



CHEMISTRY Equipment List, Specifications and Tendering Guidance – Chemistry laboratory (CHE)			
Code	Qty/ number of individual units	Description	Catalogue No.
		Section 1: Basic Equipment	
CHEM/100	2	Aluminium metal sheets, 600 x 300 mm, c. 0.8 mm thick, pack 10	
CHEM/101	4	Balance, electronic, digital display, top-loading, with serial interface: 0 – 300 g ´ 0.001 g (i.e. to 3 decimal places = 1 mg), two year warranty.	
CHEM/102	2	Mounted bulb-holders, medium, Edison screw, pack 10	
CHEM/103	10	Bulbs, medium, Edison screw, 3.0 V, 0.3 A, pack 10	
CHEM/104	12	Burette clamp, single, to suit 50 cm ³ burettes, to suit 10 mm retort stand rods	
CHEM/105	3	Burette storage racks, 10 slots	
CHEM/106	6	Bunsen burner , with tap at side to control the flame (TELSU), semi micro, nickel-plated burner tube with adjustable air regulator on enamelled pressed steel base, tapered rifled gas inlet (mean OD 10 mm), burner tube 60 x 10 mm (height x diameter), base 80 mm diameter, suitable for LPG or natural gas, as required by school.	
CHEM/107	6	Tripod stand, triangular top, low form, for use with semi micro Bunsen burners (above), length of side 125 mm, height 154 mm	
CHEM/108	1	Electrode Carbon Rod, 100x5mm, (Pack of 50)	
CHEM/109	12	Copper plate electrodes, supplied as pair, with stoppers and terminals	
CHEM/110	12	Carbon electrodes (pair), with stoppers and terminals.	
CHEM/111	12	Variety of metal electrode plates for simple cells	
CHEM/112	2	Pipette Stand, 18 slots	
CHEM/113	2	Colorimeter, general purpose laboratory, wavelength selection (range 400-710 nm) using 8 built-in filters, (typical band widths 40 nm), d.c. (12 V) and a.c. 230 V, 50 Hz, digital, LCD display, complete with cuvettes, two-year warranty.	
CHEM/114	6	Comparator, Lovibond 2000 or equivalent, to determine chemical concentrations in water samples by visual colorimetry	

CHEM/115	6	Lighting unit, standardised, mains operated, 230 V, suitable for use with Lovibond comparator, or equivalent, above	
CHEM/116	6	Cell, 40 mm, rectangular moulded cell, calibrated at 20 cm ³ for use with comparator, above	
CHEM/117	2	Cell, 13.5 mm, moulded glass, precision square, capacity 10 cm ³ for use with comparator above, pack of 5	
CHEM/118	6	Discs for comparator 2000 system above, or equivalent to determine Chlorine in water, 0.02 to 0.3 mg/litre	
CHEM/119	12	Indicator pH test paper and litmus paper reels; each reel contains a paper strip 5 m long x 6 mm wide, supply as: reel x universal indicator test paper pH 1-14, reel of litmus blue and a reel of litmus red	
CHEM/120	12	Set of Narrow range Universal Indicator pH test paper reels	
CHEM/121	24	Pocket pH meter complete with electrode (range 0-14, accuracy 0.2, replaceable electrode) One year warranty	
CHEM/122	1	Chromatography paper, Whatman grade 1, or equivalent, 30 mm wide, reel 100 m	
CHEM/123	1	Chromatography paper, Grade 1, sheets, 250 x 250 mm, pack 100	
CHEM/124	4	Chromatography tank, thin-layer, to hold at least three plates, 10 cm x 20 cm with a heavy glass lid	
CHEM/125	4	Stainless steel insert for TLC plates, to suit chromatography tank above	
CHEM/126	3	Chromatography thin layer plates, flexible, 20 x 20 cm ² , pack 25, to suit above tank	
CHEM/127	1	Chart: Size approximately 100 x 75 mm ² coloured to illustrate the following: Organic chemistry chart - To give an overall view of organic chemistry and some of its many areas of achievement.	
CHEM/128	2	Desiccator, glass, lid with knob, 200 mm, complete with discs	
CHEM/129	5	Desiccator discs, for 200 mm desiccator	
CHEM/130	12	Diffraction gratings, 100 lines/cm	
CHEM/131	1	Discharge tube, good quality, mercury, Teltron or equivalent.	
CHEM/132	1	Universal stand, to suit above discharge tube	
CHEM/133	10	Filter paper, grade 1, qualitative general purpose, 15 cm, pack 100	
CHEM/134	2	Filter paper, grade 1, qualitative general purpose, 18 cm, pack 100	
CHEM/135	8	Gas syringe kit; complete with 3-way stopcock (1), gas syringe, glass 100 cm ³ (2), silica tube with plugs(2), bent tube(1), 'T' tube(1), test tube(1), pinhole tube(1), rubber connectors(8) and gas syringe holders.	
CHEM/136	8	Gas syringe precision ground glass, gas tightening, heat resistant.	

CHEM/137	2	Rubber caps, self-sealing (vacuum), packet 12, for use with gas syringe above	
CHEM/138	2	Hypodermic needles, 19G x 50 mm, pack 10, for gas syringe above.	
CHEM/139	12	Hirsch funnels, porcelain with perforated support plates, top diameter 50 mm, plate diameter 18 mm, complete with filter paper to match	
CHEM/140	1	Molecular model set, atomic models (skeletal) containing 24 large spheres, 84 small spheres with flexible bonds.	
CHEM/141	12	Molecular model set, elementary organic chemistry, Molymod or equivalent.	
CHEM/142	6	Molecular model set, organic (teachers) set, Molymod or equivalent	
CHEM/143	3	Molecular model set, inorganic/organic set, Molymod or equivalent.	
CHEM/144	1	Model set, s, p and d orbitals, Darling model kit, or equivalent, approx. 103 pieces, flexible.	
CHEM/145	1	Molecular model set, diamond, pre-assembled, Molymod or equivalent,.	
CHEM/146	1	Molecular model set, graphite, pre-assembled, Molymod or equivalent	
CHEM/147	1	Molecular model, sodium chloride lattice, Molymod or equivalent,	
CHEM/148	1	Molecular model, ice, Molymod or equivalent.	
CHEM/149	1	Melting point apparatus, digital selection and display of temperature, built in illumination, to take up to two samples for simultaneous viewing, complete with 100 melting point tubes, open one end - not melting point blocks	
CHEM/150	2	Melting point tubes, open at both ends, pack 100, to suit above	
CHEM/151	20	Pipette fillers, acid resistant plastic, for precision filling and dispensing from all standard pipettes, red 25 cm ³ , complete with release valve for rapid pipetting.	
CHEM/152	1	Pipette washer-rinser, polyethylene, operates with water input up to 12 litres per minute	
CHEM/153	1	Platinum wire, 28 SWG (0.32 mm), fused into glass handle, overall length approx 110 mm	
CHEM/154	1	Smoke cell, Whitley Bay type, 4 mm connection sockets, integral illuminator, fixed focussing lens	
CHEM/155	2	Spectrometer, with digital readout, suitable for student use, graduated in 30-minute increments, two Verniers, 180 degrees apart, Collimeter, with 178 mm rack and pinion focusing aperture, 25 mm diameter, variable slit, levelling screws. Prism table, diameter 86 mm (height adjustable and lockable). Telescope, with 178 mm rack and pinion focusing aperture, diameter 25 mm, Ramsden eyepiece. Flint prism, prism clamp, diffraction grating	

		holder, cross line graticule, Vernier magnifier. Complete unit in packing case, two-year warranty.	
CHEM/156	2	Spectral lamp, sodium, to suit above, two-year warranty	
CHEM/157	2	Spectral transformer and lamp house, to suit above, two-year warranty	
CHEM/158	2	Spectroscope, direct vision, fixed slit, high quality blazed diffraction grating, viewed via a fixed focus x2 magnifying eyepiece, complete with sample tubes, operating notes and student investigations. Two year warranty.	
CHEM/159	12	Steam generator, capacity 300 cm ³ approx., steam exit pipe diameter 8 mm, AC 230 V, rating 500 W, dimensions 12.5 x 12.5 x 14 cm approx.	
CHEM/160	1	Tube, cathode ray, demonstration model in storage case, Teltron or equivalent, supplied with EHT supply.	
CHEM/161	20	Thermometer, digital, range -50 °C to 200 °C (approximately), hand held.	
CHEM/162	1	Wire, nichrome, bare, 22 SWG (0.64 mm), 125 g reel	
CHEM/163	1	Wire strippers, insulated handles, spring loaded	
CHEM/164	12	pH sensor, wireless, range 0-14 pH, accuracy ±0.1 pH with calibration, temperature range 5°C - 60°C, logging, Bluetooth, including probe storage bottle and storage solution	
CHEM/165	1	pH sensor storage solution, to suit pH sensor above, 500 cm ³	
CHEM/166	12	Temperature sensor, wireless, stainless-steel probe, range -40°C to 125°C, accuracy 0.5°C, Bluetooth, stored data points memory (logging)	
CHEM/167	6	Wireless Optical Dissolved Oxygen (ODO) Sensor complete with USB cable/WiFi connection and protective cover. Dissolved Oxygen range 0 to 20 mg/L, 0 to 300% saturation	
CHEM/168	6	Replacement cap for the wireless optical dissolved oxygen sensor	
CHEM/169	12	Colorimeter, 3 RGB wavelengths, e.g. 470 nm, 565 nm, 635 nm	
CHEM/170	1	Pack of 100 cuvettes for colorimeter,	
CHEM/171	12	Hotplate magnetic stirrer	
CHEM/172	12	Magnetic stirrer bar and retriever	
CHEM/173	12	Spirit burner	
		Section 2: Glassware	
CHEM/200	12	Jointed Glass, organic chemistry sets, one joint size 14/23; comprised of the following: 1 pear shaped flask, 50 cm ³ capacity, 1 still head, 1 Liebig condenser 1 sc, rework adapter, 1 air leak/steam inlet tube, 1 dropping funnel, 50 cm ³ with GP Rotaflo tap or equal, 1 stopper, 1 thermometer, To include plastic joint clips for each set.	
CHEM/201	4	Pipette, graduated, type I, class B, calibrated for delivery from zero mark at top to graduation mark, face marked, 25 cm ³ capacity x 0.2 cm ³ divisions, pack 5	

CHEM/202	2	Pipette, graduated, calibrated for delivery from zero mark at top to graduation mark, face marked, 10 cm ³ capacity x 0.1 cm ³ divisions, pack of 5	
CHEM/203	24	Pipette, glass, one mark, class AS, 25 cm ³	
CHEM/204	8	Flask, round bottom, jointed glass, three necks (14/23 each), 50 cm ³	
CHEM/205	12	Flask, pear shaped distillation, (socket and cone size 14/23), jointed glass, 100 cm ³	
CHEM/206	6	Flask, volumetric, glass, stoppered (polypropylene), class B, 500 cm ³	
CHEM/207	6	Flask, volumetric, glass, stoppered (polypropylene), class B, 1000 cm ³	
CHEM/208	24	Flask, volumetric, glass, stoppered (polypropylene), class B, 250 cm ³	
CHEM/209	8	Flask, volumetric, glass, stoppered (polypropylene), class B, 100 cm ³	
CHEM/210	12	Jointed glass, Buchner filter funnel, cone size 29/32, disc diameter 65 mm, funnel diameter 75 mm, sintered disc porosity 3.	
CHEM/211	12	Jointed glass, Buchner filter flask, push-in type connector to suit 9 mm vacuum tubing, capacity 250 cm ³ , socket size 29/32, approx. height 145 mm, approx. diameter 85 mm.	
CHEM/212	30	Gas jars, heavy glass, ground flange, 150 mm high x 50 mm internal diameter supplied with beehive shelves.	
CHEM/213	5	Gas jar covers, circular sheet glass, for 50 mm int. diameter jars, pack 10	
CHEM/214	2	Bottles, dropping, clear glass, polystop with glass dropper, 30 cm ³ (Pack of 6)	
CHEM/215	24	Burette, soda glass, 50 cm ³ x 0.1, one way PTFE key stopcock	
CHEM/216	12	Dreschel gas washing bottles, 125 cm ³ capacity, socket size 24/29 and dreschel bottle heads, plain, cone size 24/29	
CHEM/217	12	Steam jacket and syringe. Syringe graduated 0-100 cm ³ x 0.1 cm ³ , surrounded by borosilicate glass jacket supported in place by two rubber bungs also carrying inlet and outlet tube for steam and hole for thermometer. Overall length (215 mm) x diameter (60 mm).	
CHEM/218	15	Test tube, side arm, borosilicate, 150 x 24 mm	
CHEM/219	2	Tubing, soda glass, 70/170 mm, outside diameter 6mm, pack 5	
CHEM/220	15	U-tube, side arm, 125 x 15 mm	
CHEM/221	30	Watch glasses, borosilicate glass, clear, with ground edges, 75 mm diameter	
CHEM/222	12	Watch glasses, polythene, 100 mm diameter	
CHEM/223	12	Watch glasses, polythene, 80 mm diameter	
		Section 3: Chemicals and Reagents	
CHEM/300	1	Aluminium oxide, 500 g	
CHEM/301	1	Aluminium powder, 100 g	

CHEM/302	1	Ammonium chloride, 100 g	
CHEM/303	1	Ammonium iron (II) sulfate, 250 g	
CHEM/304	1	Ammonium metavanadate, 500 g	
CHEM/305	1	Ammonium sulphate, 500 g	
CHEM/306	1	Barium chloride, 100 g	
CHEM/307	1	*Benzaldehyde, 250 cm ³	
CHEM/308	1	Benzoic acid, 250 g	
CHEM/309	1	Bismuth trichloride, 100 g	
CHEM/310	1	*Bromine water prepared	
CHEM/311	1	*Butan-1-ol, 250 cm ³	
CHEM/312	1	Buffer capsules, pH 4, pack, 5 x 10 capsules	
CHEM/313	1	Buffer capsules, pH 7, pack, 5 x 10 capsules	
CHEM/314	1	Buffer capsules, pH 10, pack, 5 x 10 capsules	
CHEM/315	1	*Butanal (butyraldehyde), 250 cm ³	
CHEM/316	1	*Butanoic acid (n-butyric acid), 500 cm ³	
CHEM/317	1	*Butanone (methyl ethyl ketone), 500 cm ³	
CHEM/318	1	Citric acid, crystals, 500 g	
CHEM/319	1	Copper (II) chloride, 100 g	
CHEM/320	1	Copper (II) oxide (cupric oxide), 250 g	
CHEM/321	1	Copper (II) carbonate hydroxide 1- hydrate (cupric carbonate), 250 g	
CHEM/322	1	*Cyclohexane, 250 cm ³	
CHEM/323	1	Decon 90, or equivalent, 1 litre,	
CHEM/324	1	DPD No. 1 tablet to test for free and total chlorine (comparator), 100 tablet per pack	
CHEM/325	1	DPD No 3 tablet to test for free and total chlorine (comparator), 100 tablets per pack	
CHEM/326	1	*Ethanal (acetaldehyde), 500 cm ³	
CHEM/327	1	Ethanoic (acetic) acid, 500 cm ³	
CHEM/328	1	*Ethyl benzoate, 250 cm ³	
CHEM/329	1	EDTA, disodium salt, 250 g	
CHEM/330	1	*Ethyl ethanoate (ethyl acetate), 250 cm ³	
CHEM/331	1	*Ethanedioic acid (oxalic acid), 250 g	
CHEM/332	1	n-Heptane, 500 cm ³	
CHEM/333	1	Glycerol, 500 cm ³	
CHEM/334	1	Hydrochloric acid, ampoules, 1 mol L ⁻¹ , carton 6 ampoules	
CHEM/335	1	Hydrogen peroxide 100 vol	
CHEM/336	3	Iron tablets, (200 mg FeSO ₄ per tablet) Packet 50	
CHEM/337	1	Iron(III) chloride, 250 g	
CHEM/338	1	Liquid paraffin, 250 cm ³	
CHEM/339	1	Lithium chloride, 250 g	
CHEM/340	1	Lycopodium powder, 250 g	
CHEM/341	1	Magnesium carbonate, 500 g	
CHEM/342	1	Magnesium sulfate, 250 g	
CHEM/343	1	Manganese sulfate dihydrate, 250 g	

CHEM/344	1	*Methanol, 500 cm ³	
CHEM/345	1	Methyl orange powder, 25 g	
CHEM/346	1	*Methylbenzene (toluene), 100 cm ³	
CHEM/347	1	*Nitric acid, concentrated, 1 litre	
CHEM/348	1	*n-Octane, 500 cm ³	
CHEM/349	1	*Pentane, 500 cm ³	
CHEM/350	1	*Petroleum ether (40 to 65 °C), 1 litre	
CHEM/351	3	Potassium manganate (VII), ampoules, 0.02 mol L ⁻¹ carton, 6 ampoules	
CHEM/352	1	Potassium bromide, 50 g	
CHEM/353	1	Potassium chloride, 250 g	
CHEM/354	1	*Potassium hydroxide pellets, 250 g	
CHEM/355	1	Potassium iodate, 100 g	
CHEM/356	1	Potassium thiocyanate, 250 g	
CHEM/357	1	Propanal (propionaldehyde), 250 cm ³	
CHEM/358	5	Propanone (acetone), 500 cm ³	
CHEM/359	1	Propan-1-ol, 250 cm ³	
CHEM/360	1	Propan-2-ol (iso-propyl alcohol), 250 cm ³	
CHEM/361	1	Silver nitrate, 10 g	
CHEM/362	1	Sodium hypochlorite solution, 500 cm ³	
CHEM/363	1	Sodium sulfate, 250 g	
CHEM/364	1	Sodium sulfite, 500 g	
CHEM/365	1	Sodium thiosulfate, 500 g	
CHEM/366	1	Solochrome black T, 25 g	
CHEM/367	1	Strontium chloride, 250 g	
CHEM/368	1	Sodium hydroxide, ampoules, 0.5 mol L ⁻¹ , carton, 6 ampoules	
CHEM/369	1	Sulfuric acid, ampoules, 0.5 mol L ⁻¹ , carton, 6 ampoules	
CHEM/370	1	Sunflower oil, 250 cm ³	
CHEM/371	1	Tin foil, 0.10 mm, 100 g	
CHEM/372	1	*2,2,4-trimethylpentane (iso-octane), 1 L	
CHEM/373	1	Urea, 500 g	
CHEM/374	1	Phenyl methanol (benzyl alcohol), 500 cm ³	
CHEM/375	1	Iron (II) chloride, 250g	
CHEM/376	2	Vinegar, 500 cm ³	
CHEM/377	1	Washing crystals, 500g	
CHEM/378	1	Salicylic acid, 100g	
CHEM/379	1	Pentan-1-ol, 250 cm ³	
CHEM/380	1	Fehlings solution No. 1, 500 cm ³	
CHEM/381	1	Fehlings solution No. 2, 500 cm ³	
		Section 4: Student Inquiry Kits Ten student investigation inquiry kits to be chosen by the Science Department and the School Authorities. Schools will choose ten student investigation inquiry kits, which could include some of the indicative list below.	

CHEM/400		Atomic Structure: Students discover facts about the structure of the atom by modelling Rutherford's investigation, while also learning about isotopes, relative atomic mass and flame tests	
CHEM/401		Solids, Liquids and Solutions: Containing equipment for student investigations into the properties of solids, liquids and solutions to demonstrate and improve student understanding of the attractive forces between molecules and the factors that affect solution formation. Students can investigate factors that affect solution formation.	
CHEM/402		Thermochemistry: Students can explore energy changes in chemical reactions and link these to bond energy.	
CHEM/403		Acids and Bases: Through investigation, students learn about properties of acids and bases, how to calculate pH, strong and weak acids and everyday examples of neutralisation reactions	
CHEM/404		Stoichiometry: Students learn about chemical formulae, molar ratios in chemical reactions and about limiting and excess reactants	
CHEM/405		Chemical Bonding: Students connect the abstract principles of chemical bonding and the properties of chemicals through guided inquiry and the use of models to visualise the three-dimensional shapes of molecules	
CHEM/406		Student Electroplating Kit: this facilitates students to learn about the Law of Conservation of Matter, oxidation–reduction reactions, anodes and cathodes, and electrochemistry	
		Equipment for Chemistry	
Section	Code	Description	Cost
1	CHEM/100-173	Basic equipment	
2	CHEM/200-223	Glassware	
3	CHEM 300-381	Chemical and reagents	
4	CHEM/400-406	Chemistry Inquiry Kits	
		Standards, Specifications and Conditions	
		All Equipment shall be Durable and Safe for School Use.	

		Equipment wholly or partly funded from public funds is subject to Inspection by Officers from the Department of Education.	
		It is essential that tenders for equipment for School Use shall:	
		i) Comply fully with the specifications and be durable and safe for School Use.	
		ii) Comply fully with the standards as detailed and shall comply fully with European (EN) standards, both established and developing.	
		iii) Comply with European electrical standards and CE marking as appropriate.	
		iv) Fully comply with requirements in the Request for Tenders (RFT) document.	
		v) Be accompanied by documentation of sufficient detail for full evaluation.	
		vi) Include the completed and signed certificate of compliance.	
		<u>Award of a contract is conditional on the production of a current tax clearance certificate.</u> Failure to comply with the above may result in the tender being deemed null and void.	
		Where the * symbol is placed beside a substance, a supplier who supplies a greater quantity than requested may be held responsible for removal and disposal of the excess.	
		Certificate of Compliance with Standards, Specifications & Conditions:	
		I/We certify that the equipment tendered complies in all respects with the Standards, Specifications and other requirements/conditions specified in this tender document and in the Request for Tenders (RFT).	
		I/We hold a current tax clearance certificate.	
		Company:	
		Signed: _ Date:	

		Position:	
		Purposes of the list: The equipment and quantity listed herein is primarily intended for use by the Department of Education for the purposes of funding new and upgraded laboratories and associated preparatory rooms in a school. It can also be used by school leaders, teachers, and subject departments when managing their laboratory, as a reference to an indicative list of resources for the teaching and learning in the Leaving Certificate, Leaving Certificate Applied, Transition Year and Junior Cycle programmes, including Level 1 and Level 2 Learning Programmes. In line with the nature of curriculum design, including national specifications and locally designed curricula such as short courses, Transition Year modules and extra-curricular or co-curricular science activities, the list is neither prescriptive nor exhaustive for any one or all curricula. School leaders and teachers have flexibility to consider how best to develop and manage the stock within the laboratories in accordance with their own school's context. These include the range of subjects, modules, short courses, and specialisms that might be introduced or are currently taught in the school, the demand placed on the laboratory and the layout of the laboratories and preparatory rooms throughout the school campus.	