

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

3



Safer, healthier, better protected workers
help create safer and healthier products

4



The right to know is fundamental⁵



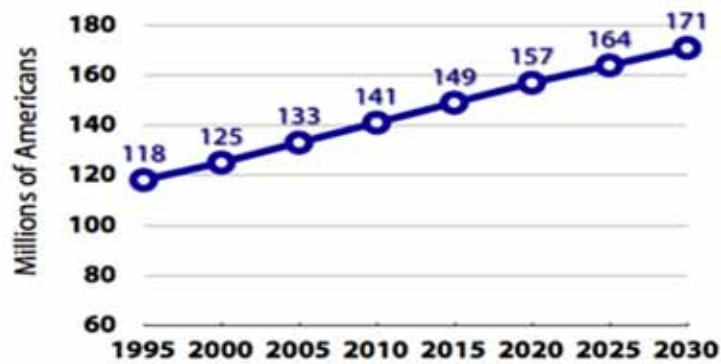
6

Taking Pollution Out of Production

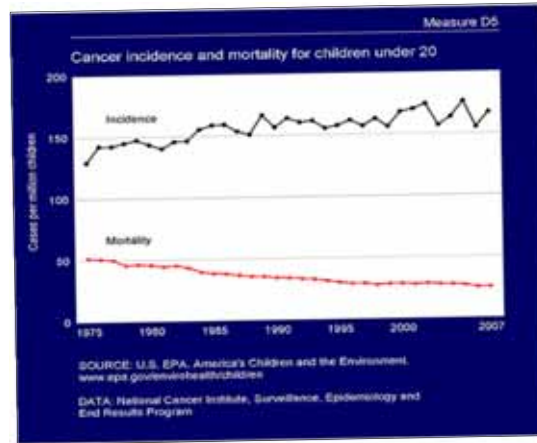


Why we need to do this: We're getting sicker and part of the reason is chemicals

Prevalence of Chronic Disease in the U.S.

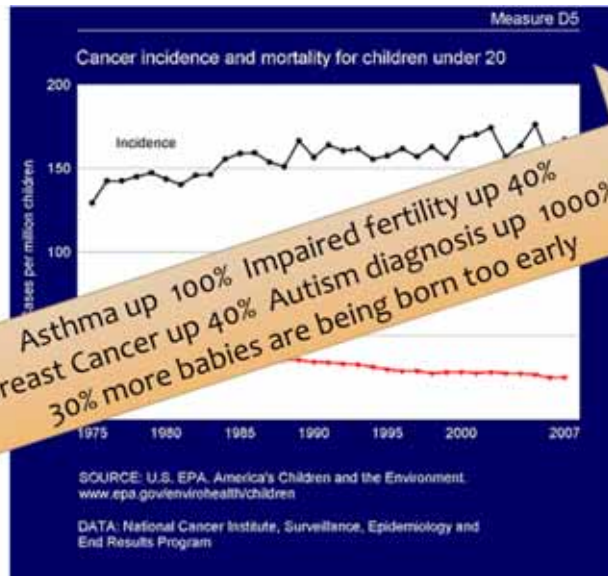


Source: Wu, Shin-Yi *et al.* 2000. Projection of Chronic Illness Prevalence and Cost Inflation. RAND Corporation.

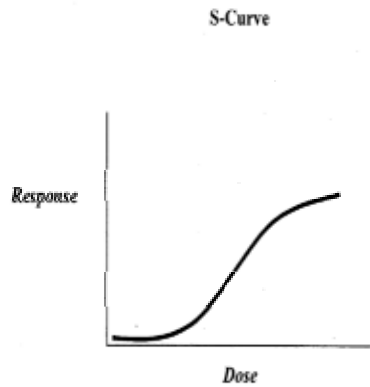


More children are *getting* cancer but fewer children are *dying* from cancer

Cancer Incidence and Mortality in Children



The dose makes the poison



11



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 Keim November 06, 2007 | 11:02:12 AM Categories: 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 Amvac, another chemical company, hid information about the dangers of dibromo chloropropane, or DBCP: high exposures 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 1970's and 1980's, the plaintiffs reportedly inhaled DBCP vapors and wore clothing soaked by water dripping from DBCP-treated trees.



14

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

15



Breast Cancer and DDT

16



Why Timing Can Matter More than Dose ¹⁷



Executive Summary

Department of Health and Human Services
Centers for Disease Control and Prevention

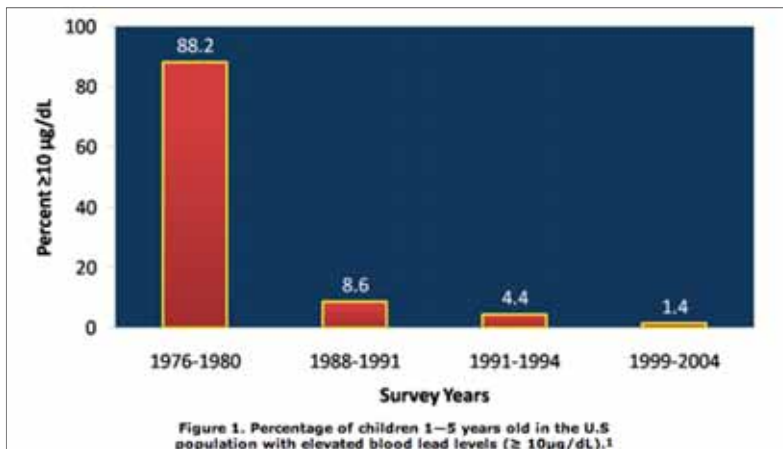


Biomonitoring: Measuring Chemicals in People⁸

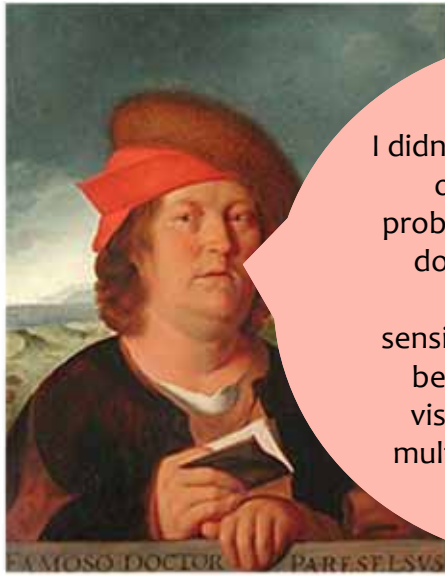


CDC reports that Bisphenol A (BPA) is in more than 90% of the American people

and Perchlorate is in all of us



From the CDC's 2009 Fourth National Report on Human Exposure to Environmental Chemicals



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.

21

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

23

Current OSHA Penalties	Are Too Low
Average serious OSHA violation	\$ 965
Average penalty for violating COBRA health insurance law	\$ 33,917
Maximum penalty for a serious OSHA violation	\$ 7,000
Maximum penalty for violating the South Pacific Tuna Act	\$ 350,000

24

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.

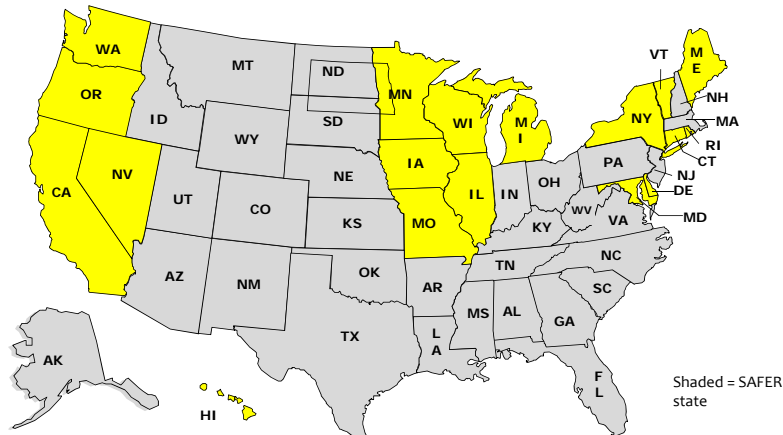
When EPA was prevented from using TSCA to restrict asbestos **21** years ago, it gave up trying.

25





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

29





view File Edit View Go Tools Bookmarks Window Help
 HealthyStuff.org | Researching Toxic Chemicals in Everyday Products
 http://www.healthystuff.org/
 Product Search: All Departments
 HealthyStuff Home | Toys | Children's Products | Pets | Cars | Apparel & Accessories | Home Improvement
 Pets | Cars | Children's Products | Apparel & Accessories | Toys | Home Improvement
 Get these NIFTY SOCKS! When You Donate \$30 or more to Healthy Stuff
 TAKE ACTION! Demand Safer Chemicals for Your Family
 HealthyStuff News
 New Guide to Toxic Chemicals in Cars Helps Consumers Avoid "New Car Smell" As Major Source of Indoor Air
 HealthyStuff.org Cars 2012

The screenshot shows the EWG's Skin Deep Cosmetics Database website. At the top, there is a navigation menu with categories like Home, Sun, Makeup, Skin Care, Hair, Eye Care, Nails, Fragrance, Babies & Moms, Oral Care, Men's, and FAQ. A search bar is prominently displayed with the text "Search more than 69,000 products..." and a "GO" button. Below the search bar, the page is titled "Hair Care / Hair-loss Treatment" and shows "Showing 1 - 10 of 55 results". A table of results is visible, with the following entries:

product	Product type(s)	Score
1. Rosave Men's Easy-To-Use Foam	Hair-loss Treatment	7 Data: Fair
2. Jason Natural Cosmetics Thin To Thick Extra Volume Conditioner	Conditioner, Hair-loss Treatment	6 Data: Limited

On the left side of the page, there is a sidebar titled "Essential Tips and Facts" with a list of links: 1. Top 100 for safer products, 2. Frequently asked questions (FAQ), 3. What's new in Skin Deep?, 4. Myths on cosmetic safety, and 5. User's guide to Skin Deep!

The screenshot shows the GoodGuide website. The header includes the GoodGuide logo and a search bar with the text "Search scientific product & company ratings...". Below the search bar is a navigation menu with categories: Personal Care, Food, Household, Babies & Kids, Pet Food, Apparel, Electronics, Appliances, Cars, and Companies. A large blue banner features the text "Find safe, healthy, green & ethical products based on scientific ratings." and a "How It Works" button. Below the banner is a row of icons for "Video Introduction", "Purchase Analyzer", "Your Personal Filter", "Transparency Toolbar", and "Mobile App". At the bottom, there are two sections: "High Rated" and "Low Rated". The "High Rated" section shows a product with a score of 6.8: "Aquaphor Baby Gentle Wash & Shampoo". The "Low Rated" section shows a product with a score of 4.2: "Curlz Peek-A-boo Tearless Shampoo". A page number "32" is visible in the bottom right corner.

Taking Pollution Out of Production



ChemHAT

How it Got Here: How do workers find chemical information?

[Home](#) | **Centers for Disease Control and Prevention**
 Your Online Source for Credible Health Information

A-Z Index for All CDC Topics | **NIOSH** | All CDC Topics |

NIOSH Pocket Guide to Chemical Hazards

Search the Pocket Guide
 Enter search terms separated by spaces.

Ethylene oxide

Synonyms & Trade Names: Dimethylene oxide; 1,2-Epoxy ethane; Oxirane

CAS No. 75-21-8	RTECS No. KX2450000	DOT ID & Guide: 1040 119E
Formula C ₂ H ₄ O	Conversion 1 ppm = 1.80 mg/m ³	IDLH Ca [800 ppm] See: 23218

Exposure Limits

NIOSH REL : Ca TWA <0.1 ppm (0.18 mg/m³) C 5 ppm (9 mg/m³) [10-min/day] See [Appendix A](#)
 OSHA PEL : [1910.1047] TWA 1 ppm 5 ppm [15-minute Excursion]

Measurement Methods

NIOSH [1614](#), [2800](#)
 OSHA [30](#), [39](#), [50](#)
 See: [NIOSH](#) or [OSHA Methods](#)


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

MW: 44.1	BP: 51°F	FRZ: -122.8°C	Sol: Miscible	VP: 1.46 atm	IP: 10.56 atm
----------	----------	---------------	---------------	--------------	---------------

Text size: [S](#) [M](#) [L](#) [XL](#)
[Email page](#)
[Print page](#)
[Bookmark and share](#)
[Get email updates](#)
[Subscribe to RSS](#)
[Listen to audio/Podcast](#)

Order NIOSH Publications
[Order Online](#)
[1-800-CDC-INFO](#)
[Order from NTIS](#)

Contact Us:
 Centers for Disease Control and Prevention
 National Institute for Occupational Safety and Health (NIOSH)
 800-CDC-INFO (800-232-4636) TTY: (888)



Ethylene Oxide

What is ethylene oxide?
Ethylene oxide (EtO) is a flammable, colorless gas at temperatures above 51.3 °F (10.7 °C) that smells like ether at low levels. EtO is found in the production of solvents, antifreeze, foams, detergents, adhesives, polyurethane foam, and pharmaceuticals. Smaller amounts are present in fumigants, sterilants for spaces and containers, as well as during hospital sterilization of surgical equipment.

How can ethylene oxide harm workers?
In addition to eye pain and sore throat, exposure to EtO can cause difficult breathing and blurred vision. Exposure can also cause dizziness, nausea, headache, convulsions, blisters and can result in vomiting and coughing. Both human and animal studies show that EtO is a carcinogen that may cause leukemia and other cancers. EtO is also linked to spontaneous abortion, genetic damage, nerve damage, peripheral paralysis, muscle weakness, as well as impaired thinking and memory. In liquid form, EtO can cause severe skin irritation upon prolonged or confined contact.

What should employers know about ethylene oxide?
Employee exposure is limited to one part EtO per million parts of air (1 ppm) measured as an 8-hour time-weighted average (TWA). Employee exposure may not exceed the short-term excursion limit of 5 ppm EtO averaged over any 15-minute sampling period. These limits are called permissible exposure limits (PELs).
Most occupational exposures to EtO are covered by the OSHA standard. The standard does not apply, however, when employers can demonstrate that the processing, use, or handling of products containing EtO will not release airborne concentrations of EtO at or above the standard's action level of 0.5 ppm. The action level is calculated as an 8-hour TWA and is the threshold for increased compliance activities (e.g., air monitoring, medical examinations, lab tests, etc.).

- Establish and implement a written compliance program to reduce exposures to or below the TWA and exposure limit.
- Establish personal air monitoring as well as information and training programs for employees exposed to EtO at or above the action level or above the excursion limit. Conduct testing upon initial job assignment and annually.
- Establish a regulated area wherever airborne concentrations of EtO are expected to exceed the 8-hour TWA or the excursion limit.
- Establish a medical surveillance program for employees exposed to EtO at concentrations above the action level of 0.5 ppm, measured as an 8-hour TWA, for more than 30 days per year.
- Place warning labels on all containers that might cause employee exposures at or above the action level or excursion limit.
- Remember that employee rotation is prohibited as a means of compliance with the 8-hour TWA or exposure limit.
- Select, provide, and maintain appropriate personal protective equipment and ensure that employees use it to prevent skin and eye contact.

When must employers require workers to use respirators?
Employers must ensure that workers use respirators to control EtO exposure in the following circumstances:

- During installation or implementation of feasible engineering controls and work practices;
- During maintenance, repair and certain operations when engineering and work practice controls are not feasible.

35



Search at Agent Disease Job Test Search

Haz Map Search More Searches Haz Map Help Glossary References

Browse Haz-Map Search TOXNET


Agent Name	Ethylene oxide
CAS Number	75-21-8
Formula	C2H4O
Major Category	Pesticides
Synonyms	Dimethylene oxide; 1,2-Epoxy ethane; Oxirane; [NOSH]
Category	Fungicides
Description	Colorless gas or liquid (below 51 degrees F) with an ether-like odor. [NOSH]
Sources/Uses	Ethylene oxide sterilizers are used by medical and dental staff to sterilize heat-sensitive instruments. [p. 736, Harber] Occupational asthma from ethylene oxide has been reported in a nurse. [Male] Acute inhalation injuries result from exposures between 200 and 400 ppm. At higher concentrations, ethylene oxide (EtO) may cause neurological dysfunction. Chronic effects of exposure include reproductive toxicity and peripheral neuropathy. [JAGOW, p. 456-8] The most common skin effects are irritation and second degree burns, but allergic contact dermatitis has been reported. [Sullivan, p. 1135] Healthcare workers performing EtO sterilization may develop cataracts. Highest exposures occurred during unloading (especially when the sterilization cycle was interrupted) and during cylinder changing. [J. OCCUP. ENVIRON. MED. 1995, 37(4):457-461] Used as one of "many"
Comments	

36

http://hazmap.nlm.nih.gov/cgi-bin/hazmap_generic?tbl=TblAgents&id=21

The screenshot shows the Tox Town website interface. At the top, the logo for the National Library of Medicine is visible next to the text "Tox Town Environmental health concerns and toxic chemicals where you live, work, and play". A search bar is located in the top right corner. On the left side, there is a navigation menu with categories like Home, Text Version, and a list of chemicals including Acetone, Ammonia, Arsenic, Asbestos, Benzene, Bisphenol A, Cadmium, Carbon Dioxide, Carbon Monoxide, Chlorine, Chlordane, Chromium, Crude Oil, Dioxin, Endocrine Disruptors, Ethylene Oxide, Formaldehyde, Gasoline, Lead, and Mercury. The main content area is titled "Ethylene Oxide" and includes a sub-section "What is ethylene oxide?". The text explains that ethylene oxide is a manufactured, colorless, flammable gas with a sweet odor, with the chemical formula C_2H_4O . It is primarily used to make ethylene glycol, which is used in antifreeze and polyester. Other uses include sterilizing medical equipment, fumigating spices, books, leather, paper, furniture, and beekeeping equipment. It is also used to sterilize medical equipment and supplies, and to purify cocoa, flour, coconut, nuts, dehydrated vegetables, and cosmetics. Ethylene oxide is also an ingredient in textiles, detergents, polyurethane foam, solvents, and adhesives. A historical note mentions its use in decontaminating anthrax spores in the bioterrorism attacks of October 2001. The text also discusses exposure sources, such as burning fuels (petroleum, natural gas, coal) and growing tobacco leaves. A section titled "How might I be exposed to ethylene oxide?" states that exposure occurs primarily in the workplace through inhalation, swallowing, or touching. It also notes that at home, exposure can occur from sterilized or fumigated products like medical supplies, books, and museum artifacts. The bottom right of the page features a "37" and a URL: http://toxtown.nlm.nih.gov/text_version/chemicals.php?id=71.


The screenshot shows the Plum: Public Library of Materials website. The browser address bar displays "http://plm.berkeley.edu/". The page header includes the text "PLUM: Chemical Hazards Database" and a "BETA" badge. The main heading is "Plum: Public Library of Materials" with the tagline "a resource for chemical and material hazard information". There is a search bar with a "GO" button. Below the heading, there are navigation tabs for "Home", "About", "Lists", "Browse", and "Details". A "Welcome to Plum" message is followed by the text: "Use Plum to discover, reference, and browse through chemical substances believed to be hazardous by various regulatory and scientific agencies." A large photograph of a blue plum fruit on a branch is centered on the page. The bottom right of the page features a "38".



The screenshot displays the Pharos software interface. At the top, the Pharos logo is visible. Below it, there are navigation tabs for 'Home', 'Reporting', 'Administration', and 'Help'. The main content area shows a report for 'ACTONE' with a sub-header 'L20 500 AT AA-1'. The report includes several sections: 'Product Information', 'Safety Data Sheet', 'Hazardous Properties', 'Physical Properties', and 'Environmental Properties'. Each section contains detailed text and numerical data. On the right side, there is a sidebar with 'Product Information' and 'Safety Data Sheet' sections. The page number '39' is located in the bottom right corner.

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?



The image features a glowing lightbulb with a yellow hard hat placed on top of it. The lightbulb is white and has a silver base. The hard hat is bright yellow and has a black chin strap. The background is white with a soft shadow behind the lightbulb and hard hat. The page number '40' is located in the bottom right corner.

The screenshot shows a web browser window displaying the ChemHAT.org website. The page title is "Who made ChemHAT? | ChemHAT". The URL in the address bar is "http://www.chemhat.org/about-chemhat/who-made-chemhat". The browser's search bar contains "Google". The website header features the ChemHAT.org logo, the tagline "Chemical Hazard and Alternatives Toolbox", and a "BETA" badge with the text "Send us your feedback". A navigation menu includes "Home / Search", "About ChemHAT", "Safer Chemicals", and "For Workers". The main content area is titled "Who made ChemHAT?" and contains several paragraphs of text. A red hard hat icon is positioned next to the text. To the right, a yellow sidebar contains a list of links: "Why ChemHAT?", "How to Use ChemHAT", "Is ChemHAT Comprehensive?", "Vocabulary", "Data Sources", and "Who Made ChemHAT?". A yellow hard hat icon is located in the top right corner of the page.

41

The screenshot shows the search interface of the ChemHAT.org website. The header is identical to the previous screenshot, including the logo, tagline, "BETA" badge, and navigation menu. The main content area features a search box with the placeholder text "Enter Chemical name or CAS #". Below the search box is a green "GO" button. The footer section includes the ChemHAT.org logo and tagline, followed by the text "A JOINT PROJECT OF" and logos for "IUE-CWA" and "BLUEGREEN ALLIANCE". Below that, it says "WITH THE SUPPORT OF" and lists logos for "UAW", "Pharos", "TONY MAZZOCCHI", and "CWA DISTRICT 9". A yellow hard hat icon is positioned in the top right corner of the page.

42

ChemHAT.org BETA
 Chemical Hazard and Alternatives Toolbox

Home / Search About ChemHAT Safer Chemicals For Workers

Ethylene oxide
 CAS: 75-21-8

How can this chemical affect my health?

ACUTE (SHORT TERM) EFFECTS How do we know?

- Toxic to Humans & Animals** – Can be fatal on contact, ingestion or inhalation for humans and other mammals.
- Irritates the Eyes** – Can cause irritation or serious damage to the eye.
- Irritates the Skin** – Can cause irritation or serious damage to the skin.

CHRONIC (LONG TERM) EFFECTS How do we know?

- Causes Cancer** – Can cause or increase the risk of cancer.
- Birth Defects** – Can cause harm to the developing child including birth defects, low birth weight and biological or behavioral problems that appear as the child grows.
- Affects Reproductive System** – Can disrupt the male or female reproductive systems, changing sexual development, behavior or functions, decreasing fertility, or resulting in loss of the fetus during pregnancy.

ChemHAT.org
 Chemical Hazard and Alternatives Toolbox

Ethylene oxide
 CAS: 75-21-8

How can this chemical affect my health?

ACUTE (SHORT TERM) EFFECTS How do we know?

CHRONIC (LONG TERM) EFFECTS How do we know?

Causes Cancer

Data sources:

- International Agency for Research on Cancer, World Health Organization**
 Monographs On the Evaluation of the Carcinogenic Risk of Chemicals to Humans
 Carcinogenic (Group 1. Agent is carcinogenic to humans)
- US Dept of Health & Human Services**
 ICRN Report on Carcinogens
 Known to be Human Carcinogens
- State of California Environmental Protection Agency**
 Chemicals Known to the State to Cause Cancer or Reproductive Toxicity - California Proposition 65 - Safe Drinking Water and Toxic Enforcement Act Of 1986
 Cancer
- European Commission**
 Restrictions On The Manufacture, Placing On The Market And Use Of Certain Dangerous Substances, Preparations And Articles - Carcinogens, Mutagens & Reproductive Toxicants
 Regarded as carcinogenic (Carcinogen Category 2 - Substances which should be regarded as if they are carcinogenic to man)

ChemHAT.org
Chemical Hazard and Alternatives Toolbox

ChemHAT.org
Chemical Hazard and Alternatives Toolbox

45

HCS Pictograms and Hazards

<p style="text-align: center;">Health Hazard</p> <div style="text-align: center;"></div> <ul style="list-style-type: none"> • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	<p style="text-align: center;">Flame</p> <div style="text-align: center;"></div> <ul style="list-style-type: none"> • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides 	<p style="text-align: center;">Exclamation Mark</p> <div style="text-align: center;"></div> <ul style="list-style-type: none"> • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
<p style="text-align: center;">Gas Cylinder</p> <div style="text-align: center;"></div> <ul style="list-style-type: none"> • Gases Under Pressure 	<p style="text-align: center;">Corrosion</p> <div style="text-align: center;"></div> <ul style="list-style-type: none"> • Skin Corrosion/Burns • Eye Damage • Corrosive to Metals 	<p style="text-align: center;">Exploding Bomb</p> <div style="text-align: center;"></div> <ul style="list-style-type: none"> • Explosives • Self-Reactives • Organic Peroxides
<p style="text-align: center;">Flame Over Circle</p> <div style="text-align: center;"></div> <ul style="list-style-type: none"> • Oxidizers 	<p style="text-align: center;">Environment (Non-Mandatory)</p> <div style="text-align: center;"></div> <ul style="list-style-type: none"> • Aquatic Toxicity 	<p style="text-align: center;">Skull and Crossbones</p> <div style="text-align: center;"></div> <ul style="list-style-type: none"> • Acute Toxicity (fatal or toxic)

46



47

A screenshot of the ChemHAT.org website. The page title is "Benzene | ChemHAT". The URL is "http://www.chemhat.org/chemical/71-43-2/benzene". The page features a navigation bar with "Home / Search", "About ChemHAT", "Safer Chemicals", and "For Workers". The main content area is titled "Benzene" with CAS number 71-43-2. It lists health effects under "ACUTE (SHORT TERM) EFFECTS" and "CHRONIC (LONG TERM) EFFECTS".

ChemHAT.org BETA
Chemical Hazard and Alternatives Toolbox

Home / Search About ChemHAT Safer Chemicals For Workers

Benzene
CAS: 71-43-2

How can this chemical affect my health?

ACUTE (SHORT TERM) EFFECTS *How do we know?*

- Toxic to Humans & Animals** – Can be fatal on contact, ingestion or inhalation for humans and other mammals.
- Irritates the Eyes** – Can cause irritation or serious damage to the eye.
- Irritates the Skin** – Can cause irritation or serious damage to the skin.

CHRONIC (LONG TERM) EFFECTS *How do we know?*

- Causes Cancer** – Can cause or increase the risk of cancer.
- Birth Defects** – Can cause harm to the developing child including birth defects, low birth weight and biological or behavioral problems that appear as the child grows.
- Affects Reproductive System** – Can disrupt the male or female reproductive systems, changing sexual development, behavior or functions, decreasing fertility, or resulting in loss of the fetus during pregnancy.
- Damages Genes** – Can cause or increase the rate of mutations, which are changes in genetic material in cells.
- Endocrine Disruptor** – Can interfere with hormone communication between cells which controls metabolism.
- Other Health Effects** – Can cause serious damage on contact or ingestion.


review File Edit View Go Tools Bookmarks Window Help


http://www.chemhat.org/chemical/71-43-2/benzene

CSRFinalReportSP.pdf Yahoo! PCXTone | P...ol Systems Google Maps Apple Wikipedia News (296) Popular ChemHAT | C...es Twitter

Benzene | ChemHAT

Inherent Hazards How do we know

 **Flammable** – Easily ignited and capable of burning rapidly.

 **Restricted List** – A guidance document which recommends or requires avoidance of selected substances.

What safer alternatives are available for this chemical?

Information on safer alternatives is currently fairly limited, and not easily accessible or linked to information on chemicals in the workplace. Where we have information on safer alternatives, ChemHAT will display links to existing case studies of safer alternatives for the chemical.

How am I likely to be exposed to this chemical?

How can I protect myself from exposure to this chemical in the workplace?

49

File Edit View Go Tools Bookmarks Window Help

SUBSPORT - SUBSTITUTION SUPPORT PORTAL

http://www.subsport.eu/

CSRFinalReportSP.pdf Yahoo! PCXTone | P...ol Systems Google Maps Apple Wikipedia News (56) Popular ChemHAT | C...es Twitter

SUBSTITUTION SUPP...

SUBSPORT
Substitution Support Portal

MOVING TOWARDS SAFER ALTERNATIVES

Home
News
Newsletter
About the Project
Substitution Steps
Substitution in Legislation
Identifying substances of concern
Restricted and Priority Substances Database
Case Story Database
Substitution Tools
Training

Support for Substitution

Substitution of hazardous chemicals is a fundamental measure to reduce risks to environment, workers, consumers and public health.

Legislation encourages you to substitute, this site will show you how.

[Read more](#)

Latest News

SUBSPORT at the third session of the International Conference on Chemicals Management (ICCM3) in Nairobi

SUBSPORT Project News | 14.09.2012

The Strategic Approach to International Chemicals Management (SAICM) will be holding the third session of the International Conference on Chemicals Management.

[Read more](#)

Substitution Steps

Substitution may be fast and easy or a more complex process. Generally it includes the following steps:

1. Define the problem
2. Set substitution criteria
3. Search for alternatives
4. Assess and compare alternatives
5. Experiment on pilot
6. Implement and improve

[Read more](#)

Search SUBSPORT

Website
 Restricted and priority substances database > [link](#)
 Case story database > [link](#)

[Overview](#)

External substitution websites and databases

Your contribution

[Provide substitution examples](#)
[Provide feedback](#)

50

View File Edit View Go Tools Bookmarks Window Help

SUBSPORT - Case Story Database

http://www.subsport.eu/case-stories/search=6&faktor=9&funktion=0&prozess=0&cslimit=15&type=case_studies

SUBSPORT - Case Story Database

SUBSPORT
Substitution Support Portal

MOVING TOWARDS SAFER ALTERNATIVES

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

Sectors

Manufacture of rubber and plastic products

[More search filters](#)

Items per page

13 25 50

24 results

[New search](#)
[Show methodology](#)
[Show all case stories](#)
[Show all abstracts](#)

51

File Edit View Go Tools Bookmarks Window Help

SUBSPORT - Case Story Database

http://www.subsport.eu/case-stories/022-en

SUBSPORT - Case Story Database

Case Story Database

1400 chemical units in printing inks based on organic solvents used for the printing of plastic shopping bags were replaced by water-based inks, which eliminated toluene and butan-1-ol from the printing process.

Substituted substance(s) [show more substance information](#)

1. **Toluene**
CAS No. 108-88-3 EC No. 203-625-9 Index No. 601-021-00-3

2. **Butan-1-ol**
CAS No. 71-36-3 EC No. 200-751-6 Index No. 603-004-00-6

Alternative substance(s)

1. **Water**
CAS No. 7732-18-5 EC No. 231-791-2

2. **1-Methoxypropan-2-ol**
CAS No. 107-98-2 EC No. 203-539-1 Index No. 603-064-00-3

3. **Ethanol**
CAS No. 64-17-5 EC No. 200-579-8 Index No. 603-002-00-5

[show application information](#)

Reliability of information

Evidence of implementation: there is evidence that the solution was implemented and in use at time of publication

Substitution description

This experience was carried out in a company that manufactured plastic bags. Toluene and butanol-based organic inks were used in the printing process. These chemicals are particularly harmful to human health and to the environment, especially toluene which is neurotoxic and toxic for reproduction.

Complaints filed by union representatives resulted in the trade union's occupational health department decision to take action with a proposal for the substitution of organic solvents with water-based inks. Water-based inks use water as solvent, and some alcohols and organic solvents are used as co-solvents. In the alternative product ethanol and 1-methoxypropan-2-ol are used as co-solvents.

The substitution of inks allowed the replacement of other hazardous chemicals used in the cleaning of printing rolls, namely solvents. This experience is explained in case 023: Substitution of propan-2-ol, 2-methylpropan-1-ol and heptane in the cleaning of printing rolls.

[Substit. description](#)
[Substit. evaluation](#)
[Information source](#)

[Show all details](#)

52

File Edit View Go Tools Bookmarks Window Help

ISTAS: RICTOX: a comprehensive database on toxic and hazardous substances.

http://www.istas.net/rictox/en/

CSRFinalReportBP.pdf Yahoo! PCSTime | F...ri Systems Google Maps Apple Wikipedia News (585) Popular ChemHAT | C...es Toolbar

ICTOX: a comprehensive...

rictox 100,000 substances

istas
10000

Home

- Carcinogens and mutagens
- Reproductive toxicants
- Endocrine disruptors
- Neurotoxicants
 - Cholinesterase
- Airborne BEACH
- PEE and e-Poll substances
- Aquatic toxicity
- Chemicals harmful to the atmosphere
- Persistent Organic Pollutants (POP)
- Occupational diseases
- Volatile organic compounds (VOCs)

RICTOX: a comprehensive database on toxic and hazardous substances.

RICTOX is a database of hazardous substances developed to provide clear, organized and concise information about health and environmental risks caused by chemicals contained in products generally used or handled by companies.

[start](#)

RICTOX database provides information on over 100,000 chemical agents in files which include data on:

- Classification of the substance according to Regulation 1272/2008 (CLP)
- Specific health risks
- Specific environmental risks
- Environmental and health-related regulations

Search criteria include the name of the substance or some of its identification numbers (CAS, EC, EINECS / ELINCS, Index No). Different lists of risks or regulations available can also be used as search standards.

RICTOX also provides policy advisory and links to related regulations. Access this information by clicking on the help icon on the left corner of each list of substances. These files also contain information on the sources used to develop the lists.

RICTOX includes accessible and systematic public information on health and environmental risks.

53

ISTAS: RICTOX: Toxic and hazardous substances database

http://www.istas.net/rictox/en/dn_rictox_fecha_sustancia.asp?id_sustancia=956772

CSRFinalReportBP.pdf Yahoo! PCSTime | P...ri Systems Google Maps Apple Wikipedia News (585) Popular ChemHAT | C...es Toolbar

toxic and hazardous su...

substance identification

Chemical name: **benzene**

Identification numbers: **CAS: 71-43-2**
EC EINECS: 200-753-7

Uses: cleaner, degreaser, solvent

International Chemical Safety Card (ICSC): **0015**

[More information](#)

Substance included in the ISTAS 's blacklist

CLASSIFICATION AND LABELLING (67/548/EEC)

CLASSIFICATION AND LABELLING (Regulation 1272/2008)

Pictograms and signal words:


 Flammable gases


 Respiratory sensitization


 Acute toxicity (oral, dermal, inhalation)

H-phrases:

- H225:** Highly flammable liquid and vapour
- H350:** May cause cancer
- H340:** May cause genetic defects
- H372 **:** Causes damage to organs through prolonged or repeated exposure
- H304:** May be fatal if swallowed and enters airways
- H319:** Causes serious eye irritation
- H315:** Causes skin irritation

[Notes](#)

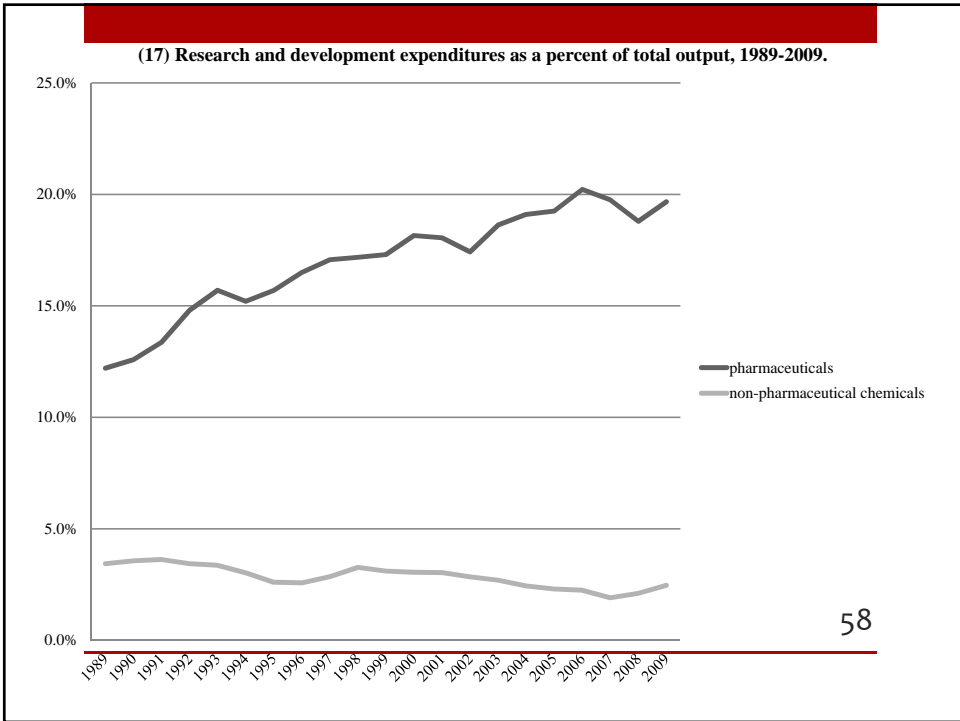
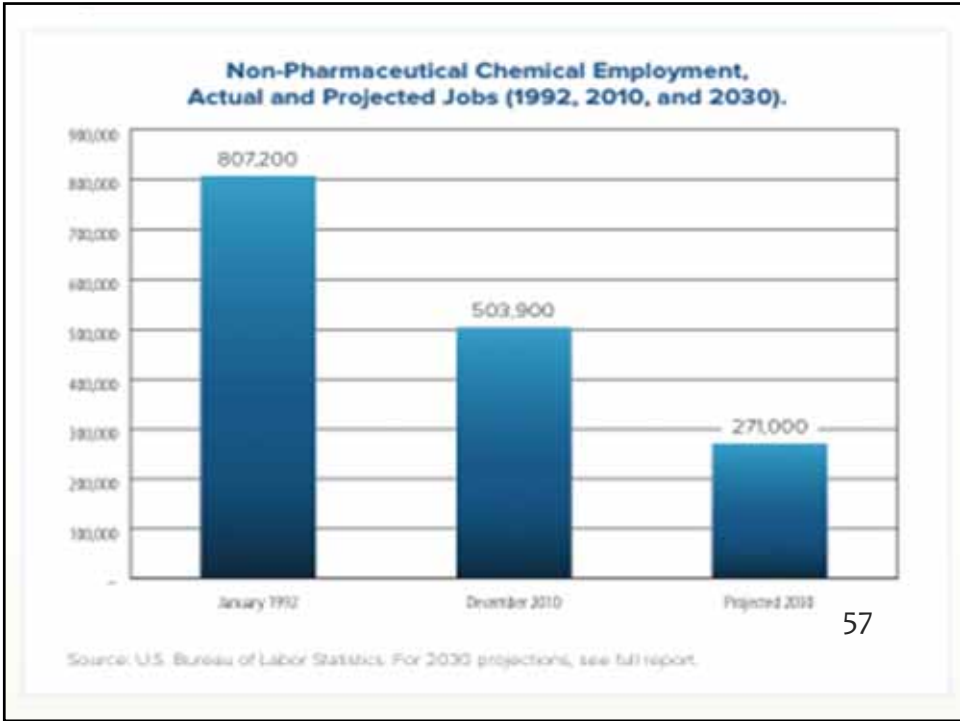
54



- ◆ 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

56



- ◆ 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

59

	<p>Decaffeinate coffee with benzene</p>  <p>In 1970s benzene replaced with dichloromethane</p> 	<p>Decaffeinate coffee with water or carbon dioxide</p> 
	<p>Manufacture IV bags and tubes using polyvinyl chloride and DEHP</p> 	<p>Switch production to lighter, stronger polypropylene plastic that do not contain chemicals of concern and does not need a moisture overwrap</p>
	<p>Produce glass for electronics using arsenic to remove air bubbles</p> 	<p>Maintain liquid glass at higher temperature for longer periods</p>

What product needs to be redesigned to make your life less toxic?

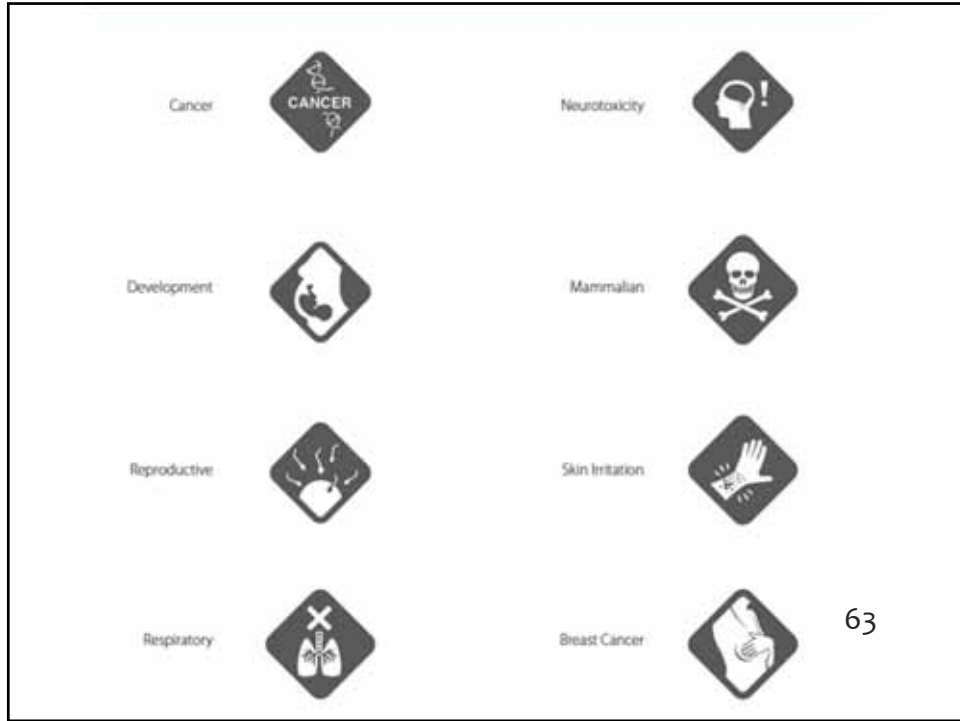


61

What product needs to be redesigned to lower your breast cancer risk?



62



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.



Charlotte Brody, Associate Director for Health Initiatives
BlueGreen Alliance, cbrody@bluegreenalliance.org
www.bluegreenalliance.org www.chemhat.org
