



Bulletin

July 2002

Dear Environmental Chemistry Group member,

- ARE YOU INTERESTED..... in actively promoting current environmental chemistry issues?
- DO YOU HAVE..... the ability to think up new ways to enthuse others about environmental chemistry?
- ARE YOU KEEN..... to bring groups of environmental chemists together to discuss recent advances?
- HAVE YOU GOT..... the willingness to devote a little of your time to maintaining people's interest and improving their understanding of environmental chemistry?

If you've answered yes to the above questions then why not put yourself forward to join the Environmental Chemistry Group Committee?

The Royal Society of Chemistry is presently undergoing a major restructuring of its environmental activities and it is looking likely that a new body, the 'Environmental Forum', is to be put into place in the very near future. The Environmental Chemistry Group will have a large involvement in this Forum and we are therefore on the look out for enthusiastic and vibrant individuals who are dedicated to becoming actively involved in promoting environmental chemistry.

The Committee meets four times per year at Burlington House in London (and keeps in regular contact by e-mail) to discuss, amongst other things:

- How we can inform our members of recent issues in environmental chemistry through our Newsletter and by other means.
- Ideas for future meetings to meet the needs of the environmental chemistry research community.
- Advances at the Royal Society of Chemistry.

We also discuss the organisation and publicity of our annual Distinguished Guest Lecture, which is held at the Linnean Society of London. This meeting is now highly regarded within the environmental chemistry community and in recent years has attracted eminent speakers such as Sir John Houghton and Professor Mario Molina. If you have organisational and publicity skills to help bring this meeting together, we would very much like you to put yourself forward to join the Committee.

We are also keen to become more active in promoting environmental chemistry to younger scientists, by means of meetings, discussion groups, web-chats etc. It is important they communicate with other students / researchers in their field and again, if you think you can help with this, please get in touch.

We are dedicated to providing our members with information about recent topics in environmental chemistry. However, we would like to improve the service we provide and we are looking for several enthusiastic individuals who can work as part of a team. We would very much like these new Committee members to be existing members of the Environmental Chemistry Group. So, if you think you have the time to spare to become a member of the Environmental Chemistry Group Committee then please get in touch with: **Dr Andrea Jackson** (Chair of the Committee), at the School of the Environment, University of Leeds, Leeds, LS2 9JT, or e-mail to andrea@env.leeds.ac.uk.

Yours sincerely,

Andrea Jackson

The Royal Society of Chemistry and the Environmental Sciences: New Directions

Dr Andrea Jackson, who took over as Chair of the ECG in March 2002, describes recent discussions held in Burlington House on the establishment of an "Environmental Forum".

As Rodney Townsend explained in the previous edition of the ECG Newsletter (Issue No. 15), discussions have been taking place as to how the Royal Society of Chemistry can best represent its members' interests in the environmental sciences. **A new body, provisionally named the "Environmental Forum", has been proposed** to cluster the activities of the RSC in this area and to represent RSC interests as a whole, without prejudicing the activities of individual Subject Groups such as the Environmental Chemistry Group.

The general response to the development of this new body has been positive, and a meeting took place on 23rd April 2002 at Burlington House to consider:

- The role of environment, health and safety (EH&S) within the RSC.
- The establishment of an "Environmental Forum".
- Recommendations to be presented to the RSC's Science and Technology Board (STB).

Representatives from the RSC's Environmental Chemistry Group; Occupational and Environmental Toxicology Group (OETG); Environment, Health and Safety Committee (EHSC); Industrial Affairs Division (IAD); Water Chemistry Forum (WCF); Analytical Division (AD); Food Chemistry Group; Energy Sector; plus RSC staff from Scientific Affairs, Publications, Communication and Membership, and Education took part at the meeting.

Professor Townsend summarised the intentions of the proposals, the main one being that changes to RSC structures could help the Society represent itself more efficiently and effectively in its EH&S activities. There are many Subject Groups within the RSC, which impinge on EH&S, and the ECG has often discovered that environmental activities of other Subject Groups overlap with its own remit. Unfortunately by the time we are aware of such activities, it is often too late to become involved or the events may have already taken place. It is thought that the Forum will help to co-ordinate such activities and provide a natural 'home' for all Subject Groups involved in EH&S. It could also mean a bigger national 'voice' in this area by pulling activities together.

In addition, the UK government and the

EU are placing enormous emphasis on sustainable development, and the Forum would bring together the relevant RSC units, complement their activities, and be able to advise RSC Council on issues related to sustainable development and public image, such as energy, environment, health and safety, food etc. It was reiterated that the intention of the Forum was not to dictate to Subject Groups. They will retain their autonomy and will not undergo any restructuring. Each RSC unit gave a brief statement at the meeting explaining whether or not it supported the proposals in general terms. Although each unit had one or two concerns, the proposals on the whole were supported.

The ECG is generally supportive of the proposals because of the need for a more dynamic, interdisciplinary approach to EH&S. We also find the present structure difficult to work within. We have concerns over membership and whether our present members would be able to be involved with the Forum as well as remain members of the ECG. We were assured that members would be able to automatically join the Forum at no extra cost, yet remain a member of the ECG. In terms of services to our members we wanted reassurance that some form of newsletter would be delivered to you. It has been proposed that a newsletter (as of yet unknown format) will be

developed and that we will have input to that. So rest assured, we will still be writing to you on a regular basis.

An open discussion followed, much of which was devoted to the name of the new Forum. This part of the discussion was brought to a close by deciding that the title, whatever it may be, should be understandable by those beyond the chemical community, especially the

public. The other main issues discussed related to the Forum's membership, finance, and staff support. No decisions were made other than to confirm approval for the establishment of the Forum in principle, and it was decided that Professor Townsend should produce a new abbreviated paper to put to STB at the Board's next meeting at the beginning of June. We shall communicate the next stage in the

development of the Forum to you as soon as we hear.

We would welcome your comments on these developments. Please feel free to e-mail the Chair of the Environmental Chemistry Group, Dr Andrea Jackson, with your thoughts (andrea@env.leeds.ac.uk).

ANDREA JACKSON

RSC Environmental Chemistry Group Distinguished Guest Lecture 2003 and Accompanying Symposium

*Wednesday, 5th March 2003:
1:30 pm.*

*The Linnean Society,
Burlington House, Piccadilly,
London, W1V 0LQ*

How toxic are soils and sediments? What is the distribution of metals, toxic or otherwise, in soils and sediments? **Professor Bill Davison** (Lancaster University) will address these and related questions in the **RSC's Environmental Chemistry Group 2003 Distinguished**

Guest Lecture. His talk entitled "*Does Biology or Chemistry Determine the Availability of Toxic Metals in Soils and Sediment?*" will describe new nanometre-scale measurements that radically alter our perception of the distribution of metals in environmental compartments. These measurements are particularly meaningful because they mimic the uptake of metals from soils by plants, so that policy-makers and regulatory bodies can have a more precise answer to their question "how toxic are soils and sediments?"

The Distinguished Guest Lecture is part of a half-day symposium, which starts at

1.30 pm. Two supporting lectures will be given at the symposium: Professor Brian Moss (Liverpool University) will explain the new requirements of the EU Water Framework Directive and Professor Mike Depledge (Plymouth University) is the speaker for the second supporting lecture.

Further details of the RSC Environmental Chemistry Group Distinguished Guest Lecture 2003 and accompanying symposium will be sent to ECG members at the beginning of 2003.

Preview of the ECG's Distinguished Guest Lecture 2003 and Accompanying Symposium

Distinguished Guest Lecturer 2003: Professor Bill Davison (Lancaster University)

Does Biology or Chemistry Determine the Availability of Toxic Metals in Soils and Sediments?

Uptake of nutrient or toxicants, such as trace metals, by organisms can affect local chemical concentrations, while the concentration in turn determines the component's availability to organisms. As micro-organisms and their colonies are small (sub-mm), chemical measurements have to be made on a similar small scale to see their effects.

By combining the technique of DGT (*diffusive gradients in thin films*) with laser ablation ICP-MS, metals can be measured in solution at a spatial resolution of 100 microns in two dimensions. A microstructure of small-scale (100µm to mm) metal remobilisation sites is revealed. The steep, but highly localised concentration gradients of spherical geometry are introduced by local biological activity. The biology is controlling the micro-rather than the macro-scale chemistry. We have yet to appreciate fully the extent to which the micro-scale chemistry affects the biology. Understanding biologically induced, 3-dimensional chemical gradients on the micron scale is providing a new paradigm for the biogeochemistry of sediments and soils. This will lead to a new generation of

models for predicting metal mobilisation that can be used for risk assessment.

Progress in understanding the role of soils in determining the uptake of metals by plants has been limited by our failure to appreciate simultaneously the three major controlling factors: pool size, kinetics and transport. A new tool has been developed that can automatically weigh the factors to provide the effective concentration experienced by a plant. Its excellent ability to reproduce metal uptake at living membranes is explained using a dynamic model of the complete membrane/soil or sediment system. It reproduces the uptake by the plant and shows the induced small-scale changes in concentrations. This focus on small-scale changes in chemical concentrations is providing new understanding of the in

situ mechanisms of interaction between solutes and solid phases in sediments and soils. By mimicking the highly localised processes that determine uptake at a biological membrane, realistic chemical surrogates for bioavailability can be developed as simple tools.

Professor Brian Moss

(University of Liverpool)

Chemists pushed out of bed by biologists? - The new needs of the Water Framework Directive

The Water Framework Directive was passed in 2000 and is potentially the most revolutionary environmental legislation ever to be enacted. It amplifies the current emphasis in water quality

management on chemical variables and on end-of-pipe prescriptions, with a very different approach. Its ultimate aim is the establishment of good ecological quality in the receiving aquatic ecosystems (rivers, lakes, estuaries and lagoons and coastal waters). This will have to be achieved by whatever mechanisms are necessary to do it. It will mean not only that a much greater range of chemical variables will have to be monitored and managed (jobs for chemists!) but also a much wider range of biological variables, which the Directive indicates will have rather greater prominence than the chemical variables. In practice, however, the determination of ecological status will require a holistic view of the nature of ecosystems and water chemistry is key to this. What will have to change, however, are the traditional views that water quality is essentially a chemical

matter (with a smidgeon of biology tacked on), that aquatic systems can be treated like large predictable reactors with only simple or single responses to impacts, and that diffuse sources of pollutants can be ignored because they are difficult to control. Ultimately the Directive is about how we manage the catchments, all of the land surface, from which water drains into the waterways. The world of water chemists has always been complex. For those in the regulatory agencies it is about to become even more so... but life will also become more interesting and the ultimate, tangible consequences of their work much more satisfying. This talk will outline, from the point of view of an aquatic ecologist, some of the problems to be faced in forwarding the spirit of the Directive, many of them technical but equally many that are political and social.

Forthcoming Symposia

Earth System Science Summer School

'Promoting an interdisciplinary and integrated approach for environmental research'

Co-Directors: Prof. Brian Hoskins, Univ. of Reading and Prof. Peter Liss, Univ. of East Anglia

Date: 2nd-13th September 2002

Venue: University of East Anglia

Web link: www.uea.ac.uk/env/es4

Association of Chemistry and the Environment: 3rd European Meeting on Environmental Chemistry

Date: 11th-14th December 2002

Venue: Geneva, Switzerland

Web link: <http://www.u-bourgogne.fr/ACE>

Contact: Dr. Montserrat Filella, e-mail: montserrat.filella@cabe.unige.ch

PROGRAMME:

1. Undisturbed ecosystems and

anthropogenic impacts

Characterisation of natural and affected environments. Environmental processes. Analytical tools with emphasis on stable isotopes, tracers, hyphenated techniques, intercalibration. Ecotoxicology.

2. Pollution treatment

Green chemistry and environmentally friendly synthetic pathways. Source pollution treatment. Remediation and control.

3. Development of new environmental tools

Automated analytical techniques. Analytical techniques for on field/in situ measurements. Modelling.

4. Teaching environmental chemistry

AWARDS:

ACE Young Researcher of the Year Award

ACE Environmental Chemistry Award

INVITED SPEAKERS:

Dr. Bill Davison, University of Lancaster, United Kingdom

Dr. Claude Boutron, University of Grenoble, France

Worldwide Occurrences of Arsenic in Groundwater

SciDev.Net is a Web site (<http://www.scidev.net/>), which provides news, views and information on science for the non-specialist enquirer, and is sponsored by the journals *Nature* and *Science* in association with the Third

World Academy of Sciences. A paper from *Science*, 2002, **296**, (21st June 2002) (5576), 2143-2145 has recently been posted by *SciDev.Net*, in which the author, D. Kirk Nordstrom based at the U. S. Geological Survey, Colorado, has collated

published geological data for areas where relatively high arsenic concentrations in groundwater present health risks to the local populations. A table from this paper is shown below:

Table: Global arsenic contamination in groundwater

| Country/region | Potential exposed population | Concentration ($\mu\text{g}/\text{litre}$) | Environmental conditions |
|--------------------|------------------------------|--|---|
| Bangladesh | 30,000,000 | <1 to 2,500 | Natural; alluvial/deltaic sediments with high phosphate, organics |
| West Bengal, India | 6,000,000 | <10 to 3,200 | Similar to Bangladesh |
| Vietnam | >1,000,000 | 1 to 3,050 | Natural; alluvial sediments |
| Thailand | 15,000 | 1 to >5,000 | Anthropogenic; mining and dredged alluvium |
| Taiwan | 100,000 to 200,000 | 10 to 1,820 | Natural; coastal zones, black shales |
| Inner Mongolia | 100,000 to 600,000 | <1 to 2,400 | Natural; alluvial and lake sediments; high alkalinity |
| Xinjiang, Shanxi | >500 | 40 to 750 | Natural; alluvial sediments |
| Argentina | 2,000,000 | <1 to 9,900 | Natural; loess and volcanic rocks, thermal springs; high alkalinity |
| Chile | 400,000 | 100 to 1,000 | Natural and anthropogenic volcanogenic sediments; closed basin; lakes, thermal springs, mining |
| Bolivia | 50,000 | – | Natural; similar to Chile and parts of Argentina |
| Brazil | – | 0.4 to 350 | Gold mining |
| Mexico | 400,000 | 8 to 620 | Natural and anthropogenic; volcanic sediments, mining |
| Germany | – | <10 to 150 | Natural; mineralized sandstone |
| Hungary, Romania | 400,000 | <2 to 176 | Natural; alluvial sediments; organics |
| Spain | >50,000 | <1 to 100 | Natural; alluvial sediments |
| Greece | 150,000 | – | Natural and anthropogenic; thermal springs and mining |
| United Kingdom | – | <1 to 80 | Mining; southwest England |
| Ghana | <100,000 | <1 to 175 | Anthropogenic and natural; gold mining |
| USA and Canada | – | <1 to >100,000 | Natural and anthropogenic; mining, pesticides, As_2O_3 stockpiles, thermal springs, alluvial, closed basin lakes, various rocks |

(The original article should be consulted for some qualifying footnotes to this Table).

The Web version of this article (<http://www.sciencemag.org/cgi/content/full/296/5576/2143>) is enhanced by many hyperlinks to environmental sites, including reviews of water resources, arsenic contamination in Bangladesh, and arsenic toxicology.

Society of Environmental Toxicology and Chemistry United Kingdom Branch (SETAC-UK)

Forthcoming Symposium

Integrating Environmental and Human Health Perspectives in the 21st Century.

16th to 18th September, 2002,
University of Plymouth, UK

Sunday 15th September

Registration desk opens, 17.00-18.00,
with coffee & sandwiches.

Monday 16th September

SESSION 1: Current Concepts and Practices

08.50 **Richard Handy (SETAC-UK)**
Welcome and introduction

(i) *Keynote Overviews (Chair Tom Crosset and John Duffus)*

09.00 **M. H. Depledge (Plymouth University)**
The role of ecotoxicological studies in the evaluation of threats to ecosystem and human health.

09.30 **J. Farmer (University of Edinburgh)**
What does environmental chemistry have to offer in approaches to protection of the environment and human health?

10.00 **V. Murray (Guys & St Thomas, NHS)**
Current practice in chemical incident response

10.30 *Coffee*

11.00 **J. Duffus (Edintox)**
Global perspective on environment and health

11.30 **T. Crossett**
(Title to be confirmed)

12.00 **Panel-Open Discussion of Keynote Overviews (Panel chair J. Duffus)**

12.30 *Lunch & posters*

(ii) *Approaches Used by Agencies Responsible For Protecting Health (Chair Richard Creswell)*

14.00 **D. Benford (Food Standards Agency, UK)**
Protecting consumers against harmful exposure to chemical contamination in food.

14.25 **S. Killeen (Environment Agency)**
Protecting the environment and human health - an Environment Agency perspective

14.50 **Gabriel Scally (Regional Director for Public Health, SW)**
Health Authorities perspective (To be confirmed)

15.15 **S. Gray (SW Public Health Observatory)**
Title to be confirmed

15.40 *Tea/coffee*

(iii) *Current Practices from Professionals in the Environmental and Clinical Sciences (Chair Raquel Duarte-Davidson)*

16.00 **J. Rea. (Royal Commission on Environmental Pollution, London)**
Finding the needle in the haystack – taking decisions on chemicals

16.20 **P.T.C. Harrison (MRC Institute for Environment and Health, Leicester)**
Chemicals in the environment: overview of issues and approaches.

16.40 **J. Evans, A. Miller and G. Wood (Oxford Brookes)**
Do human health and environmental protection share objectives on which a common conceptual framework can be based, or is the setting of environmental objectives inherently more controversial

17.00 **K. Howard (Novigen Sciences Ltd)**
A comparison of approaches to

probabilistic modelling in environmental and consumer risk assessment for pesticides.

17.20 **P. Whitehouse, A. Gowers and G. Brighty (Water Research Centre, UK)**
Water Quality Standards - principles and practice in deriving thresholds for the protection of human health and aquatic life

17.40 *End of session on day 1*

19.00 *Wine reception at the National Marine Aquarium*

Tuesday 17th September

SESSION 2: Environmental and Clinical Case Studies

(Chairs: **Paul Harrison and Richard Handy**)

08.50 **Paul Harrison (MRC Institute for Environment and Health, Leicester)**
Introduction

09.00 **R. Smith (Leicester University)**
Paper on rodenticides (exact title to be confirmed)

09.25 **C.T. Ramwell, P. D. Johnson, A. B. A. Boxall, and D. Rimmer (Cranfield University)**
Pesticide residues on agricultural sprayers: occupational exposure versus the environment.

09.50 **M. Temple and R. Milne (Bro Taf Health Authority and Environment Agency Wales, Cardiff)**
Sea Empress and Brofiscin; VOCs in the environment; contrasts in the assessment of health and environmental impact.

10.15 **A. J. Sweetman, R. A. Alcock, and K. C. Jones (Lancaster University)**
Modelling human exposure to dioxins from point sources: recent developments.

10.40 *Coffee*

- 11.05 L. Rushton (MRC Institute for Environment and Health, Leicester)**
Case study to look at pollution and health data in Nottingham following SO₂ episode (1998/99)
- 11.30 B. Parsons and L. Salter (Cornwall College)**
The implementation of the National Air Quality Strategy and its implications for human health - a Cornwall perspective.
- 11.50 H. D. Wickramatillake (MRC Institute for Environment and Health, Leicester)**
Air pollution and cardiovascular disease: review of recent literature.
- 12.10 M. Temple (Bro Taf Health Authority, Cardiff)**
Atomic discharges in the population - working with the Environment Agency to address health concerns.
- 12.30 *Lunch & posters*
- 14.00 BSE Queniborough study, Philip Monk (to be confirmed)**
- 14.20 Newbury bypass health and environmental integration, summary of studies during planning application (to be confirmed)**
- 14.40 Bathing Waters (David Kay) (to be confirmed)**
- 15.00 Landfill study in Glasgow area (Helena Irvin, Glasgow Public Health) (to be confirmed)**
- 15.20 F. G. Costa and M. L. Pereira (Technical University of Lisbon and University of Aveiro, Portugal)**
Adverse effects of lead acetate on hepatic and renal tissue of mice
- 15.40 *Tea/coffee*
- 16.00 M. L. Pereira and F. G. Costa (University of Aveiro and Technical University of Lisbon, Portugal)**
Insights into the role of Sertoli cells in testis injury by metals
- 16.20 E. Hahlbeck, I. Katsiadaki, R. Griffiths, (Stockholm University)**
The suitability of juvenile stickleback, *Gasterosteus aculeatus*, for the detection of endocrine disruption
- 16.40 A. Smith, J. Reed, J. Thain. (CEFAS, Burnham UK)**
Imposex induction in caged Dogwhelks (*Nucella lapillus*, L) on the river Tyne, UK.
- 17.00 Open Discussion of Session 2**
- 17.20 *End of session for day 2*
- 17.20-18.00 *Posters*
- 18.30 *Depart for Conference Dinner at Dartington Hall*
- Wednesday 18th September am**
SESSION 3: Tools, Techniques, and Communication
(Chair: Ruth Boumphrey)
- 09.50 R. Boumphrey (Environment Agency)**
Introduction
- 09.00 J. L. Peters, L. Rushton, D.R. Jones, A.J. Sutton, K.R. Abrams, M.A. Mugglestone (MRC Institute for Environment and Health, Leicester)**
Setting environmental exposure standards: synthesis of epidemiological and toxicological evidence.
- 09.25 R. Duarte-Davidson and S. Pollard (Environment Agency)**
A tiered approach to environmental and human exposure assessment in the Environment Agency
- 09.50 M. Temple and C. Lester (Bro Taf Health Authority, Cardiff)**
Who wants a new road? Experiences of HIA in a deprived community
- 10.15 E.D.Stutt and P.T.C.Harrison (MRC Institute for Environment and Health, Leicester)**
Soil guidelines – protecting human health and the environment
- 10.40 *Coffee*
- 11.00 Holmes, P. T. C. Harrison, R. Harris (MRC Institute for Environment and Health, Leicester)**
Prioritising endocrine disrupting chemicals: the REDIPED database
- 11.20 R. B. Tracana, M. E. Ferreira, and M. L. Pereira (Instituto Politécnico da Guarda, Portugal)**
Thymus as a target of metal toxicity
- 11.40 N. Morley, A. Curnow, L. Salter and D. Gould. (Treliske, Cornwall)**
The comet assay as a tool for assessing environmental impacts on human health.
- 12.00 Open Discussion and Awards for best graduate presentation**
- 12.30 *Lunch & Posters*
- Wednesday 18th September pm**
Workshop - Environmental Influences on Immunity
(Chairs: Tamara Galloway and Richard Handy)
- 14.00 *Start workshop*
- T. H. Hutchinson (Astra-Zeneca) and M. J. Manning (Plymouth)**
Chemical contamination of the aquatic environment: Effects on the immune system in fish.
- POSTERS - All Sessions**
- Session 1 posters
C. A. Botham, P. Holmes, P. T. C. Harrison (MRC Institute for Environment and Health, Leicester)
Risk assessment of industrial chemicals: past, present and future.
- P. W. Harvey and I. Johnson (WRc, UK)**
Approaches to the assessment of toxicity data with endpoints related to endocrine disruption.
- Session 2 posters
E. Ulfsdotter Turesson, E. Hahlbeck (Stockholm University)
Effects of pulp mill effluent on gonad development and kidney morphology in

juvenile stickleback, *Gasterosteus aculeatus* - evidence for endocrine disruption?

I. Katsiadaki and A.P. Scott (CEFAS, Weymouth)

The three-spined stickleback as a biomarker for androgenic xenobiotics

C. Aylward, B. Harris and P. Harrison (MRC Institute for Environment and Health, Leicester)

Database applications for communicating information on the environment and health

Session 3 posters

C. Naylor, W. Davison and M. Motelica-Heino (Lancaster University)
Simultaneous determination of trace metals and sulphide in sediments

P Whitehouse, A Gowers and C Powlesland (Water Research Centre, UK)

Derivation of Environmental Assessment Levels for use in PPC impact assessments.

Immunotoxicity Workshop Posters

C. A. Botham P. C. Rumsby, P. T. C. Harrison (MRC Institute for

Environment and Health, Leicester)
Effects on immunity potentially mediated by endocrine disruption

Please direct all initial enquires about SETAC-UK to our office at Plymouth University:

SETAC-UK, Plymouth Environmental Research Centre, The University of Plymouth, Drake Circus, Plymouth, PL4 8AA

Tel. 01752 233038; Fax: 01752 233039;

Email: SETAC-UK@plymouth.ac.uk

Recent Books on the Environment and on Toxicology at the RSC Library

The following books and monographs on environmental topics and on toxicology have been acquired by the Royal Society of Chemistry library, Burlington House, during the period February to July 2002.

Climate Change 2001: The Scientific Basis: Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change

Houghton, J.T. (ed), Cambridge University Press, New York, 2001, ISBN/ISSN:0521014956, 881 pp., Accession No: 20020116, West Gallery 628.5:551

Complying with TSCA Inventory Requirements: a Guide with Step-by-step Processes for Chemical Manufacturers, Processors and Importers

Thanawalla, C.B., John Wiley, 2002, New York, ISBN/ISSN:0471214817, 392 pp., Accession No: 20020113, West Gallery 614.8

Environmental Electrochemistry: Analyses of Trace Element Biogeochemistry

Taillefert, M. (ed), American Chemical Society, Washington DC, 2002, ISBN/ISSN:0841237743, 412 pp., Accession No: 20020142, West Gallery 628.5:541.13

Global Environmental Change

Hester, R.E. (ed), Royal Society of Chemistry, Cambridge, 2002, ISBN/ISSN:0854042806, 197 pp., Accession No: IEST117, C 23A

Handbook of Pesticide Toxicology: Volume 1: Principles 2nd Edition

Krieger, R. (ed), Academic Press, San Diego, 2001, ISBN/ISSN:0124262619, 912 pp., Accession No: 20020151, West Gallery 632.95:615.9

Handbook of Pesticide Toxicology: Volume 2: Agents 2nd Edition

Krieger, R. (ed), Academic Press, San Diego, 2001, ISBN/ISSN:0124262627, 996 pp., Accession No: 20020164, West Gallery 632.95:615.9

Human Acute Intoxication from Monochloroacetic Acid: Proposals for Therapy

ECETOC, Brussels, 2001, 71 pp., Accession No: 20020108, West Gallery 615.9

Oxygenates in Gasoline: Environmental Analysis

Diaz, A.F. (ed), American Chemical Society, Washington DC, 2001, ISBN/ISSN:0841237603, 310 pp., Accession

No: 20020232, West Gallery 665.7:628.5

Principles and Methods for the Assessment of Risk from Essential Trace Elements

World Health Organisation, Geneva, 2002, ISBN/ISSN:9241572280, 60 pp., Accession No: 20020176, West Gallery 628.5

Principles for Evaluating Health Risks to Reproduction Associated with Exposure to Chemicals

World Health Organization, Geneva, 2001, ISBN/ISSN:9241572256, 187 pp., Accession No: 20020092, West Gallery 628.5

Risk Assessment in Marine Environments

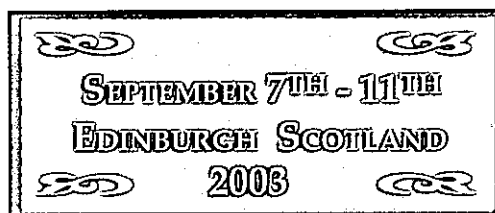
ECETOC, Brussels, 2001, 141 pp., Accession No: 20020109, West Gallery 615.9

Use of t25 Estimates and Alternative Methods in the Regulatory Risk Assessment of Non-threshold Carcinogens in the European Union

ECETOC, Brussels, 2002, 35 pp., Accession No: 20020110, West Gallery 615.9

RSC Environmental Chemistry Group: Committee Members (2002-2003)

| Committee member | Postal address | Telephone, fax and e-mail address |
|--|--|--|
| Chairman: Dr Andrea Jackson | School of the Environment, University of Leeds, Leeds LS2 9JT | 0113 343 6728 0113 343 6716 andrea@env.leeds.ac.uk |
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| Hon. Secretary: Dr Rob MacKenzie | Department of Environmental Science, Lancaster University, Lancaster, LA1 4YQ | 01524 593970 01524 593985 r.mackenzie@lancaster.ac.uk |
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| Dr Rupert Purchase <i>Editor Environmental Chemistry Group Bulletin</i> | 38 Sergison Close, Haywards Heath, West Sussex RH16 1HU | 01444 455673 rp@rupertpurchase.prestel.co.uk |
| Dr Barry Smith | British Geological Survey, Keyworth, Nottingham NG12 5GG | 0115 9363140 0115 9363200 b.smith@bgs.ac.uk |



6TH INTERNATIONAL SYMPOSIUM ON ENVIRONMENTAL GEOCHEMISTRY

The 6th International Symposium on Environmental Geochemistry will follow on from previous symposia held every three years, the most recent being at Vail, Colorado, USA (1997) and Cape Town, South Africa (2000).

The Edinburgh Symposium under the chairmanship of John Farmer and involving the participation of AEG, BGS, IAGC, IMM, IWGMG and SEGH, will bring together geochemists, environmental chemists, biologists, soil scientists, aquatic scientists and medical specialists. The main themes for the scientific programme will be:

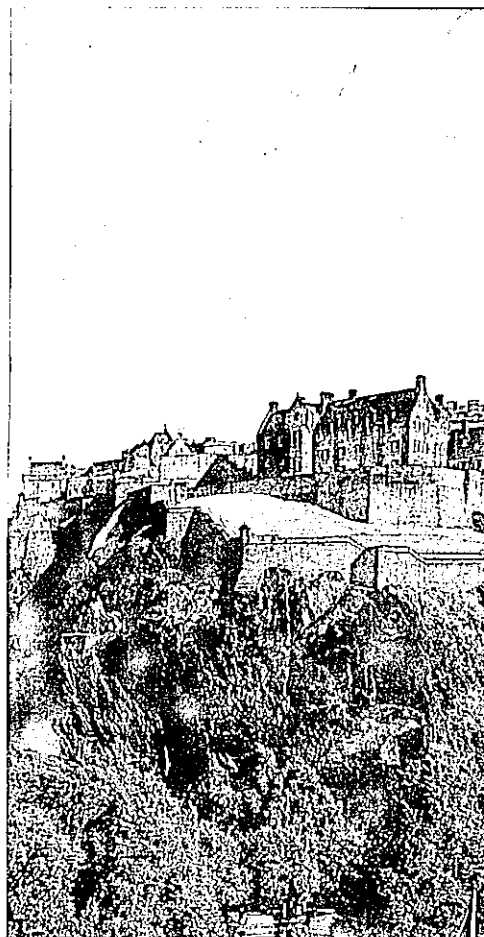
- Archives of Environmental Contamination
- Geochemical Surveys
- Mining
- Contamination and Cleanup
- Geochemistry and Health
- Analytical Geochemistry

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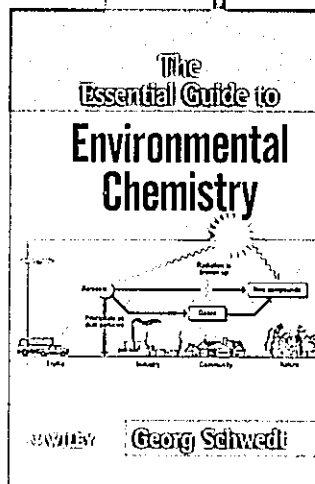
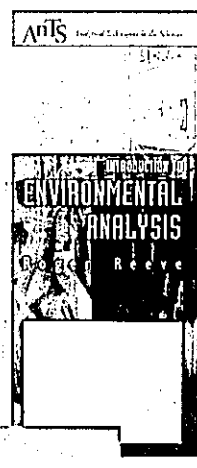
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