Career Information Leaflet

ASSOCIATION OF PUBLIC ANALYSTS

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Registered in England: No. 526029
Website www.the-apa.co.uk

Career Information for Schools and Colleges
The Public Analyst Service: Scientists working to protect the Public

Throughout the United Kingdom there is a network of laboratories that specialise in the science of Public Protection: testing food, water, toys, cosmetics, etc to see if they are safe and to check that they comply with the law. These are the laboratories of Public Analysts – special scientists who have official duties in this area of work.

Background

As examples of the types of control required by law, and therefore the investigation required by the Public Analyst, food must not contain harmful substances; additives such as preservatives in food are limited as to what and how much can be used; and there are minimum standards for the composition of some foods. Toys must not be dangerous for children to play with – no sharp bits of metal, with eyes or other small parts fixed firmly enough to prevent young children pulling them off and perhaps choking on them. Paint on toys and pencils must not contain lead, and so on.

Public Analysts do not generally get involved in collecting samples to test (though there are exceptions to this), instead local councils employ Trading Standards Officers and Environmental Health Officers who visit shops and factories to check that they are obeying other laws that control what they do, and these people take samples to send to the Public Analyst for testing and expert opinion.

If the Public Analyst finds something wrong then the Trading Standards Officer or Environmental Health Officer will try to get the shop or factory to change what they are doing – if they refuse or if they have done something deliberately (perhaps to cheat the public and make more profit for themselves) then they might be taken to court, with the Public Analyst giving evidence as to what was found and why it was wrong.

The Work

The Public Analyst's main work is based on chemical analysis – a branch of chemistry – though they also carry out physical tests (for example, checking how firmly toys' eyes are attached) and microbiological examinations (testing for numbers and types of bacteria present). For this reason most of their staff are qualified in chemistry, though with some specialists in other fields.

Analytical chemistry is an investigative science; the analytical chemist is always trying to identify something, or tell whether one particular substance or compound is present in something else, or finding out how much is present, whether at high levels as with major constituents or low levels with trace contaminants (e.g. measured in parts per billion in cases such as residues of pesticides in food). In the case of the more senior staff, and the Public Analyst in particular, it is also essential to understand what problems are likely to arise with any given product or situation and to have sufficient knowledge to be able to interpret the results of the analysis, and to be skilled at presenting the analysis and interpretation as an expert witness in a court of law.

The Laboratories

There are 26 Public Analysts' laboratories spread throughout the United Kingdom with similar laboratories in Southern Ireland, Jersey, Guernsey and the Isle of Man, each employing between about 10 and 100 staff, with perhaps a total of about 70 fully qualified and appointed Public Analysts, so you will see that it is a rather small profession. Some of the laboratories are parts of larger companies, some are small companies or partnerships having a contract with one or more local councils to do their testing, while others operate as part of a local authority although they might also do work for other councils that do not have their own laboratories. Most also provide a service to local industries where their high degree of skill, reliability and integrity may not be available through other commercial laboratories.

Within Public Analysts' laboratories you will find highly sophisticated modern equipment sitting alongside antiquated-looking racks of glassware and ageing manuscripts describing its use: the best method of analysis is applied to resolve any particular problem, and in some instances even the best that modern technology has to offer may not be as appropriate as a classical method.

Qualifications and Recruitment

In order to pursue a career in the Public Analyst's profession you will need to have good GCSEs in English Language, maths and science.

The next step would be science A-levels, with a minimum of Chemistry and Maths with either Physics or Biology being useful secondary subjects. As an alternative if you can find a suitable employer you could leave school with GCSEs and do a BTEC National Certificate (ONC) in sciences, concentrating on Chemistry, through the employer letting you go to college one day a week ("day release") for two years, this being equivalent to A-levels, but if you pursue this approach do check that there is the facility to study further.

In common with other science-based careers, graduates generally get much further than those without degrees, so again you have a choice: to go to University to study a chemistry course, preferably one which has an element of analytical chemistry, or to do a degree by day release which normally

means first doing a Higher National Certificate (HNC) in Chemistry, which takes two years and is a qualification in its own right (about halfway to a degree), followed by a course that converts the HNC to a degree, typically another two years for an ordinary degree or three for "honours". The part-time route to a degree takes longer than full-time, but you have the benefit of a few years experience which initially at least would make you more valuable as an employee. Neither is "better" than the other.

Some people do postgraduate study either full-time or part-time, to obtain a MSc degree in, for example, analytical chemistry or obtain a doctorate by research.

Public Analysts' laboratories recruit people at all levels of qualification, from school leavers with GCSEs, A-levels and HCSs to degrees, depending on the size of the laboratory and particular needs at any one time. Recruitment advertisements are generally placed only locally for junior staff, but national publications such as Chemistry World (the Royal Society of Chemistry's own publication) and New Scientist are often used for more senior staff.

Career prospects

In view of the small size and personal service provided by these laboratories there is considerable scope in the Public Analyst service for the career chemist. Any person who is genuinely interested in analysis and its interpretation, who is willing to put in whatever it takes, will find the career both highly challenging and rewarding.

If you actually wanted to become a Public Analyst you have to obtain the special qualification which is laid down in law, which is called the Mastership in Chemical Analysis (MChemA), which is the highest qualification in analytical chemistry in the UK and indeed the world. For this you would first need to gain a good honours degree of equivalent (whether by part-time or full-time study – quite a few present Public Analysts achieved this part-time). After several years experience in an appropriate laboratory you could then proceed to take the MChemA, though it takes at least xxx years after graduating. There are no specific courses available to cover the whole syllabus although the Association of Public Analysts runs a short residential course each year which is targeted at providing relevant input.

MChemA holders are in short supply and are well equipped to work both in enforcement and in industry.