Taking Pollution Out of Production

Why we need to do it and how we can put people back to work to get it done

Charlotte Brody, Associate Director for Health Initiatives
BlueGreen Alliance

Putting Breast Cancer Out of Work

Why we need to do it and how we can put people back to work to get it done
When workers are protected so is the environment.

Safer, healthier, better protected workers help create safer and healthier products.
The right to know is fundamental
Why we need to do this: We’re getting sicker and part of the reason is chemicals.
More children are getting cancer but fewer children are dying from cancer.

Cancer Incidence and Mortality in Children

Asthma up 100% Impaired fertility up 40% Breast Cancer up 40% Autism diagnosis up 1000%
30% more babies are being born too early.
The dose makes the poison

Why do we think this has anything to do with chemicals? Because wildlife is getting sick too.
DBCP: Infertility

In the California workers who produced it and the Nicaraguan farmworkers who used it

Jury Awards Millions to Farmers Sterilized by Pesticides

By Brandon Kemp  November 05, 2007  11:00:12 AM  Category: Agriculture, Health

A California jury yesterday awarded $3.3 million to six Nicaraguan farm workers sterilized by pesticides made by Dow Chemical and used at Dole’s banana plantations.

The plaintiffs alleged that Dow and Dole, another chemical company, hid information about the dangers of dichlorophenoxyacetic acid or DBCP; high exposure left lab animals organ-damaged, sterile and prone to birth defects. The Occupational Health and Safety Administration sets DBCP’s occupational exposure limit at one part per billion per workday. During the 1970s and 1980s, the plaintiffs reportedly inhaled DBCP vapors and wore clothing soaked by water dropping from DBCP-sprayed trees.

Agent Orange: What We Learned From an Uncontrolled Experiment on American Soldiers and the People of Southeast Asia
Hodgkin's Disease, non-Hodgkin's lymphoma, Prostate Cancer, Chronic B-cell Leukemia, Respiratory Cancers, Type 2 Diabetes, Ischemic Heart Disease, Parkinson's Disease

Breast Cancer and DDT
Why Timing Can Matter More than Dose

Biomonitoring: Measuring Chemicals in People
CDC reports that Bisphenol A (BPA) is in more than 90% of the American people and Perchlorate is in all of us.
I didn’t know that the dose is only one part of the problem: there are also low dose effects, mixtures, synergies, timing, sensitivities and long delays between exposure and visible effects including multigenerational effects.

Taking Pollution Out of Production

New science should mean new laws and policies
But if Congress won’t act, we need to do it ourselves
Our occupational safety and health and chemical management laws lost in the 1970s

<table>
<thead>
<tr>
<th>Current OSHA Penalties</th>
<th>Are Too Low</th>
</tr>
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<tbody>
<tr>
<td>Average serious OSHA violation</td>
<td>$ 965</td>
</tr>
<tr>
<td>Average penalty for violating COBRA health insurance law</td>
<td>$ 33,917</td>
</tr>
<tr>
<td>Maximum penalty for a serious OSHA violation</td>
<td>$ 7,000</td>
</tr>
<tr>
<td>Maximum penalty for violating the South Pacific Tuna Act</td>
<td>$ 350,000</td>
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The Toxic Substances Control Act (TSCA)

80,000 different chemicals have been produced and used since TSCA became law in 1976.

62,000 of these chemicals were grandfathered in when TSCA became law with no requirement that they be tested and shown to be safe.

In the 36 years that TSCA has been the federal law on chemicals, EPA has required testing on just 200 chemicals.

When EPA was prevented from using TSCA to restrict asbestos 21 years ago, it gave up trying.
Toxics Legislation Passed 2003 – 2011

* 81 chemical safety laws adopted 2003-2011 in 18 states encompassing 41% of US population
* Eleven Republican and Seventeen Democratic Governors signed bills
* Bills passed with support from over 3/4 of Republican legislators (76%), and nearly all Democrats (99%)
BizNGO Guiding Principles for Chemicals Policy

Endorsers include...
- Brooks Sports
- Catholic Healthcare West
- Construction Specialties, Inc.
- Health Care Without Harm
- Hewlett-Packard Company
- Hospira, Inc.
- Kaiser Permanente
- Method
- Novation
- Perkins+Will
- Practice Greenhealth
- Premier, Inc.
- Seventh Generation
- Staples, Inc.
- Whole Foods Market, Inc.

1. Know and disclose product chemistry
2. Assess and avoid hazards
3. Commit to continuous improvement
4. Support public policies and industry standards
ChemHAT
How it Got Here: How do workers find chemical information?

Taking Pollution Out of Production

Ethylene oxide

NIOSH Pocket Guide to Chemical Hazards

Search the Pocket Guide
Enter search terms separated by spaces.

Ethylene oxide
Synonyms & Trade Names: Dimethyl oxide, 1,2-Epoxy ethane, Oxiran
CAS No.: 75-21-3
RTECS No.: TD2150000
DOT ID & Grade: 1046.11[P]
Formula: C₂H₄O
Conversion: 1 ppm = 1.80 mg/m³
IDLH: C₈ [800 ppm]
See: 33119

Exposure Limits

NIOSH REL: Ca TWI <0.1 ppm (0.18 mg/m³) C 5 ppm (9 mg/m³) [10-min/day] See Appendix A
OSHA PEL: [1910.147] 5 ppm 5 ppm [15-minute Exursion]

Physical Description: Colorless gas or liquid (below 51°F) with an ether-like odor.

MW: 46.1
BP: 51°F
FW: -
Sol: -
VP: 1.45 atm
IC: 10.55
What isethylene oxide?

Ethylene oxide (EO) is a colorless, volatile gas at temperatures above 61°F (16°C). But under the order of 61°F (16°C), the gas is a colorless, odorless, flammable liquid. It is used as a sterilization agent, as a solvent, and as an intermediate in the manufacture of polyethylene. EO is also used in the manufacture of ethylene and propylene, which are used to make a variety of plastics, rubber, and synthetic fibers.

How canethylene oxide be inhaled?

Inorganic gases, such as carbon monoxide, can cause exposure to EO. Carbon monoxide is a colorless, odorless gas that is produced by the incomplete combustion of carbon-containing fuels. The gas is absorbed into the blood and causes a decrease in the oxygen-carrying capacity of the blood. Exposure can occur through inhalation or through the skin. Exposure can also occur through ingestion of contaminated food or water.

What shouldemployeers know about
ethylene oxide?

Employers should be aware of the potential hazards associated with exposure to EO. The gas is highly flammable and can cause severe respiratory problems. Exposure to EO can also cause irritations of the skin, eyes, and mucous membranes.

How shouldemployeers respond to
ethylene oxide exposure?

If exposure to EO has occurred, employers should follow the following procedures:

1. Evacuate all personnel from the area.
2. Provide fresh air ventilation to the area.
3. Monitor exposed workers for signs of respiratory distress.
4. Provide medical attention to workers with symptoms of respiratory distress.

What are the symptoms of
ethylene oxide exposure?

Symptoms of EO exposure can include:

- Irritation of the eyes, nose, and throat
- Coughing and difficulty with breathing
- Nausea and vomiting
- Headache
- Fatigue

How doemployeers prevent exposure?

Employers can prevent exposure to EO by:

1. Using appropriate personal protective equipment (PPE) when handling EO.
2. Providing proper ventilation in areas where EO is used.
3. Training workers on the proper use of PPE.
4. Providing workers with information on the hazards of EO exposure.

What are the consequences of
ethylene oxide exposure?

EO is a toxic gas and can cause severe respiratory problems. Exposure can also cause irritation of the skin, eyes, and mucous membranes. In severe cases, EO exposure can be fatal.

What is a personal protective equipment (PPE) standard?

A personal protective equipment (PPE) standard is a requirement that employers provide workers with appropriate PPE to protect them from exposure to hazardous substances. PPE standards are established by the Occupational Safety and Health Administration (OSHA).

What are the OSHA standards for
ethylene oxide exposure?

The OSHA standard for EO exposure is 2.0 parts per million (ppm) as an 8-hour time-weighted average (TWA). Exposure above 2.0 ppm is considered hazardous and requires the use of appropriate PPE.

What is the maximum allowable exposure (MAE) for
ethylene oxide?

The maximum allowable exposure (MAE) for EO is 2.0 ppm as an 8-hour TWA.

How doemployers ensure compliance with the OSHA standards for
ethylene oxide?

Employers can ensure compliance with the OSHA standards for EO by:

1. Providing workers with appropriate PPE.
2. Training workers on the proper use of PPE.
4. Providing medical attention to workers with symptoms of EO exposure.

What are the consequences for
non-compliance with the OSHA standards for
ethylene oxide?

Non-compliance with the OSHA standards for EO can result in fines and legal action.

What is the first aid for
ethylene oxide exposure?

The first aid for EO exposure is to remove the affected worker from the exposure area and provide fresh air. If symptoms persist or worsen, medical attention should be sought.

What are the medical consequences of
ethylene oxide exposure?

Medical consequences of EO exposure can include:

- Respiratory problems
- Skin irritations
- Eye irritations
- Headaches

What is the long-term health effects of
ethylene oxide exposure?

Long-term health effects of EO exposure can include:

- Respiratory problems
- Skin irritations
- Eye irritations
- Headaches

What are the precautions for
handling and storing EO?

Precautions for handling and storing EO include:

1. Keeping EO in a cool, well-ventilated area.
2. Using appropriate PPE when handling EO.
3. Providing proper ventilation in areas where EO is used.
4. Training workers on the proper use of PPE.
5. Providing workers with information on the hazards of EO exposure.

What are the emergency response procedures for
ethylene oxide exposure?

Emergency response procedures for EO exposure include:

1. Evacuate all personnel from the area.
2. Provide fresh air ventilation to the area.
3. Monitor exposed workers for signs of respiratory distress.
4. Provide medical attention to workers with symptoms of respiratory distress.

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The OSHA standard for EO exposure is 2.0 ppm as an 8-hour TWA.

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http://hazmap.nlm.nih.gov/cgi-bin/hazmap_generic?tbl=TblAgents&id=21
Your health and safety committee has decided to convince your company to switch from using a dangerous chemical to a safer alternative.

What information would you need to help you get your employer switch to a safer chemical?
Case story database
You can use the free text search function to find information in the case story database. Use the search filters to refine your search.

Please enter your search text or numerical substance identifier:

Search filters

Keywords:
- Manufacture of rubber and plastic products

Show more search filters

Items per page:
- 15
- 25
- 50

Search database

24 results

Subs
PORT

MOVING TOWARDS SAFER ALTERNATIVES

New search
Show methodology
Show all case stories
Show all abstracts

1/7/2013

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The chemical industry is an important part of U.S. manufacturing, contributing $273 billion to GDP ($390 billion if we include the plastics sector).

But employment in the chemical industry has been declining sharply over the past few decades, despite the fact that the value of production has been growing 4% per year.

The U.S. Chemical Industry Today
(17) Research and development expenditures as a percent of total output, 1989-2009.
- Lowering handling, storage, and disposal costs
- Ensuring access to global markets
- Reducing waste by using inputs more efficiently
- Moving away from fossil fuel based inputs
- Meeting consumer demands for safer products
- Protecting shareholder value

Greener Chemistry & Regulatory Reform Supports Competitiveness

Decaffeinate coffee with benzene
- In 1970s benzene replaced with dichloromethane

Decaffeinate coffee with water or carbon dioxide

Manufacture IV bags and tubes using polyvinyl chloride and DEHP

Switch production to lighter, stronger polypropylene plastic that do not contain chemicals of concern and does not need a moisture overwrap

Produce glass for electronics using arsenic to remove air bubbles

Maintain liquid glass at higher temperature for longer periods
What product needs to be redesigned to make your life less toxic?

What product needs to be redesigned to lower your breast cancer risk?
1. The extent of the breast cancer epidemic
   - breast cancer as an early warning of the increase in chronic disease
2. The significance of the Brophy, Keith et al work
3. How science had changed from the dose makes the poison different kinds of doses, not one dose importance of timing small exposures matter when those exposures are endocrine disruptors the lessons from biomonitoring
4. The politics of focusing on cure not cause
5. What do we do?
   - do it yourself chemical policy reform identifying the chemicals of concern and moving to safer materials
Thank you.

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