Training Health and Safety Committees to Use Control Banding

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Workshop Planning Committee

(in alphabetical order)

• Centers for Disease Control and Prevention- National Institute for Occupational Safety and Health (NIOSH)
• Connecticut Business and Industry Association (CBIA)
• Connecticut Council on Occupational Safety and Health (ConnectiCOSH)
• Connecticut Department of Public Health- Environmental and Occupational Health Assessment Program
• Connecticut Occupational Safety and Health Administration (CONN-OSHA)
• Connecticut River Valley Local Section- American Industrial Hygiene Association (CRV-AIHA)
• Federal Occupational Safety and Health Administration (FedOSHA)
• Society for Chemical Hazard Communication (SCHC)
Outline

• Control Banding Overview
• Workshop Series
• Teaching Strategy
• Evaluation of the Curriculum
• Evaluation of the Control Banding Model
Control Banding

A task involving chemicals is assigned to a control “band”

The “band” is based on the level of Risk

Risk = Health Hazard + Exposure Potential
The Control Bands

- Prevention
  - Substitution, process change, use safer forms
- Enclose the process (Containment)
- Local exhaust ventilation
- General Ventilation and Good Industrial Hygiene Practice

- For carcinogens, mutagens and sensitizers
  “As Low As Reasonably Achievable” (ALARA)
  Therefore, Seek the advice of a specialist
For each task.....

- Step 1: Identify the hazardous substances
- Step 2: Select a health hazard group
- Step 3: Determine the exposure potential
- Step 4: Find the right control approach
- Step 5: Look for task specific control guidance or best practices guidance
- Step 6: Evaluate and discuss
<table>
<thead>
<tr>
<th>Health Hazard</th>
<th>Exposure Potential</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical/ Product (CAS#)</td>
<td>R Phrase(s)</td>
<td>Amount</td>
</tr>
<tr>
<td>__________________</td>
<td>_____________</td>
<td>__________</td>
</tr>
</tbody>
</table>

Are the current controls protective? ____________

Is there a task-specific control guidance sheet or best practice information? ____________
Step 4:

FINDING THE RIGHT CONTROL APPROACH

General Ventilation
Engineering Control
Containment
Special

AMOUNT:
LARGE  MEDIUM  SMALL

DISPERSION POTENTIAL
1. low dustiness or volatility
2. medium volatility
3. medium dustiness
4. high dustiness or volatility

HAZARD GROUP 'D'
HAZARD GROUP 'A'
HAZARD GROUP 'C'
HAZARD GROUP 'B'
HAZARD GROUP 'E'

D - dustiness
V - volatility

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Mixing (liquids)

Containment

Access
- Control staff entry to the work area.
- The work area and equipment should be clearly labelled.

Design and equipment
- The mixer should be fully enclosed and provided with effective seals on the lid, other access points and mixer drive shafts.
- Ensure the mixer is adequately vented to prevent pressure build-up.
- The mixer should be provided with liquid level and pressure indicators that are clearly visible.
- Consider the use of pressure relief valves and/or bursting discs for reactive materials.

Do not allow entry to a closed mixer for cleaning or maintenance until the equipment has been isolated, made safe and the atmosphere checked for oxygen deficiency or toxic gases.
- Design the closed system to allow easy maintenance and cleaning.
- Keep the process equipment under negative pressure to prevent leakage.
- Discharge extracted air to a safe place away from doors, windows and air

This guidance sheet is aimed at employers to help them comply with the requirements of the Control of Substances Hazardous to Health Regulations 2002 (COSHH) by controlling exposure to chemicals and protecting workers’ health.

The sheet is part of the HSE guidance pack COSHH essentials: easy steps to control chemicals. It can be used where the guide recommends control approach 3 (containment) as the suitable approach for your chemical(s) and task(s).

This sheet provides good practice advice on mixing medium and large quantities of liquids. It describes the key points you need to follow to reduce exposure to an adequate level.

It is important that all the points are followed.

Some chemicals can also be flammable or corrosive. Where they are, your controls must be suitable for those hazards too. Look at the safety data sheet for more information.

Depending on the scale of work, releases into the atmosphere may be regulated within the pollution prevention and control (PPC) framework. You should consult your local authority on the
Best Practice Advice

Good work practices used by or recommended by your industry sector

Most industrial processes use similar “unit operations”

Most chemical control problems have been met, and solved, before. There are only a few basic approaches to control.
Working with flowers, fruit and vegetables

General ventilation

Workplace and access
- Skin contact with plant sap, etc. is common in florists and greengrocers, but chefs, bar staff and garden centre staff may also be affected.
- Up to 50% of florists develop skin disorders.

Design and equipment
- You need washing facilities for discontamination after handling products.

Special care
- Some plant species are well known to cause skin disorders eg:
  - Decorative plants:
    - narcissus and tulips
    - chrysanthemum (compost)
    - euphorbias (spurge)
    - primulas
    - pine (larch)
  - Fruit and vegetables:
    - cayenne
    - paprika
    - pimento and chillies
    - citrus fruit (particularly limes)
  - Potatoes (with wet handling)
- Workers who are sensitised to latex in rubber gloves may also react to juice from fresh agaves and pinnacles.
- Fresh pinnacles contain enzymes that make skin tender or sore.
- Staff may develop skin abscesses through handling pinnacles and cocktails.

Personal protective equipment (PPE)
- Wear protective gloves if possible. Single-use gloves are preferred. If you must use latex gloves, use only “low protein, powdered free” gloves.
- Throw away single-use gloves every time you take them off.
- Skin creams are important for skin protection and help in washing contamination from the skin. These are not “barrier creams”. After work creams help to replace skin oils.

Health advice
- Ask your workers to check their skin for dryness or sores every six months.
- If these symptoms appear, check the proper use of skin creams and PPE.
- If symptoms persist, contact the appropriate health and safety advisor. Tell the doctor that work could be a cause.

Training
- Show your workers this sheet and check that they understand it.

Further information
- Preventing dermatitis at work: Advice for employers and employees. Leaflet F272. HSE Books 1996 (single copy free or printed packs of 15 ISBN 0 7166 1246 6)
- Occupational health professionals, doctors or nurses can find advice in the Yellow Pages under “Health and safety consultants” and “Health authorities and services.” Also visit the NHS website at www.nhsdirect.nhs.uk

Employee checklist
- Wash your hands after use, and before and after eating, drinking, smoking and using the lavatory.
- Never clean your hands with concentrated cleaning products or solvents.
- Throw away single-use gloves every time you take them off.
- Check your skin regularly for dryness or sores - tell your supervisor if these symptoms appear.
- Use skin creams provided as instructed.
- Watch out for skin itching, rashes or blistering - tell your doctor about your work.

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COSHH ESSENTIALS

Easy steps to control health risks from chemicals

COSHH Essentials provides advice on controlling the use of chemicals for a range of common tasks, e.g., mixing, or drying. Click here for an example of the type of advice you will receive.

For most tasks, this website will take you through a number of steps and ask for information about your tasks and chemicals. This assessment will take several minutes to complete.

But for some processes, tasks or services, you can now get direct advice. Click here for an example of the type of advice you will receive.

Click here to get started

http://www.coshh-essentials.org.uk/
Control Banding Workshop Series
November 16, 2006

62 participants (+6 planning committee)
34 worksites, 14 sent teams, 20 sent individuals
Workshop Agenda

• Control Banding Overview
• COSHH Essentials
• Hazard Classification: Risk Phrases/ GHS
• Hands on Exercises- Pen and Paper
• Hands on Exercises- On Line (optional)

• [http://www.oehc.uchc.edu/news/control_banding.htm](http://www.oehc.uchc.edu/news/control_banding.htm)
Workshop Objectives

• List several factors that contribute to occupational chemical exposure risk
• Complete a workplace risk assessment using “Control Banding”
• Identify the hazardous properties of a chemical by using international classification and labeling systems such as the Globally Harmonized System (GHS).
• Locate “on line” fact sheets that describe how to design and implement the recommended control strategies and “best practices”
Follow-up Session
February 1, 2007

- Small Group Exercise: Experience with Model
- Panel: Implications for Using CB in the US

36 participants
13 worksites, 7 sent teams, 6 sent individuals
Key Curriculum Components

Ask participants to...

...identify obstacles to evaluating and controlling chemical exposures in the workplace

...list the ways in which they already use control banding concepts to evaluate risk....

...give examples of current “Best Practice Advice”

...use Case studies (pen/paper & online)
Evaluation of the Curriculum

- Educational Quality (100% ≥3)
- Course Materials (98% ≥ 3)
- Instructors Ability to Respond to Questions and Comments (100% ≥ 3)
- Facilities (100% ≥ 3)

1: poor to 4: excellent
Workshop Objectives

• List several factors that contribute to occupational chemical exposure risk (95% ≥ 3)
• Complete a workplace risk assessment using “Control Banding” (100% ≥ 3)
• Identify the hazardous properties of a chemical by using international classification and labeling systems such as the Globally Harmonized System (GHS). (96% ≥ 3)
• Locate “on line” fact sheets that describe how to design and implement the recommended control strategies and “best practices” (98% ≥ 3)
Evaluation of the Model

Workshop II proceedings: qualitative data

Questionnaire survey
Workshop II Proceedings: Most Valuable Part of Model

- Simple, time-saving, uniform approach to hazard classification
- Best for new processes or tasks involving low-medium risk exposures
- Provides a system for documentation and validation of existing controls (e-tool +)
- Relatively easy to use- attractive to SME (less reliance on experts)
Workshop II Proceedings: Barriers Associated with Model (and possible solutions):

- Risk phrases hard to find
  Solution: GHS with frequent updates
- Need to clarify and expand exposure classification variables-
  Solution: update materials, always discuss outcome
- Task-specific control guidance sheets hard to find
  Solution: publish a library of searchable sheets
- The model over/under controls
  Solution: need more validation studies
Questionnaire:
Did the participants successfully use the model to evaluate tasks in their workplaces?

71% of the 62 participants completed the CB questionnaire (27 workplaces)

54.5% (n=44) tried to use CB at work. Of these-
  87.5% talked with others
  79.2% looked up an R phrase
  75% evaluated a task with CB (n=18)
  37.5% got “buy in” for the model
  41% downloaded a best practice fact sheet

Mean “ease of use”: 7.2 (SD = 1.5)
scale of 1 (difficult) -10 (easy)
Of those that did not use the model
n=20

30% not appropriate for my setting
25% too busy
10% no management support (no OSHA std)
5% computer too difficult
5% we already have a protocol
25% not asked/ missing data

Mean “ease of use”: 6.1 (SD = 2.4)
scale of 1 (difficult) -10 (easy)
18 participants, from 10 workplaces reported on 21 task evaluations

- 66.7 % of the tasks evaluated w/ pen and paper
- 71.4 % of the tasks evaluated w/ e-COSHH

Risk Phrases found in multiple ways (> 1 possible)
- 61.1% on MSDS
- 50% online
- 33.3% call to DD
- 16.7% call to manufacturer
- 11% other
Were the control recommendations (bands) generated by the model consistent with the controls the participants would have identified for these tasks?

• Participants agreed with the classifications 90% of the time

• 56% of these 18 tasks needed more controls

• Participants implemented the controls for 80% of the tasks needing more controls
Participants downloaded task-specific control guidance sheets....

....for 68.4% of these tasks (n=19)

72.7 % found the sheets to be helpful
Future Work: Were the control recommendations (bands) generated by the model consistent with the controls a CIH would have identified for these tasks?

CIH site visits (blinded to survey results)
- Effectiveness of the training
- Effectiveness of the model

Workshop III: Case Studies
Summary

• Training approach successful
• At a minimum, model leads to discussion of risk
• US workers & managers would welcome a simplified, complementary approach
• Best practices extremely promising initiative
• Concerns
  – Risk phrases
  – Validity of model itself- more variables and testing
  – High hazard chemicals identified but special advice only option