

THE CUTTING EDGE

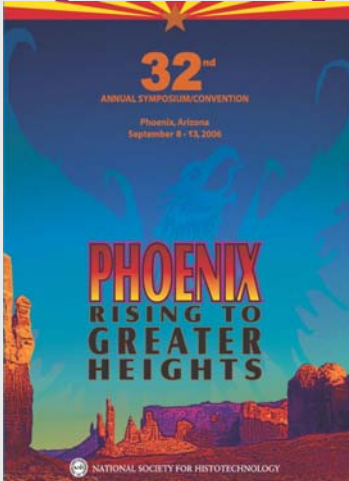
REGION IX NEWSLETTER



Summer Newsletter ~August 2006

**NSH 32nd Annual
Symposium/Convention
Phoenix, Arizona
September 8-13, 2006**

Rising to Greater Heights



<http://www.nsh.org/conventions/index.html>

First Time Attendee Breakfast
Date: Sunday, 10 September
Time: 7:00 am – 8:00 am
Hyatt Regency Phoenix

For first time attendees to the S/C, please email Aubrey@nsh.org if you are interested in joining us for a complimentary breakfast. Gift baskets donated by each region will be given out as door prizes.

~

Guess the Member Count ~ \$100.00

Stop by the Membership Committee table and record your guess for the number of the NSH members as of the start of the Convention. The closest guess wins \$100.00.

Date: Drawing Tuesday 12 Sept 2006
Entries accepted until Tuesday afternoon break
– contest closes at 3 p.m.

Greetings from the Region IX Director

Congratulations to our new Region IX Director Heather Nymeyer, Kamloops B.C.

Let's all give Heather our total support as she is about to embark on a very exciting and challenging job of representing the Canadian NSH membership!! I know Heather will do a fantastic job of keeping the momentum going as our region moves forward ~ and continue the legacy that our predecessors have done to get us to where we are today. I will still remain in the executive as the Past Region Director. Heather will be sworn into her new position after the House of Delegates (HOD) meeting in Phoenix.

I am looking forward to this year's HOD meeting on September 13th in Phoenix - we have 7 delegates representing our region this year ~

- Charles Ho, Ontario
- Kevin Gibbon, Vancouver B.C.
- Ann Lynde, Medicine Hat, Alberta
- Michael Ho, Ontario
- Richard Loewen, Abbotsford, B.C.
- Mark Elliott, Vancouver, B.C.
- Heather Nymeyer, Kamloops, B.C.

We will be introducing our delegates at our Region IX meeting in Phoenix. The Region IX Executive officers have been having lots of discussions, making decisions via 'virtual meetings' and e-mail. Having a 'face to face' meeting in Phoenix with all the Region IX members will be a special treat! We will be voting on the revisions to the Region IX Bylaws – your executive have worked hard on this – we need your votes to pass these amendments. Please check your Program schedule for the room location.

Visit our 'new and improved' NSH website: www.nsh.org – you will get a glimpse of the new NSH Logo and the website itself! This year's 32nd Symposium convention promises yet to be another successful event - continuing education will help strengthen our technical expertise and keep us current with the latest technology, makes us more marketable if we are looking to advance our careers.

See you in Phoenix! ~ Rose

Region IX Meeting in Phoenix

Date: 9 Sept 2006 (Saturday) Time: 4:30-5:30 p.m.
Room: Please check your Program Schedule or check at the Registration desk.

A \$500 Regional membership scholarship draw will be awarded to a Region IX member!

Education Update

Mark Elliott-Education Chair

It is hard to believe that summer is half over already and the 32nd NSH S/C is just over a month away. Time sure flies by fast these days-it seems like only yesterday we were in Montreal attending what turned out to be a fantastic Education Day the first Saturday in May. The day was a rather wet one outside but inside almost 150 people attended the event and they were pleased with the array of talks that were presented. Because the meeting was in Montreal we decided to try and have talks/handouts in both official languages. In theory it was a good idea but in practice we had a few glitches but overall things went well. As they say "we learn from our mistakes", not that there were any mistakes per se but we did learn a few things for the next time. We got terrific feedback from the attendees which was greatly appreciated. The speakers were great and we appreciate their willingness to come and spread their knowledge to everyone in the room and make the event the success that it was. The vendors were quite pleased with the event and the feedback they received from those attending-a couple of vendors had shipping problems but these were out of our control. I would like to thank Martin Demers who was a great help, especially in getting the French speaking techs involved. He was great in translating most of the English announcements etc for us throughout the day. I would also like to thank Claude Chaput from Chaptec who also was of great help in finding a venue for us and in getting the word of the event out to the techs. Kalyani Desai and Trish More also helped in many ways and were greatly appreciated by Rose and myself. Without the aid of these people the event would not have been the success it was. I would also like to thank all of the vendors for their support for this event, and especially Ventana for their support in financing the rental of the facility and one of the speakers.

No sooner then one event is finished we start planning the next one. Vision BioSystems is sponsoring a Wet Workshop in Vancouver in the fall. The tentative date is Oct. 21, 2006 and the location is being finalized. As soon as things are finalized we will contact the membership to let you know the details.

We are also starting to plan for the next Regional Education Day to be held Calgary next year some time. We are in the initial of planning this but more details will be forthcoming as we proceed. We are still trying to decide on a date and location. Anyone living/working in Calgary who would like to help out please contact me as we can always use the

Education Calendar



21 October 2006 (tentative)
Vision BioSystems Wet Workshop
Vancouver, B.C.
Limited Attendance: 50



Maritech 2006
Oct 26-28, 2006
Delta Hotel, King St.
Saint John, New Brunswick
☎ 1-800-268-1133
Contact: Claudette Ptasznik
pta@nb.sympatico.ca
<http://www.nbsmlt.nb.ca/>

NSH Teleconference Schedule
www.nsh.org

- **The Science of Tissue Processing**
Date: November 15, 2006
Time: 1:00pm EST
Presented by Sheeri Anderson, HTL(ASCP),
Thermo Electron Corporation, Pittsburgh,
PA
- **Cell Cycle and Its Role in Cancer Apoptosis**
Date: December 20, 2006
Time: 1:00pm EST
Presented by Alton Floyd, PhD,
Edwardsburg, MI

help, especially someone who knows the city. We need input also as to the type of presentations and topics you would like to see/hear.

Finally, I would like to remind everyone that it is not too late to register for the S/C in Phoenix. It is a great learning experience and a terrific way to see all of the new equipment/supplies that are out there. Also, if you are attending please make sure that you attend the Region IX meeting being held on the Saturday evening- we need you there to discuss issues pertaining to Region IX.

Hope to see you all in Phoenix.

Mark Elliott
Region IX Education Committee Chair

Continuing Education NSH Contact hours Info...

**Montreal Education Day
6 May 2006**

NSH Contact Hours = 5.5

Detailed information to be posted on
<http://www.nshregionix.org/education.html>

**CSMLS info ~ PEP hours
(Professional Enhancement Program)
assigned to Montreal Education day**

Information to be posted on
<http://www.nshregionix.org/education.html>

~



**Ventana S/C Party
Phoenix, Arizona**

**Check your Program Schedule for Date &
Location**

Don McHaffie
dmchaffie@ventanamed.com
Canadian Sales Manager
Ventana Medical Systems
☎ (800)227-2155 x3137



Somagen Diagnostics

*invites you to join us for an
enjoyable evening of fine food
and
good company*

at the annual Canadian Dinner

Monday Sept 11

*during the 32nd annual
NSH Symposium/Convention
in Phoenix, AZ.*

*Invitations
will be arriving shortly.*

Tina Ng
Product Specialist
Cellular Pathology
Somagen Diagnostics
800-661-9993 ext 9519
tina.ng@somagen.com



**come and throw
a shrimp on the barbie**

vision biosystems invites you
to our traditional

**australian cookout
with live music**

**Saturday September 9th, 2006
From 6pm**

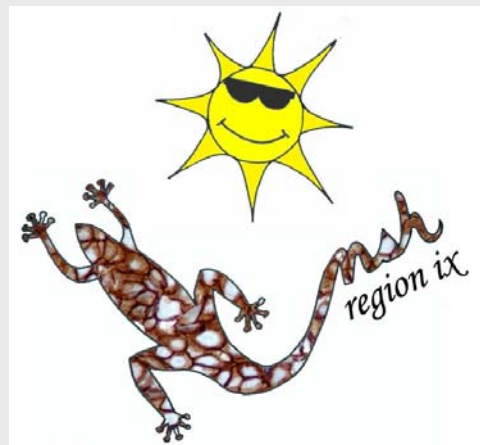
**Arizona Center
Phoenix, AZ**

RSVP

Friday, September 1st, 2006

2006nshbbq@vision-bio.com

**Represent Region IX by wearing
Our 2006 Gecko T-shirt**



**Region IX Award Winning Design
By
May Chin, Vancouver, B.C.**

Each year, NSH sponsors a

- Best T-shirt Design Award
- Runner up for Best T-shirt Design
- Most number of attendees wearing a state or region T-shirt

Date: September 12, 2006 (Tuesday)

Time: 12:00 noon

Location: Exhibit Hall

T-shirt Cost: CDN \$18.00 (including tax)

T-shirts to be sold at the Region IX meeting

~

**NSH S/C
Future Dates**

33rd Annual Symposium/Convention
October 26-31, 2007 in Denver, CO

34th Annual Symposium/Convention
September 12-18, 2008 in Pittsburgh, PA

35th Annual Symposium/Convention
October 3-8, 2009 in Birmingham, AL

36th Annual Symposium/Convention
2010 ~ Seattle, WA

37th Annual Symposium/Convention
2011 ~ Cincinnati, OH

38th Annual Symposium/Convention
2012 ~ Vancouver, BC CANADA

Evaluation of Mathematical Models for Small Indoor Chemical Spills and Establishment of Evidence-Based Chemical Spill Control Procedures

Quinn Danyluk, MSc CIH

Occupational Hygienist
Workplace Health
Fraser Health Authority

Chun-Yip Hon, MSc (A) CIH CRSP

Occupational Hygienist/OHS Advisor
Worksafe and Wellness Department
Vancouver Coastal Health Authority

The Occupational Health and Safety (OHS) Regulation of British Columbia requires that spill control procedures are in place in order to control the release of a hazardous agent and to effectively clean up the spilled material.

To ensure that workers performing the spill cleanup are protected, the employer is responsible for providing "appropriate personal protective equipment which is readily available ... and is adequately maintained" (section 5.101). The notion of 'appropriate personal protection' presupposes that an employer must initially perform a risk assessment as per section 8.4 of the OHS Regulation.

For chemical spills, this assessment includes quantifying the resulting airborne exposure concentration levels which, in turn, allows one to ascertain the level of respiratory protection required. Assessing exposure levels involves either determining the airborne concentration shortly after the time of the spill or estimating exposure levels *a priori*. There are difficulties with the former in that instruments to quantify levels may not be readily available, can be very expensive, or may require a substantial amount of time to obtain a concentration reading. As a result, the use of traditional air monitoring techniques is often not practical. One method of exposure control for environments containing unknown concentrations is to provide the highest level of respiratory protection, namely self-contained breathing apparatus (SCBA). However, the use of SCBAs entails maintenance and training costs and, because of its weight and dimensions, may be cumbersome to the user - possibly even affecting the individual's health and safety. Furthermore, the protection afforded by the SCBA is likely well beyond what is required for 'adequate protection' against most small chemical spills.

Estimating exposure levels *a priori* can be accomplished using mathematical exposure models. This entails using mathematical formulas to predict exposure levels before the spill actually occurs. The appropriate respiratory protection can then be determined and made available to spill responders. In addition, it will curtail the need for expensive, complicated exposure monitoring equipment at the time of the spill allowing a more timely response for spill cleanup.

Following the assessment of the mathematical models, the information can be used to develop respiratory protection requirements and spill control procedures.

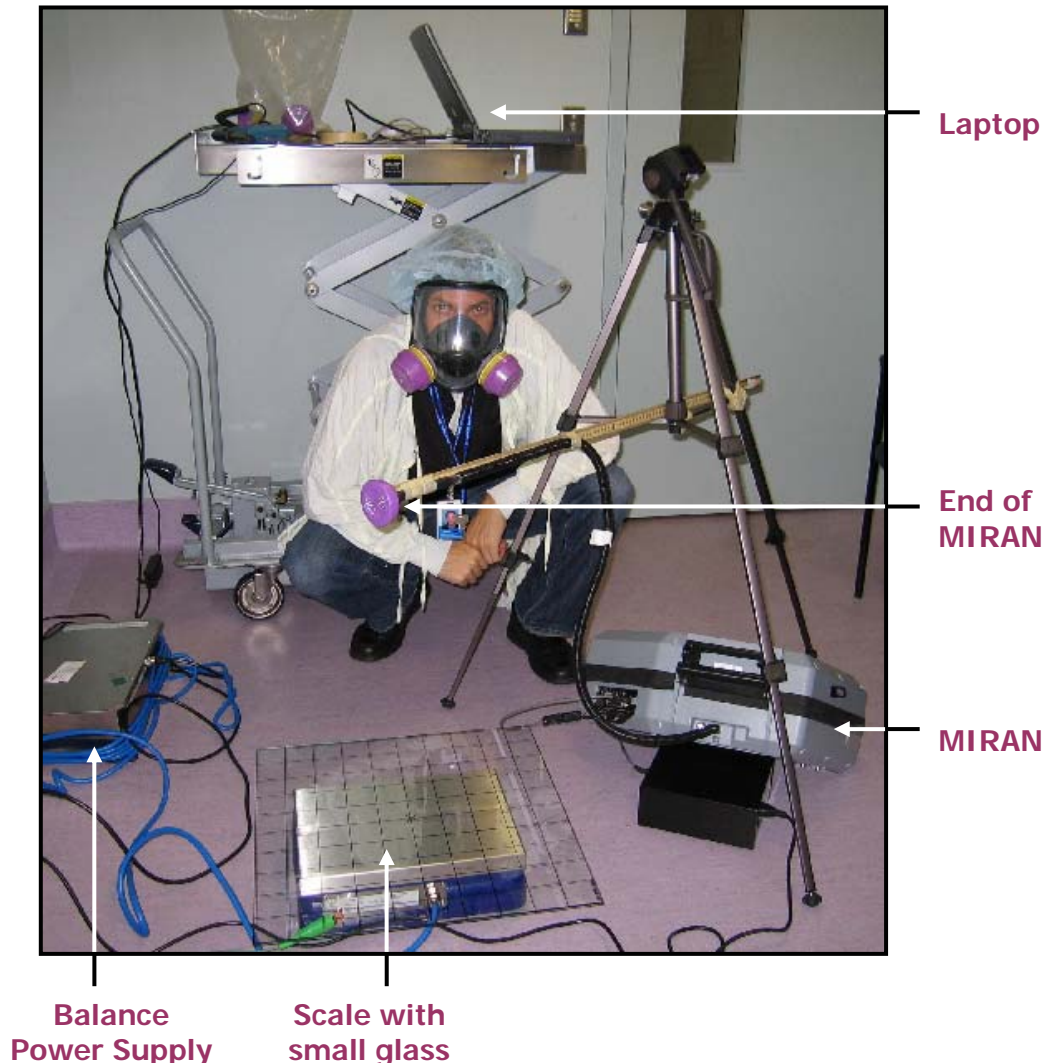
The purpose of our research was to:

1. To evaluate the accuracy of select mathematical models at estimating the potential exposures to staff resulting from varying spill sizes of commonly-used chemicals over time.
2. To determine the most appropriate respiratory protection when cleaning small organic spills.
3. To create evidence-based chemical spill clean-up procedures.

Evaluation of Mathematical Models

Our project included six organic substances for measurement: acetic acid, acetone, ethanol, isopropanol, methanol, and xylene. These substances, which were all monitored in their pure form, were selected because of their frequency of use within healthcare laboratories.

Simulated spills of these six substances occurred in a controlled environment. A piece of glass, which was placed on top of a scale, served as the spill surface. The scale was connected to a laptop which measured the change in mass over time as the chemical evaporated. A MIRAN Sapphire infrared spectrophotometer was used to measure airborne concentrations and was located approximately 60 cm directly above the center of the spill. This distance represents the breathing zone of a worker bending down to cleanup a spill. The MIRAN collected and logged concentration readings over time.



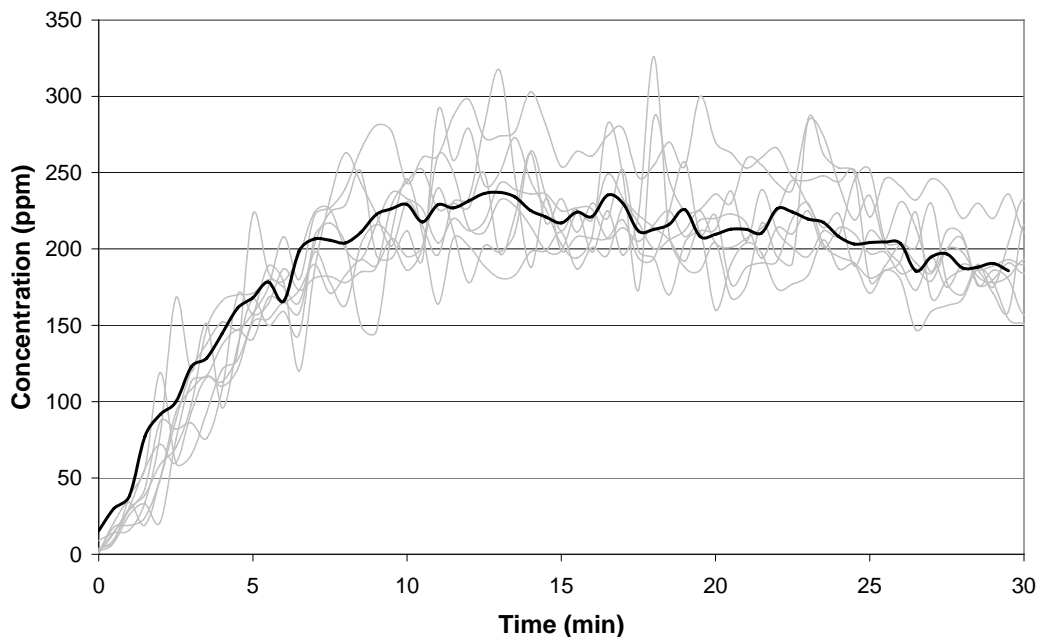
Four different volumes (10, 20, 50, and 100 mL) of each substance were spilled. A total of eight trials for each volume of each substance were spilled to evaluate reliability across trials.

A variety of other parameters were also measured, including air velocity, air direction, room dimensions, room ventilation rate, room temperature and humidity, and surface area of the spill.

A number of potentially applicable, peer-reviewed, commonly-cited spill models were identified as a result of a thorough literature search. Detailed spreadsheets were created for each of the models to allow for calculation of predicted airborne concentrations.

The various parameters collected were input into the mathematical model spreadsheets. This allowed for a direct comparison of the measured values with those predicted by the models.

Summary of 8 Trials of 100 mL Spills of Isopropanol



Unfortunately, none of the models evaluated consistently provided accurate predictions of the actual airborne concentrations measured. Several models provided relatively accurate predictions for certain substances at specific volumes but did not consistently provide accurate results for other substances or even different volumes of the same substance.

Although the currently established models did not accurately predict the airborne concentrations consistently, further refinement of the modeling processes can be of great significance in understanding and estimating airborne exposures.

Determination of Respiratory Protection

Although the mathematical models did not provide reliable and accurate predictions of airborne concentration under the conditions of measurement, the wealth of data collected during the study provided extremely valuable information on airborne concentrations. Unfortunately, the largest spill volume that could reasonably be measured on the glass sheet was 100 mL (as greater spill volumes resulted in too great of a large surface area). As a result, worst case extrapolation was used to predict concentrations at higher volumes. Based on this worst case extrapolation, for most of the organics measured, volumes in excess of 500 mL were predicted to result in concentrations approaching or exceeding IDLH (Immediately Dangerous to Life and Health). As a result for volumes of organics up to 500 mL, a full facepiece respirator is recommended. For volumes in excess of 500 mL, it is recommended that SCBA be utilized.

Spill Cleanup Procedures

There are a large number of spill control products on the market. A discussion of all the spill control products evaluated is beyond the scope of this article. As a result, only the research involved evaluating a variety of products currently available for cleaning up formaldehyde/formalin will be discussed. These products included:

- Vytac
- Polyform
- Formalex
- Pig Mats
- Fan Pads (various sizes)

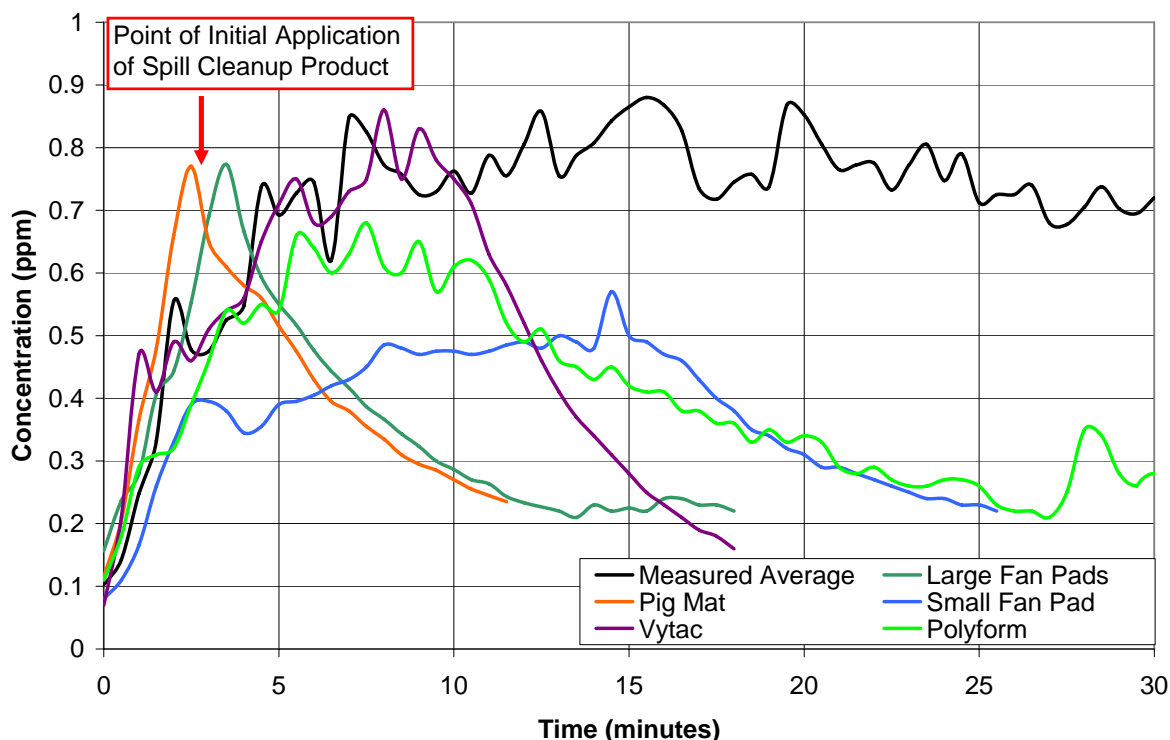
Vytac, Polyform, and Formalex all claim to neutralize formaldehyde and to some degree formalin. Fan Pads are an absorbent pad that is impregnated with a formaldehyde neutralizer. Pig Mats are a simple neutralizing pad with no neutralizer.

To assess these products, a 100 mL volume of formalin was spilled in a controlled environment. After approximately 4 minutes, the product was added to the spill, cleanup ensued as per the manufacturer's recommendations and the used supplies were placed in a container and sealed. During this period, airborne formaldehyde measurements were collected.

The two products that resulted in the quickest decrease in airborne concentration were the Fan Pads and the Pig Mats. Both had virtually identical capacities and were as equally effective. The other neutralizers took considerable time to begin to neutralize – in the case of Vytac, no neutralization occurred after 15 minutes so the spilled formalin was cleaned up using a Pig Mat at that point. These neutralizers may give staff a false sense of security as they can take considerable time to begin to neutralize and their efficiency for formalin is questionable.

Based on the cost and the speed of reducing airborne exposure, a simple absorbent pad appears to be the most effective.

Effect of Various Formalin Spill Cleanup Products



Based on the data collected, and a thorough evaluation of a variety of spill control products, spill control procedures were developed. These procedures are divided by general chemical class:

- Organic substances (excluding formaldehyde)
- Formaldehyde
- Acids
- Caustics

For each of the above general classes, the procedures are divided based on the volume of the spill and the resulting airborne exposure risk.

For the organics and formaldehyde, there are three parts:

- ≤ 50 mL
- > 50 mL but ≤ 1000 mL
- > 1000 mL

For most acids and caustics, there are two parts:

- ≤ 100 mL
- > 100 mL

For each chemical class and associated part, a different procedure is required in order to ensure staff are protected from airborne exposures. For example, for spills of organics less than 50 mL, no respiratory protection is required based on the results of the research. For spills of organics greater than 50 mL but less than 1000 mL, a full facepiece respirator is required. Because of increased risk of exposure from spills greater than 1000 mL, the area is to be isolated and an external spill control provider is contacted to clean the spill. Each set of procedures also specifies all associated additional personal protective equipment and spill control supplies and equipment required.

For questions concerning your spill control program, contact your workplace occupational health and safety department.

The authors will be submitting their research to a number of peer-reviewed journals. The full report will be available in the near future through the WorkSafeBC website: www.worksafebc.com.

Acknowledgements

This research was made possible through a WorkSafeBC Research Secretariat Development Grant. The authors would like to thank the support of their respective organizations, the Occupational Health and Safety Agency for Healthcare in BC (OHSAH), and the University of British Columbia School of Occupational and Environmental Hygiene.

References (Summary)

A full Reference List is available upon request

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- Nicas M. (2000) "Well-Mixed Model: Exponentially Decreasing Emission Rate" in *Mathematical models for estimating occupational exposure to chemicals*, editor CB Keil, AIHA Press, Fairfax, VA.
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- Lennert A, Nielsen F, and Breun NO (1997). Evaluation of evaporation and concentration distribution models – A test chamber study. *Ann Occup Hyg.* Dec; 41(6):625-41.

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"Sir, was that the spill you wanted us to mop up so no one would slip?"

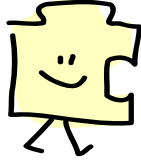
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"I imagine this was mentioned in the solvent handling instructions I didn't read."

This cartoon has been reproduced from August 2005 Newsletter.

Calling all Histo-searchers!



HISTO-Jumble Word Search Challenge Created by May Chin

Unscramble these basic epithelium words



- | | |
|------------------|----------------------|
| itilehpmeu | <input type="text"/> |
| rsnaatitlnio | <input type="text"/> |
| cliai | <input type="text"/> |
| ibocudla | <input type="text"/> |
| cmilvorlii | <input type="text"/> |
| somuqusa | <input type="text"/> |
| tfreitisad | <input type="text"/> |
| iaztieendkr | <input type="text"/> |
| omunarlc | <input type="text"/> |
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| clotb lgele | <input type="text"/> |
| eohilmuutr | <input type="text"/> |
| irlctsieoae | <input type="text"/> |
| dstidraftsepeiou | <input type="text"/> |

THE CUTTING EDGE is the official newsletter of Region IX of the National Society for Histotechnology. It is distributed quarterly to 350 members in Canada.



The Objectives of THE CUTTING EDGE are to:

- Reflect both Canadian and North American articles pertinent to the practice of Histotechnology
- Publish articles that are beneficial to our discipline.
- Promote communication between Region IX members and members of the other NSH Regions
- Provide a medium for exchange of information among members.

Contributions are welcome.
Please send your articles to:

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Production of The Cutting Edge is sponsored by Surgipath Canada Inc.

www.nshregionix.org

Leadership Corner



**Region IX Welcomes our
New Director
Heather Nymeyer**



Heather@nshregionix.org

**Region IX is also proud to present our fellow
Canadian, Janet Tunnicliffe
NSH Vice President**



Janet@nshregionix.org

Congratulations are also in order for the newly elected Board of Directors and the National Executive Officers. Final election results may have been published by the time we print this Newsletter.



www.nsh.org

NSH

MISSION STATEMENT

The National Society for Histotechnology is a non-profit organization, committed to the advancement of Histotechnology, its practitioners and quality standards of practice through leadership, education and advocacy.

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Past Region IX Director

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Heather Nymeyer
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Awards Committee, Co-chair
Membership, Chair

Mark Elliott
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Education Committee, Chair

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NSH Vice President

Tom Wells
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Nominations and Elections Chair

Bylaws Committee
Mark Elliott
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Region IX Website:
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NSH website: www.nsh.org

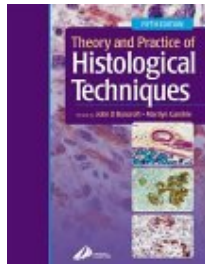
Door Prize donation for the
Montreal Education Day

Thanks to.....

Marilyn Gamble

Theory and Practice of Histological Techniques, 5th ed.
By John D. Bancroft & Marilyn Gamble

Also courtesy of Michael Houston of Elsevier



<http://www.elsevierhealth.com/title.cfm?ISBN=0443064350>



Answers to HISTO-Jumble Word Search

(from page 11)

epithelium
transitional
cuboidal
microvilli
squamous
stratified
keratinized
columnar
mesothelium
goblet cells
urothelium
stereocilia
pseudostratified

**CHEERS
&
Congratulations to one of our favorite
people!!**

Neil & Joyi



**as they get ready to board the float plane
and start an exciting time together**



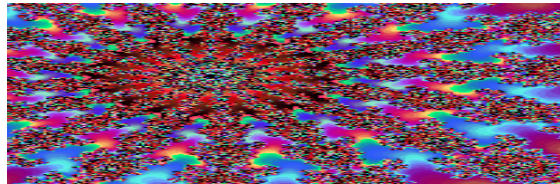
**Neil Abhyankar,
SURGIPATH CANADA
Accounts Manager
Western Canada**

Surgipath[®]
CANADA

Dye and Stain: An Everyday Occurrence

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Comparative Orthopaedic Research Laboratory
University of Wisconsin, School of Veterinary Medicine
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What are dyes? Essentially, they are substances used to add color to fabrics, papers, woods, oils, fats, foods, waxes and more. In the scientific realm, dyes are used to produce color in tissues, plants assays and more.



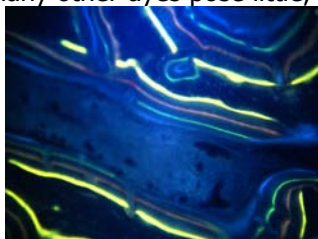
The history of staining is fascinating. In this summary, we will look outside the laboratory into everyday stain phenomena. Natural and synthetic dyes, approved by the Food and Drug Administration, are used every day in the preparation of food, drugs and cosmetics.

Initially, dye pigments were derived from exotic plants and used by tribal groups for ritual face and body painting. Next came the textile trade, going back many centuries with its start in India. The “dyers” manipulated the dye (berries, flowers, hematoxylin) on the cloth surface to create designs—delicate flowers, pictorial scenes and animals. In ancient times, the fabric was cotton, one of the most difficult fibers to dye. Over time the dye and stain industry grew. In science, hematoxylin, a natural dye extracted from the logwood tree, was first used as a tissue stain in 1865. Carmine is made from the cochineal bug and is used in glycogen staining methods. Gradually, the number of pigments available has expanded beyond natural sources, making regulation necessary. The advent of synthetically manufactured dyes to fill in where natural dyes are becoming obsolete is a concern, as dye purity and quality is necessary in medical histochemical techniques.

As histology and cytology trainees, we study dye history, dye stability, staining solution considerations, organic dye composition, inorganic dye reagents, and the mechanism of color production—how dyes attach to tissues. Our dyes are certified by the Biological Stain Commission (BSC). This commission, established in 1921, follows strict criteria and testing, to determine that the laboratory dyes are certifiable. To qualify, batch after batch of dyes must react consistently on laboratory samples. For more information on Biological Stain Commission visit www.biostains.org.

Scientific histology contributions found in the literature explain how we can influence the stain results by manipulating dye pH and solvency as well as using additives. Histologists are masters of special stains, immunohistochemistry “dye and stain,” cellular and molecular biology – using different fluorochrome, protein blots, gels, and many more areas where dyes are used. Of the many histological dyes, few are known to be carcinogenic. Workplace hazards such as auramine O (CI 41000), basic fuchsin (pararosaniline hydrochloride, CI 42500), and ponceau 2R (ponceau de xylidine, CI 16150) are some that I use in my laboratory.

Powders and solutions containing dyes such as these require awareness and it is recommended to use a safety hood and correct laboratory disposal. However, many other dyes pose little, if any, health risk.



Let us switch from “things we learned in school” to everyday dye and stain fun facts!

First of all, some food dyes are derived from plant ingredients which give off much color.

- Turmeric (curry powder)—bright gold
- Beets—deep pink
- Blueberries—lavender
- Coffee—mocha
- Onions—brown
- Cranberries—bright red
- Flowers—varying colors



The saffron flower creates a striking yellow dye and is used in Paella, a Spanish specialty. Interestingly enough, cheese makers started out with using saffron then resorted to marigolds, annatto and other natural colorings to make the cheese look more attractive. Today, yellow dye no. 5 is used to color cheese and other yellow-dyed foods, including cereal, ice cream, fruit, margarine and butter. FDC #5 is the same compound as tartrazine (CI 19140). The U.S. Food and Drug Administration (FDA) Center for Food Safety and Applied Nutrition is somewhat secretive about food dyes. It can take thirty to forty ingredients, for example, to give candies color – some parents believe that these dyes cause “toxic” brain symptoms in children, such as lethargy. I have no comment on that, but it might be worth looking into.

Makeup and skin products are an interesting blend of oils, waxes, and fats often taken from animals, with many color and chemical enhancements that may contribute to cancer, lymphomas, and possible birth defects. The FDA does oversee and approve animal and plant use in cosmetics—this is an area that may soon come with warning labels stating “the safety of this product has not been determined.” Basically, the cosmetic industry does its own testing and evaluation through an independent panel of experts but FDA is suggesting stronger federal oversight of these products.

Today, much of the pigment used to color lips and cheeks is carmine, an animal by-product derived from a Central American species of scaly insect called the cochineal—histologists, sound familiar? Besides carmine, lip color is often comprised of red pigment 57-1, chemical fluorescein (combined with bromoacids to create long-lasting stains) and acid-eosin (D and C Red No. 21). Using modern techniques, small adjustments in the pigment can change the tint or shade in makeup.



Pearl essence is the silvery component found in fish (herring) scales and is used in lipsticks, nail polishes and ceramic glazes. Though many synthetic versions of these dyes are now being used, there are environmentally aware companies which use only natural plant ingredients. All natural products avoid drying chemicals and metallic materials. Although some colors are difficult to create without carmine, vegetable extracts (beets, for example), seaweed, and lichen (or orcein) mixtures often come to mind. Methylpentane-2-one is an ingredient found in nail polish, and is not tested. Discard makeup after a year to avoid microbial and possible bacteria, leading to infection.

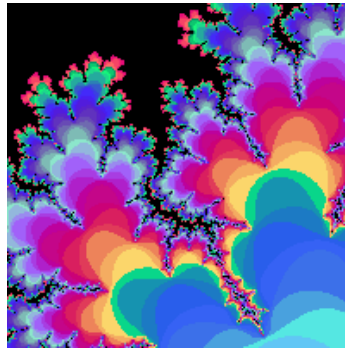
Dyes are also used in hair products, most commonly in hair coloring. Henna is a renewable vegetable material, such as corn, coconut or palm-kern oil. Botanical vegetables provide a basis of color. Coffee enhances brown shades. Some hair dyes contain coal tar, which has been linked to bladder cancer and non-Hodgkin's lymphoma. Even low dose exposure to a chemical which has not been adequately tested can contribute to health problems.

Aromatherapy is a mixture of dyes and scents, created from plant oils, such as rosemary extract. We enjoy our aromatherapy scents and here too additives for color, texture and preservation are used.



The dye and textile industry relies on consistencies in color to produce a specific shade on fiber or fabric. The dye reacts differently on silk, wool, cotton or blends. Fabric dye manufacturers manipulate the dye molecules and concentrations, often changing the color names. Artists follow some standardization criteria for consistency in order to buy the same fabric dye content for their work in fibers, fabrics, etc.

As noted earlier, histologists rely on consistency in their stains, which is why the standardization and certification set by the Biological Stain Commission (BSC) is so important. In histology, we follow BSC guidelines for dye certification. Experts establish criteria for the dye molecular structure, shape and behavior. The food and cosmetics industries also follow guidelines. In the Comparative Orthopaedic Research Laboratory in the School of Veterinary Medicine, at the University of Wisconsin- Madison, we use dyes for bone stains, blots, fluorochrome work and more. Stains evolve constantly and are essential to a clinical or research setting. In the laboratory, "dye and stain" is science. In day-to-day interaction continue to question, be innovative and creative in your thinking as you use dyes at work, at home – and read labels!



In summary, I hope you enjoyed the everyday stain and dye facts. There is a plethora of information available—I barely touched upon the subject. Stains, in and out of the laboratory, are fascinating. The continued development of artificial dyes in the latter half of the 19th century has led to an explosion of color, and today, color is still being developed by adjusting the pigment to create different tints or shades. Celebrate – color is everywhere!

For further information, the following Web sites and references may be helpful.

- Biological Stain Commission: www.biostains.org
- Journal: *Biotechnic and Histochemistry*
- Rowley Biochemical, Inc. Catalog and Price www.rowleybio.com

Dyes and Colors: <http://dyesonline.net/dyes/History.jsp>

USFDA—Color Additives: <http://www.cfsan.fda.gov/~dms/col-toc.html>

SPI-Chem Light Microscope Dyes and Stains: <https://secure.2spi.com/catalog/chem/dyes-stains-light-microscopy.html>

Stains File: <http://stainsfile.info/StainsFile/index.html>

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Exhibition Area Montreal Education Day

Automatic Glass Coverslipper



Our Surgipath Glass Coverslipper sets a new benchmark in design flexibility speed and reliability. This is the new standard in glass coverslippers. Our compact unit simplifies this tedious task into a simple process. The coverslipper is small enough to fit inside bench fume hoods and is still the fastest glass coverslipper on the market today. It can handle up to 600 slides per hour, while allowing accessibility for very easy cleaning. The Surgipath Glass Coverslipper is small, productive, reliable and a must in any lab.

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Item #	Description
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043000138	Basket Adapter Leica CV5000
043000139	Modified Leica Basket
043000244	Coverslipper Gripper

Technical Data

Power Supply:	120/24 0 VAC, 50/60Hz
Current:	2.5 AMPS
Width:	15.75 in (40 mm)
Height:	13.0 in (33 mm)
Depth:	7.50 in (19 mm)
Net Weight:	30.80lbs(14Kg)
Mounting Medium:	Any commercial type
Type of Slides:	3 in. x 1 in. or 76 mm x 26 mm Ground or beveled edge slides Thickness: .08 mm – 1.20 mm
Type of Cover Glass:	Length: 40 mm, 50 mm, 55 mm, and 60 mm Width: 22 mm - 25 mm Thickness: #1: 0.13 mm - 0.17 mm #1.5: 0.16 mm - 0.19 mm
Certification:	UL/CSA CE approved

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