



CHARTERED CHEMIST NEWS

Newsletter of the Association of the Chemical Profession of Ontario

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President's Message

Summer has come to a close and while the fall introduces itself with a spectacular show of colour it is still difficult to fathom that winter is just around the corner.

It is customary in the summer months to take some time to spend with family especially when children are on vacation and the weather is warm. Despite that fact that the ACPO council did not officially meet in the summer I can assure you we were anything but idle.

As I mentioned in the last newsletter the council invested time and finances in contacting lost members with the goal of cleaning up our database as well as getting feedback on how the ACPO has been performing in meeting the needs of its



members. While the organisation was able to offset the cost involved in contacting lost members by the reinstatement of found members there was a troubling theme in the comments received. Many lost members felt that the organisation was not as active as it should be or did not provide enough value to its members. Seeing first hand all the activity within council it is apparent that the ACPO is certainly performing in promoting the chemical profession in Ontario which leaves me to think the issue is more communication than action. A look into our database shows that many members do not have current contact information in place. While the world has certainly moved into the digital age many members do not have an email on file. If you have not received an email from your District Councillor than there is a

good chance your email is not listed. Make sure your information is up to date, visit the website regularly and stay informed.

So what has the ACPO been busy with all summer? For starters, great strides have been made in our Bridging Program designed for Chemists new to Ontario. I encourage you to visit our website to view the latest updates. Lili Cretu has been instrumental in moving this forward. Thank you Lili for all your hard work in this area. While existing members will not notice, our new members can certainly attest to how efficient our Board of Examiners has become in processing new applicants. Applications are now being processed in a fraction of the time compared to the past and in some cases within a week of submission.

To those members who have asked the question 'what does the ACPO do for you' the following should clear any doubt. In August the ACPO received information from the Canadian Association of Physicists that the Professional Engineers Act of Ontario was about to be changed to remove the exemption for natural scientists. It had already passed second reading without any consultation with affected organizations. This move on behalf of the professional

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Be sure to visit our website at: acpo.on.ca

Letter from the Editor

Greetings Professional Chemists; if you have the responsibility of ordering supplies for your employer please take a look at the list of sponsors for the-2010 ACPO AGM hosted in May of this year. Consider doing business with these companies and they support our efforts as a Professional Organization. More information can be found on our website. If you are interested in continuing education and live in B.C., there is an Indoor Air Quality 2 day course at the Burnaby campus of the BC Institute of Technology. More info can be found at the website below.

Let's get going on everything that is happening in the Chemistry Industry. Contact you district councillor today for more information. Also, as full members of the ACPO we are entitled to use the title of Chartered Chemist or C. Chem. when representing ourselves in professional matters. This is a symbol of our professional integrity and we should use this title and our ACPO stamp and display our ACPO certificate with pride. Any Full Member of the ACPO requiring a replacement certificate or stamp should contact Roch Marion, ACPO Registrar at registrar@acpo.on.ca

www.cheminst.ca/profdev

Doug Beswick, C. Chem, Editor



President's Message con't.

engineers in Ontario, if successful, would have constituted a major step back for all natural scientists and potentially threaten the ability of most natural scientists (including those in academia and government) to practice in Ontario and to manage projects that involve science or engineering. A letter-writing campaign resulted in over 600 letters expressing concern about this matter being received by the Ontario Attorney General's Office. As a result of this, the Attorney-General's Office raised the matter directly with the Professional Engineers of Ontario (PEO). Meetings have been arranged with the PEO with ACPO representation. As a result a Joint Engineering and Natural Science Task Force has been set up that will include the ACPO.

These are just a few examples of the ongoing actions of your ACPO. I encourage you to visit the website regularly to stay informed, write/email/call your district councillor or any member of council and become involved.

Finally, as 2010 comes to a close please keep in mind that 2011 is the "International Year of Chemistry". There is a link on our website with additional information. Consider becoming involved in the new year to celebrate and promote the practice of chemistry.

Chris Sullivan,
C.Chem.
President



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Fall 2010

Readers Write

Safety, waste and ethics of pharmaceutical drug

Gamal E. Omer Elhag-Idris, MCIC, C.Chem¹

Abstract:

Drug safety is a serious issue e.g. some drug may withdraw from the market because of safety and ethical issues. Health Canada, Environment Canada and other regulatory bodies are dealing with safety and waste issues of pharmaceutical drug. Adverse drug reaction is the leading cause of death. This work is for knowledge and better understanding of the following:-

- Storage: Guidelines for storage medications
- Safety: Factors involved in safe administration of drug
- Record Keeping: regarding drug administration process
- Ethics of drug therapy and drug trial
- Pharmaceutical drug and chemical waste

Objective

The goal of this paper is to examine what mean by safety, waste and ethics responsibility, that are concerned to pharmaceutical drug, with various scenarios, in which things can go tragically wrong.

1. Introduction:

Pharmaceutical drug waste is not a single waste stream, but it contains a complex and diversity of chemical that comprise pharmaceuticals.

Pharmaceutical drug wastes are generated by a wide range of human activities, such as from health care facility, personal medication, manufacturing, accident spills, etc.

Pharmaceutical drug products are governed by the principles of manufacturing practices e.g. GMP (Good Manufacturing

Practice) (1). Manufacturing standards, storage, safety, record keeping, stocking, transportation and ethics of drugs are all vital factors that determine the potency of the drug till it reached the consumer. Pharmaceutical drug whether they are vaccines, antibiotics or even analgesics have to be stored in prescribed temperature to maintain their potency. Such enforcement of these rules by the regulatory authorities e.g., is required for the drug safety process, etc. Furthermore, the proper storage of drugs, would impact the quality of drugs, shelf-life, etc. During storage condition if drugs get exposed to extreme heat conditions particularly during summer, can substantially degrade. In areas where not have a working refrigerator or remain in the shelves for weeks or months with varying high temperatures, then drugs may become further degraded.

The recent development in knowledge of the affect of pharmaceutical drugs waste into the environment and human, resulting into regulated the practices of discard drug waste down the drain, landfill or incinerator. Nevertheless, such failure to comply with the pharmaceutical drug waste regulations, can result in violates and penalties.

2. Storage pharmaceutical drug:

Here are examples of the requirements of drug storage, are as the following (2):

- The drugs storage shall be, e.g., under proper conditions of sanitation, temperature, light, moisture, ventilation, segregation, and security.
- Drugs used externally or internally,

shall be stored on separate shelves or in separate cabinets at all locations.

- When medication is stored in a refrigerator, the medication shall be kept in a separate container with proper security.
- All drugs shall be kept under lock allowed for authorized person
- The drugs storage shall meet the security requirements of federal and the province laws that apply to storerooms, pharmacies, and living units.
- If there is a drug storage room separate then facility shall keep inventory of all drugs
- Many people store drugs in the bathroom. This is the worst place because the drugs are subjected to hot moist conditions and can cause decomposition.
- Find a cool dry place to store drugs away from sunlight. Some drugs need to be stored in the fridge. Outside exposed to direct sunlight or heat sources can degraded drug
- Should store drugs in the original container in which they were dispensed.
- It is important to store all drugs away from children.
- Tablets over two years old, past their expiry date or showing signs of deterioration should be disposed off. Ideally, take them to in Toronto Shopper Drug Mart for free disposal
- Over-the-counter drug should be stored in the same container
- If you need to store in another container, must keep the label and the instructions for reference
- Must always make sure the caps/lids are tightly or closed after use

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Safety, waste and ethics of pharmaceutical drug

- Written information of drug profiles should be kept for references
- Wall cabinets that can be locked are ideal for storing medication as long as the cabinet itself is in a cool and dry place
- All products should be clearly identified by labels, remain permanently attached to the containers under all storage conditions. Information on drug batch coding must be provided if need. The label on the container should show e.g.:
 - a. The name of the drug product and/or the product identification code;
 - b. The name of the manufacturer or the company and/or the person responsible for placing the drug on the market; expiry dates and specified storage conditions.

3. Drug safety

By law a drug must be safe and effective to use, enforced e.g., by Health Canada, FDA, BP, JP, etc. Drugs in Canada are regulated e.g., The Narcotic Control Act and the Food and Drugs Act. Adverse drug reaction (ADRs) would result in death. Nevertheless, drug responses depend into many factors, e.g. age, sex, nutritional status, kidney and liver function, concomitant disease and medications and the disease the patient is treated for. Also genetic factors may modify drug responses. Safety reasons prior to drug therapy may require certain tests, e.g. drug toxicity test is to understand if there is poor metabolism (3, 4).

3.1. Safety of drug administration: Any drugs that are prescribed will come with directions for use (e.g., three times a day, or on an empty

stomach, or with food). These directions are how the drugs will work best in humans. Some drugs can produce relief in shorter time; other drugs much longer time to produce a response e.g., according to their routes of administration. Some drugs may have known side effects, the side effects may gradually disappear when the body becomes used to the drug. But if the side effects persist, then may need to reduce the doses. However, misuse or abuses of drugs produce toxic reactions. Over the counter drug: no needs prescription is suitable for self-treatment, and less to produce side effects, but it can be harmful if misused or abuse. In case of, sticking to a drug dosing is very important drug levels if they fall too low, there is a risk that viruses can develop resistance to the drug and have chance to reproduce, and missed having a drug in time may encourage resistance of virus. People, who are at risk e.g., kids, elderly, pregnant, breast feeding, people with especial conditions (e.g., liver or kidney problems) (5).

3.2 Record keeping:

The idea of record keeping for certain drug is to control miss use or abuse. However, it's criminal miss use, abuse or negligence by healthcare worker. Therefore, is necessary of having a record of drugs and inventory at regular bases, remove unwanted or expired drug. The record keeping of drug shows that healthcare sector defies the intent of applying laws and order of drug safety. Record-keeping help to control fraud in drug

therapy or carelessness by healthcare workers. Also could be the auditor to check a system of healthcare records. The record must be kept in the room in housed, or nearby, and must be accessible (6).

The record keepings for drug should at least have this information are as the following (6):-

- Date of drugs
- Name of the person using the drug
- Name of physician or family doctor
- Brief description of the drugs procedure
- Time of drug induction and termination
- All drugs administered, including dose, time, and route of administration
- Provided information as dosage and route of administration
- Written notice if drug to be administered before, after food, or with water

1. CMOS Accredited Consultant.

Website:

<http://www.cmos.ca/PrivateSector/companies/omer.htm>

Email: gamal.omer@gmail.com

**To be continued
in Part 2 in
March 2011. Ed.Did**



ACPO District Councilor Openings:

District 1:

Kingston-Cornwall

District 11: **Sarnia**

District 3:

Belleville-Peterborough

Proposed Amendments to the Ontario Professional Engineers Act

In late August, ACPO became aware that amendments to the definition of “Professional Engineering” as documented in the *Professional Engineer's Act* in Ontario were not only being considered by the Provincial Government, but had passed second reading in the House of Commons. One of the key amendments calls for the removal of the exemption clause for practicing Natural Scientists. This change reverses a decision from the 1990s exempting natural scientists from enforcement of the Act; and potentially threatens the ability of all natural scientists (physicists, chemists, biologists, computer scientists, etc.) in Ontario to practice in government, industry and universities without the supervision of a Professional Engineer.

ACPO together with various other societies representing the Natural Science Community in Canada immediately responded to the potential implications of this change. A letter writing campaign flooding the offices of the Professional Engineers of Ontario's (PEO) as well as the Attorney General of Ontario's Offices resulted in a quick response, including direction from the Attorney General of Ontario to the PEO to meet with representatives of the natural science community to reach an agreement resolving the situation.

Led by the Canadian Association of Physicists (CAP), a delegation of representatives from ACPO and other provincial and federal

natural science societies met with the PEO President and CEO/Registrar, to discuss the impact of this change. An agreement in principle was reached between the PEO and the Natural Scientists to introduce an exemption for natural scientists by modifying the regulations in the *Professional Engineer's Act* rather than amending the legislation, defining a class of persons (Natural Scientists) that are exempt from being prevented by the Act from carrying out any activity (including Management) that requires the application of scientific principles competently performed.

Henry van Driel (President, CAP), Terry Obal (Vice President, ACPO), Joe Hayward (Councillor, Canadian Organization of Medical Physicists, COMP) and Jim Salmon (CAP) attended the September 24, 2010 PEO Council Meeting where policy considerations with respect to the amended Act and subsequent discussions with the Natural Science Community were presented. The following resolutions were approved by PEO Council at this meeting:

1) That a joint task force will be formed between the PEO and the natural science community, inviting the participation of Engineer's Canada, to establish a means to achieve the intent of the 1996 companion clause, i.e.,

“ . . . engineering Acts in Canada should not unintentionally restrict the practice of natural science while at the same time ensuring that engineering it practiced by qualified individuals.”

“In recognition of the overlap of the legitimate practices of professional engineering and natural science, and to clarify that CCPE's definition does not cover the practice of natural science, NSSC and CCPE now recommend that an exclusion clause be included in any legislation that uses CCPE Definition of the Practice of Professional Engineering.”

...and that the task force will make their recommendations to PEO Council in February 2011.

1) Until there is a formal resolution to deal with the overlapping practice issue between natural scientists and professional engineering, the PEO Registrar shall use a protocol that includes input from the relevant natural science organization regarding possible enforcement matters.

At present, the Terms of Reference for the Joint Task Force; its membership has been established; and a schedule of meetings is being developed. The Attorney General's Office of Ontario will be monitoring developments in this process until an agreement is reached to the satisfaction of all parties.

Updates will be posted to the ACPO web-site (www.acpo.on.ca) as they occur, and further analyses will be printed in future issues of Chartered Chemist News.



Joint Communiqué

Over the past week we, as representatives of the scientific societies listed below, have been dealing with a proposed amendment to the definition of "practice of professional engineering" in the Ontario Professional Engineers Act through the Open for Business Act, 2010 (Bill 68). This Act removes an existing exemption clause for natural scientists. A letter-writing campaign resulted in over 600 letters expressing concern about this matter being received by the Ontario Attorney General's Office. As a result of this, the Attorney-General's Office raised the matter directly with the Professional Engineers of Ontario (PEO). On September 2, 2010, a CAP-led team of representatives from CAP, ACPO, CSC, CMOS, and COMP, on behalf of the natural scientists, met with the PEO's President, Diane Freeman, and CEO/Registrar, Kim Allen, to discuss this matter.

As a result of this discussion, an agreement in principle was reached between our societies and the PEO to introduce an exemption for natural scientists by modifying the Regulations in the

Professional Engineers Act. These modifications will define a class of persons -- "Natural Scientists" -- that are exempt from being prevented by the Act from carrying out any act (including management) that requires the application of scientific principles, competently performed. The authorization for recognition of individuals that are in the category of "Natural Scientists" will reside with the respective scientific societies covered under this agreement. This agreement must still be ratified by the Councils of the various parties. Implementation of these procedures will be worked out by our respective societies as soon as possible. The Attorney General's Office of Ontario will be monitoring developments in this matter until an agreement is concluded to the satisfaction of all parties.

For further details, please see the attached memorandum of agreement between the PEO and our societies.

Although this issue is particular to the province of Ontario, it is potentially precedent-setting, with

implications across Canada. We believe that the proposed changes will greatly strengthen the practice of natural science, and we would not have reached this point were it not for the successful letter-writing campaign and the cooperation of the PEO and the Attorney-General's Office.

Our sincere thanks are sent to everyone who took the time to get involved. We will keep our respective communities informed of developments as they progress.

Canadian Association of Physicists (CAP)
Association of the Chemical Profession of Ontario (ACPO)
Canadian Astronomical Society (CASCA)
Canadian Meteorological and Oceanographic Society (CMOS)
Canadian Organization of Medical Physicists (COMP)
Canadian Society for Chemistry (CSC)
Chemical Institute of Canada (CIC)



Volunteer Recognition: Adam Krysa

The bulk of the work, in any industry, ours inclusive, is always behind the scenes. An association favourite, you will all agree I am sure, is the [List of Ontario employers employing chemical professionals](#)

The name behind the work that goes on our behalf on this list is Adam Krysa, a very talented, tenacious and passionate

research chemist and industrial scientist. Adam came to Canada from his native Poland and currently works at SGS in Lakefield as a metallurgist, where he has recently finished his probationary period.

Adam had committed to put together this list because he knows what it is like to be looking for a new opportunity in our profession, and he wants to give

back. He is up-beat and optimistic.

"It was not easy, no beginnings are ever easy, but always the hard work, tenacity and passion for your profession will help you find your way into the chemical profession in Ontario. Certainly, a little bit of luck does not harm anybody." says Adam.

AGM 2009 Sponsors:

Many thanks

1) SGS Canada Inc. (Dinner Sponsor)

www.ca.sgs.com

185 Concession Street Lakefield Ontario, K0L 2H0

Roch Marion (Advanced Mineralogy) - (705) 652-2000 ext. 2250

roch.marion@sgs.com

Ken Maley (Analytical Minerals) - (705) 652-2000 ext. 2109

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Chris Bates (Environmental Services) - (705) 652-2000 ext. 2219

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1) SGS Lakefield Research (Dinner Sponsor)

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Jon Clarke - 905-850-4991 - jon.clarke@perkinelmer.com

Lets welcome our
new members
processed by the
board as of January
2010

Dr. Alvira Macanovic

Istok Nahtigal

Catharine M. Arnold

Ryan Carey

Virginia Pacio

Justin Rak-Banville

Glenn Estrellado

Sean Bryan

Saga Lachmansing

Alessandro Pellerito

Dharmeshkumar Hirpara

Farooq Wajih

Shreyaskumar Shah

Mohammad Mousa

Dr. Anthony R.K. Dapaah

John Prins

Elevena A. Bobkova

Mohamed Belhadj

Rsauro Roldan

Dr. Emmanuel Quagraine

Johan Beetge

Devasia S. Ottathengumkal

Urmilkumar Acharya

Lei Chen

Min Weng

Michal Kazmirsky

Adam Krysa, con't

Chemistry has been a life long passion for Adam and his continually strives to improve and grow his knowledge and sense of problem solving.

Passionate about chemistry in his kitchen too (since chemistry spills over into every par of our

lives) Adam is a whiz at creating Thai dishes that are hot and zesty – a flavour quite different from Polish cuisine.

To reach Adam to say hello, please contact him at: adamk405@gmail.com.”



Notes:

Membership Requirements



A) Categories

There are three categories of membership available for the ACPO:

1) **Full Member of the ACPO:**

These are individuals who have satisfied the formal requirements of the Association and are eligible to call themselves Chartered Chemists and to use the abbreviation C. Chem. after their names;

2) **Associate of the ACPO:**

These are individuals who are working as chemists, or in chemistry-related fields, and are in the process of fulfilling the formal requirements for membership;

3) **Affiliate of the ACPO:**

These are student members currently studying chemistry, biochemistry or chemical engineering in an accredited university program.

B) Qualifications/Requirements

Individuals who possess the following academic qualifications or training and experience may be admitted as members:

1) An Honours undergraduate degree, or its equivalent from an accredited university program in Chemistry, Chemical Engineering, or the Chemical Sciences plus **two years** of work experience acceptable to the Association. Post Graduate training will be credited as equivalent to work experience.

2) Other academic qualifications, e.g. a three-year undergraduate degree with a major in Chemistry, extensive work experience (minimum **5 years**), and a record of professional competence in the chemical field as evidenced by publications or patents.

3) Individuals who have at least **six years** of acceptable experience in the chemical field, but who do not possess the above academic qualifications, may qualify for membership by passing the Graduate Record Examination, Chemistry Section.

4) In special cases, the Board of Examiners may present individuals to the Council for consideration based on their exceptional contributions to the science of chemistry as recognized by their peers.



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