

CONTROL BANDING: Is the U.S. Ready?

The NIOSH Control Banding Team - *Applying the Concepts to U.S. Small Business Industries*

Rick Niemeier, Ph.D.
Thomas J. Lentz, Ph.D.
Heinz W. Ahlers, M.S., J.D.
Paul A. Schulte, Ph.D.

(AIHCe May 11, 2004)



NIOSH Control Banding Team Members

T.J. Lentz (Chair)		Rick Niemeier (Co-Chair)	
Chandran Achutan	Omur Cinar Elci	Mark Hoover	
Heinz W. Ahlers	Lynda Ewers	Stephen Hudock	
Alfred A. Amendola	Marilyn Fingerhut	Larry Reed	
Randy Boylstein	Matt Gillen	Paul Schulte	
Thomas M. Brady	Duane Hammond	John W. Sheehy	
Pamela Drake	Martin Harper	Aaron L. Sussell	

NIOSH Control Banding Team

- Established prior to 2nd International Control Banding Workshop
- All NIOSH divisions are represented
- Biweekly meetings
- Purpose: to coordinate CB activities
 - ✓ Internal NIOSH research coordination/collaboration
 - ✓ NIOSH and OSHA collaboration in workplace and Global Harmonization System adaptation (R&S phrases) in U.S.
 - ✓ U.S. Control Banding Scientific Working Group (USCBSWG) to develop a National Plan
 - ✓ WHO/IPCS on the Global Control Banding Implementation Strategy
 - ✓ NIOSH and HSE collaboration

NIOSH Control Banding Team

2nd International Control Banding Workshop

- Participation in planning and sponsoring
- Arranged for Training Courses
- Poster Session Topics Presented
 - Asbestos-contaminated Vermiculite
 - Beryllium
 - Butter Flavor Mixing Operations
 - Damp Building Environments
 - IDLH
 - Glutaraldehyde in Health Care Workers
 - NORA Mixed Exposures
 - Self-Assessment of Exposure
 - System Safety Similarities

NIOSH Control Banding Team

Current Activities

- **Incorporating CB elements into current and future projects**
- **Critical Review document**
- **Partnerships**
- **Planning for future meeting/workshops**
- **Priority areas**
- **Training/communications**
- **Twinning with Developing Countries**

Incorporating CB Elements into Projects

- ❖ Comparison of engineering control reports to COSHH Essentials
- ❖ Worker participation exposure assessment
- ❖ Linking of CB to Health Hazard Evaluations and follow-back studies
- ❖ Demonstration projects, e.g., glutaraldehyde in health care workers, beryllium, silica, microwave popcorn flavoring, nanotechnology, etc.

NIOSH Control Banding Team

Critical Review document

Scope:

critical review and analysis of the state of the art,
validation and effectiveness of control banding

Information Brochure:

Control Banding: Does it really work?

Partnerships

- HSE to explore assisting and contributing to the development of control guidance sheets
- Glutaraldehyde in Health Care Workers
Dow Chemical, Kaiser Foundation Health Plan, MediSHARE Environmental Health and Safety Services, Society of Gastroenterology Nurses and Associates (SGNA), and HSE
- State of Kentucky Safety and Health Network and Foundation
- U.S. Control Banding Scientific Working Group
ACGIH, AIHA, AMERICAN CHEMICAL COUNCIL, ASSE, CORPORATIONS, EPA, IOHA, Labor Organizations, MSHA, NSC, ORC, OSHA, (others)
- WHO/IPCS on the Global Control Banding Implementation Strategy

Planning for future meetings/workshops

- DOHS (Dutch Occ'l Hyg Society - NVvA) National Conference (Utrecht, Netherlands, June 13-15, 2004)
- U.S.CBSWG – Control Banding Workshop to develop a National Plan (~March 2005)
- 3rd Control Banding International Workshop in conjunction with the IOHA 2005 - Pilanesberg, South Africa (September 19-23, 2005 - <http://www.saioh.org/ioha2005/>) and the XVIIth World Congress on Safety and Health at Work (Orlando, FL)

Priority Areas – Demonstration Projects

- Glutaraldehyde in Health Care Workers
- Microwave Popcorn Flavorings
- Silica in mining and construction (masonry workers)
- Beryllium consultation program
- Nanotechnology
- Targeted Small Business Industries with high risks
 - *Wooden Pallet manufacturing*
 - *Concrete Products*
 - *Roofing, Siding and Sheet Metal*
 - *Plumbing, Heating and Air Conditioning*
 - *Auto and Home Supply Stores*
 - *Eating Places*
 - *Offices and Clinics of Medical Doctors*

NIOSH Control Banding Team

Demonstration Project – Example

Glutaraldehyde in Health Care Workers

PARTNERS

NIOSH

Dow Chemical

Kaiser Foundation Health Plan

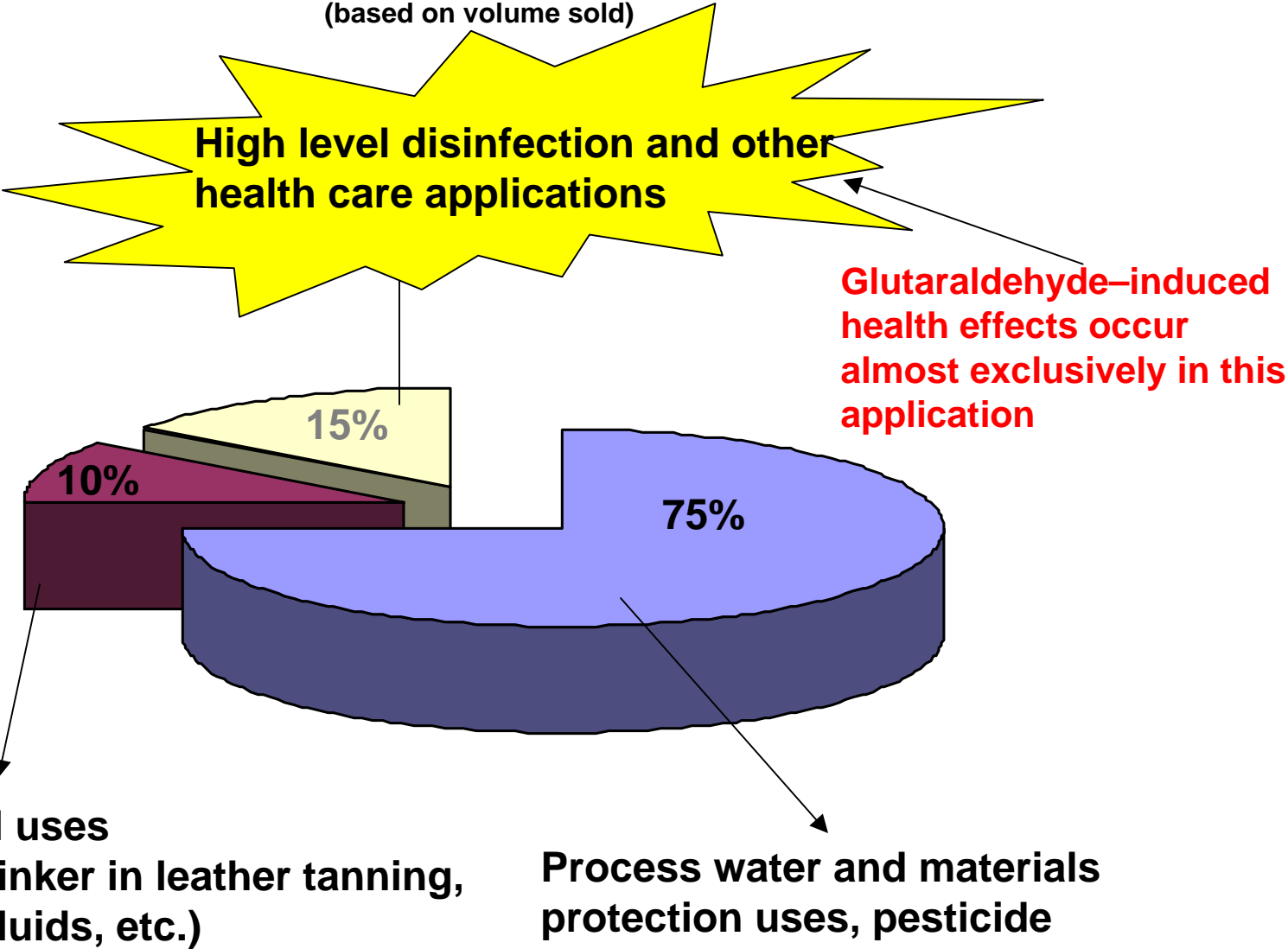
MediSHARE Environmental Health and Safety Services,

Society of Gastroenterology Nurses and Associates (SGNA)

HSE

GLUTARALDEHYDE MARKET SEGMENT USES

(based on volume sold)



High level disinfection and other health care applications

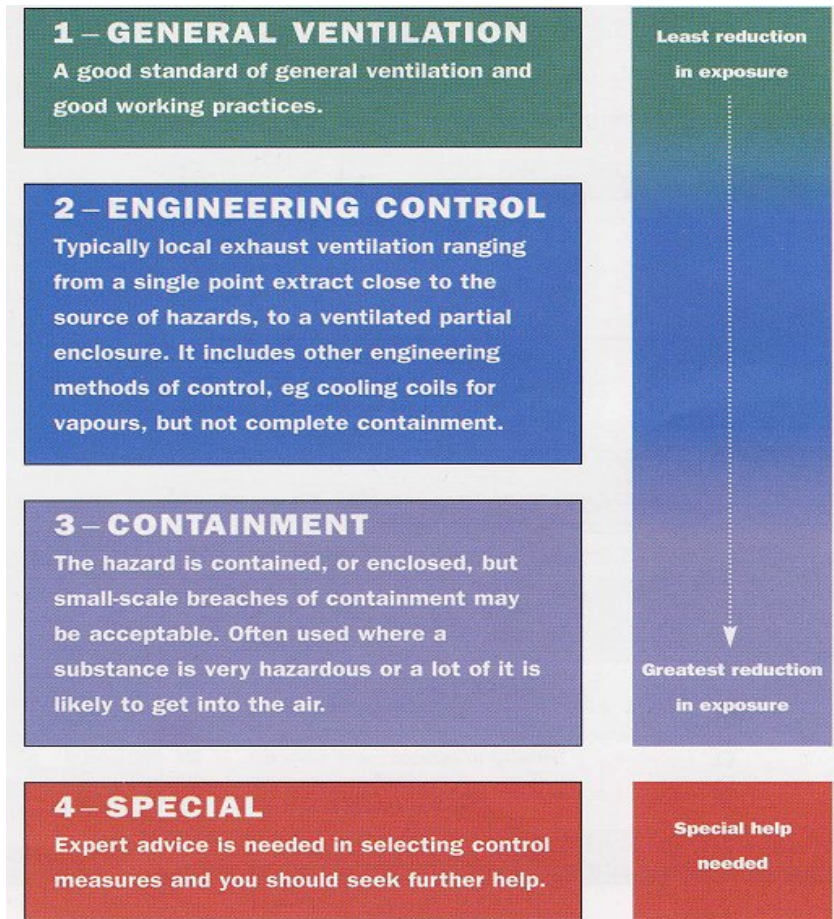
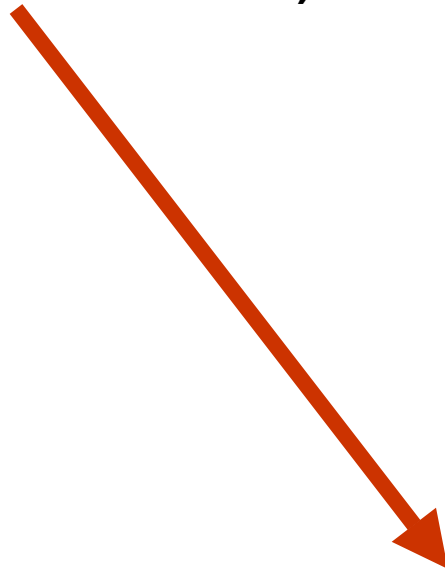
Glutaraldehyde-induced health effects occur almost exclusively in this application

Non-biocidal uses (e.g., cross-linker in leather tanning, embalming fluids, etc.)

Process water and materials protection uses, pesticide

Control Banding and Glutaraldehyde

Glutaraldehyde
(R42/43 – sensitization)



Identify & Engage key stakeholders

Information supply chain

1. Manufacturer of the active disinfectant (label, MSDS, tech sheets, use/handling, spill/emergency procedures, engineering advice, training)
2. Formulator of product (label, MSDS, tech sheets, use/handling, spill/emergency procedures, engineering advice, training)
3. User (understanding)

Things that can go amiss

1. Transmission of data (from one level to another)
2. Interpretation/understanding of data
3. Action based upon data received
4. Training

GLUTARALDEHYDE ISSUES

- Where do you go to get information on using glutaraldehyde ?
- Site visits (best/worst control scenarios) to prioritize
- Develop segmented exposure groups for draft CB documents
- Critique draft CB documents for information gaps/workability (audience participation)
- Feedback on process/utility of CB approach (questionnaire)

DATA COLLECTION

- Determine how glutaraldehyde is used for similar exposure groups
 - Field trips
 - Exposure data
 - Facility types (large vs. small)
- Identify effective controls currently in use
- Identify ineffective practices
- Segment according to degree and frequency of exposure
- Identify group for pilot testing control banding documents
- Expand/supplement guidance for “Special Case” of COSHH Essentials

SEGMENTS

Endoscopy Nurses
(Scope Disinfection)

Manual Processing

- ✓ Workplace access
- ✓ Design & Equipment
- ✓ Procedures
- ✓ Special Care
- ✓ Cleaning & Housekeeping
- ✓ PPE
- ✓ Health Surveillance
- ✓ Training
- ✓ Supervision
- ✓ Employee Checklist
- ✓ Additional Information

**Automatic
Processing**

**Spill Response
and Clean-up**

Next Stages

PPE

***Transfer &
Disposal***

***Architectural
Design***

MANUAL PROCESSING (draft)



4
Control approach 4

Control Guidance Sheet 403

Manual Endoscope Reprocessing

Special 403



This guidance sheet is for employers including the self-employed and franchisees 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.

Get safety data sheets from your product supplier. Use these to identify the more dangerous chemicals, and less dangerous substitutes.

The ACOF (Appendix 3) states that 'All employees exposed or liable to be exposed to a substance which may cause occupational asthma should be under suitable health surveillance'. The extent and detail of the health surveillance should be related to the degree of risk identified during COSHH assessment. There should be appropriate consultation with an occupational health professional over the degree of risk and level of surveillance. Health surveillance should include the maintenance of a health record in a suitable form for each exposed individual.'

This sheet is part of HSE guidance COSHH essentials: easy steps to control chemicals. It can be used as part of the approach needed to control as far as risks attributed to glutaraldehyde handling.

Local ventilation is the recommended approach accompanied with the appropriate protective equipment.

See Control Guidance Sheets 400 and 402.

Workplace and access

- Ensure that only trained workers have access to glutaraldehyde and keep the storage container locked.
- Do not locate the equipment in the procedure room.
- Process flow of endoscopes from dirty to clean with a physical separation between.

Design and equipment

- Keep the area well ventilated - 12 air changes per hour with a through draft.
- Use ventilation cabinets or fume hood exhaust to control exposures.
- Use pump to transfer new and used disinfectant.
- Keep tray covered to avoid excess fume generation.
- Do not pour disinfectant from container into basin.
- Keep a spill clean-up kit nearby. Contain spills with spill pillows, pigs and socks. (See Control Guidance sheet 404).
- Locate near sink.
- Never decant disinfectant into an unlabelled container.
- Never re-use a disinfectant container. Dispose off safely or return it to the supplier.
- Don't store more than 1 gallon of disinfectant liquid, unless boxed in original shipping containers to prevent puncture, spillage and unauthorized opening.
- Keep hand-washing facilities for decontamination after handling products, preferably near the exit.
- You need an emergency eye washing station in close vicinity to the equipment.
- Use sheet vinyl flooring with welded seams.
- Do not use floor drains to empty used disinfectant solution.



Procedures

- Ensure the process flows from dirty to clean, i.e., landing area, leak test, pre-processing sink, scope washer, scope storage.
- Use the paddle actuated switch, or latch, or swinging door with steel panel on dirty entrance door. Avoid using hands to open door.
- Always check the exhaust to assure proper operation.
- Buy liquid chemicals in containers that are labelled, easy to pour from, don't dribble, and don't trap liquid in a rim.
- Store containers so their labels face forwards with header lines on lower shelves.
- Store products containing chemicals securely in a cool, dry, dark place, capable of keeping in spills. Don't store for more than you need.
- Clear up spills immediately. Absorb liquids with spill kits. Dispose in a marked secure container.
- Never mix waste (e.g. acid, alkali, flammable solvent, chlorinated solvent etc). Keep these separate.
- Never enter an area where a spill has occurred without the proper PPE.
- Dispose of safely all products you no longer need.

Special care

Contact with glutaraldehyde can lead to skin soreness and itching, rashes, blistering (dermatitis), damage to the eyes, and difficulty in breathing (asthma).

Cleaning and housekeeping

- Keep the area clean and well organized.
- Clean up spills promptly - practice how to do this.
- Dispose of empty containers and wastes safely.
- Wear appropriate PPE when cleaning up spills.

Personal Protective Equipment (PPE)

- Follow the instructions on product labels.
- Ask your safety-gearing supplier to help you get the right PPE.
- You may need respiratory protective equipment (PPE) in case of a spill. Seek advice from your PPE supplier.
- Make sure you know how to check that PPE fits correctly. Seek advice from your supplier.
- Wear protective gloves - single-use nitrile gloves are acceptable. If you must use latex gloves, use only low-protein, powder-free gloves.
- Dispose of 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 surveillance

See Control Guidance Sheet 402.

Training

- Show your workers this sheet and check that they understand it.
- Tell them about the risks of using the product - see product labels or Section 15 of the Material Safety Data Sheet from your product supplier.
- Make sure everyone knows how to clean up spills promptly and safely.

Supervision


- Check that ventilation is working properly and that PPE is being used correctly.
- Ensure that the health surveillance system is being carried out for those who need it.

Further information

- Consult the supplier's Material Safety Data Sheet for further information or contact CH BMTPEO (800) 252-8200 for emergency information. Additional information can be obtained from the NIOSH toll-free number 1-800-368-NIOSH (1-800-368-4674) or outside the U.S. 513-533-8328 or access the web site at http://www.cdc.gov/niosh/nic_nj.html

Employee checklist

- Check that your PPE works properly every time you put it on.
- Use, maintain and store your PPE in accordance with instructions.
- If you find any problems, tell your supervisor. Don't just carry on working.
- Wash your hands after use, and before and after eating, drinking, smoking and using the lavatory.
- Never clean your hands with oxygenated cleaning products or solvents.
- Clean up spills immediately. Absorb spills in granules and put them in a fitted bin. (see Control Guidance Sheet 404.)
- Cooperate with health surveillance team.
- Always follow the standard operating procedure.
- Report skin soreness and itching, rashes, blistering (dermatitis), damage to the eyes or difficulty in breathing (asthma) immediately to your supervisor.



COSHH essentials
easy steps to control chemicals
October 2012
Produced and published by
the Health and Safety Executive

NIOSH Control Banding Team

What we can do – Share our solutions

Principles of Product Stewardship, Responsible Care ® and regulatory compliance require:

- Receipt by the user of appropriate information to protect health
- Development of EH&S guidance that is understandable and easily available

In addition to legal compliance requirements, e.g., MSDS

- Development of appropriate Control Banding Guidance sheets (per use and per chemical if necessary) for incorporation in Chemical Essentials
- Supporting the International Control Banding approach
- Promotion of the distribution, use and explanation of Guidance Sheets

WHY FORM A PARTNERSHIP?

- ✓ NIOSH/HSE gains practical experience in performing Control Banding research and partnering.
- ✓ Dow Chemical extends responsible care beyond manufacturing to its distributors & final customers.
- ✓ Kaiser Foundation distributes extensive knowledge base in glutaraldehyde controls.
- ✓ Endoscopy nurses and staff experience reduction in exposure to glutaraldehyde.
- ✓ Partnership experience provides guidance for future efforts in control banding and alliances.

NIOSH Control Banding Team

Training and Communications

- HSE COSHH Essentials training at NIOSH following 2nd International Control Banding Workshop
- GTZ Chemical Management training at ACGIH Technical Center (NIOSH sponsored)
- DVD Training on Glutaraldehyde exposures in the Health Care
- Control Guidance Sheets on Glutaraldehyde exposures in Health Care
- NIOSH web site
- List serve
- CD-ROM of 1st and 2nd International Control Banding Workshops with critical evaluations and reference materials
- Training PowerPoint slide show for local presentations

NIOSH Control Banding Team

Twinning with Developing Countries

- TBA?
- To be discussed at Dutch Occ'l Hyg Society National Conference, June 13-15, 2004

Contacts:

<p>Thomas J. Lentz, Ph.D. Industrial Hygienist (513) 533-8260 Fax: (513) 553-8230 Email: tbl7@cdc.gov</p>	<p>Rick Niemeier, Ph.D. Senior Scientist, Toxicologist (513) 533-8388 Fax: (513) 553-8588 Email: rwn1@cdc.gov</p>
<p>Heinz W. Ahlers, M.S., J.D. Physical Scientist (513) 533-8407 Fax: (513) 553-8230 Email: hha2@cdc.gov</p>	<p>Paul A. Schulte, Ph.D. Epidemiologist (513) 533-8302 Fax: (513) 553-8588 Email: pas4@cdc.gov</p>
<p>Education and Information Division NIOSH 4676 Columbia Pkwy Cincinnati, OH 45226</p>	