75	**9.53**		
G	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	1.10	**1.35**		
H	AFL312.30VPK2	Volumetric Flask, 250cm^3	Pk/2	11.60	**14.27**		
I	APM102.40VPK10-S	Pipette, Bulb Type 25cm^3	Pk/10	39.55	**48.65**		
J	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm^3	Each	6.45	**7.93**		
K	S-C6586A/1	**or** Pipette Filler, Rubber Bulb Type	Each	5.95	**7.32**		
L	S-11780A	Burette, Glass with PTFE Stopcock 50cm^3	Each	19.35	**23.80**		
M	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	4.00	**4.92**		
N	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	5.10	**6.27**		
O	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
P	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	7.00	**8.61**		
Q	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		
R	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
S	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
T	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
U	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
V	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
W	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
X	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	25.80	**31.73**		
	CS3229P	Iron Tablets	Pk/15	5.65	**6.95**		
	CSA6883-M	Potassium Permanganate	500g	9.10	**11.19**		
	CRTSP0021612	Potassium Permanganate Solution 0.02M	2.5lt	21.80	**26.81**		
	CRTSS0871614	Sulfuric Acid Solution 1M	5lt	11.65	**14.33**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		

images for investigation 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	S-602-112	Balance, Digital 2000g x 0.01g c/w Mains Adapter	Each	145.15	**178.53**		
B	S-CH0554E	Clock Glass 100mm	Pk/10	7.55	**9.29**		
C	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	11.30	**13.90**		
D	ACY126.26V-S	Graduated Cylinder, Glass 100cm^3	Each	5.20	**6.40**		
E	ABN110.40CPK12-S	Beaker, **Lennox** Borosilicate Glass 250cm^3	Pk/12	20.30	**24.97**		
F	S-616-009	Beaker PPR 250cm^3	Pk/10	7.75	**9.53**		
G	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	1.10	**1.35**		
H	AFL312.30VPK2	Volumetric Flask, 250cm^3	Pk/2	11.60	**14.27**		
I	APM102.40VPK10-S	Pipette, Bulb Type 25cm^3	Pk/10	39.55	**48.65**		
J	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm^3	Each	6.45	**7.93**		
K	S-C6586A/1	**or** Pipette Filler, Rubber Bulb Type	Each	5.95	**7.32**		
L	S-11780A	Burette, Glass with PTFE Stopcock 50cm^3	Each	19.35	**23.80**		
M	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	4.00	**4.92**		
N	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	5.10	**6.27**		
O	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
P	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	7.00	**8.61**		
Q	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		
R	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
S	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
T	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
U	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
V	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
W	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
X	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	25.80	**31.73**		
	CSA8052-M	Sodium Thiosulfate	500g	4.45	**5.47**		
	CRTSP0021612	Potassium Permanganate Solution 0.02M	2.5lt	21.80	**26.81**		
	CRTSS0871614	Sulfuric Acid Solution 1M	5lt	11.65	**14.33**		
	CSA3794-M	Iodine Solution, 1% in Potassium Iodide	500ml	7.00	**8.61**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		



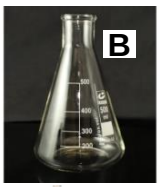
15.4: To determine the percentage (w/v) of hypochlorite in bleach

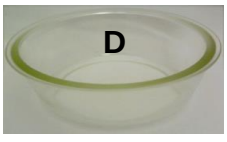
Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
I	APM102.40VPK10-S	Pipette, Bulb Type 25cm^3	Pk/10	39.55	**48.65**		
J	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm^3	Each	6.45	**7.93**		
K	S-C6586A/1	**or** Pipette Filler, Rubber Bulb Type	Each	5.95	**7.32**		
L	S-11780A	Burette, Glass with PTFE Stopcock 50cm^3	Each	19.35	**23.80**		
M	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	4.00	**4.92**		
N	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	5.10	**6.27**		
O	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
P	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	7.00	**8.61**		
Q	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		
R	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
S	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
T	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
U	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
V	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
W	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
E	S-616-009	Beaker PPR 250cm^3	Pk/10	7.75	**9.53**		
X	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	25.80	**31.73**		
	CRTSS0721614	Sodium Thiosulfate Solution 0.1M	5lt	23.25	**28.60**		
	CRTSS0871614	Sulfuric Acid Solution 1M	5lt	11.65	**14.33**		
	CSA6853-J	Potassium Iodide	100g	32.25	**39.67**		
	CC30315-500G	Potassium Iodide	500g	38.90	**47.85**		
	CSA3794-M	Iodine Solution, 1% in Potassium Iodide	500ml	7.00	**8.61**		
	SC96125	Bleach - Milton Fluid - Sodium Hypochlorite 2%w/v	1250ml	5.40	**6.64**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		

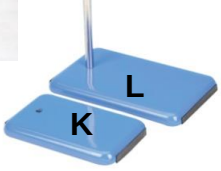
images for Experiment 15.4 items are the same as those for investigation 15.3 on previous page

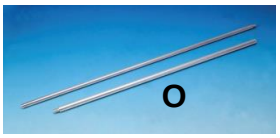
16.1: To monitor the rate of production of oxygen from hydrogen peroxide using manganese dioxide as a catalyst

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	SC40500	Gas Preparation Kit	Each	25.80	**31.73**		
B	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
C	S-RS31	Rubber Stopper, 1-Hole No.31. Fits 250ml conical flask	Pk/10	10.25	**12.61**		
D	SC62220	Pneumatic Trough, Glass, 200mmØ x 100mm Deep	Each	39.80	**48.95**		
E	ACY126.22V	Graduated Cylinder, Glass 50cm^3	Each	4.50	**5.54**		
F	ACY126.30V	Graduated Cylinder, Glass 250cm^3	Each	7.65	**9.41**		
G	S-BHSHL07	Beehive Shelf 75mm Ø	Each	2.70	**3.32**		
H	S-C750	Delivery Tubes 6mm. Set of 4	Each	10.25	**12.61**		
I	S-C758-5	Tubing, Rubber, 5mm bore - fits 5mm glass tubing	10Mt.	11.85	**14.58**		
J	SB55342	Tubing, PVC Plastic 3.5mmØ - fits rubber stopper hole	5 Mt.	4.30	**5.29**		
K	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
L	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
M	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
N	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
O	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
P	S-STPCLCK	Stopclock, 0-60 secs/mins. With start/stop/reset levers	Each	28.50	**35.06**		
Q	SC80736	Timer Digital, Counts Up/Down 99 mins x 1 second	Each	15.90	**19.56**		
	CSA3416-Q	Hydrogen Peroxide 20 volume 6%	2.5lt	11.70	**14.39**		
	CSA5199-M	Manganese Dioxide Powder	500g	15.15	**18.63**		
	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	11.30	**13.90**		



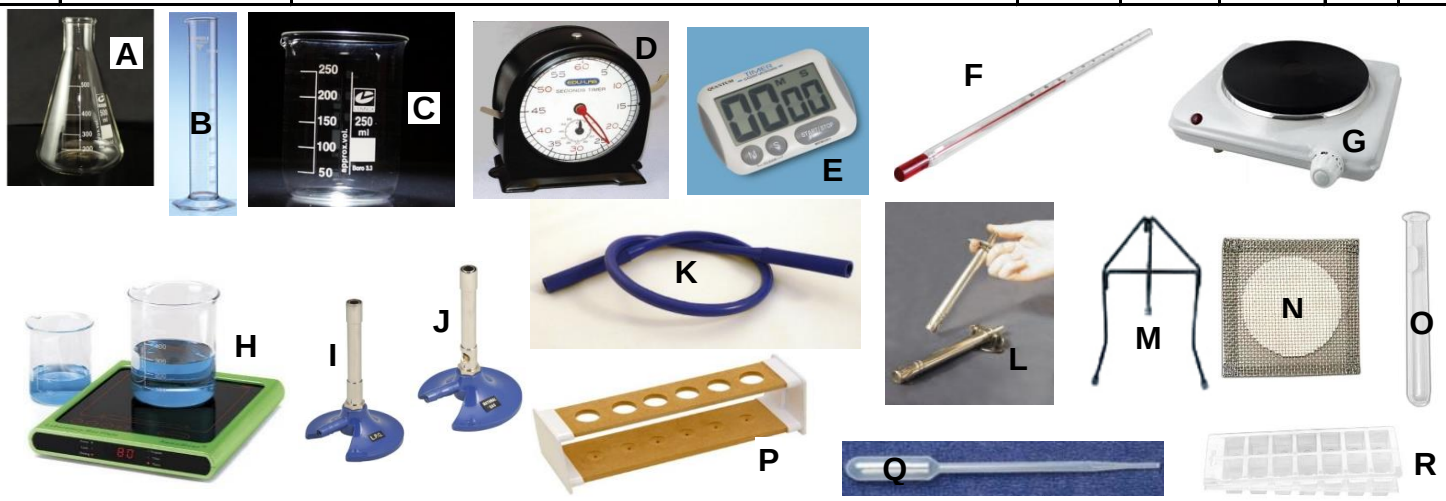






16.2: To study the effect of concentration on the reaction rate of sodium thiosulfate solution and hydrochloric acid

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
B	ACY126.26V-S	Graduated Cylinder, Glass 100cm^3	Each	5.20	**6.40**		
C	ABN110.40CPK12-S	Beaker, **Lennox** Borosilicate Glass 250cm^3	Pk/12	20.30	**24.97**		
D	S-STPCLCK	Stopclock, 0-60 secs/mins. With start/stop/reset levers	Each	28.50	**35.06**		
E	SC80736	Timer Digital, Counts Up/Down 99 mins x 1 second	Each	15.90	**19.56**		
	CHV4421M	Sodium Thiosulfate Solution 0.2M	1lt	26.05	**32.04**		
	CRTSH0201611	Hydrochloric Acid Solution 3M	1lt	24.20	**29.77**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		



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

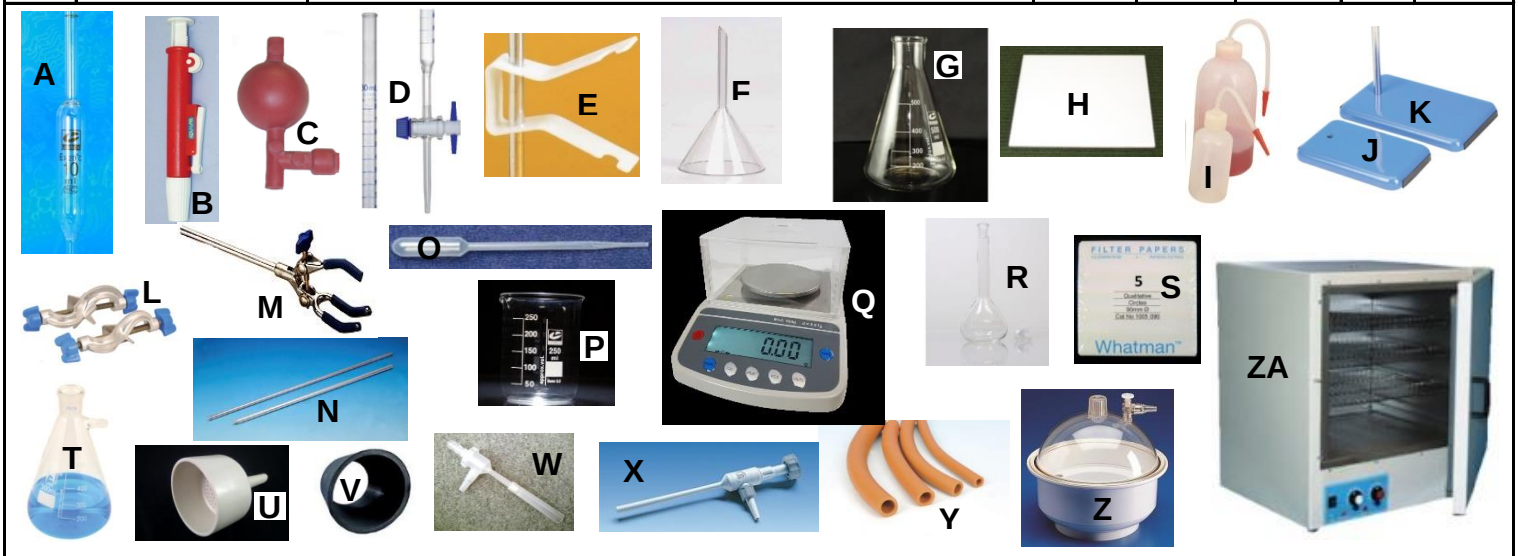
Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
B	ACY126.26V-S	Graduated Cylinder, Glass 100cm^3	Each	5.20	**6.40**		
C	ABN110.25CPK10	Beaker, **Lennox** Borosilicate Glass 50cm^3	Pk/10	15.30	**18.82**		
C	ABN110.30CPK10	Beaker, **Lennox** Borosilicate Glass 100cm^3	Pk/10	14.95	**18.39**		
F	AT69/114/3	Thermometer, Spirit -10°C to +110°C x 1°C	Each	3.15	**3.87**		
G	SC41920	Hotplate, Domestic Type 1500W	Each	32.80	**40.34**		
H	S-607-020	**or** Hotplate, Laboratory Type	Each	299.00	**367.77**		
I	S-EDU1080	**or** Bunsen Burner, LPG Bottle Gas	Each	12.90	**15.87**		
J	S-EDU1081	**or** Bunsen Burner, Natural Gas	Each	12.90	**15.87**		
K	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	9.15	**11.25**		
L	S-EDU080	Gas Lighter, Piezo Type	Each	9.15	**11.25**		
M	S-TRSTD200/1	Tripod Stand, 200 x 125mm - height x top side	Each	7.00	**8.61**		
N	S-GUZCR125	Wire Gauze, Ceramic Centre 125 x 125mm	Pk/10	10.75	**13.22**		
D	S-STPCLCK	Stopclock, 0-60 secs/mins. With start/stop/reset levers	Each	28.50	**35.06**		
E	SC80736	Timer Digital, Counts Up/Down 99 mins x 1 second	Each	15.90	**19.56**		
	CRTSS1141611	Sodium Thiosulfate Solution 0.05M	1lt	61.50	**75.65**		
	CRTSH0201611	Hydrochloric Acid Solution 3M	1lt	24.20	**29.77**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		

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	54.85	**67.47**		
P	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	7.55	**9.29**		
Q	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
B	ACY126.14V-S	Graduated Cylinder, Glass 10cm^3	Each	3.55	**4.37**		
R	SC66601	Ice Cube Tray (14-Cube)	Pk/2	2.15	**2.64**		
C	ABN110.40CPK12-S	Beaker, **Lennox** Borosilicate Glass 250cm^3	Pk/12	20.30	**24.97**		
	CSA3914-M	Iron (III) Chloride	500g	17.15	**21.09**		
	CSA6924-J	Potassium Thiocyanate	100g	13.90	**17.10**		
	CRTSH0201611	Hydrochloric Acid Solution 3M	1lt	24.20	**29.77**		

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-S	Pipette, Bulb Type 25cm^3	Pk/10	39.55	**48.65**		
B	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm^3	Each	6.45	**7.93**		
C	S-C6586A/1	**or** Pipette Filler, Rubber Bulb Type	Each	5.95	**7.32**		
D	S-11780A	Burette, Glass with PTFE Stopcock 50cm^3	Each	19.35	**23.80**		
E	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	4.00	**4.92**		
F	AFT140.20F	Funnel, Filter, Glass 50mm Ø	Each	5.10	**6.27**		
G	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
H	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	7.00	**8.61**		
I	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		
J	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
K	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
L	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
M	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
N	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
O	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
P	S-616-009	Beaker PPR 250cm^3	Pk/10	7.75	**9.53**		
	CSA2192-M	E.D.T.A di-Sodium	500g	20.55	**25.28**		
	CSA2050-G	Erichrome Black T	25g	10.15	**12.48**		
	CSA0840-M	Buffer Solution pH 10	500ml	4.55	**5.60**		
	CRTSW0021614A	Water, Deionised	5lt	9.95	**12.24**		

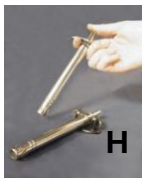


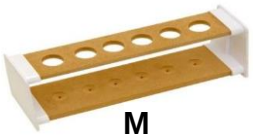
19.2a: To determine the total suspended solids (in p.p.m.) of a sample of water by filtration

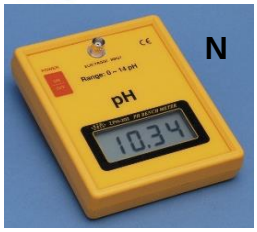
Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
Q	S-602-112	Balance, Digital 2000g x 0.01g c/w Mains Adapter	Each	145.15	**178.53**		
P	ABN110.60C	Beaker, **Lennox** Borosilicate Glass 1000cm^3	Each	4.60	**5.66**		
R	AFL312.30VPK2	Volumetric Flask, 250cm^3	Pk/2	11.60	**14.27**		
S	AW1005/090	Filter Paper 90mm - 2.5µm pore size for water analysis	Pk/100	18.30	**22.51**		
T	S-700-008	Buchner Flask 500cm^3	Each	11.85	**14.58**		
U	AFT804.34P-S	Buchner Funnel 90mm	Each	15.00	**18.45**		
V	ACX125.18	Flask Adaptor, Rubber - for Buchner Funnel to Bucnher Flask	Each	6.85	**8.43**		
W	SC35900	Vacuum Filter Pump, Polypropylene	Each	11.85	**14.58**		
X	APX180.10	**or** Vacuum Filter Pump (c/w adaptors to fit water tap)	Each	38.65	**47.54**		
Y	S-C758-6	Rubber Tubing 6.5mm bore - fit filter pump to Buchner arm	10 Mt.	14.00	**17.22**		
Y	S-C758-12	Rubber Tubing 12mm - fit filter pump SC35900 to water taps	10 Mt.	30.10	**37.02**		
J	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
K	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
L	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
M	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
N	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
Z	AKART550	Desiccator Polycarbonate 150mm Ø	Each	42.00	**51.66**		
ZA	S-507-102	Oven 50lt.	Each	775.00	**953.25**		
	CSA7663-M	Silica Gel	500g	13.50	**16.61**		

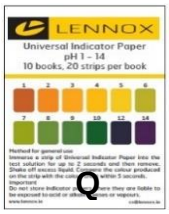
19.2b: To determine the total dissolved solids (in p.p.m.) of a sample of water by evaporation

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	S-602-112	Balance, Digital 2000g x 0.01g c/w Mains Adapter	Each	145.15	**178.53**		
B	ABN110.60C	Beaker, **Lennox** Borosilicate Glass 1000cm^3	Each	4.60	**5.66**		
C	SC41920	Hotplate, Domestic Type 1500W	Each	32.80	**40.34**		
D	S-607-020	**or** Hotplate, Laboratory Type	Each	299.00	**367.77**		
E	S-EDU1080	**or** Bunsen Burner, LPG Bottle Gas	Each	12.90	**15.87**		
F	S-EDU1081	**or** Bunsen Burner, Natural Gas	Each	12.90	**15.87**		
G	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	9.15	**11.25**		
H	S-EDU080	Gas Lighter, Piezo Type	Each	9.15	**11.25**		
I	S-TRSTD200/1	Tripod Stand, 200 x 125mm - height x top side	Each	7.00	**8.61**		
J	S-GUZCR125	Wire Gauze, Ceramic Centre 125 x 125mm	Pk/10	10.75	**13.22**		
K	ACY126.26V-S	Graduated Cylinder, Glass 100cm^3	Each	5.20	**6.40**		









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	54.85	**67.47**		
M	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	7.55	**9.29**		
N	SC58034	pH Meter, Digital - requires pH electrode below	Each	119.90	**147.48**		
O	SC58035	Electrode for pH Meter	Each	27.45	**33.76**		
P	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
Q	ATD140.30X	Indicator Paper pH 1-14	Each	4.45	**5.47**		
	CSA2644-J	Universal Indicator Solution pH 1-14	100ml	4.00	**4.92**		
	SSC-IN020	Universal Indicator Colour Charts pH 1-14	Pk/10	9.15	**11.25**		

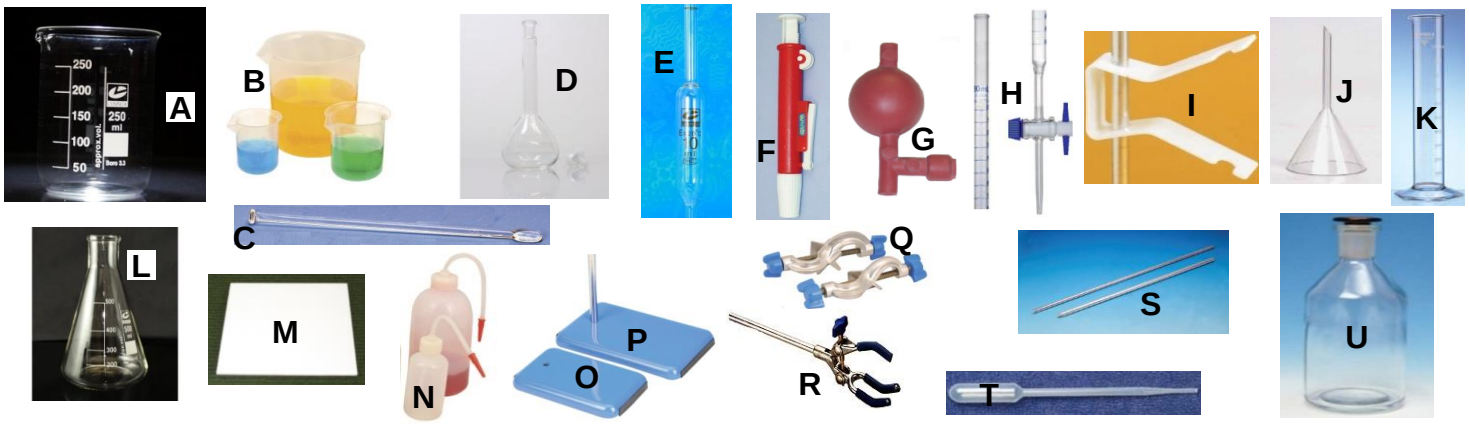
19.3: To measure the amount of dissolved oxygen in a sample of water by means of a redox titration

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	ABN110.40CPK12-S	Beaker, **Lennox** Borosilicate Glass 250cm^3	Pk/12	20.30	**24.97**		
B	S-616-009	Beaker PPR 250cm^3	Pk/10	7.75	**9.53**		
C	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	1.10	**1.35**		
D	AFL312.30VPK2	Volumetric Flask 250cm^3	Pk/2	11.60	**14.27**		
E	APM102.40VPK10-S	Pipette, Bulb Type 25cm^3	Pk/10	39.55	**48.65**		
F	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm^3	Each	6.45	**7.93**		
G	S-C6586A/1	**or** Pipette Filler, Rubber Bulb Type	Each	5.95	**7.32**		
H	S-11780A	Burette, Glass with PTFE Stopcock 50cm^3	Each	19.35	**23.80**		
I	ASL755.12	Burette Clamp PPR - spring type. Fits standard retort rod	Each	4.00	**4.92**		
J	AFT140.30F	Funnel, Filter, Glass 75mm Ø	Each	6.10	**7.50**		
K	ACY126.26V-S	Graduated Cylinder, Glass 100cm^3	Each	5.20	**6.40**		
L	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
M	S-EDU009	Spotting Tile, White Ceramic 150x150mm	Pk/5	7.00	**8.61**		
N	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		
O	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
P	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
Q	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
R	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
S	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
T	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
U	ABS402.42	Reagent Bottle 250cm^3	Each	6.80	**8.36**		
	CSA5201-L	Manganese (II) Sulfate	250g	7.50	**9.23**		

images for investigation 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	7.15	**8.79**		
	CSA6853-J	Potassium Iodide	100g	32.25	**39.67**		
	CC30315-500G	Potassium Iodide	500g	38.90	**47.85**		
	CSA8052-M	Sodium Thiosulfate	500g	4.45	**5.47**		
	CSA3794-M	Iodine Solution, 1% in Potassium Iodide	500ml	7.00	**8.61**		
	CC30743-2.5L	Sulfuric Acid, Concentrated	2.5lt	21.85	**26.88**		



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 Comparitor Kit 0-4 mg/l	Each	52.30	**64.33**		
B	SC98000	Colorimeter, Digital, - red 630nm, green 525nm & blue 465nm	Each	203.75	**250.61**		
C	ET511050BT	DPD Tablets No.1	Pk/100	10.10	**12.42**		
	CSA1176-M	Calcium Hypochlorite	500g	14.50	**17.84**		
	SC96125	Bleach - Milton Fluid - Sodium Hypochlorite 2%w/v	1250ml	5.40	**6.64**		

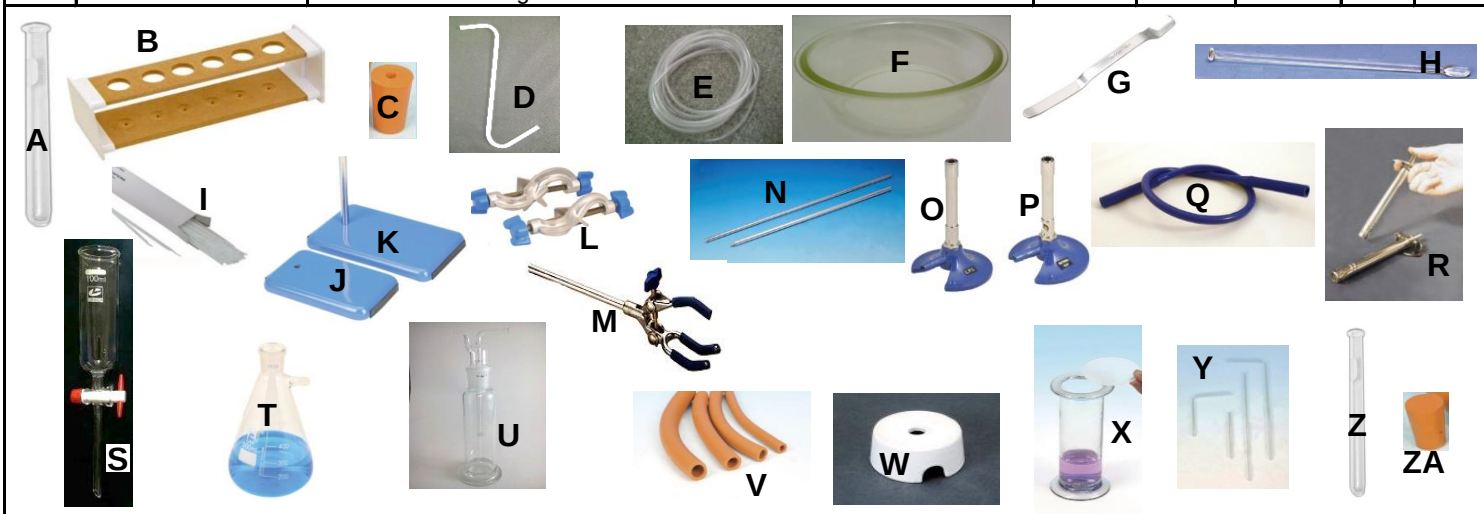
21.1: To prepare ethene and examine its properties

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	S-EDU1016	Test Tube Borosilicate Glass with Rim, 150 x 24mm Ø	Pk/50	43.55	**53.57**		
B	SC78642	Test Tube Rack 6-Hole 25mm - for 24mm Ø test tubes	Each	8.60	**10.58**		
C	S-RS21	Rubber Stopper, 1-Hole No.21. Fits 24mm Ø test tubes	Pk/10	4.30	**5.29**		
D	ADT002	Delivery Tube, PPR -double bend for rubber stopper	Pk/5	21.40	**26.32**		
E	SB55342	Tubing, PVC Plastic 3.5mmØ - fits rubber stopper hole	5 Mt.	4.30	**5.29**		
F	SC62220	Pneumatic Trough, Glass, 200mmØ x 100mm Deep	Each	39.80	**48.95**		
G	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	11.30	**13.90**		
H	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	1.10	**1.35**		
I	SC24160	Waxed Tapers	Pk/65	15.05	**18.51**		
J	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
K	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
L	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
M	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
N	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
O	S-EDU1080	Bunsen Burner, LPG Bottle Gas	Each	12.90	**15.87**		
P	S-EDU1081	**or** Bunsen Burner, Natural Gas	Each	12.90	**15.87**		
Q	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	9.15	**11.25**		
R	S-EDU080	Gas Lighter, Piezo Type	Each	9.15	**11.25**		
	CSA2935-L	Glass Wool	250g	60.50	**74.42**		
	CRTSE0021608	Ethanol 99% - Duty Paid	100ml	16.40	**20.17**		
	CRTSE0651610	Ethanol 99% - Duty Paid	500ml	69.60	**85.61**		

images for investigation 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) - *can only be supplied against form APT2 which is available from your local Customs and Excise office*	5lt	17.75	**21.83**		
	CSA0281-M	Aluminium Oxide	500g	7.80	**9.59**		
	CRTSL0101612	Lime Water	2.5lt	13.45	**16.54**		
	CRTSCHB0191608	Bromine Water	100ml	10.10	**12.42**		
	CSA6883-M	Potassium Permanganate	500g	9.10	**11.19**		
	CRTSP0021612	Potassium Permanganate Solution 0.02M	2.5lt	21.80	**26.81**		

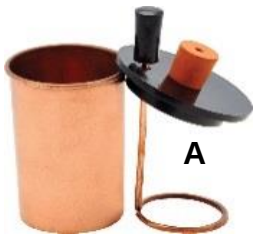


21.2: To prepare ethyne and examine its properties

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
S	SC40385	Dropping Funnel, with PTFE Stopcock 100cm^3	Each	21.50	**26.45**		
T	S-700-007	Buchner Flask 250cm^3	Each	9.15	**11.25**		
C	S-RS21	Rubber Stopper, 1-Hole No.21. Fits Buchner flask S-726-016	Pk/10	4.30	**5.29**		
U	SC42410	Gas Washing Bottle - Dreschel's Type 100cm^3	Each	42.50	**52.28**		
V	S-C758-5	Tubing, Rubber, 5mm bore - fits 5mm glass tubing	10Mt.	11.85	**14.58**		
F	SC62220	Pneumatic Trough, Glass, 200mmØ x 100mm Deep	Each	39.80	**48.95**		
W	S-BHSHL07	Beehive Shelf 75mm Ø	Each	2.70	**3.32**		
X	SC41960C	Gas Jar 15cm High x 50mmØ c/w Lid	Each	4.85	**5.97**		
D	ADT002	Delivery Tube, PPR -double bend for rubber stopper	Pk/5	21.40	**26.32**		
Y	S-C750	**or** Delivery Tubes. Set of 4	Each	10.25	**12.61**		
I	SC24160	Waxed Tapers	Pk/65	15.05	**18.51**		
G	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	11.30	**13.90**		
Z	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	54.85	**67.47**		
ZA	S-C314-13	Rubber Stopper, Solid No.13. Fits 16mm Ø test tubes	Pk/10	2.70	**3.32**		
B	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	7.55	**9.29**		
J	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
K	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
L	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
M	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
N	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
	CSA1145-J	Calcium Carbide - Calcium Dicarbide	100g	14.75	**18.14**		
	CSA1145-M	Calcium Carbide - Calcium Dicarbide	500g	43.60	**53.63**		
	CSA1511-M	Copper (II) Sulfate	500g	9.30	**11.44**		
	CRTSL0101612	Lime Water	2.5lt	13.45	**16.54**		
	CRTSCHB0191608	Bromine Water	100ml	10.10	**12.42**		
	CSA6883-M	Potassium Permanganate	500g	9.10	**11.19**		
	CRTSP0021612	Potassium Permanganate Solution 0.02M	2.5lt	21.80	**26.81**		

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	24.75	**30.44**		
B	AT69/115/7	Thermometer, Spirit -10°C to +50°C x 0.5°C	Each	3.40	**4.18**		
C	SRD85-3198	**or** Thermometer, Digital -50 to +150°C x 0.1 °C	Each	31.75	**39.05**		
D	ACY126.26V-S	Graduated Cylinder, Glass 100cm^3	Each	5.20	**6.40**		
	CRTSH0121614	Hydrochloric Acid 1M	5lt	15.75	**19.37**		
	CRTSS0391614	Sodium Hydroxide Solution 1M	5lt	10.50	**12.92**		



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

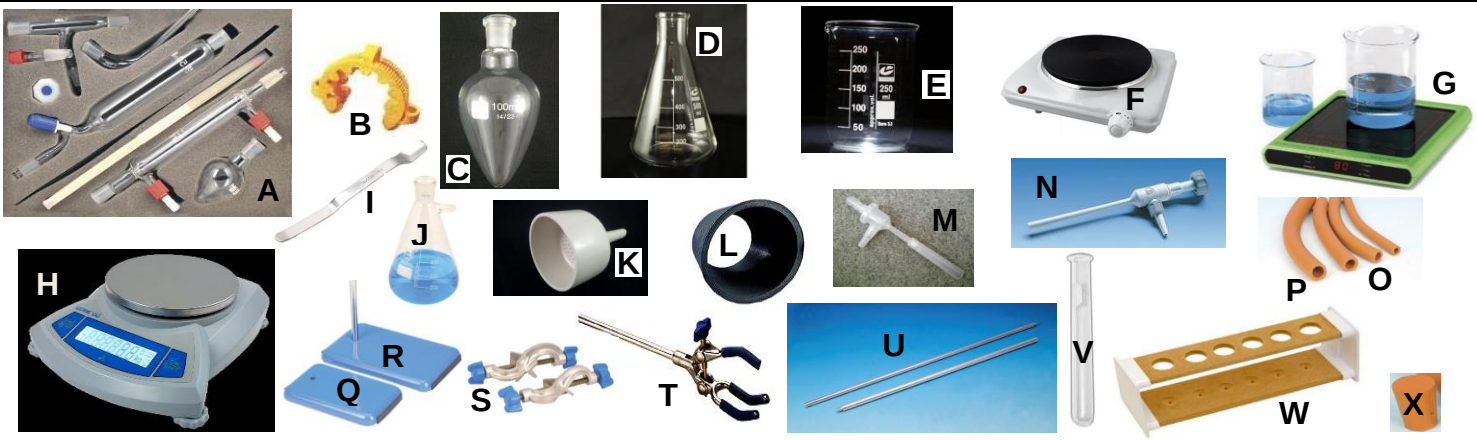
Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
E	SC41920	Hotplate, Domestic Type 1500W	Each	32.80	**40.34**		
F	S-607-020	**or** Hotplate, Laboratory Type	Each	299.00	**367.77**		
G	S-PH0458	Steam Boiler, Copper 1.5lt	Each	29.60	**36.41**		
H	S-C758-6	Tubing, Rubber 6.5mm bore - fits Liebig Condenser	10 Mt.	14.00	**17.22**		
I	S-PH0466	Steam Trap	Each	4.85	**5.97**		
J	S-CH0876	Jointed Glass Set, 27BU 14/23	Each	87.10	**107.13**		
K	ACC210-14-S	Quickfit Joint Clip 14/23	Pk/10	18.75	**23.06**		
L	ACY126.26V-S	Graduated Cylinder, Glass 100cm^3	Each	5.20	**6.40**		
M	SC96150	Cloves	30g	4.85	**5.97**		

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-S	Separating Funnel 100ml	Pk/2	44.15	**54.30**		
O	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
P	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
Q	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
R	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
S	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
T	ABN110.40CPK12-S	Beaker, **Lennox** Borosilicate Glass 250cm^3	Pk/12	20.30	**24.97**		
U	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
V	ACY126.14V-S	Graduated Cylinder, Glass 10cm^3	Each	3.55	**4.37**		
W	S-616-020	Filter Funnel, Polypropylene 75mm Ø	Pk/10	6.70	**8.24**		
X	S-FLP150	Filter Paper, Student Grade, 150mm Ø	Pk/100	5.40	**6.64**		
Y	AFT140.30F	Funnel, Filter, Glass 75mm Ø	Each	6.10	**7.50**		
E	SC41920	Hotplate, Domestic Type 1500W	Each	32.80	**40.34**		
F	S-607-020	**or** Hotplate, Laboratory Type	Each	299.00	**367.77**		
Z	S-602-106	Balance, Digital 2000g x 0.1g c/w mains adapter	Each	61.85	**76.08**		
	CSA1572-M	Cyclohexane	500ml	12.55	**15.44**		
	CSA5157-M	Magnesium Sulfate Dried	500g	10.65	**13.10**		

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	87.10	**107.13**		
B	ACC210-14-S	Quickfit Joint Clip 14/23	Pk/10	18.75	**23.06**		
C	APSF100-14/23-S	Pear Shaped Flask 100cm^3 14/23	Each	16.10	**19.80**		
D	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
E	ABN110.40CPK12-S	Beaker, **Lennox** Borosilicate Glass 250cm^3	Pk/12	20.30	**24.97**		
E	ABN110.55CPK6-S	Beaker, **Lennox** Borosilicate Glass 800cm^3	Pk/6	14.65	**18.02**		
F	SC41920	Hotplate, Domestic Type 1500W	Each	32.80	**40.34**		
G	S-607-020	**or** Hotplate, Laboratory Type	Each	299.00	**367.77**		
H	S-602-106	Balance, Digital 2000g x 0.1g c/w mains adapter	Each	61.85	**76.08**		
I	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	11.30	**13.90**		
J	S-700-008	Buchner Flask 500cm^3	Each	11.85	**14.58**		
K	AFT804.34P-S	Buchner Funnel 90mm	Each	15.00	**18.45**		
L	ACX125.18	Flask Adaptor, Rubber - for Buchner Funnel to Bucnher Flask	Each	6.85	**8.43**		
M	SC35900	Vacuum Filter Pump, Polypropylene	Each	11.85	**14.58**		
N	APX180.10	**or** Vacuum Filter Pump (c/w adaptors to fit water tap)	Each	38.65	**47.54**		
O	S-C758-6	Rubber Tubing 6.5mm bore - fit filter pump to Buchner arm	10 Mt.	14.00	**17.22**		
P	S-C758-12	Rubber Tubing 12mm - fit filter pump SC35900 to water taps	10 Mt.	30.10	**37.02**		
Q	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
R	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
S	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
T	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
U	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
V	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	54.85	**67.47**		
W	S-C314-13	Rubber Stopper, Solid No.13. Fits 16mm Ø test tubes	Pk/10	2.70	**3.32**		
X	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	7.55	**9.29**		
	SC96130	Vegetable Oil	1lt	5.95	**7.32**		
	CSA7889-M	Sodium Hydroxide	500g	7.15	**8.79**		
	CRTSE0021608	Ethanol 99% - Duty Paid	100ml	16.40	**20.17**		
	CRTSE0651610	Ethanol 99% - Duty Paid	500ml	69.60	**85.61**		
	CRTSI0331614	Methylated Spirits Clear (IMS) - *can only be supplied against form APT2 which is available from your local Customs and Excise office*	5lt	17.75	**21.83**		
	CSA7783-N	Sodium Chloride	1kg	8.70	**10.70**		
	CSA0495-L	Anti Bumping Granules	250g	16.30	**20.05**		



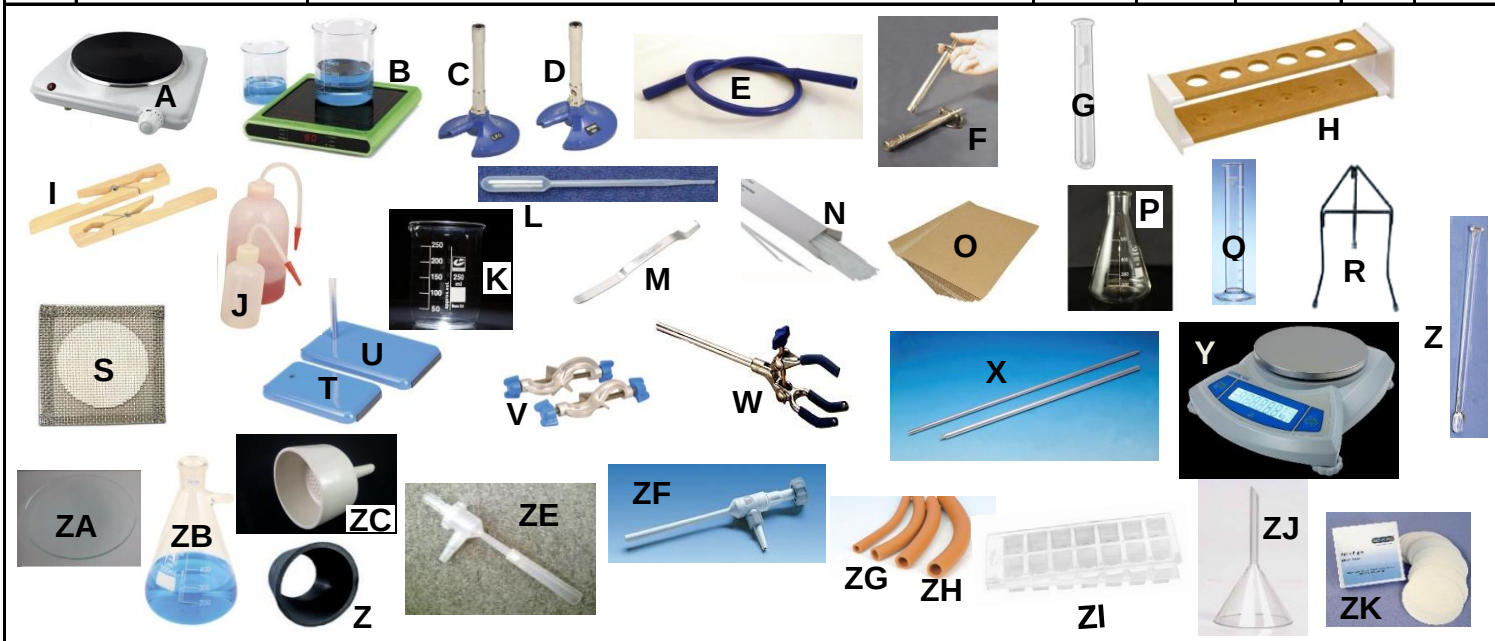
23.2a: To study the reactions of ethanal with (i) acidified potassium permanganate solution, (ii) Fehling's reagent and (iii) ammoniacal silver nitrate

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
A	SC41920	Hotplate, Domestic Type 1500W	Each	32.80	**40.34**		
B	S-607-020	**or** Hotplate, Laboratory Type	Each	299.00	**367.77**		
C	S-EDU1080	**or** Bunsen Burner, LPG Bottle Gas	Each	12.90	**15.87**		
D	S-EDU1081	**or** Bunsen Burner, Natural Gas	Each	12.90	**15.87**		
E	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	9.15	**11.25**		
F	S-EDU080	Gas Lighter, Piezo Type	Each	9.15	**11.25**		
G	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	54.85	**67.47**		
H	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	7.55	**9.29**		
I	SC78340C	Test Tube Holder, Peg Type	Pk/10	7.00	**8.61**		
J	S-CH0180B	Wash Bottle 250cm^3	Pk/5	6.45	**7.93**		

images for investigation 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	16.15	**19.86**		
L	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
	CE800004	Ethanal	500ml	50.70	**62.36**		
	CSA6883-M	Potassium Permanganate	500g	9.10	**11.19**		
	CRTSP0021612	Potassium Permanganate Solution 0.02M	2.5lt	21.80	**26.81**		
	CRTSS0871614	Sulfuric Acid Solution 1M	5lt	11.65	**14.33**		
	CSA2325-M	Fehlings Solution No.1	500ml	3.70	**4.55**		
	CSA2327-M	Fehlings Solution No.2	500ml	5.55	**6.83**		
	CC35375-1L	Silver Nitrate Solution 0.1M	1lt	23.99	**29.51**		
	CSA7889-M	Sodium Hydroxide	500g	7.15	**8.79**		
	CRTSA1361611	Ammonia Solution 3M	1lt	61.50	**75.65**		



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	32.80	**40.34**		
B	S-607-020	**or** Hotplate, Laboratory Type	Each	299.00	**367.77**		
C	S-EDU1080	**or** Bunsen Burner, LPG Bottle Gas	Each	12.90	**15.87**		
D	S-EDU1081	**or** Bunsen Burner, Natural Gas	Each	12.90	**15.87**		
E	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	9.15	**11.25**		
F	S-EDU080	Gas Lighter, Piezo Type	Each	9.15	**11.25**		
G	S-EDU1014	Test Tube Borosilicate Glass with Rim, 125 x 16mm Ø	Pk/100	54.85	**67.47**		
H	S-EDU762/1	Test Tube Rack, Wooden, 6-hole	Each	7.55	**9.29**		
I	SC78340C	Test Tube Holder, Peg Type	Pk/10	7.00	**8.61**		
K	ABN110.45CPK10	Beaker, **Lennox** Borosilicate Glass 400cm^3	Pk/10	16.15	**19.86**		
L	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
M	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	11.30	**13.90**		
N	SC24160	Waxed Tapers	Pk/65	15.05	**18.51**		
O	SC82729	Sandpaper, Mixed Fine, Medium, Coarse Grades	Pk/30	3.25	**4.00**		
	CSA7775-N	Sodium Carbonate $10H_20$	1kg	6.30	**7.75**		
	CRTSA0031611	Ethanoic Acid 1M	1lt	61.50	**75.65**		
	CSA5117-G	Magnesium Ribbon	25g	9.75	**11.99**		
	CHV5308M	Sodium Hydroxide Solution 2M	1lt	26.05	**32.04**		
	CSA7889-M	Sodium Hydroxide	500g	7.15	**8.79**		
	CRTSE0021608	Ethanol 99% - Duty Paid	100ml	16.40	**20.17**		
	CRTSE0651610	Ethanol 99% - Duty Paid	500ml	69.60	**85.61**		
	CRTSI0331614	Methylated Spirits Clear (IMS) - can only be supplied against form APT2 which is available from your local Customs and Excise office	5lt	17.75	**21.83**		
	CC30743-2.5L	Sulfuric Acid, Concentrated	2.5lt	21.85	**26.88**		
	CSA6619-J	Phenolphthalein Indicator Solution	100ml	3.50	**4.31**		

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
		images for investigation 23.3 items on previous page					
L	A711116	Dropper Plastic Graduated 3cm^3	Pk/500	9.45	**11.62**		
M	S-SPNUF140/PK10	Spatula, Nuffield Pattern. Stainless Steel	Pk/10	11.30	**13.90**		
P	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
Q	ACY126.14V-S	Graduated Cylinder, Glass 10cm^3	Each	3.55	**4.37**		
Q	ACY126.18V	Graduated Cylinder, Glass 25cm^3	Each	3.85	**4.74**		
K	ABN110.60C	Beaker, **Lennox** Borosilicate Glass 1000cm^3	Each	4.60	**5.66**		
A	SC41920	Hotplate, Domestic Type 1500W	Each	32.80	**40.34**		
B	S-607-020	**or** Hotplate, Laboratory Type	Each	299.00	**367.77**		
C	S-EDU1080	**or** Bunsen Burner, LPG Bottle Gas	Each	12.90	**15.87**		
D	S-EDU1081	**or** Bunsen Burner, Natural Gas	Each	12.90	**15.87**		
E	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	9.15	**11.25**		
F	S-EDU080	Gas Lighter, Piezo Type	Each	9.15	**11.25**		
R	S-TRSTD200/1	Tripod Stand, 200 x 125mm - height x top side	Each	7.00	**8.61**		
S	S-GUZCR125	Wire Gauze, Ceramic Centre 125 x 125mm	Pk/10	10.75	**13.22**		
T	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
U	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
V	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
W	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
X	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
Y	S-602-106	Balance, Digital 2000g x 0.1g c/w mains adapter	Each	61.85	**76.08**		
Z	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	1.10	**1.35**		
ZA	S-CH0554E	Clock Glass 100mm	Pk/10	7.55	**9.29**		
ZB	S-700-008	Buchner Flask 500cm^3	Each	11.85	**14.58**		
ZC	AFT804.34P-S	Buchner Funnel 90mm	Each	15.00	**18.45**		
ZD	ACX125.18	Flask Adaptor, Rubber - for Buchner Funnel to Bucnher Flask	Each	6.85	**8.43**		
ZE	SC35900	Vacuum Filter Pump, Polypropylene	Each	11.85	**14.58**		
ZF	APX180.10	**or** Vacuum Filter Pump (c/w adaptors to fit water tap)	Each	38.65	**47.54**		
ZG	S-C758-6	Rubber Tubing 6.5mm bore - fit filter pump to Buchner arm	10 Mt.	14.00	**17.22**		
ZH	S-C758-12	Rubber Tubing 12mm - fit filter pump SC35900 to water taps	10 Mt.	30.10	**37.02**		
ZI	SC66601	Ice Cube Tray (14-Cube)	Pk/2	2.15	**2.64**		
	CLL103292.0B	Phenylmethanol (Benzyl Alcohol)	1lt	38.07	**46.83**		
	CSA6883-M	Potassium Permanganate	500g	9.10	**11.19**		
	CSA7775-N	Sodium Carbonate $10H_20$	1kg	6.30	**7.75**		
	CC07102-2.5L	Hydrochloric Acid, Concentrated	2.5lt	21.05	**25.89**		
	CSA8032-M	Sodium Sulfite Anhydrous	500g	15.20	**18.70**		

23.4a: To recrystallise a sample of benzoic acid

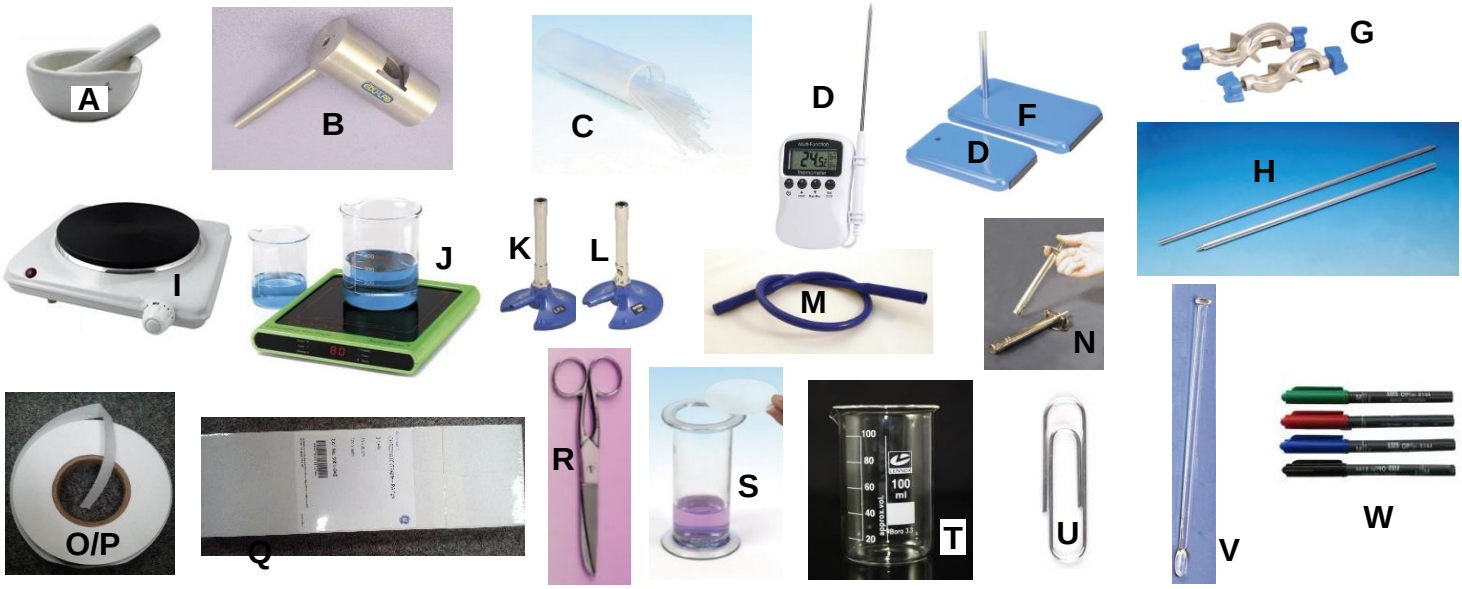
Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
		images for investigation 23.4a items on previous page					
P	AFK202.30CPK6-S	Conical Flask, 250cm^3	Pk/6	11.70	**14.39**		
Q	ACY126.14V-S	Graduated Cylinder, Glass 10cm^3	Each	3.55	**4.37**		
Z	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	1.10	**1.35**		
A	SC41920	Hotplate, Domestic Type 1500W	Each	32.80	**40.34**		
B	S-607-020	**or** Hotplate, Laboratory Type	Each	299.00	**367.77**		
C	S-EDU1080	**or** Bunsen Burner, LPG Bottle Gas	Each	12.90	**15.87**		
D	S-EDU1081	**or** Bunsen Burner, Natural Gas	Each	12.90	**15.87**		
E	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	9.15	**11.25**		
F	S-EDU080	Gas Lighter, Piezo Type	Each	9.15	**11.25**		
R	S-TRSTD200/1	Tripod Stand, 200 x 125mm - height x top side	Each	7.00	**8.61**		
S	S-GUZCR125	Wire Gauze, Ceramic Centre 125 x 125mm	Pk/10	10.75	**13.22**		
ZJ	AFT140.35F	Filter Funnel, Glass 100mm Ø	Each	6.60	**8.12**		
ZK	S-FLP150	Filter Paper, Student Grade, 150mm Ø	Pk/100	5.40	**6.64**		
T	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
U	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
V	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
W	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
X	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
K	ABN110.60C	Beaker, **Lennox** Borosilicate Glass 1000cm^3	Each	4.60	**5.66**		
ZI	SC66601	Ice Cube Tray (14-Cube)	Pk/2	2.15	**2.64**		
ZA	S-CH0554E	Clock Glass 100mm	Pk/10	7.55	**9.29**		
ZB	S-700-008	Buchner Flask 500cm^3	Each	11.85	**14.58**		

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

Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
		images for investigation 23.4a items on previous pages					
ZD	ACX125.18	Flask Adaptor, Rubber - for Buchner Funnel to Bucnher Flask	Each	6.85	**8.43**		
ZE	SC35900	Vacuum Filter Pump, Polypropylene	Each	11.85	**14.58**		
ZF	APX180.10	**or** Vacuum Filter Pump (c/w adaptors to fit water tap)	Each	38.65	**47.54**		
ZG	S-C758-6	Rubber Tubing 6.5mm bore - fit filter pump to Buchner arm	10 Mt.	14.00	**17.22**		
ZH	S-C758-12	Rubber Tubing 12mm - fit filter pump SC35900 to water taps	10 Mt.	30.10	**37.02**		
Y	S-602-106	Balance, Digital 2000g x 0.1g c/w mains adapter	Each	61.85	**76.08**		

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-S	Mortar and Pestle 100mm	Each	5.35	**6.58**		
B	S-EDU990T	Melting Point Apparatus, Aluminium Block Type	Each	24.75	**30.44**		
C	S-CH0882	Capillary Tubes - spot chromatography paper & plate	Pk/100	5.95	**7.32**		
D	SRD85-3198	Thermometer, Digital -50 to +150 °C x 0.1 °C	Each	31.75	**39.05**		
E	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
F	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
G	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
H	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
I	SC41920	Hotplate, Domestic Type 1500W	Each	32.80	**40.34**		
J	S-607-020	**or** Hotplate, Laboratory Type	Each	299.00	**367.77**		
K	S-EDU1080	**or** Bunsen Burner, LPG Bottle Gas	Each	12.90	**15.87**		
L	S-EDU1081	**or** Bunsen Burner, Natural Gas	Each	12.90	**15.87**		
M	S-704-016/1	Bunsen Burner Tubing, Neoprene - reinforced ends 600mm	Each	9.15	**11.25**		
N	S-EDU080	Gas Lighter, Piezo Type	Each	9.15	**11.25**		
	CSA0664-L	Benzoic Acid	250g	17.45	**21.46**		

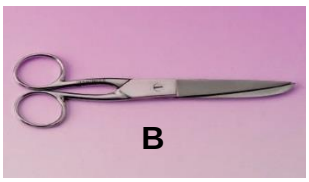


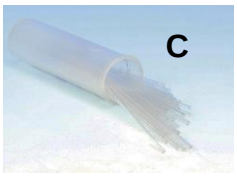
23.5a: To separate the components of ink using paper chromatography

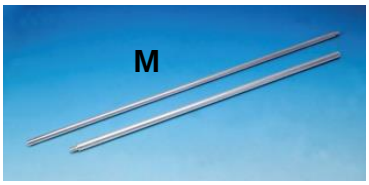
Image	Product Reference	Description	Pack Size	Price EX-VAT	Price INC-VAT	Qty	Total
O	AW3001/614	Chromatography Paper Roll, 20mm x 100 metres	Each	42.25	**51.97**		
P	AW3001/640	**or** Chromatography Paper Roll, 30mm x 100 metres	Each	53.95	**66.36**		
Q	AW3001/845	**or** Chromatography Paper Sheet, 100mm x 300mm	Pk/100	63.25	**77.80**		
R	SC83220	Scissors, General Purpose 175mm	Each	6.45	**7.93**		
S	SC41960C	Gas Jar 15cm High x 50mmØ c/w Lid	Each	4.85	**5.97**		
T	ABN125.50CPK6	Beaker, **Pyrex** Borosilicate Glass, Tall Form 600cm^3	Pk/6	26.05	**32.04**		
U	ST10000	Paper Clips 32mm	Pk/1000	5.40	**6.64**		
V	S-CH0755A	Stirring Rod, Glass - Length 150mm	Each	1.10	**1.35**		
W	SP06520	Pen, Medium Permanent. For general glassware marking	Pk/10	25.80	**31.73**		
	CC24229-2.5L	Methanol	2.5lt	18.30	**22.51**		
	CRTSE0021608	Ethanol 99% - Duty Paid	100ml	16.40	**20.17**		
	CRTSE0651610	Ethanol 99% - Duty Paid	500ml	69.60	**85.61**		
	CRTSI0331614	Methylated Spirits Clear (IMS) - *can only be supplied against form APT2 which is available from your local Customs and Excise office*	5lt	17.75	**21.83**		
	CSA0841-M	Butan-1-ol	500ml	22.20	**27.31**		
	CC32201-2.5L	Propanone	2.5lt	20.75	**25.52**		

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	43.80	**53.87**		
B	SC83220	Scissors, General Purpose 175mm	Each	6.45	**7.93**		
C	S-CH0882	Capillary Tubes- spot chromatography paper & plate	Pk/100	5.95	**7.32**		
D	ABN110.20CPK10	Beaker, **Lennox** Borosilicate Glass 25cm^3	Pk/10	11.85	**14.58**		
E	SC96160	Food Colouring - available in red or green	25ml	2.15	**2.64**		
	CC24229-2.5L	Methanol	2.5lt	18.30	**22.51**		







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	9.45	**11.62**		
B	SC83220	Scissors, General Purpose 175mm	Each	6.45	**7.93**		
G	SS79000	Cotton Wool Absorbent Roll	500g	10.75	**13.22**		
H	SC78340C	Test Tube Holder, Peg Type	Pk/10	7.00	**8.61**		
I	S-BASE160T	**Base** for Retort Stand 160 x 100mm	Each	10.75	**13.22**		
J	S-BASE200T	**or Base** for Retort Stand 200 x 125mm	Each	12.40	**15.25**		
K	S-CH0663B/Single	**Bosshead** for Retort Stand	Each	2.70	**3.32**		
L	S-CLMP3P	**Clamp** with Rubber Jaws for Retort Stand	Each	7.55	**9.29**		
M	S-RDMS0600	**Rod** for Retort Stand. Mild Steel. Length: 600mm	Each	5.40	**6.64**		
D	ABN110.20CPK10	Beaker, Borosilicate Glass 25cm^3	Pk/10	11.85	**14.58**		
	CC24229-2.5L	Methanol	2.5lt	18.30	**22.51**		

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	2.70	**3.32**		
B	ASA962.10	Safety Goggles	Each	4.95	**6.09**		
C	S-506-055	Safety Visor	Each	38.70	**47.60**		
D	ASA350.20	Gloves, Disposable Polythene	Pk/100	2.30	**2.83**		
E	ASA382.15X	Gloves, Surgical Type, Small	Pk/100	3.40	**4.18**		
E	ASA382.20X	Gloves, Surgical Type, Medium	Pk/100	3.40	**4.18**		
E	ASA382.25X	Gloves, Surgical Type, Large	Pk/100	3.40	**4.18**		
F	SF-A79510	Gloves Leather Heat Resistant	Each	16.15	**19.86**		
G	ASA800.10	Dust Mask	Pk/50	3.20	**3.94**		
H	SC64962	Laboratory Coat Small 36/38"	Each	15.60	**19.19**		
H	SC64962A	Laboratory Coat Medium 40/41"	Each	15.60	**19.19**		
H	SC64963A	Laboratory Coat Large 42/44"	Each	15.60	**19.19**		
H	SC64965	Laboratory Coat X-Large 46/48"	Each	15.60	**19.19**		
I	S-EDU994	Safety Screen Perspex 3-Panel (225/300/225mm x 610mm high)	Each	77.95	**95.88**		
J	A5421726	Eye Wash Bottle, Empty. Capacity: 600cm^3	Each	16.05	**19.74**		
K	SC67120	Eye Wash Station Wall Mounting c/w 2 x 500cm^3 bottles	Each	44.10	**54.24**		
L	SC67210	First Aid Kit, 10 Person	Each	26.40	**32.47**		
L	SC67212	First Aid Kit, 20 Person	Each	40.20	**49.45**		
L	SC67215	First Aid Kit, 50 Person	Each	56.60	**69.62**		
M	SC67250	First Aid Cabinet Wall Mounting Lockable - with 20 person kit	Each	125.00	**153.75**		
N	SC67302	Fire Blanket	Each	19.35	**23.80**		
O	SF-L75796	Flammable Liquids Storage Cabinet 610x459x459mm - including carriage	Each	342.95	**421.83**		
O	SF-L76272	Flammable Liquids Storage Cabinet 915x459x459mm - including carriage	Each	413.90	**509.10**		
O	SF-L76296	Flammable Liquids Storage Cabinet 712x915x459mm - including carriage	Each	496.65	**610.88**		
O	SF-L76302	Flammable Liquids Storage Cabinet 915x915x459mm - including carriage	Each	520.30	**639.97**		
O	SF-L76314	Flammable Liquids Storage Cabinet 1220x915x459mm - including carriage	Each	614.90	**756.33**		
O	SF-L76326	Flammable Liquids Storage Cabinet 1525x915x459mm - including carriage	Each	659.00	**810.57**		
O	SF-L76338	Flammable Liquids Storage Cabinet 1830x915x459mm - including carriage	Each	685.85	**843.60**		
P	SF-L76855	Corrosives Storage Cabinet 610x459x459mm - including carriage	Each	376.25	**462.79**		
P	SF-L76867	Corrosives Storage Cabinet 915x459x459mm - including carriage	Each	428.95	**527.61**		
P	SF-L76880	Corrosives Storage Cabinet 712x915x459mm - including carriage	Each	521.40	**641.32**		
P	SF-L76892	Corrosives Storage Cabinet 915x915x459mm - including carriage	Each	544.50	**669.74**		
P	SF-L76909	Corrosives Storage Cabinet 1220x915x459mm - including carriage	Each	639.10	**786.09**		
P	SF-L76910	Corrosives Storage Cabinet 1525x915x459mm - including carriage	Each	684.80	**842.30**		
P	SF-L76922	Corrosives Storage Cabinet 1830x915x459mm - including carriage	Each	696.10	**856.20**		
	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	74.75	**91.94**		
R	SC61800	Pipette Filler, Pi-Pump Wheel Type. Capacity: 25cm^3	Each	6.45	**7.93**		
S	S-C6586A/1	Pipette Filler Rubber Bulb Type	Each	5.95	**7.32**		

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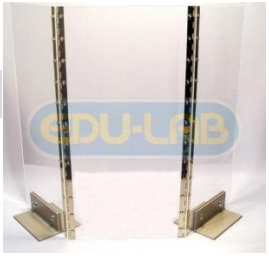

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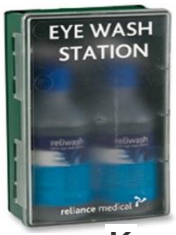

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