

# CONTENTS

<b>1</b>	<b>INTRODUCTION</b> .....	<b>1</b>
	This Handbook Is for Construction Workers .....	2
	Voices from the Workplace .....	3
<b>2</b>	<b>HEALTH PROBLEMS ON THE JOB</b> .....	<b>7</b>
	How Construction Work Can Affect Your Health .....	9
	How Do I Know If the Construction Job I'm Working on Is Hazardous? .....	10
	Construction Hazards Chart .....	12
	Some of the Chemicals in Cigarette Smoke .....	20
	Secondhand Smoke Facts .....	22
	The Odds Against Tobacco Users' Health .....	24
	Combining Tobacco Smoke & Workplace Toxics .....	26
<b>3</b>	<b>MAKING THE WORKPLACE SAFER</b> .....	<b>29</b>
	How to Make the Job Safer .....	30
	Checklist: Controlling Hazards on Your Construction Site .....	32
	Use the Right Respirator .....	34
	Tips for Taking Action .....	37
	Your Legal Rights to Health & Safety .....	39
	What If Someone's Smoking Indoors at the Work Site? ...	43
	How to Use Cal/OSHA .....	44
	Your Right to Know About Toxics on the Job .....	46
	Reading Material Safety Data Sheets (MSDS's) .....	48
<b>4</b>	<b>WHERE TO GET INFORMATION AND HELP</b> .....	<b>51</b>

This Handbook is part of a  
health and safety education curriculum prepared by

# **built**

**BUILDING TRADES UNIONS IGNITE LESS TOBACCO**

*A project of the State Building and Construction Trades Council of California  
and the Labor Occupational Health Program, University of California, Berkeley*

Based on the WHATEP curriculum,  
produced by the Workplace Hazard and Tobacco Education Project,  
funded by the California Department of Health Services  
and comprised of the Labor Occupational Health Program,  
American Lung Association of San Francisco  
and the California Public Health Foundation

## **PROJECT DEVELOPMENT TEAM**

ROBIN BAKER  
DEBRA CHAPLAN  
WAYNE A. HAGEN  
CATHY LEONARD  
CAROL WINSTEAD

Editor:

GENE DARLING

Designed by:

BARBARA NISHI

For more information,

Call **BUILT: 916-442-8368**

This project was made possible by funds received from Proposition 99,  
The Tobacco Tax Initiative, under Grant Number 99-85070

Produced by the State Building and Construction Trades Council of California  
in coordination with the Labor Occupational Health Program,  
University of California at Berkeley.

© 2001 — State of California, Department of Health Services.

## INTRODUCTION



“What I like about construction is working outside and working with my hands. I can drive through town and say, ‘Hey, I built that.’ But it’s a dangerous job. Since 1991, in our Local, at least twelve people have been killed. You walk onto a site and you don’t know what you’re breathing, and you don’t know who’s working with what.”

---

## This Handbook Is for Construction Workers

---

Many of the dangers of construction work are obvious. We're all familiar with safety hazards like unstable scaffolding, falling objects, electric shocks and fires.

Other dangers, especially chemical hazards, are less obvious. Some are hidden. If you're doing demolition work and breathe in asbestos, you may not notice any effect at the time, but you can develop lung cancer many years later. Other chemicals have both short-term and long-term effects. You may feel sick or dizzy right away when you work with adhesives, paints or other materials that contain solvents. If you work with these solvents for many years, they can damage your liver or nervous system. Coal tar pitch used in roofing and roadwork may irritate your eyes and nose right away and may cause cancer years later.

For construction workers who smoke, the dangers are even greater. When your body has to deal with tobacco smoke as well as the dust and other chemicals at construction sites, your risk of getting cancer, lung disease and other serious illnesses is much higher. And the effects of tobacco use are not limited to the user. Secondhand smoke causes over 53,000 deaths a year among non-smokers.

The purpose of this guide is to give you information you can use to protect yourself. The focus is on the dangers of workplace chemicals and tobacco smoke because you probably already know about the common safety hazards on your job. This guide is part of a health and safety training project that teaches people in apprenticeship and vocational education programs how to recognize chemical hazards on the job, including those from tobacco, and how to plan strategies to make the workplace safer.

Save this booklet. Share it with your co-workers.

---

## Voices From the Workplace

---

Here are some statements about health and safety that you might hear on the job. You may agree or disagree with each one. The information after each statement will give you some facts.

1



"Wearing safety equipment slows me down, so I never wear a mask or respirator unless I really smell stuff."

***Respirators and other safety equipment can be uncomfortable and slow you down. But they can also save your life!***

If toxic chemicals get into your body — through your skin or lungs — they can cause serious harm. Some chemicals can affect you right away, causing coughing, skin irritation, dizziness or other symptoms. Other chemicals cause no short-term symptoms, so there is no warning that they may cause serious long-term damage.

***Don't wait until you can smell a chemical to use your protective equipment.***

The nose is not a reliable way to measure danger. Some chemicals smell bad, but are safe. Other chemicals have no odor, but are deadly. One example is carbon monoxide — it's odorless and invisible, but it can kill.

The employer is responsible for making the workplace safe. But if it isn't possible to eliminate toxics from the work environment, personal protective equipment is your last line of defense.

2



"I'm being poisoned anyway, as long as I'm breathing all this toxic stuff at work, so why should I worry about tobacco smoke?"

***If you're exposed to toxic chemicals at work, the risk to your health will be higher if you also smoke cigarettes or have to breathe someone's secondhand smoke.***

Tobacco smoke adds harmful chemicals to those already in the work environment, increasing the risk.

- The more toxic exposure you have, the greater your risk. Avoiding toxic chemicals on the job **and** toxic chemicals in cigarettes are **both** important.
- The more toxic materials get into your body, the greater your risk. Cigarettes make it **easier** for other toxic substances to enter the body.

(See page 26 for examples.)

3



"If you're going to get cancer, you're going to get it, no matter what you do."

***If you smoke, your odds of dying from lung cancer are five times higher than the odds for a non-smoker.***

Many people can name someone they know who never worked with cancer-causing chemicals, who never smoked, but who died of cancer anyway. We also know people who smoke and live long lives. These cases are exceptions because the Surgeon General has proven that cigarette smoking causes 83% of all lung cancers and about 30% of other kinds of cancer.

***If you are exposed to cancer-causing chemicals on the job and also smoke, your risk of getting cancer multiplies sharply.***

Other chemicals (not just those in cigarettes) also increase your risk of cancer. There is no doubt that thousands of cancer deaths could be prevented by reducing workers' exposure to asbestos, nickel, chromium and other toxics.

4



"Smoking makes exposure to workplace chemicals even more deadly."

***Smoking or breathing secondhand smoke increases the risk from toxic chemicals for several reasons.***

First, smoking means more chemicals for your body to handle. For example, welding on the construction site produces carbon monoxide. Tobacco smoke also contains carbon monoxide, so you're getting a much larger dose. Long-term exposure to carbon monoxide weakens the heart.

Also, when the chemicals in tobacco smoke combine with certain other cancer-causing substances – for example, asbestos – the combination greatly increases the risk of lung cancer. An asbestos worker who doesn't smoke has 5 times the risk of lung cancer as the general population, while an asbestos worker who smokes has more than 50 times the risk of lung cancer.

## HEALTH PROBLEMS ON THE JOB



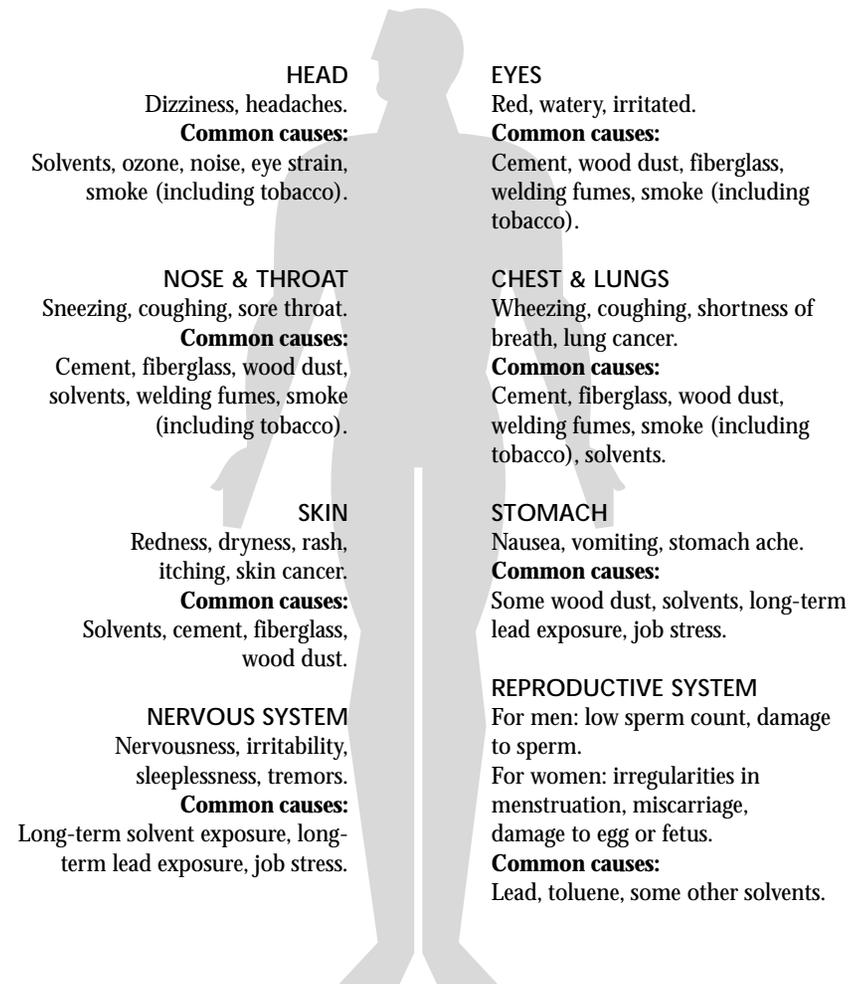
“When I looked over, there was a big cloud. All of a sudden nobody could breathe. I don’t know what type of cleaner it was, some new stuff. It just choked us immediately. The boss and manager were right there. They didn’t say anything.”

---

## How Construction Work Can Affect Your Health

---

It's not always easy to recognize when health problems are related to your work. Don't ignore headaches, frequent colds and coughs, dizziness, skin problems or other symptoms you think may be related to your job. They may be caused by chemicals or other conditions at work.



---

## How Do I Know If the Construction Job I'm Working on Is Hazardous?

---



To figure out what the hazards of a particular construction job may be, ask these questions and check the chart on the following pages. The chart also suggests important control measures that can be taken to protect workers.

### 1 Is there a lot of dust in the air?

The air on construction sites, especially during demolition work, can contain **asbestos, silica, cement dust, fiberglass and wood dust**. Most of these dusts can irritate your eyes, nose and lungs. Some can cause bronchitis, asthma and even cancer.

### 2 Do any of the materials you work with contain solvents?

**Varnishes, wood sealers, paints, thinners, adhesives** and many other construction materials contain solvents. They can get into your body through your skin or when you breathe the vapors. Solvents can give you headaches and make you dizzy. If you work with them for many years, they may damage your liver or nervous system.

### 3 Do you use any materials that contain polyurethane or epoxy resins?

Many construction materials — like **adhesives, sealants, waterproofing agents, floor and wall coverings** — are made up of isocyanate (the raw material for polyurethane) or epoxy resin systems. The chemicals in these systems can get into your body through your skin, or when you breathe the mists or vapors. They can irritate your nose, eyes, throat and lungs. Some people may develop an allergic reaction, similar to asthma.

### 4 What are other trades doing nearby?

In construction work, someone else's work may produce welding fumes, chemical vapors, asphalt smoke or other toxic hazards. These can affect everyone in the vicinity. Be aware of what other trades are doing, and protect yourself.



### 5 Are you exposed to cigarette smoke?

If you or someone else smokes on the job, you're being exposed to many more toxic substances. Cigarette smoke contains over 4,000 chemicals.

# Construction Hazards

DUSTS	Source	Health Effects
ASBESTOS	Maintenance and demolition work; roof tear-offs. Construction: floor tile, roofing materials, drywall compounds, gaskets, packing materials, electric insulation, corrosion resistant coatings, heat resistant materials, asbestos cement pipe and sheet.	<b>Short-term:</b> Lung irritation (if very high levels). <b>Long-term:</b> Asbestosis (scarring of the lungs); cancer of the lung, stomach, and intestinal tract. Asbestos workers who smoke have over 10 times the cancer risk of asbestos workers who do not smoke.
SILICA	Maintenance; remodeling; demolition work; application of fireproof coatings; sandblasting; tunneling.	<b>Long-term:</b> Serious, incurable lung disease (silicosis).
CEMENT	Construction and demolition of foundations, sidewalks and floors.	<b>Short-term:</b> Eye, nose, skin and lung irritation. Causes skin rashes and infection. Allergic skin rashes. <b>Long-term:</b> Small decrease in lung function, wheezing, shortness of breath.
WOOD DUST	Construction, remodeling and demolition. Sawing: wood, plywood, particle board.	<b>Short-term:</b> Allergic skin rash, asthma, nasal irritation, skin and eye irritation. <b>Long-term:</b> Nasal cancer.
FIBERGLASS & OTHER INSULATION MATERIALS	Insulation on pipes, other insulation, air conditioning.	<b>Short-term:</b> Skin, eye, nose and throat irritation; shortness of breath. <b>Long-term:</b> May cause lung cancer.

# DUSTS

CONTROLS FOR DUSTS	
ASBESTOS	<p>Asbestos removal jobs may be done only by licensed asbestos contractors.</p> <p>Isolate asbestos work and provide exhaust ventilation or dust collecting device.</p> <p>Keep material wet while removing it.</p> <p>Wear special protective clothing and correct respirators. Remove clothing and shower before leaving enclosed area. Post caution signs and labels.</p> <p>Smoking should be prohibited.</p>
OTHER DUSTS	<p>Wear the correct respirator if required (not a paper dust mask). See page 34.</p> <p>Vacuum or wipe off surfaces using wet mop or rags. (Avoid sweeping and blowing away dusts to clear surfaces.)</p> <p>Keep work materials wet where possible when sanding, grinding, sawing, etc.</p> <p>Don't drink, eat or smoke in work area.</p> <p>Wash hands before eating and before breaks.</p> <p>Change clothing and, where possible, shower before going home.</p> <p>Use local exhaust ventilation if not working in an open area.</p> <p>Isolate dusty operations such as sawing and sanding to reduce worker exposure.</p>

# Construction Hazards

METALS Dusts & Fumes	Source	Health Effects
CADMIUM, CHROMIUM, COPPER, ZINC, MAGNESIUM	Welding; drilling, cutting and sawing pipes; scraping rust or coatings.	<p><b>Short-term:</b> Metal dusts can be irritating to skin, nose, eyes and lungs. Effects of fumes differ depending on metal (see MSDS). Some metals (such as zinc, copper, and magnesium) cause metal fume fever (flu-like symptoms with fever, nausea, chills and muscular aches and pains).</p> <p><b>Long-term:</b> Depends on metal (see MSDS). Cadmium and chromium can cause cancer.</p>
LEAD	Cable splicing, demolition, remodeling, painting, pipefitting, plumbing, roofing, sheetmetal, iron work, welding on lead or surfaces with lead paint or coatings; brass fixtures may release lead.	<p><b>Short-term:</b> Effects are very rare. If exposure is high, symptoms similar to long-term effects may occur.</p> <p><b>Long-term:</b> Damage to brain and nerves (tremors, muscular weakness, lack of coordination), damage to reproductive systems (men and women), stomach problems, anemia, damage to kidneys.</p>

# METALS Dusts & Fumes

CONTROLS FOR METALS	
METAL DUSTS	<p>Wear the correct respirator if required (not a paper dust mask). See page 34.</p> <p>Vacuum or wipe off surfaces using wet mop or rags. (Avoid sweeping and blowing away dusts to clear surfaces.)</p> <p>Keep work materials wet where possible when sanding, grinding, sawing, etc.</p> <p>Don't drink, eat or smoke in work area.</p> <p>Wash hands before eating and before breaks.</p> <p>Change clothing and, where possible, shower before going home.</p> <p>Use local exhaust ventilation if not working in an open area.</p> <p>Isolate dusty operations such as sawing and sanding to reduce worker exposure.</p>
METAL FUMES	<p>Avoid welding on toxic metals or coatings; brush or scrub off coatings first.</p> <p>Natural ventilation is often adequate in open areas.</p> <p>Position yourself so that fumes don't blow into your face.</p> <p>Use local exhaust ventilation in indoor areas or confined spaces.</p> <p>Wear the correct respirator when ventilation or other controls are not possible.</p> <p>Lead: Shower and change clothes to avoid bringing lead home to your family.</p>

# Construction Hazards

SOLVENTS	Special Hazards	Source
BENZENE	Causes leukemia.	These solvents may be found in:  Varnishes  Finishes  Wood sealers  Thinners  Paints  Adhesives  Cleaning and degreasing solutions  Other products
METHYLENE CHLORIDE	May cause cancer.	
TOLUENE	Liver and kidney damage at high levels. May cause birth defects.	
TRICHLORO-ETHYLENE	Liver damage. May cause cancer.	

# SOLVENTS

Health Effects	CONTROLS FOR SOLVENTS
<p>Most solvents you work with, including acetone, TCE or other degreasers, affect your health in similar ways:</p> <p><b>Short-term:</b> Most organic solvents affect the brain the same way drinking alcohol does. Overexposure causes symptoms resembling drunkenness, including headaches, “feeling high,” nausea, dizziness, and at high levels, loss of coordination. Other short-term health effects are eye, nose and throat irritation, and skin rash.</p> <p><b>Long-term:</b> Repeated, frequent overexposure over months or years may cause long-lasting damage to the central nervous system (the brain and nerves).</p>	<p>Where possible, substitute materials that are less toxic.</p> <p>Use ventilation to remove vapors.</p> <p>Wear the correct respirator (refer to MSDS).</p> <p>Wear proper protective clothing, correct gloves, goggles, face shields.</p> <p>No smoking. No open flame nearby. Vapors can build up quickly and become extremely dangerous in confined spaces.</p> <p>Follow OSHA confined space entry procedures where required. (These include pretesting atmosphere before entry; mechanical ventilation of space; respirators; rescue person.) Many fatalities occur in confined spaces.</p>

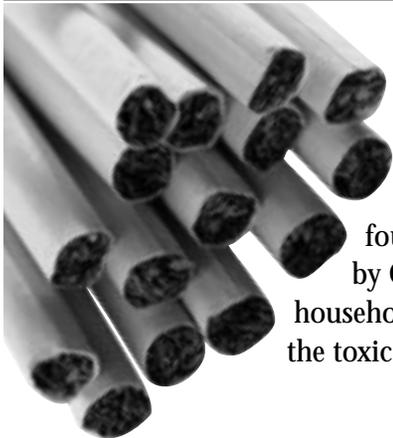
# Construction Hazards

OTHER CHEMICALS	Source	Health Effects
EPOXY RESINS	Impermeable paint, primer for hardwood floors, surface paint and adhesive for concrete walls..	<b>Short-term:</b> Irritation of eyes, nose and throat. <b>Long-term:</b> Asthma.
POLYURETHANES (ISOCYANATES)	Seam sealers, polyurethane insulation, electrical wire coatings.	<b>Short-term:</b> Irritation of eyes, nose and throat. <b>Long-term:</b> Asthma, other allergic lung diseases. May cause cancer. If workers get sensitized to these chemicals, they will become seriously ill at the slightest exposure.
COAL TAR PITCH	Roofing, road work.	<b>Short-term:</b> Irritation of eyes, nose, throat and lungs. Burns, skin irritation, increased sensitivity to sunlight. <b>Long-term:</b> Cancer of the lungs, skin and other parts of the body.

# OTHER CHEMICALS

CONTROLS FOR OTHER CHEMICALS	
EPOXY RESINS AND POLYURETHANES	<p>When possible, use one-component products where chemicals are already polymerized.</p> <p>When spraying, use the correct air-supplied full face respirator (see MSDS).</p> <p>Avoid skin and eye contact.</p> <p>Wear safety goggles and gloves.</p> <p>Get proper training.</p> <p>Never smoke or use an open flame around these chemicals, which are fire and explosion hazards..</p> <p><b>DANGER!</b> If you smell it, get out!</p>
COAL TAR PITCH	<p>Where possible, substitute less harmful materials such as coal tar enamel.</p> <p>Keep melt temperature as low as possible.</p> <p>Install devices to reduce exposure when loading.</p> <p>Keep kettle covers in good shape and closed whenever possible.</p> <p>Wet down old pitch roofs before and during tear-offs.</p> <p>If dust is high, wear the correct respirator.</p> <p>Wear eye protection.</p> <p>Protect the skin, even in hot weather.</p> <p>Laundry work clothes often.</p> <p>Wash up before eating, smoking, drinking and going home.</p> <p>If soap and water are not available use waterless cleaner, <b>not</b> gasoline.</p>

## Some of the Chemicals in Cigarette Smoke



There are over 4,000 chemicals in cigarette smoke. More than 50 of them are known to be carcinogens (to cause cancer). Many of the chemicals in cigarette smoke are also found in the workplace and regulated by OSHA. Some are found in common household products. This is a small sample of the toxic chemicals in cigarette smoke.

**Acetaldehyde:** Used in glues and resins; suspected carcinogen; may increase the absorption of other hazardous chemicals into the bronchial tubes.

**Acetone:** Used in solvents; irritating to the throat, nose, and eyes; long-term exposure can cause liver and kidney damage.

**Acrolein:** Used in polyester resins and herbicides; an ingredient in tear gas and other chemical warfare agents; extremely toxic; intensely irritating to the upper respiratory tract and eyes.

**Acrylonitrile:** Used in synthetic resins, plastics and rubber, and as a fumigant; also known as "vinyl cyanide"; suspected human carcinogen.

**1-aminonaphthalene:** Used in weed control; causes cancer.

**2-aminonaphthalene:** Banned in industrial uses; causes bladder cancer.

**Ammonia:** Used in cleaners; causes asthma and elevated blood pressure.

**Benzene:** Used in solvents, pesticides and gasoline; causes leukemia and other cancers.

**Benzo[a]pyrene:** Found in coal tar pitch, creosote, and some asphalts; causes skin cancer, lung cancer and reduction in reproductive capacity.

**1,3-Butadiene:** Used in rubber, latex, and neoprene products; suspected carcinogen.

**Butyraldehyde:** Used in solvents and resins; powerful inhalation irritant; affects the lining of nose and lungs.

**Cadmium:** Used in non-corrosive metal coatings, bearings, pigments and storage batteries; causes cancer; damages kidneys, liver and brain.

**Carbon Monoxide:** Produced by burning (in gasoline engines, welding, gas-powered tools, etc.); decreases heart and muscle function; causes fatigue, dizziness, weakness; especially toxic for the unborn, infants and people with lung or heart disease.

**Catechol:** Used as an antioxidant in dyes, inks and oils; causes high blood pressure, upper respiratory tract irritation and dermatitis.

**Chromium:** Used in metal plating and alloys, wood treatment and preservatives, and pigments; causes lung cancer. Stainless steel welding involves the greatest exposure.

**Cresol:** Used in solvents, disinfectants, and wood preservatives; highly irritating to the skin; acute inhalation levels cause upper respiratory, nasal and throat irritation.

**Crotonaldehyde:** Used as a warning agent in fuel gases; causes chromosome aberrations; reported to interfere with immune function.

**Formaldehyde:** Part of resin used in particleboard, fiberboard, and plywood, also used in foam insulation. Causes nasal cancer; can damage lungs, skin and digestive system.

**Hydrogen Cyanide:** Used in the production of resins and acrylic plastics and as a fumigant; released in metal treatment operations and metal ore processing; used for executions in some states' gas chambers; weakens lungs; causes nausea, headaches, and fatigue.

**Hydroquinone:** Used in paints, varnishes and motor fuel; causes eye injuries, skin irritation and central nervous system effects.

**Isoprene:** Used in rubber; similar to 1,3-butadiene; causes irritation to the skin, eyes and mucous membranes.

**Lead:** Used in paint and metal alloys (solder, brass, bronze); damages brain, nerves, kidneys and reproductive system; causes anemia and stomach problems; may cause cancer; particularly toxic to children.

**Methyl Ethyl Ketone (MEK):** Used in solvents; irritating to nose, throat, and eyes; depresses the central nervous system.

**Nickel:** Used in stainless steel, other metal alloys and alkaline batteries; causes upper respiratory irritation, bronchial asthma and cancer.

**Nicotine:** Used as a highly controlled insecticide; exposure can result in seizures, vomiting, depression of the central nervous system, growth retardation, developmental toxicity in fetuses; mild

nicotine poisoning results in diarrhea, increase in heart rate and blood pressure, headache, dizziness and neurological stimulation.

**Nitric Oxide:** Created by combustion of gasoline; major contributor to smog and acid rain; linked to Huntington's disease, Alzheimer's disease, Parkinson's disease and asthma.

**NNN, NNK, and NAT:** These compounds are found only in tobacco, NNN causes cancer and may cause reproductive damage; NNK is a powerful lung carcinogen; NAT is a possible carcinogen.

**Phenol:** Used in resins in plywood and other construction materials and in epoxy resins; highly toxic; affects the liver, kidney, respiratory, cardiovascular and central nervous system.

**Propionaldehyde:** Used as a disinfectant; causes irritation of the skin, eyes and respiratory system.

**Pyridine:** Used in solvents; causes eye and upper respiratory tract irritation; causes nausea, headaches and nervousness; may cause liver damage.

**Quinoline:** Used as a corrosion inhibitor and as a solvent for resins; causes genetic mutations; possible human carcinogen; severe eye irritant; linked to liver damage.

**Resorcinol:** Used in laminates, resins and adhesives; irritating to skin and eyes.

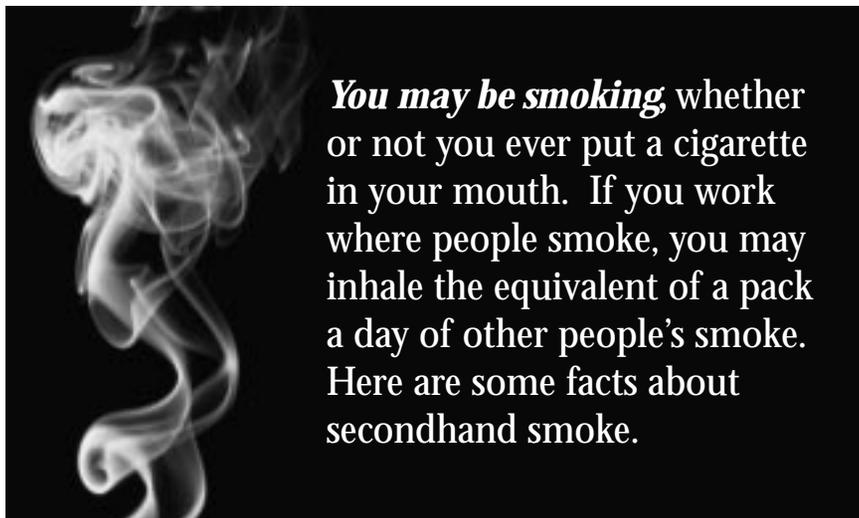
**Styrene:** Used in insulation, fiberglass, pipes and plastic; possible human carcinogen; may cause leukemia; causes headaches, eye irritation, slowed reaction time, fatigue and dizziness.

**Toluene:** Used in solvents, oils and resins; highly toxic; causes fatigue, confusion, weakness, memory loss, nausea, loss of appetite and drunken-type actions; linked to permanent brain damage.

---

## Secondhand Smoke Facts

---



- Secondhand smoke contains 4,000 chemicals, including over 50 known carcinogens. Smoke from the tip of a cigarette has 20 times the carcinogens as smoke inhaled by a smoker.
- Secondhand smoke is the third leading preventable cause of death in America, killing over 53,000 nonsmokers every year. 50,000 of these deaths are from heart disease. 3,000 are from lung cancer.
- The U.S. Environmental Protection Agency (EPA) has classified secondhand smoke as a Group A carcinogen — a substance known to cause cancer in humans. There is no safe level of exposure to Group A carcinogens, which also include asbestos and benzene.
- If you breathe secondhand smoke, your health risk is higher if you're also exposed to toxic chemicals. For example, tobacco smoke contains hydrogen cyanide, a chemical that paralyzes the cilia (tiny filtering hairs) in your lungs. That makes it harder for your lungs to filter out other toxics.

- Tobacco smoke adds harmful chemicals to those already in the work environment, increasing the total amount you're exposed to and increasing the risk of cancer, heart disease, asthma, respiratory problems and other diseases.
- Breathing secondhand smoke means more chemicals for your body to handle. For example, welding on the construction site produces carbon monoxide. Tobacco smoke also contains carbon monoxide, so you are getting a much larger dose. Long-term exposure to carbon monoxide weakens the heart.
- When the chemicals in tobacco smoke combine with certain other cancer-causing substances, such as asbestos, the combination greatly increases the risk of lung cancer.
- Secondhand smoke hurts kids by causing ear infections and respiratory problems such as asthma. It also has been linked to Sudden Infant Death Syndrome (SIDS).
- California law bans smoking in indoor workplaces to protect workers from secondhand smoke. Some employers and some local laws ban smoking in outdoor areas, too.



---

## The Odds Against Tobacco Users' Health

---

### SMOKING

Smoking causes:

- 90% of lung cancer deaths
- 80% of emphysema and chronic bronchitis deaths
- 30% of cancer deaths
- 20% of heart disease deaths



Each year, over 400,000 Americans die prematurely because of smoking. Smoking kills more Americans each year than alcohol, cocaine, crack, heroin, homicide, suicide, car crashes, fires and AIDS combined. Smoking also causes impotence.

### CHEWING TOBACCO

Smokeless tobacco is **not** a safe alternative to smoking. Chewing tobacco causes cancer of the mouth, larynx and esophagus. Long-term “chew” users are 50 times more likely to get cancer of the cheek and gum than non-users.

Chewing tobacco contains arsenic, cyanide, lead and benzene. It also contains fiberglass and dirt, which cause abrasions on the skin so the tobacco can enter the bloodstream more readily. Chewers get three times as much nicotine as smokers. It can be even harder to quit chew than cigarettes.

### QUITTING

In the last 25 years, nearly half of all American adults who ever smoked have quit. Millions and millions of people have quit. But most smokers try several times before they quit permanently. Nicotine is a highly addictive drug. The reason people use tobacco is to satisfy their addiction to nicotine.

**Quitting smoking or chewing tobacco can be at least as difficult as quitting cocaine or heroin.**



### DON'T GIVE UP

For help in quitting, contact the California Smokers' Helpline. This program provides free and confidential telephone counseling to help you quit smoking or chewing tobacco.

(800) 662-8887 (English)

(800) 456-6386 (Spanish)

(800) 400-9866 (Mandarin and Cantonese)

(800) 778-8440 (Vietnamese)

(800) 556-5564 (Korean)

(800) 933-4833 (TDD/TTY)

(800) 844-2439 (Chewing Tobacco)

## Combining Tobacco Smoke & Workplace Toxics

When tobacco smoke combines with other toxics in the workplace, there is extra danger to your health.

- 1** Some combinations ADD TO the odds against your health.

If you smoke, your lungs aren't as good at keeping other chemicals out. Tobacco smoke damages your lungs' ability to protect themselves against other toxic substances you may inhale.

**LUNGS:** The odds of construction workers getting bronchitis, asthma or other lung diseases are high because you may work with asphalt, coal tar, treated wood and other lung hazards. Tobacco smoke makes it harder for your lungs to get rid of those chemicals.

Smoking also means more chemicals for your body to handle. Your body may be able to stand small amounts of some chemicals, but not larger amounts. Tobacco smoke can cause higher levels of the same harmful chemicals you're already exposed to on the job. It also adds other harmful chemicals.

**HEART:** Welding on a construction site produces carbon monoxide. Tobacco smoke also contains carbon monoxide. You may not feel sick with a 5 to 10% level of carbon monoxide in your blood. But a 10 to 20% level can cause headaches and make you abnormally tired. Long-term exposure to carbon monoxide weakens the heart.

- 2** Some combinations MULTIPLY the odds against your health.

Some toxics can work together inside your body to strengthen each other's power to cause disease. This is called **synergy**. For example, the odds against your health multiply when you combine tobacco smoke with asbestos:

### YOUR RISK OF GETTING LUNG CANCER MULTIPLIES

**5** times if you are exposed to asbestos but do not smoke. 

**11** times if you smoke but are not exposed to asbestos. 

**53** times if you smoke AND are exposed to asbestos. 

Scientists suspect that tobacco smoke and the ferric oxide in welding fumes also combine to multiply your risk of getting cancer.

- 3** If you smoke, you're more likely to have contact with workplace chemicals.

Dangerous chemicals can enter your body when you breathe them, swallow them, or get them on your skin. The dust from some chemicals, like lead or cadmium, may collect on your cigarettes. Then, when you put a cigarette to your lips and inhale, you are not only taking in tobacco smoke, you are also taking in extra toxics.



- 4** Smoking on the job increases the risk of fire and explosion.

- 5** Smokers are more likely to have job injuries because they can be distracted by eye irritation, coughing or having only one hand free.



“Pues, si uno lo hace por necesidad, por la familia, pero uno debe pensar en su salud, que mañana no voy a estar aquí.”

“Well, we work out of necessity, for the family. But you have to think about your health — that tomorrow, I might not be here.”

---

## How to Make the Job Safer

---

There are different ways to reduce chemical hazards on the job. The best ways are to stop using the most toxic materials, or to design the work and equipment so that no one is exposed to toxics.

### USE SAFER CHEMICALS.

Sometimes you can use a substance that is less toxic. For example, many of the materials you work with contain solvents. Water-based or alcohol-based solvents are usually safer than “chlorinated hydrocarbons” (solvents with chlorine in them) and “aromatic hydrocarbons” (like toluene and xylene). But always check out the hazards of the substitute to make sure it is really less hazardous.



### DESIGN THE JOB AND EQUIPMENT TO PREVENT EXPOSURE TO TOXICS.

It's better to prevent the hazard from ever reaching a worker than to rely on protective clothing or gear. For example, local exhaust ventilation (a “sucker” that pulls dust or welding fumes away right at the source) gets rid of a toxic substance before anyone has a chance to breathe it.

### ENFORCE SAFETY RULES.

Work rules and procedures can help cut down on your exposure to toxics. For example, keeping the workplace clean can limit the amount of dusts in the air and help reduce other safety hazards. Workers should never eat or smoke in the work area. California's law prohibiting smoking in indoor workplaces eliminates exposure to secondhand smoke. Some employers and local governments also ban smoking in outdoor areas.



### GIVE WORKERS PERSONAL PROTECTIVE EQUIPMENT IF NECESSARY.

Goggles, gloves, respirators and other personal protective equipment can help protect you against toxic hazards on the job, but they don't usually protect you completely. They shield you from hazards rather than eliminating them. That's why you should rely on personal protective equipment only if there is no better way to control the problem.

The chart on pages 12-19 has details on how best to deal with some specific substances.

## Checklist: Controlling Hazards on Your Construction Site

		Yes	No
<ul style="list-style-type: none"> <li>• Is it easy to identify all the toxics on your site? For example, does every substance have a label with its name, hazards and manufacturer listed? Are MSDS's (Material Safety Data Sheets) available for each substance? <span style="float: right;"><input type="checkbox"/> <input type="checkbox"/></span></li> <li>• Is it possible to substitute less toxic materials for some of the hazardous substances used on the site? For example, can you use wood treated with less toxic preservatives? <span style="float: right;"><input type="checkbox"/> <input type="checkbox"/></span></li> <li>• Are there ways to do the job that reduce exposure to toxic substances? For example, do workers use water to keep dust down? <span style="float: right;"><input type="checkbox"/> <input type="checkbox"/></span></li> <li>• Where the work generates dust, welding fumes, vapors or toxic mists, is there a local ventilation system (a "sucker" or hood) that draws them away from the worker's face? <span style="float: right;"><input type="checkbox"/> <input type="checkbox"/></span></li> <li>• Does the employer measure the levels of asbestos, welding fumes, solvents or other hazards in the air? <span style="float: right;"><input type="checkbox"/> <input type="checkbox"/></span></li> <li>• Has the employer trained everyone on the site about when to use a respirator, how to select the correct one and how to use it properly? Has the employer "fit-tested" everyone to make sure their respirators fit well? (See page 36). <span style="float: right;"><input type="checkbox"/> <input type="checkbox"/></span></li> </ul>			

		Yes	No
<ul style="list-style-type: none"> <li>• Are there written rules about entering confined spaces? Does the employer train people to protect themselves in confined spaces? <span style="float: right;"><input type="checkbox"/> <input type="checkbox"/></span></li> <li>• Are products containing solvents used only in well-ventilated areas, and far away from welding operations? <span style="float: right;"><input type="checkbox"/> <input type="checkbox"/></span></li> <li>• Do workers know that they shouldn't use solvents to clean their hands? <span style="float: right;"><input type="checkbox"/> <input type="checkbox"/></span></li> <li>• Do workers take showers and change clothes before going home, so they won't take toxic materials with them? <span style="float: right;"><input type="checkbox"/> <input type="checkbox"/></span></li> <li>• Do people avoid eating, drinking or smoking near toxic materials? Do they wash their hands before they eat, drink or smoke? <span style="float: right;"><input type="checkbox"/> <input type="checkbox"/></span></li> <li>• Are all tools and equipment in good condition? <span style="float: right;"><input type="checkbox"/> <input type="checkbox"/></span></li> <li>• Does your employer get workers together for regular safety meetings? <span style="float: right;"><input type="checkbox"/> <input type="checkbox"/></span></li> <li>• Is the workplace smoke-free? <span style="float: right;"><input type="checkbox"/> <input type="checkbox"/></span></li> </ul>			

## Use the Right Respirator



Respirators can be hot and uncomfortable. You don't want to wear one if you don't have to. They also aren't as effective as some other kinds of protection. But if there is no way to remove a harmful material from the air you are breathing (by using a safer chemical, better ventilation or other controls), you will need to use a respirator to protect yourself. Here are some guidelines to help you decide if you're getting the right protection.

- 1** Your employer must set up a respiratory protection program.

If you need to use a respirator on the job, Cal/OSHA requires your employer to set up a "respiratory protection program." The program should help you choose the right respirator, make sure it fits, and get training about how to use it and take care of it.

- 2** No one respirator is right for all kinds of hazards.

You can check the label on the respirator or on its cartridge to find out what hazards it protects you from. Make sure it is approved by "NIOSH" for protection against the hazards you're working with.

**CAUTION:** If you have heart disease or respiratory problems, you should check with your doctor before using a respirator.

- **DUST MASKS** protect *only* against wood dusts and other dusts that are not very toxic. They *don't* protect you against spray mists or toxic dusts like asbestos, silica or lead. They also will *not* protect you against chemical vapors or secondhand smoke. If you use a dust mask, make sure it has a double strap and a good nose grip. *Never* rely on single strap masks.



- **DUAL CARTRIDGE RESPIRATORS** protect against various hazards. These respirators use pairs of filters or cartridges. Different filters and cartridges protect against different hazards.

Use the right **MECHANICAL FILTER** for dusts, metal fumes and mists.

Use the right **CHEMICAL CARTRIDGE** for toxic gases and vapors from solvents or paints.

Use a **COMBINATION RESPIRATOR** for all the above — dusts, fumes, mists, gases and vapors. Combination respirators are available for any set of inhalation hazards.

- **AIR-SUPPLIED RESPIRATORS** give you fresh air from a tank or through an airline. Use them when you work in a confined space where there is not enough oxygen to breathe.



**CAUTION:** If there is a rip or tear in the mask, it will not protect you from any hazards.

### 3

#### Make sure your respirator fits properly.

No one respirator will fit everyone. If your respirator does not fit properly on your face, it will leak. You cannot tell if it fits by how it feels. The law requires your employer to test the fit to make sure no vapors or dusts can leak in around the edges.

### 4

#### Make sure your respirator is maintained properly.

Your respirator must be kept clean, and the cartridges or filters should be changed regularly. A respirator with a worn-out cartridge is worse than no respirator at all. (It's not protecting you, but it's making it harder to breathe.)

**CAUTION:** If you have a beard, it is impossible to get a proper fit with most respirators.



"Just my brothers work there. It's my father's shop. He never wears a respirator. We never wore respirators. Only those little paper dust masks. We just assumed that was enough protection. My father has been in the business all his life and he's healthy as a horse. But I got asthma and the doctor says it's from the fumes. We should have paid more attention to those MSDS's."

## Tips for Taking Action

Once you have decided to try to improve health and safety on the job, you need to do some planning. Here are some tips for coming up with a realistic action plan.

#### Get support of co-workers.

No matter whether you're trying to get your employer to supply respirators that fit, install a ventilation system or establish an outdoor workplace smoking policy, the first and **most important** step to take is to get the support of your co-workers.

#### Change takes time.

It takes time to convince co-workers that it's worth taking some action to eliminate a hazard. In many workplaces, people have found it useful to:

- Seek help from the union (or consider organizing one).
- Take a survey of the workforce to document the symptoms and illnesses that seem to be related to each worker's job.
- Identify other workers who are concerned.



"Basically, you come to your job to work—not to die, not to get hurt. I missed a year and a half of work because some supervisor was stupid. And I followed his instructions instead of following my own common sense. During the year and a half I was out of work, I lost my marriage, I lost my house, I lost a whole lot besides my pay. Because when you're disabled, you lose your dignity, you lose your money, you lose everything."

- Identify resources for information and help.
- Have a meeting.
- Form a health and safety committee, or join one that's already been set up.
- Form a group to meet with the employer, or choose a co-worker the employer will listen to.

#### Talk to your employer.

Some employers take their responsibility for providing a safe workplace seriously. Once they understand that conditions on their sites can cause serious health problems, they will attempt to cooperate in changing them. Some possible approaches are:

- Explain how serious the problem is.
- Explain how many workers' compensation claims there could be, and point out that they could be expensive and increase insurance rates.
- Show how production, absenteeism and morale will improve if hazards are reduced.
- Show the advantages of a health and safety committee.
- Request that the employer talk with their insurance carrier about health and safety services the insurer may provide.
- Tell them about Cal/OSHA's free consultation service for employers.

#### If your employer won't cooperate...

When employers don't cooperate, workers still can:

- Seek help from a union (or consider organizing one).
- File a grievance (if there's a contract).
- File a Cal/OSHA complaint or get someone else to file one.
- File a complaint with the National Labor Relations Board.
- Tell the press about the problem. Go public in the community.
- Consider a job action or strike (only as a last resort).

---

## Your Legal Rights to Health & Safety

---

### THE RIGHT TO A SAFE WORKPLACE.

(California Labor Code §6400, 6401)

Both the federal and California Occupational Safety and Health Acts say that an employer must provide a workplace that is free from hazards and meets health and safety standards.

In California, Cal/OSHA regulations also say that your employer must set up an effective *injury and illness prevention program* (General Industry Safety Order 3203). This regulation requires:

- A written plan with the name of the person who is responsible for health and safety on the job.
- Information and training for workers about possible hazards, given in a language that workers understand.
- A system for inspecting the workplace and correcting hazards promptly.
- A system for workers to report hazards without fear of being fired or punished in any way.

### THE RIGHT TO A SMOKE-FREE INDOOR WORKPLACE.

(California Labor Code §6404.5)

California law says that no one shall smoke or permit smoking in an enclosed workplace.

- "Indoor" means four walls and a ceiling. It doesn't matter whether there are windows, louvers or sliding doors that open.
- Smoking is permitted in outdoor workplaces, unless an employer or a local ordinance bans it.

- Employers may provide breakrooms for smokers, as long as they meet ventilation requirements and as long as employers also provide non-smoking breakrooms.
- If smoking is allowed in your indoor workplace, you have the right to file a complaint. Different cities and counties have different enforcement agencies. Check with your local health department to find the enforcement agency in your area. If your employer has had three violations within a year, you can file a complaint with Cal/OSHA.



#### THE RIGHT TO KNOW ABOUT HAZARDS ON YOUR JOB.

(California Labor Code §6398, 6399, 6408)

You have the right to know which toxic materials you work with and how they may harm you. You also have the right to see the results of any tests done to measure chemicals in your workplace. You may see your medical records, and records of injuries and illnesses related to work. (See page 46.)

#### THE RIGHT TO FILE A HEALTH AND SAFETY COMPLAINT WITH CAL/OSHA.

(California Labor Code §6309)

The fastest way to correct a hazard may be to deal with your employer directly. But if this doesn't work, you have the right to file a complaint with Cal/OSHA. The law allows you to file a complaint confidentially. Cal/OSHA won't reveal who made the complaint. (See page 44.)

#### PROTECTION AGAINST DISCRIMINATION FOR USING YOUR HEALTH AND SAFETY RIGHTS.

(California Labor Code §6310)

An employer may not fire you, or punish you in any way, for using the rights listed here. If your employer discriminates against you for using your health and safety rights, contact your union and/or the nearest office of the State Labor Commissioner. (See page 53.)

In some cases, you also have the right to refuse to do an unsafe job without reprisal if there is a "real and apparent hazard." Before refusing to do hazardous work, always try to get your employer to correct the hazard and/or inform Cal/OSHA about it.

#### THE RIGHT TO SAFETY EQUIPMENT SUPPLIED BY THE EMPLOYER.

(California Labor Code §6401, 6403)

The law requires that the employer provide you with safety and protective equipment which is "reasonably adequate" to let you do the job safely — like gloves, safety glasses and respirators. You are not responsible for the cost.

#### THE RIGHT TO FILE A CLAIM FOR WORKERS' COMPENSATION IF YOU GET SICK OR DISABLED ON THE JOB.

(California Labor Code §3600)

If a job hazard injures you or makes you sick, or if it makes a previous health problem get worse, workers' comp will pay a percentage of your wage while you are recovering. Workers'

comp also pays for related medical expenses. For details on how to collect these benefits, call the toll-free number of the Workers' Compensation Information and Assistance Unit (1-800-736-7401). You may also wish to contact a workers' comp lawyer.

#### THE RIGHT TO MEDICAL TESTS

(California Labor Code §9040)

The law requires that employers give free medical tests to anyone who works with asbestos, lead and a few other specific hazardous materials. The law also says that your employer must tell you the results of these tests.

#### FINDING LAWS AND REGULATIONS

The California Labor Code is available in most public libraries and on the Internet. Cal/OSHA has many specific regulations, called "standards," which give more details on the rights described in this section and other safety requirements. These are found in Title 8 of the California Administrative Code, General Industry Safety Orders and Construction Safety Orders. These Cal/OSHA Standards are available on the Internet. See page 53 for more information.

---

## What If Someone's Smoking Indoors at the Work Site?

---

**Even though California law prohibits smoking in indoor workplaces, sometimes people still smoke there. Here are some tips about what to do if someone smokes indoors at your workplace.**

- Talk to your co-workers and see if the smoke is bothering other people, too.
- Talk to the person who is smoking, and explain why the smoke is not good for them, and others in the workplace.
- Talk to the employer and explain that they've got to enforce the law.
- If you don't feel comfortable doing these things, contact your local public health department's tobacco control program and explain the problem. You have the right to file a complaint directly with the health department or other enforcement agency in your area. (The health department people will tell you which agency enforces the no-smoking law.)
- The enforcement agency can fine *both* the individual smoker and the employer who allows smoking in an indoor workplace. Even if the smoker is not an employee, he or she can be fined. Generally, fines are \$100 for the first violation, \$200 for the second violation and \$500 for the third violation.
- If your employer has had three violations within one year, you have the right to file a complaint with Cal/OSHA. OSHA Penalties can range up to \$70,000 depending on the seriousness of the situation.

---

## How to Use Cal/OSHA

---

### When to File a Complaint

Often on construction sites, health and safety hazards are present for only a short time. By the time Cal/OSHA can get to the site, the hazard may not be there. It's best if you, your co-workers and your union can get hazards eliminated by working directly with the employer. Sometimes, however, you should call Cal/OSHA. You should do this:

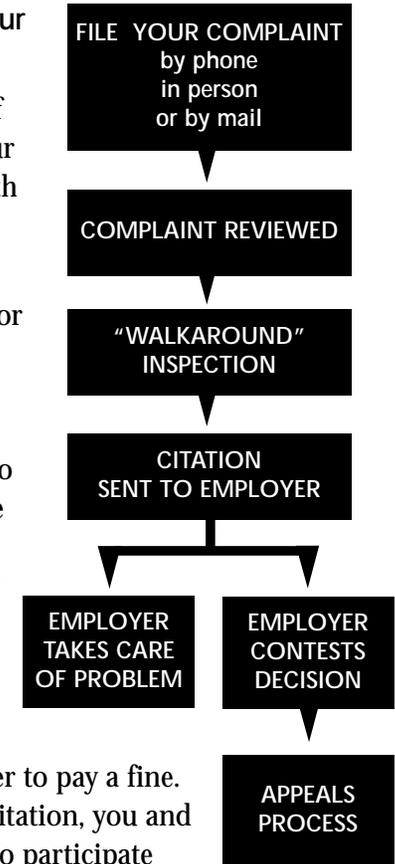
- Immediately, if there is a situation that threatens someone's life.
- When there has been a serious injury on the job.
- When you or your union cannot resolve a health and safety problem with the employer.

### How to File a Complaint

- You may file your complaint by phone, in person or by mail. If you phone in your complaint, it's a good idea to document it by following up in writing. To find your nearest Cal/OSHA office, look in the State Government Pages of the phone book (under "California, State of, Industrial Relations Department, Occupational Safety and Health").
- You do not have to use your name, but you can if you want. Your name will be kept confidential. If you prefer, ask your union representative to help you file the complaint or file it for you.
- Try to make your complaint complete and convincing. Let Cal/OSHA know how serious the problem is and how many people may be affected. Describe exactly where the problem is located (draw a diagram, if it helps). Explain what has happened, or may happen, as a result. You don't need to specify which safety regulations you think are being violated.

### How Will Cal/OSHA Respond to Your Complaint?

- You will get the best results if you call and follow up on your complaint. Keep in touch with the Cal/OSHA office.
- Cal/OSHA will review your complaint, assign an inspector and send him or her out to conduct an unannounced inspection. You and your union rep have the right to go with the inspector during the "walkaround" inspection. If Cal/OSHA finds violations of safety regulations, they will order management to fix the problem within a specific period of time. They also may require the employer to pay a fine. If the employer appeals the citation, you and your union rep have a right to participate in the appeal process.



### What Else Can Cal/OSHA Do to Help?

- If you and your employer agree to work together to investigate and solve a health and safety problem, Cal/OSHA can help you. Cal/OSHA has a free Consultation Service that will assist employers or joint labor-management committees. (See page 53.)
- Your employer must get a permit from Cal/OSHA for certain construction and demolition jobs. Before granting the permit, Cal/OSHA may meet with the contractor, workers and their union representatives to make sure the job will be done safely.

---

## Your Right to Know About Toxics on the Job

---

Under California law, your employer must:

1

### LABEL

Label all containers of toxic materials. Proper labels have the name of the chemical, warnings about the chemical's hazards and the name and address of the manufacturer.

2

### TRAIN

Train every employee about the toxics used on the job. The training must include information on the dangerous chemicals you work with, how they can harm you, the symptoms to watch out for and how to protect yourself.

3

### GIVE INFORMATION

Give you detailed information on each hazardous chemical you work with, when you ask for the information. The main source of this information is the MSDS (Material Safety Data Sheet). Each hazardous chemical should have an MSDS. Your employer is responsible for getting the MSDS for any hazardous substance used on the job, and making sure you can look at it. Your training must explain how to read the MSDS.

— These requirements are found in California Administrative Code, Title 8, General Industry Safety Order 5194.

You also have the right to see:

- Records of any company tests done to measure the level of toxic chemicals in the workplace. (General Industry Safety Order 3204)
- Your own medical records if the company keeps them. (General Industry Safety Order 3204)
- Records of any illnesses and injuries that you and your co-workers suffered because of conditions at work. The law requires that an employer keep these records for five years. They're called "Log 200." (General Industry Safety Order 3203)
- The employer's written plan for preventing illness and injury. This plan must include a way to identify and solve health and safety problems. (General Industry Safety Order 3203)

If the employer refuses to give you any of this information, you have the right to file a Cal/OSHA complaint. (California Labor Code §6309)

---

For more information on finding the laws and regulations mentioned in this section, see the box on page 42.



"Some of the guys that I've worked for just give you the chemical and don't tell you anything about the stuff. They don't say, 'This stuff will hurt you.' They just say, 'This is your shift, do it.' So if you don't take it upon yourself to read what's on the can or to ask questions, you won't know what you're getting into."

# Reading Material Safety Data Sheets (MSDS's)

**MATERIAL SAFETY DATA SHEET**

**MANUFACTURER:** Owens-Corning Fiberglas Corp.  
Fiberglas Tower  
Toledo, Ohio 43659

**HEALTH INFORMATION PHONE & EMERGENCY PHONE:**  
8:00 AM-5:00 PM (EST); (419)-248-8234  
Emergencies only, after 5:00 PM (EST); (419)-248-5330

**PRODUCT DIVISION:** Trumbull Asphalt Division

**TECHNICAL PRODUCT INFORMATION PHONE:**  
8:00 AM-5:00 PM (EST); (708)-594-6977

**DATE PREPARED:** February 28, 1991  
**SUPERSEDES MSDS DATED:** April 4, 1986

---

**SECTION I - COMPONENT DATA**

**HAZARDOUS INGREDIENTS:**

COMMON NAME	CHEMICAL NAME	CAS NUMBER	% COMPOSITION	OSHA-PEL	ACGIH-TLV	OTHER
Petroleum Asphalt	Petroleum Asphalt	8052-42-4	100	None Established	5 mg/m <sup>3</sup> 8-hr TWA (asphalt fumes)	NIOSH, 5 mg/m <sup>3</sup> Ceiling Limit
Hydrogen Sulfide	Hydrogen sulfide	7783-06-4	Contaminant	10 ppm 10 min. 8-hr TWA	10 ppm 8-hr TWA	NIOSH, 10 ppm 10 minute max.

---

**SECTION II**

**INHALATION:** Move individual to fresh air. Administer oxygen. If not breathing, administer artificial respiration. Seek medical attention.

**SKIN CONTACT:** If hot material strikes the skin, immediately drench or immerse the area in water to assist cooling. If available, apply iced water or ice packs to the burned area. (Do not use iced water or cold packs if the burned area covers more than 10% of the body, as this may contribute to shock.) Do not try to remove asphalt from a burn after it has cooled. Medical personnel can soften and remove cooled asphalt with petroleum jelly. For contact with cold product, clean exposed skin with waterless hand cleaner, then wash with mild soap and water. If irritation occurs, seek medical attention.

**EYES:** Immediately flush eyes with running water for at least 15 minutes. Seek medical attention immediately.

---

**SECTION III - FIRE AND EXPLOSION DATA**

**FLASH POINT (°F):** 400+ for asphalt

**METHOD USED:** Cleveland Open Cup

**AUTO IGNITION TEMPERATURE (°F):** Unknown.

**FLAMMABILITY LIMITS (%):** LEL: Not Determined  
UEL: Not Determined

**HAZARD:** Carbon dioxide, dry chemical.

---

**SECTION IV - HEALTH HAZARD DATA**

**PRIMARY ROUTES OF EXPOSURE:** Inhalation, skin contact, and eye contact.

**HEALTH HAZARDS (including acute and chronic effects and symptoms of overexposure):**

**ACUTE:** *Inhalation:* Heated product may release asphalt fumes which may cause nose, throat, mucous membrane irritation, nausea, headaches, or dizziness. See Section VII for health hazards of hydrogen sulfide in confined spaces.

*Eye Contact:* Contact with the cold product may result in dryness, and irritation. Contact with the hot product may result in thermal burns. Long term skin exposure to asphalt fumes can increase the risk of skin discoloration.

**CHRONIC:** Prolonged or repeated skin contact with this product may result in irritation and dermatitis. (See Section VII for carcinogenicity below.)

What chemicals are in the product?

What is the maximum amount of each chemical you can legally be exposed to? (This is also called the "permissible exposure limit" or PEL.)

Is the product a fire or explosion hazard?

How does it enter your body?

How can it affect your health in the short term and long term?

What protection must the employer provide when workers use the product?

**SECTION V - EMPLOYEE PROTECTION**

**VENTILATION:** Outdoor use - ensure adequate ventilation and avoid fumes by working upwind. Indoor use - ensure adequate building ventilation and local exhaust. (See Respiratory Protection below and Section VII on dangers of hydrogen sulfide.)

**RESPIRATORY PROTECTION:** If irritation occurs or if the TLV for asphalt fumes is exceeded, use a NIOSH/MSHA approved air purifying respirator. In situations where the concentration of H<sub>2</sub>S exceeds the PEL or TLV, supplied air breathing apparatus are required. Always use respiratory protection in accordance with your company's respiratory protection program and OSHA regulations under 29 CFR 1910.134.

**PROTECTIVE CLOTHING:** Wear long sleeved shirt and long pants. Leather or lined neoprene coated gloves should be used when there could be direct contact. Sunscreens may decrease the potential for skin discoloration with chronic exposure.

**WORK/HYGIENIC PRACTICES:** Kettles should be operated at the lowest possible temperature that allows proper application. Kettle should have tight-fitting lids and be used in well ventilated areas. Handle in accordance with good industrial hygiene and safety practices. These include avoiding any unnecessary exposure and removal of the material from the skin, eyes, and clothing. Wash hands and arms frequently. Shower after exposure. Wash work clothes when soiled. Safety showers and eye wash stations should be available.

---

**SECTION VI - REACTIVITY DATA**

**STABILITY (Conditions to Avoid):** Product is stable. However, upon heating, hydrogen sulfide gas (H<sub>2</sub>S) may be generated. (See Section VII of this MSDS for more information on H<sub>2</sub>S.)

**INCOMPATIBILITY (Materials to Avoid):** Do not allow hot, molten asphalt to contact water as this may cause violent eruptions and spread of hot asphalt. Avoid contact with strong oxidizers.

**Hazardous Reactions:** Carbon monoxide, carbon dioxide, sulfur oxides, hydrogen sulfide, and various hydrocarbon products may be released. (See Section VII.)

**Other Hazards:** No other hazards are known.

---

**SECTION VII - STORAGE PRECAUTIONS**

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** Ensure adequate ventilation. (See Section V above.)

---

**SECTION VIII - PHYSICAL DATA**

**MELTING POINT (°F):** Not Applicable

**BOILING POINT (°F):** 700

---

**SECTION IX - ENVIRONMENTAL PROTECTION**

**ACTION TO TAKE FOR SPILLS (Use Appropriate Safety Equipment):** Dike storage tanks to prevent material from entering sewers or waterways. Absorb with inert materials such as sand or vermiculite. Dispose as a solid regulated waste.

**WASTE DISPOSAL METHODS:** Dispose in accordance with federal, state and local regulations as a solid waste. The primary method of disposal is incineration.

How do you handle the product safely?

Is there a danger when the product combines with other chemicals?

In the case of an accidental spill or release, what should be done?

## WHERE TO GET INFORMATION AND HELP



“We thought we needed ventilation because we were working with MEK. We found the MSDS online. Then we and our steward talked to the employer. The employer was reluctant, but finally agreed to ask the Cal/OSHA Consultation Service what we needed.”

## Information and Training About Workplace Chemicals and Other Health Hazards

**Labor Occupational Health Program (LOHP), University of California, Berkeley:** Trains workers, unions, professionals and others on health and safety. Sells publications and videos. Free catalog is available. Free library open to the public. Offers assistance on hazardous waste, chemicals, ergonomics, young workers, etc.

2223 Fulton Street, 4<sup>th</sup> Floor  
Berkeley, CA 94720-5120  
(510) 642-5507 • [www.lohp.org](http://www.lohp.org)

**Labor Occupational Safety and Health Program (LOSH), University of California, Los Angeles:** Trains workers, unions and others on health and safety. Sells publications and videos. Has a Spanish language resource library. Offers assistance on hazardous waste, chemicals, ergonomics, young workers, etc.

6350B Public Policy Building  
PO Box 951478  
Los Angeles, CA 90095-1478  
(310) 794-5964 • [www.spsr.ucla.edu/res\\_ctrs/iir/losh](http://www.spsr.ucla.edu/res_ctrs/iir/losh)

**HESIS (Hazard Evaluation System and Information Service):** A program of the California Department of Health Services. Has free library. Produces factsheets on chemicals and “Hazard Alerts” on newly recognized hazards. Provides training, education and technical assistance on workplace hazards to workers, health professionals, etc.

1515 Clay Street, Suite 1901  
Oakland, CA 94612  
(510) 622-4317 (English) • (510) 622-4318 (Spanish)  
(510) 622-4328 (publications) • (510) 622-4310 (fax)  
[www.ohb.org/hesis.htm](http://www.ohb.org/hesis.htm)

**American Conference of Governmental Industrial Hygienists (ACGIH):** Publishes technical health and safety information, including an “Industrial Ventilation Manual,” information on “threshold limit values” (the limits of safe exposure) for hundreds of

hazardous chemicals, and many other publications. Ask for their publication catalog.

1330 Kemper Meadow Drive, Suite #600  
Cincinnati, Ohio 45240  
Phone: (513) 742-2020. • [www.acgih.org](http://www.acgih.org)

**Santa Clara Center for Occupational Safety and Health (SCCOSH)**

760 North First Street, 2<sup>nd</sup> Floor  
San Jose, CA 95112  
(408) 998-4050 • Email: [SCCOSH@igc.org](mailto:SCCOSH@igc.org)

**WorkSafe!**

c/o San Francisco Labor Council  
1188 Franklin Street #203  
San Francisco, CA 94109  
(510) 302-1071 • [www.worksafe.org](http://www.worksafe.org)

## Information about Workplace Health And Safety Laws

**California Division of Occupational Safety and Health (Cal/OSHA):** Enforces workplace health and safety regulations and inspects workplaces. Has free publications and some videos. Consultation Service assists employers. Safety standards are online.

Statewide: (800) 963-9424  
[www.dir.ca.gov/occupational\\_safety.html](http://www.dir.ca.gov/occupational_safety.html)

**California Labor Code Online:** Website with full text of all California laws, including the Labor Code.

[www.leginfo.ca.gov/calaw.html](http://www.leginfo.ca.gov/calaw.html)

**State Labor Commissioner, Division of Labor Standards Enforcement, Department of Industrial Relations:** Provides information about employment rights, discrimination and wrongful firings. Takes worker complaints about discrimination for health and

safety activity, and will investigate them. There are several offices throughout the state. Check for local phone numbers in your phone book. Look in the State Government Pages under “California, State of, Industrial Relations Department, Labor Standards Enforcement.”

**California Department of Industrial Relations, Division of Workers’ Compensation, Information and Assistance Unit:** Provides information on benefits and medical care for workplace illness or injury.

(800) 736-7401

**Other legal referrals:** Most cities or counties have Legal Aid Societies and Bar Associations. Check your phone book for local listings.

## Labor Organizations

**State Building and Construction Trades Council of California:** Has printed and online materials on construction safety and legislation. Sponsors health and safety training sessions. Does policy work concerning health and safety in construction trades.

921 - 11<sup>th</sup> Street, Suite 400 (Will be moving as of 7/1/01)  
Sacramento, CA 95814.

(916) 443-3302 • [www.sbctc.org](http://www.sbctc.org) • email: [sbctc@sbctc.org](mailto:sbctc@sbctc.org)

**Specific Building Trades Locals:** Each city and county has a number of local Unions for construction workers, such as Ironworkers, Electricians, Plumbers, Roofers, etc. Check your Yellow Pages under “Labor Organizations” for the listings in your area.

**Center to Protect Workers’ Rights (CPRW):** The research and development institute of the Building and Construction Trades Department, AFL-CIO. Has Hazard Alerts in English and Spanish, and many other safety publications online.

[www.cpwr.com](http://www.cpwr.com)

## Information on Smoking and Health

**BUILT Project (Building Trades Unions Ignite Less Tobacco):** An educational program in the State Building and Construction Trades Council of California. It educates and assists union members through local unions, health and welfare trust funds, joint apprenticeship training committees and labor-management committees. BUILT also provides speakers for union/committee meetings and information and literature about the health effects of tobacco, secondhand smoke and the workplace smoking law

921 – 11<sup>th</sup> Street, Suite 110

Sacramento, CA 95814

(916) 442-8368 • email: [built@sbctc.org](mailto:built@sbctc.org)

**California Smokers’ Helpline:** This program provides free and confidential telephone counseling to help you quit smoking or chewing tobacco.

(800) 662-8887 (English)

(800) 456-6386 (Spanish)

(800) 400-9866 (Mandarin and Cantonese)

(800) 778-8440 (Vietnamese)

(800) 556-5564 (Korean)

(800) 933-4833 (TDD/TTY)

(800) 844-2439 (Chewing Tobacco)

**Your local public health department:** Check the County Government section of your phone book.

## Internet Resources on Construction

**Electronic Library of Construction Safety & Health (eL-COSH):** Extensive collection of factsheets available online. Includes tailgate/toolbox safety training materials. Some Spanish and Italian materials.

[www.cdc.gov/niosh/elcosh/elcoshom.html](http://www.cdc.gov/niosh/elcosh/elcoshom.html)

Material Safety Data Sheet Archive: Information about specific chemicals.

*siri.uvm.edu/msds*

NYSafety.org: Has a list of factsheets and articles, most available online. Set the “Occupations” box to Construction to see construction-related materials.

*www.nysafety.org*

WorkSafe from Workers’ Compensation Board of British Columbia, Canada: Has ergonomics factsheets for construction.

*www.worksafebc.com/pubs/brochures/ci/default.asp*

### Internet Resources on Tobacco

Physicians for a Smoke-Free Canada: Has information about what’s in tobacco and what the health effects of tobacco are. You can find out how much of a specific chemical you’ve inhaled when smoking.

*www.smoke-free.ca*

Center for Disease Control Tobacco Information and Prevention Source: The official site of the Surgeon General Reports. Has research and much more.

*www.cdc.gov/tobacco*

Tobacco Control News and Information: Has a good search mechanism.

*www.tobacoweeek.com*

The TRUTH website: A high-tech, interactive site.

*www.thetruth.com*