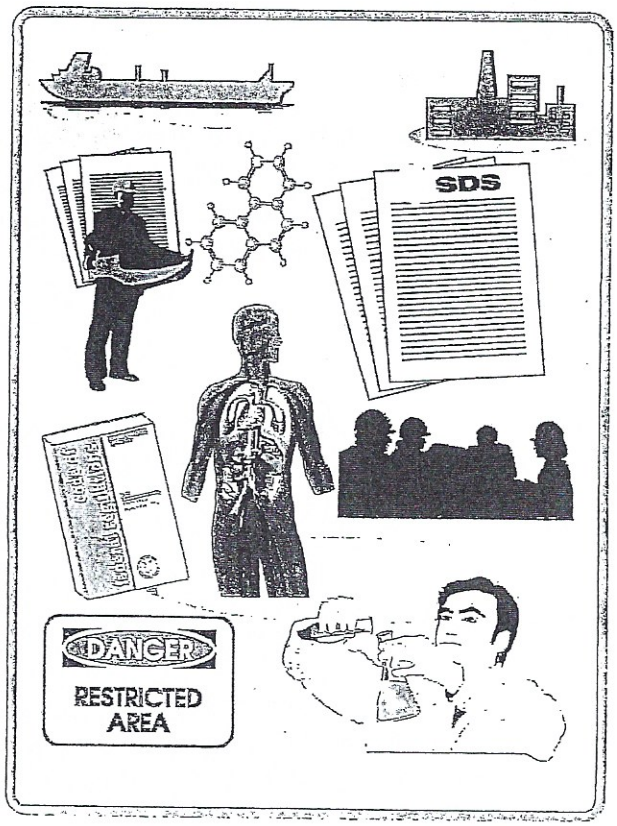


Hazard Communication

What Is Hazard Communication?

The purpose of the OSHA *Hazard Communication* standard is to let you know the hazards of the chemicals in your workplace.

Chemical importers, manufacturers, and reformulators must automatically send chemical hazard information to downstream employers, like yours. They must use labels and Safety Data Sheets (SDSs).

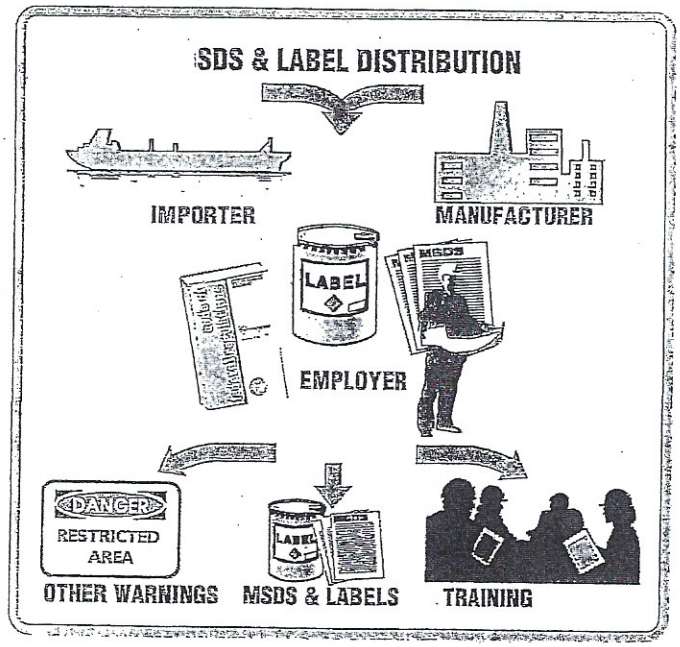
When employers receive the labels and SDSs, they must use these to inform and train workers and to design and run worker protection programs.

The HazCom standard requires your employer to:

- use labeled products,
- get and provide SDSs on all products,
- provide training and information for workers, and
- have a written HazCom program.

A HazCom program requires the employer to provide the information to workers in these ways:

- on container labels,
- on other posters, placards, or warnings the employer may use,
- in training provided to workers, and
- through SDSs available to workers and their representatives.



In this course, we focus on the parts of the Hazard Communication regulation that directly affect your health and safety in the workplace.

What Products Require SDSs?

Your employer must have an *SDS* for every hazardous product used or stored on each job. This includes items such as pipe if it's welded, cut, or ground. It includes treated lumber. It does not include 'articles' such as a piece of wood, metal, or ceiling tiles – unless the article will be modified. Modification includes cutting, burning, welding, and pulverizing.

How Do We Get SDSs?

OSHA gives you the right to request from your employer an SDS for any chemical with which you work. Your union representative also has the right to request SDSs for you. OSHA requires your employer to provide the requested SDSs to you or your union representative.

What Information and Training Does HazCom Require?

Your employer must *train* and *inform* you of the hazards of chemicals you use in your job. The employer's training must provide:

- *general training* about HazCom, health and safety hazards, and control methods, and
- *specific training* for the hazards in your workplace.

How Should Products Be Labeled?

All manufacturers, importers, and distributors of hazardous chemicals MUST *label* products so that you can recognize the hazards of the product. If the product is transferred to another container, it MUST be labeled also, unless the amount is for the use of one person during one shift.

Why Do Construction Workers Need HazCom?

A recent study shows that *18% of on-the-job deaths* in construction are due to *exposure to harmful substances.* This does not include the large number of construction workers who die later after getting chronic diseases from exposure to harmful substances.

Before HazCom, manufacturers did not have to tell workers or their doctors about harmful chemicals in products.

Only since the mid-1980s have you had the *right to know*—thanks mainly to the efforts of unions.

This course helps you learn to get and understand chemical information, so you can protect yourself and your family.

18% of on-the-job deaths in construction are due to exposure to harmful substances.

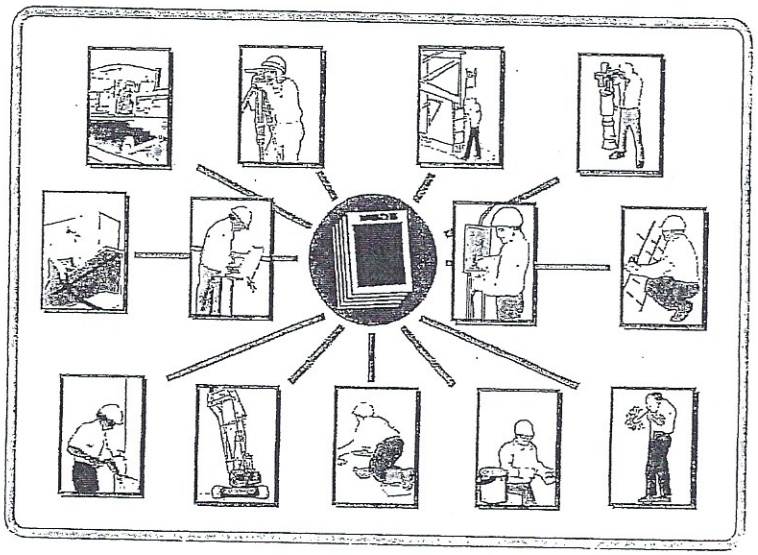
This does not include workers who die off-the-job due to acute or chronic conditions caused by harmful exposures.

What About Multi-Employer Sites?

All employers on a *multi-employer site* must provide information to each other.

Each employer's written HazCom program must include methods to:

- provide other employer(s) with a copy of SDSs or to place them at a central location,
- inform other employer(s) of any precautionary measures to take during normal operating conditions and in foreseeable emergencies, and
- inform the other employer(s) of his or her labeling system.



What Is an SDS?

The *SDS* is a detailed technical bulletin. It is the primary source of information about hazardous products used on your job. Almost every product in your workplace has an SDS—solvents, concrete, paint, adhesives, grout, degreaser, diesel fuel, and more.

What Information Is in an SDS?

The SDS tells:

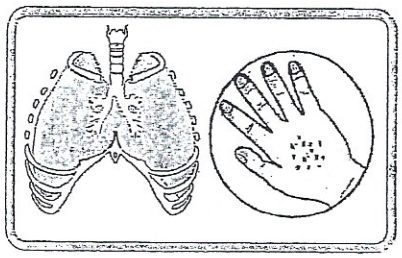
- what company makes the product,
- what the physical and health hazards are,
- how to recognize when you are overexposed, and
- how to protect yourself from the product.

34 [illegible]

What Is Health Hazard Information?

The health hazard information tells you about the harmful effects of a product. Health hazard information includes:

- routes of entry
- types of health hazards
- target organs
- carcinogenicity
- signs and symptoms of exposure
- aggravations to medical conditions
- emergency or first aid procedures



What Are the Main Routes of Entry?

For a chemical to harm you, it must get onto or into your body.

The SDS lists the ways the chemical gets into the body:

- breathe it.
- swallow it.
- absorb it through your skin.

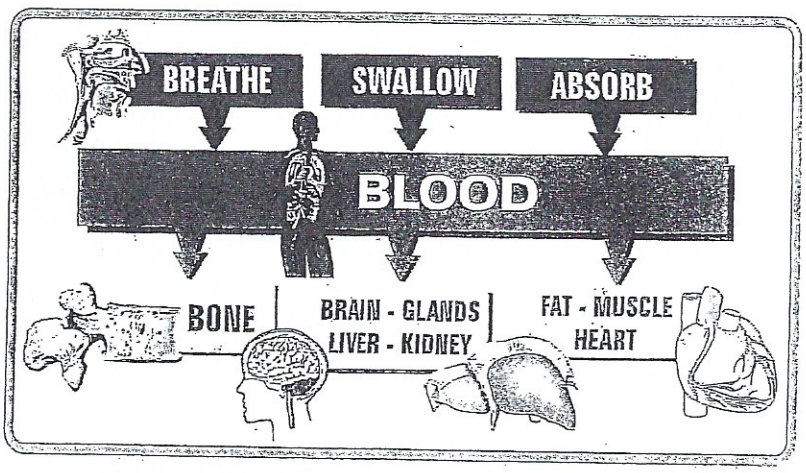
You can't smell or taste all chemicals. Not all chemicals are irritating. Even when chemicals have *warning properties,* such as an odor, you stop smelling them after a while. This doesn't mean they won't harm you. You just don't notice them anymore.

What happens when you breathe, absorb, or swallow a chemical? The chemical may get into your bloodstream. From there, it can circulate throughout your body. It can stay in your body for a long time or a short time. It may cause serious health effects.

It may irritate or injure your nose, mouth, throat, or lungs. It may damage:

- your bone
- your brain
- your glands
- your liver
- your kidneys
- your fat
- your muscle
- your heart

These are *target organs*. If a chemical is known to harm certain organs, they are named in the health hazard section. Often, the SDS uses the organ's name: *heart*. Other times it describes the chemical: *cardiotoxic*.



What Are the Two Types of Health Hazards?

SDSs list health hazards as either:

- acute
- chronic

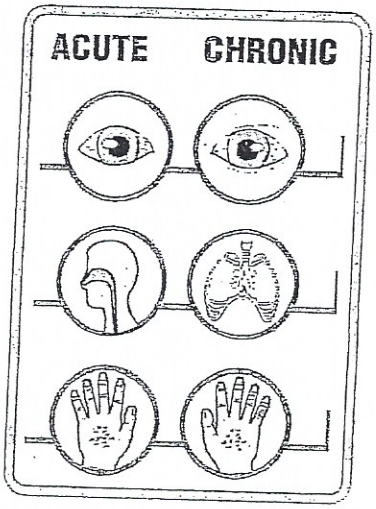
An *acute effect* is immediate. It often happens from a single exposure. Acute does not mean mild. Acute effects of chemical overexposure include irritation of skin, nose, throat, or eyes, nausea or dizziness, heart failure, a coma, or death.

A *chronic effect* is long-term and persistent. It does not always mean a critical condition, though many chronic health problems are.

An acute effect on the eyes might be irritation. A chronic effect could be scarred cornea.

An acute respiratory effect might be irritation. A chronic effect could be bronchitis.

An acute effect on skin might be irritation. A chronic effect could be dermatitis.



What Is Carcinogenicity?

Carcinogenicity means cancer-causing. If the product contains a carcinogen, the SDS must say so. If any chemical in the product is a suspected or confirmed animal or human carcinogen, ask your supervisor for a safer product. Treat the product as a carcinogen.

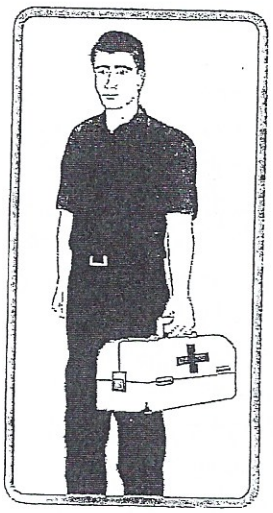
What Are the Signs and Symptoms of Exposure?

Many *acute, reversible* effects of exposure are listed on the SDS as signs and symptoms of exposure:

- dizziness
- skin irritation
- headaches
- cold sweats
- difficulty breathing
- nausea
- fatigue
- sneezing
- irritability
- eye, nose, or throat irritation

These signs and symptoms are your body's way of reacting to foreign substances. They are meant to alert you that you may be harmed. They are listed on the SDS to serve as early warnings of overexposure.

What Medical Conditions Are Aggravated by Exposure?



Sometimes chemicals can make a certain *medical condition* worse. Many solvents aggravate asthma or bronchitis. One degreaser, methylene chloride, breaks down to carbon monoxide in the blood stream and may aggravate heart conditions. If the product aggravates any medical condition, the manufacturer must list it.

What Emergency or First Aid Measures Are Given?

The SDS will offer some recommendations for emergency or first aid procedures.

These recommendations are usually not sufficient for a treating physician.

What Are Hazardous Ingredients?

This part usually contains three types of information:

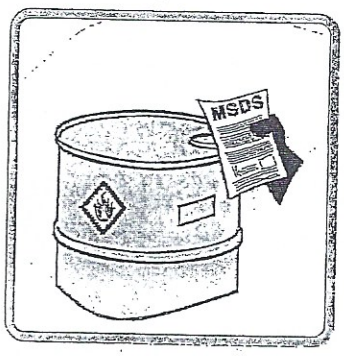
- the hazardous components,
- the exposure limits, and
- the percent of the chemical in the product.

Let's review each one:

Hazardous Components. Lists the product's chemical names and synonyms and may list common names.

PEL or TLV. Gives the legal or recommended exposure limit for each hazardous chemical in the product.

The *PEL (Permissible Exposure Limit)* is the airborne concentration of a chemical to which workers may be *legally* exposed day after day for a lifetime. PELs are set by OSHA. PELs are not necessarily 'safe' exposure levels. The TLV (Threshold Limit Value) is a *recommended* airborne concentration of a chemical set by a private organization of safety and health professionals.



The percent of the hazardous ingredient in the product is usually the percent by weight or volume. The higher the percent of an ingredient in a product the greater your potential exposure to it.

How Do We Measure PELs and TLVs?

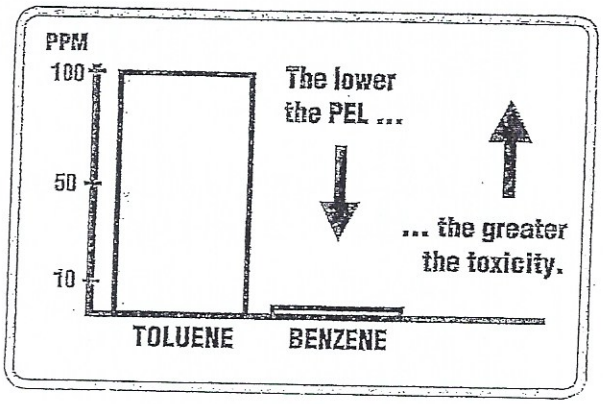
Both PELs and TLVs are usually measured in *parts per million.*

Parts per million (ppm) is a measure of small amounts of *gases or vapors* in air. As a fraction, a ppm is one-millionth. This is an extremely small amount of material. It doesn't take a lot of a chemical to make you sick.

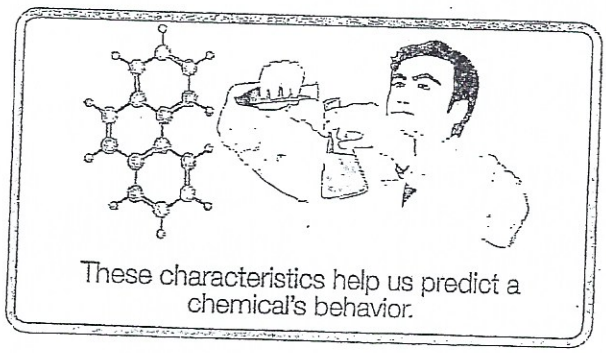
A PEL of 1 ppm may be 1,000 times more toxic than a PEL of 1,000 ppm.

Use the PEL or TLV as a *relative comparison* of the hazard. Knowing the PEL can help you understand how important it is to keep the chemical out of your body.

Often, the *lower* the PEL, the *more dangerous* the chemical. PELs are like fish hooks or wire—the smaller the number, the bigger the hazard. Chemicals with smaller PELs are more harmful because smaller amounts of the chemicals will cause harm.



What Are Physical and Chemical Characteristics?



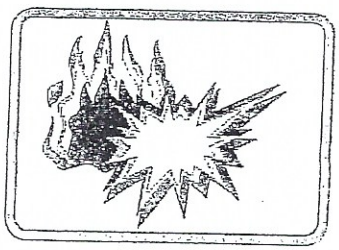
These characteristics help us predict a chemical's behavior.

Like people, chemicals have characteristics that predict how they will behave. A chemical's characteristics can help us understand when, how, and why it becomes most hazardous. These characteristics include:

- boiling point
- vapor pressure
- vapor density
- solubility in water
- specific gravity
- melting point
- evaporation rate
- appearance/odor

What Are Fire and Explosion Hazard Data?

Use the SDS to find out about the *fire and explosion hazards* of a product. Precautions for fire fighting and fire-related physical and health hazards are also listed here.



What Does 'Extinguishing Media' Mean?

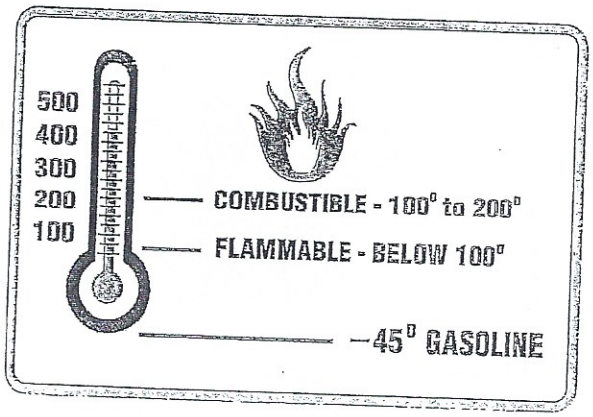
Extinguishing media is what will put the fire out. Typical extinguishing media are water fog, foam, alcohol foam, CO_2, and dry chemical.

Never make the mistake of assuming that water works for everything.

What Is Flash Point?

Flash point is the *temperature* at which a chemical releases enough vapors to ignite. Liquids evaporate and give off vapors. At the flash point temperature, a spark or other source of ignition will ignite the vapors. The *lower* the flash point of a chemical you use, the more likely that a heat source will cause it to burn or explode.

A product with a flash point under 100° is classified as *flammable*. A product with a flash point above 100° but below 200° is classified as *combustible*.



What Are Special Fire Fighting Procedures?

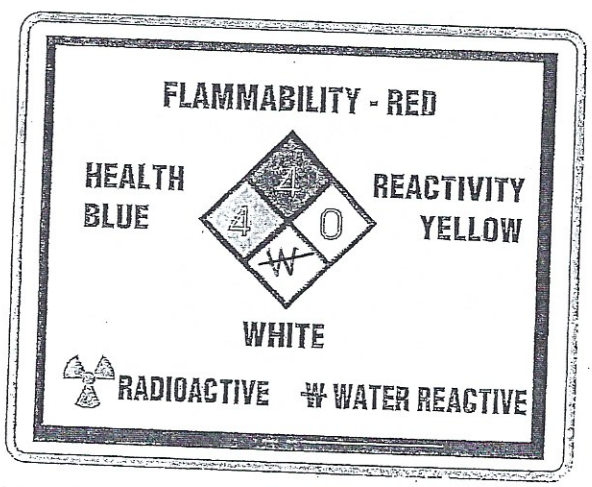
This tells the equipment and procedures for fighting a fire involving the chemical. Typical recommendations include methods for cooling containers of chemicals and personal protective equipment needed for fighting the fire. Generally, it is better to leave the fire fighting to the fire fighters.

What Is the NFPA Label?

The *National Fire Protection Association (NFPA) label* was developed to warn fire fighters about the hazards of chemicals in a fire. Today, the NFPA label appears on many product containers and on some SDSs.

The NFPA label is a diamond containing four squares of different colors. The squares contain a number from 0 to 4, with 0 meaning no hazard and 4 meaning a severe hazard. The internal squares are red, blue, yellow, and white.

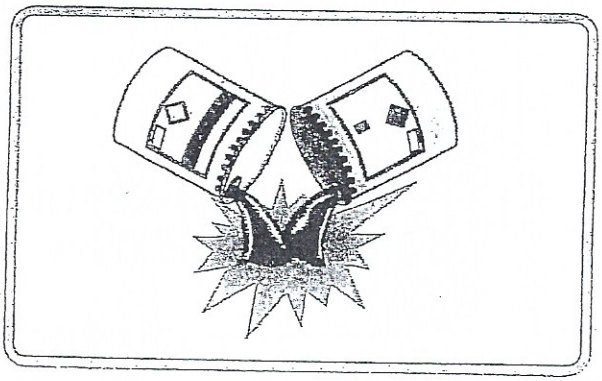
- **RED** is fire,
- **BLUE** is health,
- **YELLOW** is reactivity.
- **WHITE** is reserved for special hazards such as 'use no water,' represented by ~~W~~.



The NFPA does not cover chronic health effects or give the name of the chemical, the product, or the manufacturer, which is required by the OSHA regulations.

What are the hazards for the product of the NFPA label pictured above?

What Is Reactivity?

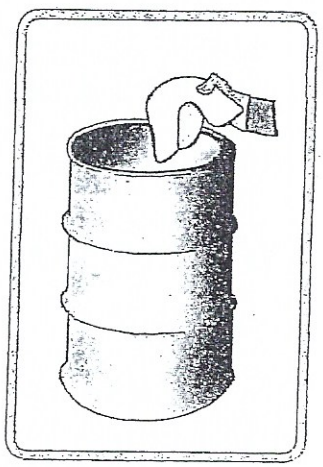


A chemical labeled *reactive* tends to undergo chemical change and release energy. These chemical changes may cause pressure build-up, temperature increase, or formation of toxic or corrosive by-products. These chemical changes can be started by:

- heat,
- improper storage or handling, or
- direct contact with other incompatible chemicals.

Polymerization is one example of chemical reactivity. Have you noticed that the bond of a two-part glue gets hot as the glue sets? This is a controlled *polymerization*. But when a reactive undergoes polymerization, it can get out of control. The result is usually a fire or explosion. If the chemical is capable of *hazardous polymerization,* then it's noted here in this part of the SDS.

What Is Safe Handling and Use?



The SDS must give advice on:

- accidental spill or release
- disposal of materials
- recommended handling and storage precautions

What Are the Precautions for Spill or Release?

These are the procedures to use if the material is *released or spilled* in an uncontrolled or unplanned manner. These usually include such things as:

- avoid breathing gases and vapor
- avoid skin contact with liquid or solid
- remove sources of ignition

What Does Disposal Mean?

Disposal means how to get rid of the material or its waste when you are finished. Methods must always follow federal, state, and local regulations.

What Are Handling and Storage Requirements?

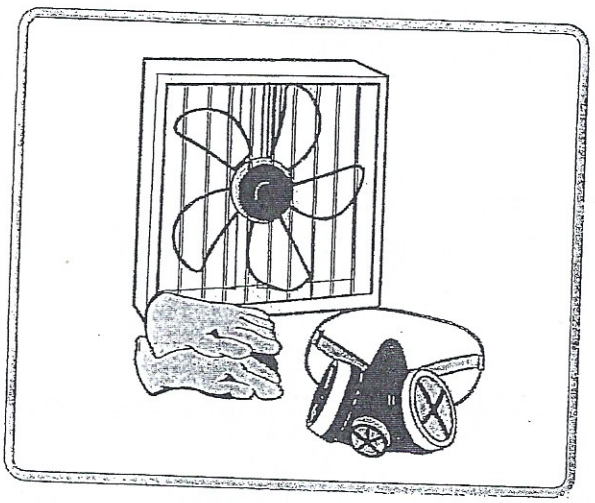
Conditions for *storage* are given here, such as:

- safe storage life
- temperature
- ventilation
- no smoking
- sources of ignition

What Are Control Measures?

If you look at nothing else in the SDS, check this out. These are the *control measures* you can use to reduce your exposure to hazardous chemicals. Control measures are methods used by employers or workers to reduce exposures to hazardous substances.

One important control measure that probably will not be listed on an SDS is to *substitute* a safer product.



What Are the Limitations of the SDS?

SDSs cover chemical hazards of products you use in your workplace. But construction workers face many other hazards that aren't described on SDSs. Among them are:

- heat stress
- noise
- vibration
- electrocution
- CO from combustion

Some of these exposures may aggravate chemical exposures from the products you work with. Your employer is responsible for informing you about all the hazards in your workplace.

ABC SOLVENT - MAKE-BELIEVE SOLVENT

Material Safety Data Sheet for the U.S.A. and Canada

SECTION I - PRODUCT INFORMATION

IDENTITY (TRADE NAME):	ABC SOLVENT
SYNONYMS:	STODDARD SOLVENT
ABC PART NUMBER(S):	6617
FAMILY/CHEMICAL NAME:	ALIPHATIC HYDROCARBON
PRODUCT USE:	Cleaning and degreasing metal parts

SECTION II - MANUFACTUER INFORMATION

MANUFACTURER:	ABC COMPANY 777 Big Timber Road Parker, Oregon 90210
TELEPHONE:	1-800-421-5144
ISSUE DATE:	March 19, 1998
PREPARER:	Product MSDS Coordinator

SECTION III - HAZARDOUS COMPONENTS

Name	Synonym	WT%	CAS	PEL
Parts Washer Solvent	Stoodard Solvent	85.0	64741	100
Xylene	Dimethyl-benzene	15.0	7890	100

THE CLOROX COMPANY

SAFETY DATA SHEET

Issuing Date January 5, 2015 **Revision Date** June 12, 2015 **Revision Number** 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name **Clorox® Regular-Bleach$_1$**

Other means of identification

EPA Registration Number 5813-100

Recommended use of the chemical and restrictions on use

Recommended use Household disinfecting, sanitizing, and laundry bleach

Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Address
The Clorox Company
1221 Broadway
Oakland, CA 94612

Phone: 1-510-271-7000

Emergency telephone number

Emergency Phone Numbers For Medical Emergencies, call: 1-800-446-1014
For Transportation Emergencies, call Chemtrec: 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

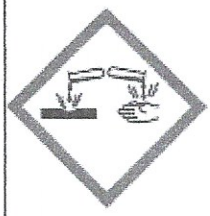
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1

GHS Label elements, including precautionary statements

Emergency Overview

Signal word **Danger**

Hazard Statements
Causes severe skin burns and eye damage
Causes serious eye damage



Appearance Clear, pale yellow **Physical State** Thin liquid **Odor** Bleach

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling.
Wear protective gloves, protective clothing, face protection, and eye protection such as safety glasses.

Precautionary Statements - Response

Immediately call a poison center or doctor.
If swallowed: Rinse mouth. Do NOT induce vomiting.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
Wash contaminated clothing before reuse.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Specific treatment (see supplemental first aid instructions on this label).
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Precautionary Statements - Storage

Store locked up.

Precautionary Statements - Disposal

Dispose of contents in accordance with all applicable federal, state, and local regulations.

Hazards not otherwise classified (HNOC)

Although not expected, heart conditions or chronic respiratory problems such as asthma, chronic bronchitis, or obstructive lung disease may be aggravated by exposure to high concentrations of vapor or mist.

Product contains a strong oxidizer. Always flush drains before and after use.

Unknown Toxicity
Not applicable.

Other information
Very toxic to aquatic life with long lasting effects.

Interactions with Other Chemicals
Reacts with other household chemicals such as toilet bowl cleaners, rust removers, acids, or products containing ammonia to produce hazardous irritating gases, such as chlorine and other chlorinated compounds.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %	Trade Secret
Sodium hypochlorite	7681-52-9	5 - 10	*

* The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

First aid measures

General Advice Call a poison control center or doctor immediately for treatment advice. Show this safety data sheet to the doctor in attendance.

Eye Contact Hold eye open and rinse slowly and gently with water for 15 - 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Skin Contact Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Inhalation Move to fresh air. If breathing is affected, call a doctor.

Ingestion Have person sip a glassful of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person. Call a poison control center or doctor immediately for treatment advice.

Protection of First-aiders Avoid contact with skin, eyes, and clothing. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects Burning of eyes and skin.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically. Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media
CAUTION: Use of water spray when fighting fire may be inefficient.

Specific Hazards Arising from the Chemical
This product causes burns to eyes, skin, and mucous membranes. Thermal decomposition can release sodium chlorate and irritating gases and vapors.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Avoid contact with eyes, skin, and clothing. Ensure adequate ventilation. Use personal protective equipment as required. For spills of multiple products, responders should evaluate the MSDSs of the products for incompatibility with sodium hypochlorite. Breathing protection should be worn in enclosed and/or poorly-ventilated areas until hazard assessment is complete.

Other Information Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental Precautions This product is toxic to fish, aquatic invertebrates, oysters, and shrimp. Do not allow product to enter storm drains, lakes, or streams. See Section 12 for ecological Information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Absorb and containerize. Wash residual down to sanitary sewer. Contact the sanitary treatment facility in advance to assure ability to process washed-down material.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes, and clothing. Do not eat, drink, or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Storage

Store away from children. Reclose cap tightly after each use. Store this product upright in a cool, dry area, away from direct sunlight and heat to avoid deterioration. Do not contaminate food or feed by storage of this product.

Incompatible Products

Toilet bowl cleaners, rust removers, acids, and products containing ammonia.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Sodium hypochlorite 7681-52-9	None	None	None

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value. OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits. NIOSH IDLH: Immediately Dangerous to Life or Health.

Appropriate engineering controls

Engineering Measures

Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/Face Protection

If splashes are likely to occur: Wear safety glasses with side shields (or goggles) or face shield.

Skin and Body Protection

Wear rubber or neoprene gloves and protective clothing such as long-sleeved shirt.

Respiratory Protection

If irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands after direct contact. Do not wear product-contaminated clothing for prolonged periods. Remove and wash contaminated clothing before re-use. Do not eat, drink, or smoke when using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical State	Thin liquid		
Appearance	Clear	**Odor**	Bleach
Color	Pale yellow	**Odor Threshold**	No information available

Property	Values	Remarks/ Method
pH	~12	None known
Melting/freezing point	No data available	None known
Boiling point / boiling range	No data available	None known
Flash Point	Not flammable	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limits in Air		
Upper flammability limit	No data available	None known
Lower flammability limit	No data available	None known
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Specific Gravity	~1.1	None known
Water Solubility	Soluble	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
Explosive Properties	Not explosive	
Oxidizing Properties	No data available	

Other Information

Softening Point	No data available
VOC Content (%)	No data available
Particle Size	No data available
Particle Size Distribution	No data available

10. STABILITY AND REACTIVITY

Reactivity
Reacts with other household chemicals such as toilet bowl cleaners, rust removers, acids, or products containing ammonia to produce hazardous irritating gases, such as chlorine and other chlorinated compounds.

Chemical stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to avoid
None known based on information supplied.

Incompatible materials
Toilet bowl cleaners, rust removers, acids, and products containing ammonia.

Hazardous Decomposition Products
None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation Exposure to vapor or mist may irritate respiratory tract and cause coughing. Inhalation of high concentrations may cause pulmonary edema.

Eye Contact Corrosive. May cause severe damage to eyes.

Skin Contact May cause severe irritation to skin. Prolonged contact may cause burns to skin.

Ingestion Ingestion may cause burns to gastrointestinal tract and respiratory tract, nausea, vomiting, and diarrhea.

Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium hypochlorite 7681-52-9	8200 mg/kg (Rat)	>10000 mg/kg (Rabbit)	-

Information on toxicological effects

Symptoms May cause redness and tearing of the eyes. May cause burns to eyes. May cause redness or burns to skin. Inhalation may cause coughing.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.

Mutagenic Effects No information available.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Sodium hypochlorite 7681-52-9	-	Group 3	-	-

IARC (International Agency for Research on Cancer)
Group 3 - Not Classifiable as to Carcinogenicity in Humans

Reproductive Toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.
Chronic Toxicity Carcinogenic potential is unknown.
Target Organ Effects Respiratory system, eyes, skin, gastrointestinal tract (GI).

Aspiration Hazard No information available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)
54 g/kg
ATEmix (inhalation-dust/mist)
58 mg/L

12. ECOLOGICAL INFORMATION

Ecotoxicity
Very toxic to aquatic life with long lasting effects.

This product is toxic to fish, aquatic invertebrates, oysters, and shrimp. Do not allow product to enter storm drains, lakes, or streams.

Persistence and Degradability
No information available.

Bioaccumulation
No information available.

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

Disposal methods
Dispose of in accordance with all applicable federal, state, and local regulations. Do not contaminate food or feed by disposal of this product.

Contaminated Packaging
Do not reuse empty containers. Dispose of in accordance with all applicable federal, state, and local regulations.

14. TRANSPORT INFORMATION

DOT	Not restricted.
TDG	Not restricted for road or rail.
ICAO	Not restricted, as per Special Provision A197, Environmentally Hazardous Substance exception.
IATA	Not restricted, as per Special Provision A197, Environmentally Hazardous Substance exception.
IMDG/IMO	Not restricted, as per IMDG Code 2.10.2.7, Marine Pollutant exception.

15. REGULATORY INFORMATION

Chemical Inventories

TSCA All components of this product are either on the TSCA 8(b) Inventory or otherwise exempt from listing.

DSL/NDSL All components are on the DSL or NDSL.

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sodium hypochlorite 7681-52-9	100 lb			X

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Sodium hypochlorite 7681-52-9	100 lb	-	RQ 100 lb final RQ RQ 45.4 kg final RQ

EPA Statement
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

> **DANGER: CORROSIVE.** Causes irreversible eye damage and skin burns. Harmful if swallowed. Do not get in eyes, on skin, or on clothing. Wear protective eyewear and rubber gloves when handling this product. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the restroom. Avoid breathing vapors and use only in a well-ventilated area.

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Sodium hypochlorite 7681-52-9	X	X	X	X	
Sodium chlorate 7775-09-9	X	X	X		

International Regulations

Canada
WHMIS Hazard Class
E - Corrosive material

16. OTHER INFORMATION

NFPA	**Health Hazard**	3	**Flammability**	0	**Instability**	0	**Physical and Chemical Hazards** -
HMIS	**Health Hazard**	3	**Flammability**	0	**Physical Hazard**	0	**Personal Protection** B

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General Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

Test yourself on this brief review:

1. Which of the following statements about an SDS is true?
a. My employer can refuse to give it me.
b. I can only get one from the manufacturer.
c. My union representative can get it for me.
d. To get it fast, I should write to OSHA.

2. What products require SDSs at the jobsite?
a. products with a hazard rating of '10'
b. imports subject to the EPA tax
c. all hazardous products on the job
d. only products stored on the job

3. Which of the following is *not* part of a required HazCom program?
a. warning labels
b. training
c. SDSs
d. hazardous duty pay

4. The OSHA Hazard Communication Standard has been in effect since _____?
a. the late 1800s
b. the mid-1980s
c. 1992
d. 1950

Test yourself on this brief review:

1. The three main routes of entry are:
a. breathing, skin absorption, swallowing.
b. breathing, eyes, ears.
c. breathing, skin, immersion.
d. nose, blood, skin.

2. Choose the effect that is *not* an acute effect:
a. cancer
b. suffocation
c. dizziness
d. heart attack

3. Choose the effect that is probably *not* a chronic effect:
a. cancer
b. jaundice
c. nausea
d. allergic dermatitis

4. Four chemicals cause respiratory problems. Each has a different PEL. Circle the one that is probably most harmful.
a. PEL = 200 ppm
b. PEL = 1,000 ppm
c. PEL = 10 ppm
d. PEL = 1 ppm

5. The OSHA Hazard Communication Standard was created mainly through the efforts of:
a. labor unions
b. employer associations
c. manufacturing associations
d. insurance companies

Test yourself on this brief review:

1. Which of these products is the most dangerous fire hazard?

a. flash point = 80°
b. flash point = -55° F
c. flash point = 100° F
d. flash point = 150° F

2. Which of these products is classified as flammable?

a. flash point = 300° F
b. flash point = 200° F
c. flash point = 100° F
d. flash point = 50° F

3. In the National Fire Protection Association (NFPA) warning label system, the number in the BLUE diamond indicates which type of hazard?

a. red
b. health
c. fire
d. yellow

4. A reactive product has a tendency to:

a. harden quickly.
b. release energy.
c. disperse.
d. dry rapidly.

Test yourself on this brief review:

1. Which of the following is a control measure that probably will *not* be listed on an SDS?

a. respirator
b. ventilation
c. substitute safer product
d. gloves

2. Which one of the following would require an SDS?

a. a faulty guardrail on a 15-foot scaffold
b. frayed electrical cord
c. a confined space on a new building site
d. a two-part epoxy adhesive

3. The sample MSDS used in the exercises is:

a. official SDS format required by OSHA
b. a very unique and unusual SDS
c. just one of many formats for SDSs
d. official SDS format required by DOE