Massachusetts Right To Know Law

Worcester Public Schools
Transportation Department Training
11/6/17, 2014

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With information from the MA Department of Labor Standards, specifically Hilary Eustace and Nancy Comeau

Presentation Overview

- **What is the RTK law and how does it protect me?**
- **What is a hazardous material?**
- **How do I get exposed to chemicals?**
- **\What are the specific hazards of the products I work with?**
- **How can I use information in Safety Data Sheets (SDSs) to use and manage products, and respond to product incidents?**

What law governs the use of chemicals in the workplace?

Massachusetts Right to Know Law

What agency oversees RTK Law?

- **Governed by the MA Department of Labor Standards**

Who does the law apply to?

- **Applies to public sector employees working in Massachusetts**

What is the Purpose of the RTK Program?

To ensure that employers and employees:

- **Are aware of the dangers from hazardous products.**
- **Know how to protect themselves to prevent exposure and injuries from hazardous products.**
- **Know how to respond if there is an exposure or accident.**

What are WPS's RTK Responsibilities?

Employers must provide employees who are or may be exposed to hazardous chemicals with:

- **Access to Safety Data Sheets (SDS)**

  Note - goal is to have on hand at all times

- **Labeling on chemical containers**
- **Safety equipment and supplies**
- **Workplace Notice**
- **Training on SDSs and specific workplace chemical hazards**

RIGHT TO KNOW
WORKPLACE NOTICE

Where can I get assistance on RTK?

- **An employee has the right not to be discriminated against for exercising his or her rights under the law.**

- **You may file a complaint within 180 days with the Commissioner of DLS. Contact:**

RTK Program Manager
Massachusetts Department of Labor Standards
Westborough, MA
508-616-0461

What is a Hazardous Material?

Brainstorm

What are the characteristics that make a material hazardous?

Toxic

A substance which has the capacity to injure or harm to the body by entry through absorption, ingestion, inhalation, or injection.

Flammable/ Ignitable

A substance having a flash point below 100 degrees, is easily ignited and quick burning.

Handling and Storage: *Flammables*

Store flammable liquids in an unvented,

NFPA rated Flammable Cabinet,

away from:

- **ignition sources**
- **boiler room**

Let supervisor know if you think you need storage equipment.

What is a Hazardous Material?

Corrosive

Acids and Bases - With a pH < 2 or >12.5

- **Produces a chemical change, and can destroy living tissue and metal on contact.**
- **Can do serious damage in a short amount of time. The longer the contact time, the greater the damage.**
- **Are more dangerous when concentrated.**

pH and Corrosivity

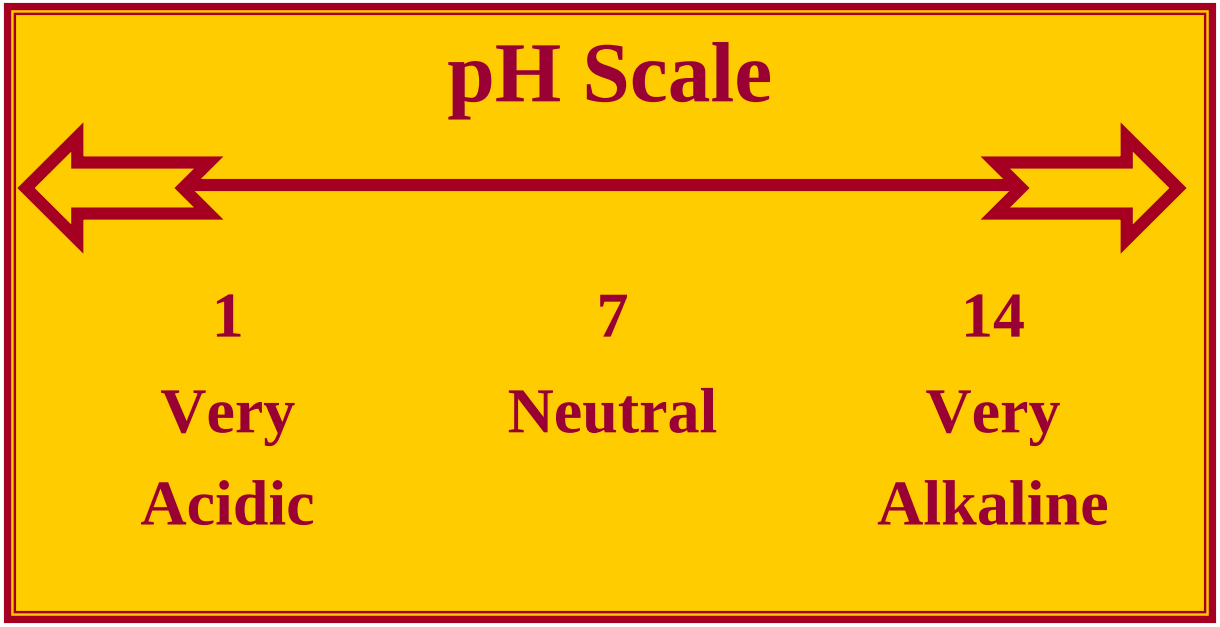
A material is corrosive when

it is at either end of the pH Scale

< or = 2, or

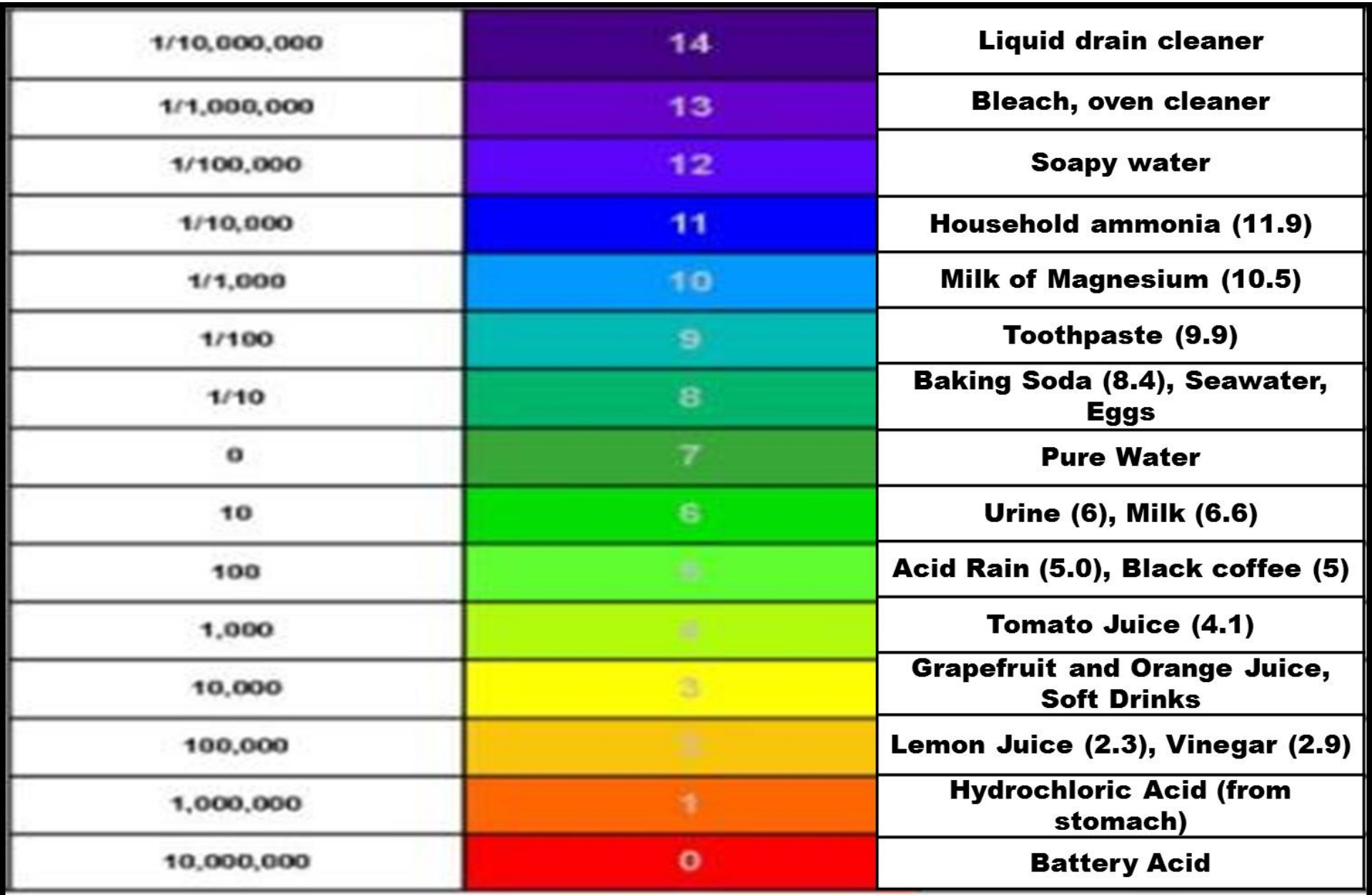
> or = 12.5

- **Muriatic acid**
- **Sulfuric Acid (battery acid)**



- **Ammonia**
- **Bleach**
- **Oven cleaner**

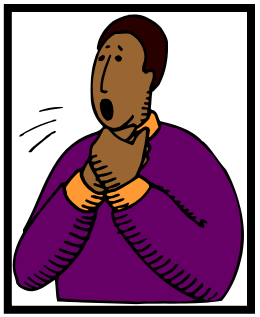
pH Scale



1/10,000,000	14	Liquid drain cleaner
1/1,000,000	13	Bleach, oven cleaner
1/100,000	12	Soapy water
1/10,000	11	Household ammonia (11.9)
1/1,000	10	Milk of Magnesium (10.5)
1/100	9	Toothpaste (9.9)
1/10	8	Baking Soda (8.4), Seawater, Eggs
0	7	Pure Water
10	6	Urine (6), Milk (6.6)
100	5	Acid Rain (5.0), Black coffee (5)
1,000	4	Tomato Juice (4.1)
10,000	3	Grapefruit and Orange Juice, Soft Drinks
100,000	2	Lemon Juice (2.3), Vinegar (2.9)
1,000,000	1	Hydrochloric Acid (from stomach)
10,000,000	0	Battery Acid

PH and Corrosivity:
Health Effects and Precautions

- **Corrosive substances attack living tissue and can cause severe burns.**
  - **The extent of skin damage depends on how long the corrosive is on the skin and how concentrated the corrosive is.**
  - **Wear chemically resistant gloves**



- **Breathing corrosive vapors or mists can cause severe bronchial irritation.**

- **Corrosive substances are particularly damaging to the eyes.**
  - **Wear chemical splash goggles which are indirectly vented or other approved eye protection.**

What is a Hazardous Material?

Explosive

- **A substance that explodes and usually releases gasses and heat when subjected to certain conditions of shock, temperature or chemical reactions.**

Reactive

- **Any chemical that increases the burning rate of material by providing a source of oxygen; or**
- **Creates a violent reaction that releases energy.**
- **Has corrosive properties.**

Handling and Storage: *Oxidizers*

A substance which will:

- **Create chemical reactions that release energy.**
- **Have corrosive properties, and can cause fire and explosions on contact with some materials.**
- **Increase the ease of ignition and rate of burning by providing a source of oxygen.**
- **Example: bleach, Suprox (hydrogen peroxide)**

Oxidizers:
Storage

Store well away from:

- **Flammable and combustible materials as they can initiate or promote a fire, and can exacerbate an existing fire.**
- **Acids and bases.**

Chemical Forms: *What are they?*

All chemicals exist in one of three forms:

Solid

Gas

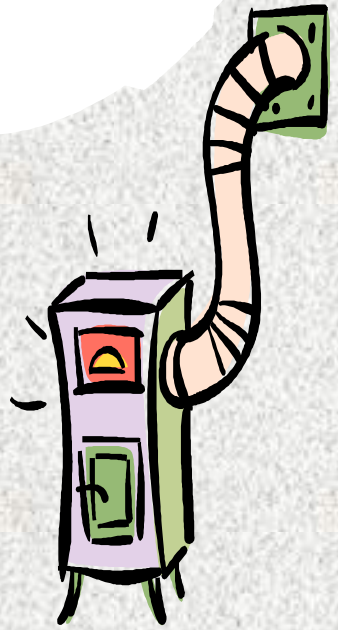
Liquid

Chemical Forms: *How do they change?*

- **Chemicals are often present in more than one form.**
  - **You can change the form of a chemical by controlling its temperature and pressure.**
  - **They can change as you use and store them, which can make them more dangerous.**
  - **When they change in form, their ability to get into your body also changes.**

***Example* – when you use acetone,**

it evaporates from a liquid to vapor into the air, which can pose a health hazard if you breathe it, or a safety hazard if the vapors sink, concentrate and flow until they reach an ignition source, are ignited and flashback to the source.



Information Required to be provided to Employees under RTK/GHS

Global Harmonized System

What is it and what are the new requirements for product manufacturers and employers?

(OSHA and MA Department of Labor Standards have adopted)

- **Uniform labels**
- **Pictograms and hazard information**
- **Uniform Safety Data Sheet (SDS) format and information**
- **Training**

CHEMICAL/ PHYSICAL RISK

EXPLODING BOMB

Explosives, self-reactives, organic peroxides

FLAME

Flammable gases, liquids, & solids; self-reactives; pyrophorics; self-heating

FLAME OVER CIRCLE

Oxidizing gases, liquids and solids

GAS CYLINDER

Compressed gases; liquefied gases; dissolved gases

CORROSION

Corrosives to metals

HEALTH RISK

CORROSIVE

Skin corrosion; eye damage

SKULL AND CROSSBONES

Acute toxicity (severe, fatal)

EXCLAMATION MARK

Irritant, dermal sensitizer, acute toxicity (harmful)

HEALTH HAZARD

Carcinogens, respiratory sensitizers, reproductive toxicity, target organ toxicity, germ cell mutagens

ENVIRONMENTAL RISK

ENVIRONMENT

Aquatic toxicity

(Not regulated by OSHA)

What are the new GHS Label Requirements for a Primary Label?

(original containers)

Note use of pictograms.

1. Product Identifier	**Sulfuric Acid**
2. Pictogram(s)	
3. Signal Words	**Danger**
4. Hazard Statement	Causes severe skin burns and eye damage. Fatal if inhaled, harmful to aquatic life
5. Precautionary Statement	Do Not breathe dust/fume/gas/vapors/sprays Wear protective gloves, cloths, eye, and face protection
6. Supplier Information	Sigma Aldrich, Any town USA, 46414, Phone: 218-777-6666, Fax: 1-800-889-9999

What are the new Labeling Requirements for *Secondary Containers?*

Must be labeled with at least the following information:

- **Common or trade name (“Black Magic”), or a chemical name (1,1,1, trichloroethane).**
- **Physical and health hazard warnings in words, pictures, and/or symbols:**
  - **health (target organ effects) - “causes lung damage”**
  - **physical hazards – “flammable”**

Note: If a container has no label. contact vour supervisor.

What is a Safety Data Sheet?

- **A primary source of information under the law on product hazards.**
- **Developed by the manufacturer and distributed to:**
  - **Distributors**
  - **Employers**
  - **Product users**

Order of SDS Sections

Section 1 - Identification	Section 1 - Identification
Section 2 - Hazard(s) identification	Section 2 - Hazard(s) identification
Section 3 - Ingredients	Section 3 - Ingredients
Section 4 - First-aid measures	Section 9 - Physical and chemical
Section 5 - Fire-fighting measures	Section 10 - Stability and reactivity
Section 6 - Accidental release measures	Section 11 - Toxicological information
Section 7 - Handling and storage	Section 8 - Exposure controls/personal protection
Section 8 - Exposure controls/personal protection	Section 4 - First-aid measures
Section 9 - Physical and chemical	Section 7 - Handling and storage
Section 10 - Stability and reactivity	Section 5 - Fire-fighting measures
Section 11 - Toxicological information	Section 6 - Accidental release measures
Section 12 - Ecological information*	Section 12 - Ecological information*
Section 13 - Disposal considerations*	Section 13 - Disposal considerations*
Section 14 - Transport information*	Section 14 - Transport information*
Section 15 - Regulatory information*	Section 15 - Regulatory information*
Section 16 - Other information	Section 16 - Other information

Safety Data Sheet: *Format*

Section 1 - Identification:

- **product identifier**
- **manufacturer or distributor name and address**
- **phone number and emergency phone number**
- **recommended use and restrictions on use**

1. Identification

Product identifier	**BRUTAB 6S**	
Other means of identification		
Product number	161021	
Recommended use	Effervescent disinfectant tablets	
Recommended restrictions	None known.	
Manufacturer/Importer/Supplier/Distributor information		
Manufacturer		
Company name	Brulin & Company, Inc.	
Address	P.O. Box 270 Indianapolis, IN 46206 United States	
Telephone	Phone: Fax:	317-923-3211 317-925-4596
Website	www.Brulin.com	
Emergency phone number	CHEMTREC	1-800-424-9300

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Safety Data Sheet: *Format*

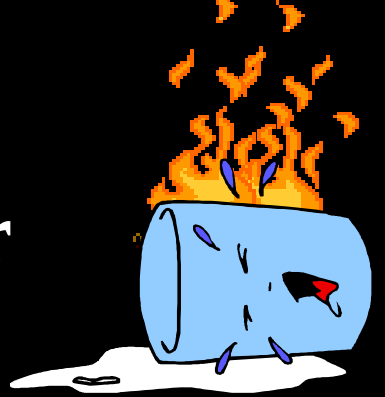
Section 2 - Hazard(s) identification:

- **all hazards regarding the chemical**
- **required label elements**

What types of hazards am I looking out for?

There are two types of Chemical Hazards:

- ***Health Hazards*** **– can cause injury or illness when you are exposed.**
- ***Physical Hazards*** **– can create a fire or explosion when mismanaged.**

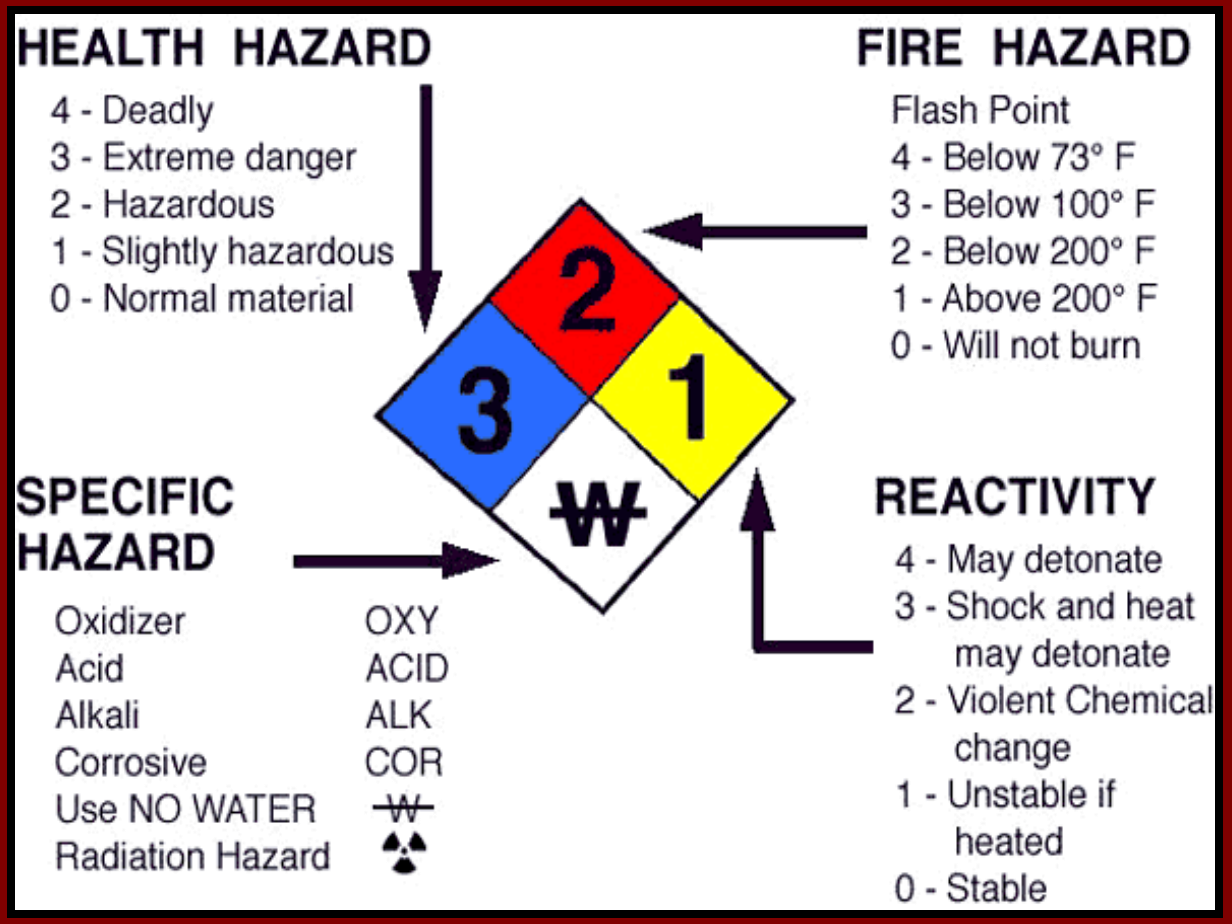


National Fire Protection Association (NFPA)

"At a Glance" Hazard Rating System

New law allows these to still be used!

- **Provides information on the severity of product hazards to emergency responders.**
- **Provides ACUTE health information.**
- **Uses the white diamond for firefighting information.**



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SYMBOLS - Warning:

- **Physical hazards not identified**
- **Health Hazards**
  - **Harmful if swallowed**
  - **Causes serious eye irritation**
  - **May cause respiratory irritation**

Note: This product can be more hazardous in tablet form when its wet, than when diluted in solution:

- **The wet tablet - can irritate and/or burn your skin, eyes and mucous membranes (nose, throat).**
- **The diluted form - can cause irritation to these areas.**

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Section 3 – Ingredient information:

- **information on chemical ingredients**
- **trade secret claims**

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3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	% by weight
Dichloroisocyanuric acid, sodium salt	2893-78-9	45 - <50
Adipic acid	124-04-9	35 - <40
Sodium carbonate	497-19-8	10 - <15

Percentages of ingredients are being withheld as trade secret information. This information will be disclosed as necessary to authorized individuals

***CAS (Chemical Abstracts Service) number,**
a unique identifier, important due to chemical synonyms

Safety Data Sheet: *Format*

Section 9 - Physical and Chemical Properties:

- **chemical's characteristics:**
  - **What is the pH?**
  - **Does it sink or float in the air or water?**
  - **How fast does it evaporate?**

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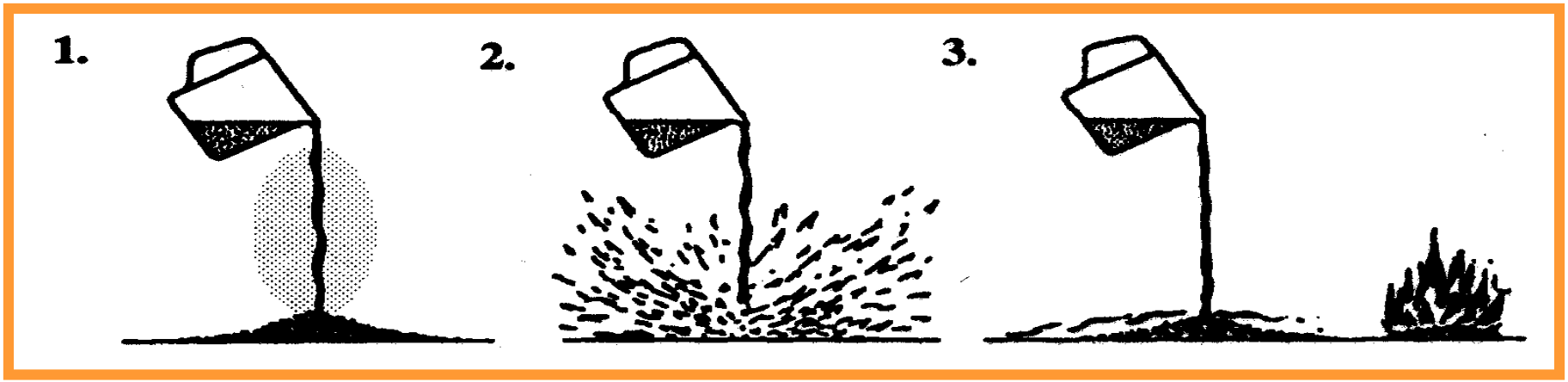
9. Physical and chemical properties	
Appearance	tablet
Form	Solid.
Color	white - off white
Odor	slight chlorine
Odor threshold	Not available.
pH	5.5 - 6.5
Melting point/freezing point	Not available.
Boiling point	Not Applicable
Flash point	Not applicable.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Specific gravity	Not available.
VOC (Weight %)	0

Reactivity

Reactivity is the conditions under which a chemical will change form (a solid to a gas, or a liquid to a vapor) either by itself or in contact with another material.

Reactive materials may:

1. **Produce toxic fumes**
2. **React violently**
3. **ignite**



Safety Data Sheet: *Format*

Section 10 - Stability and Reactivity:

- **chemical stability**
- **possibility of hazardous reactions – compatibility with air, water or other chemicals**

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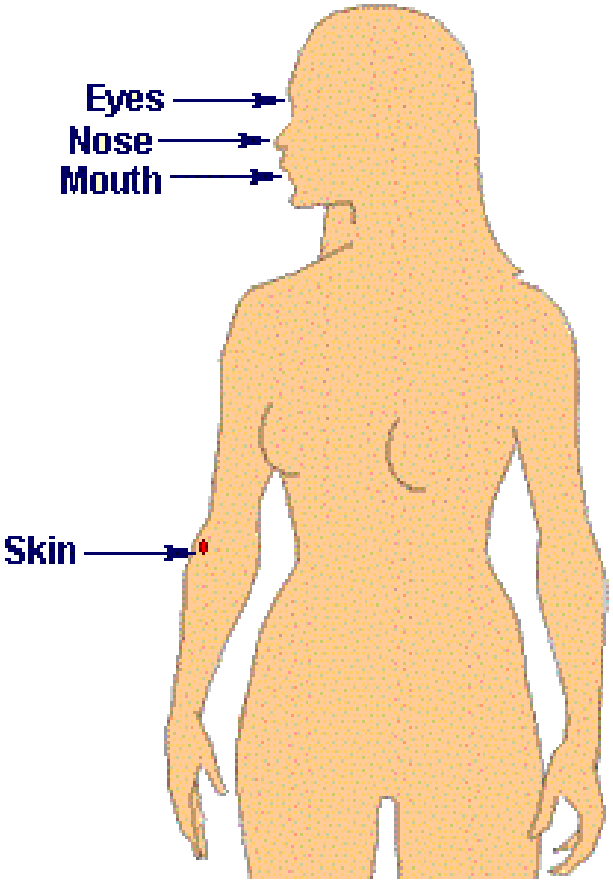
10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Acids. Alkaline Combustible material. reducing agents The active ingredient in this formulation is a strong oxidizing agent.
Hazardous decomposition products	Chlorine.

Safety Data Sheet: *Format*

Section 11 - Toxicological Information:

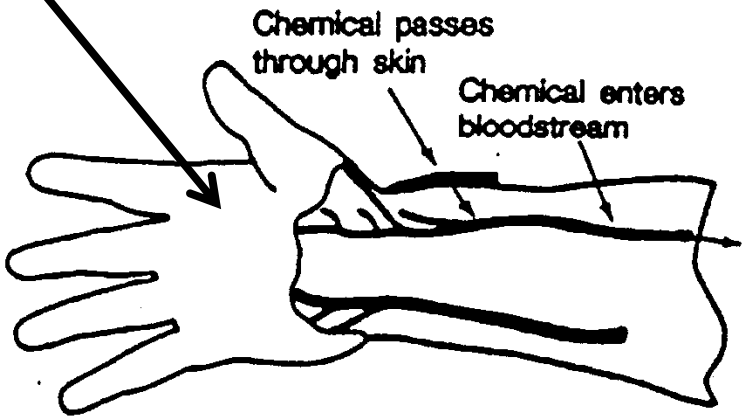
- ***Routes of Exposure*** **– How do chemicals get into your body?????**
  - **Breathing (*Inhalation*)**
  - **Swallowing (*Ingestion*)**
  - **Piercing of skin (*Injection*)**
  - **Skin Absorption**
  - **Eye Absorption**



Routes of Exposure: *Skin*

How can chemicals affect your skin?

- ***Harm skin directly*** **– on surface, and/or**
- ***Be absorbed -*** **can pass through skin directly and enter bloodstream**
- ***Be distributed -*** **once in the bloodstream, a chemical can be distributed throughout the body.**



Example - solvent

Safety Data Sheet: *Format*

Section 11 - Toxicological Information:

- ***Symptoms – how do you know if you have been exposed??***

You Experience Symptoms

- **Example respiratory irritant:**
  - **coughing**
  - **sneezing**
  - **asthma**

- **Example skin irritant:**
  - **itching**
  - **rash**
  - **burning**

Clues to determine if you have been exposed: *Odor*

Odor Threshold: **concentration at which material can be detected by most people.**

- **You are NOT necessarily safe just because <u>can't</u> smell a chemical.**
  - ***Your senses maybe exhausted (e.g. oil based paint).***
  - ***Odor threshold may be lower than safe level (e.g. carbon monoxide).***

- **You are NOT necessarily at risk just because you <u>can</u> smell a chemical.**
  - ***Odor threshold may be higher than safe level.***
  - ***Chemicals of low toxicity can have very strong odors (e.g. mercaptans are added to natural gas).***

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Section 11 - Toxicological Information:

- **measures of toxicity**
- ***acute and chronic effects***

Exposures impact the body based on *how long (duration),* and *how often (frequency)* you are exposed:

Health Effects		Exposure	Example
Acute	**Appear immediately or within a short time (minutes or hours) following an exposure**	**Typically sudden, short-term, high concentration**	**Dizziness and confusion from high levels carbon monoxide**
Chronic	**Usually develops slowly, 10 to 20 years and longer**	**Continued or repeated exposure for a prolonged period, usually years**	**Chronic liver disease from solvents or alcohol**

Safety Data Sheet: *Format*

Section 11 - Toxicological Information:

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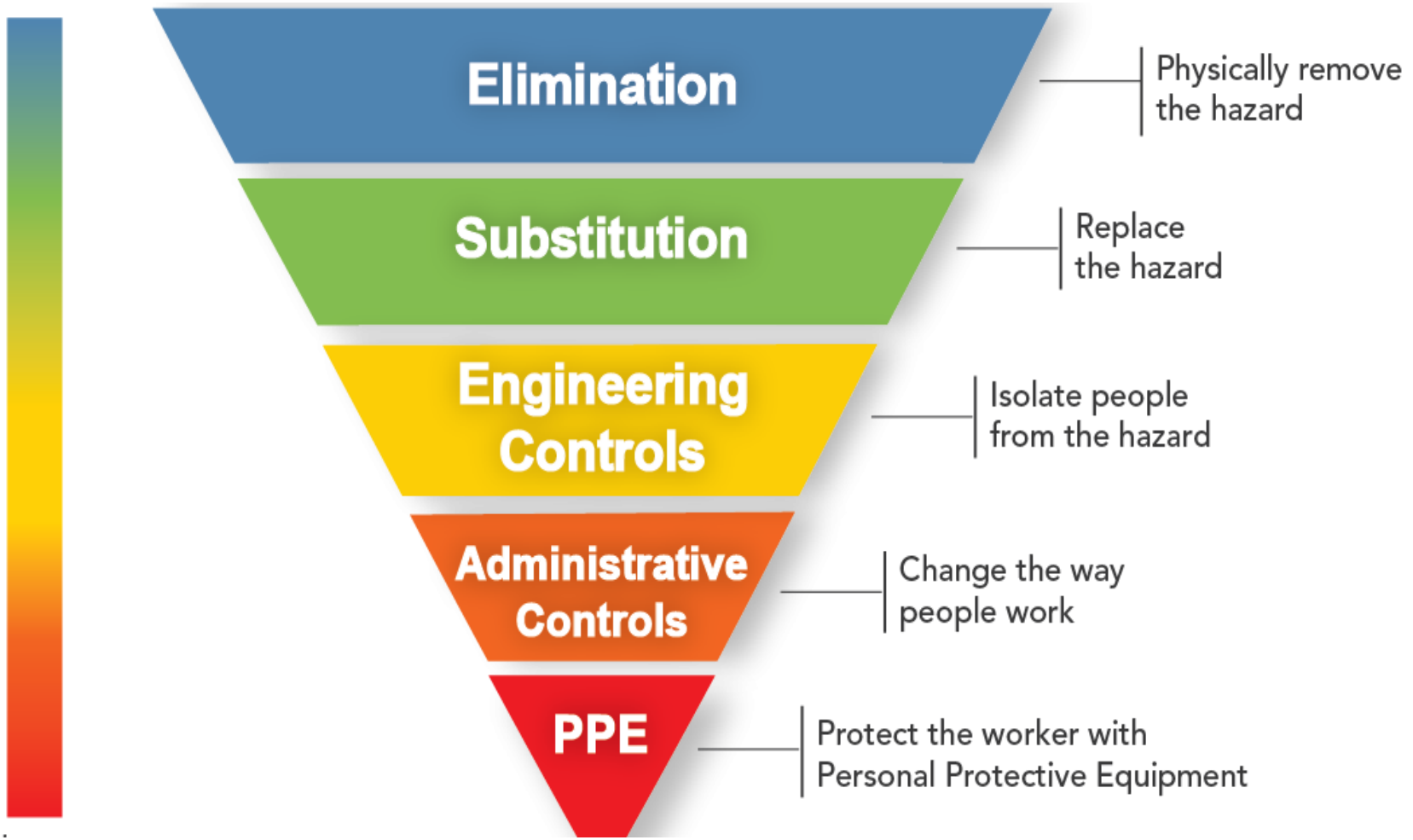
Information on likely routes of exposure	
Eye contact	Causes serious eye irritation. Dust in the eyes will cause irritation.
Skin contact	Direct contact with wet material or moist skin may cause severe irritation. Dry material is less irritating than wet material. Health injuries are not known or expected under normal use.
Ingestion	Harmful if swallowed. However, ingestion is not likely to be a primary route of occupational exposure. This product is sold in a tablet form.
Inhalation	May cause irritation to the respiratory system. This material is contained in a tablet form, respirable particulates are generally not encountered.
Symptoms related to the physical, chemical and toxicological characteristics	Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)	
Not listed.	
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Chronic effects	Prolonged inhalation may be harmful.
Toxicological information	Occupational exposure to the substance or mixture may cause adverse effects.

Safety Data Sheet: *Format*

Section 8 - Exposure Controls/Personal Protection

Hierarchy of Controls



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Section 8 - Exposure Controls/Personal Protection

Hierarchy of Controls

1. **Engineering Controls (ventilation equipment)**
2. **Work practices**
3. **Personal protective equipment**

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Appropriate engineering controls	Keep formation of dusts, particulates and fumes to a minimum. Ensure adequate ventilation, especially in confined areas. Provide eyewash station.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	For prolonged or repeated skin contact use suitable protective gloves.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
General hygiene considerations	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Safety Data Sheet: *Format*

Section 8 - Exposure Controls/Personal Protection

Hierarchy of Controls

Administrative Controls/

Work practices

Safety Data Sheet: *Format*

Section 8 - Exposure Controls/Personal Protection

- ***Personal Protective Equipment (PPE)***

  - **Gloves**

  - **Booties/Boots**

  - **Respiratory protection**

  - **Face shields**

  - **Aprons/Suits**

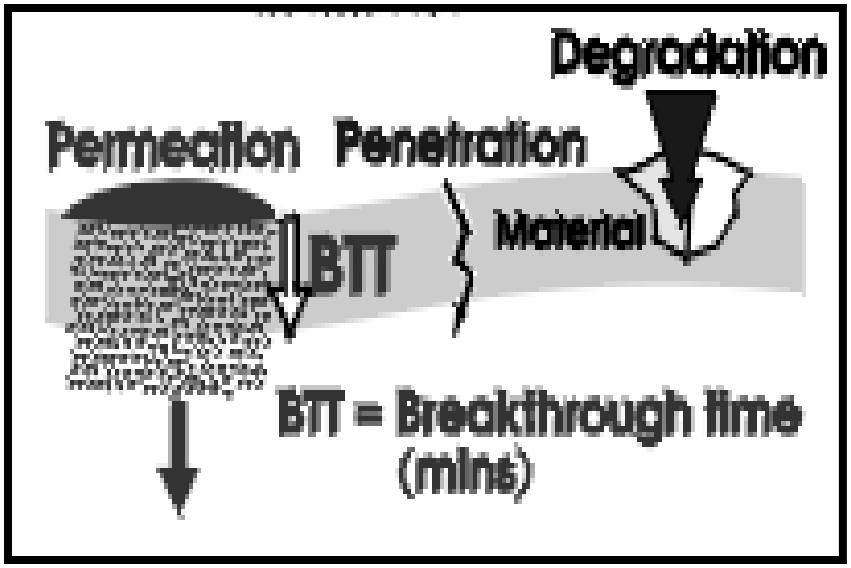
  - **Goggles/Safety Glasses**

Exposure Controls: *PPE - Gloves*

Precautions:

1. ***Break Through Time***

   - **A reusable or disposable glove may protect against a chemical, but not for the length of time your hands might be in contact with the chemical.**



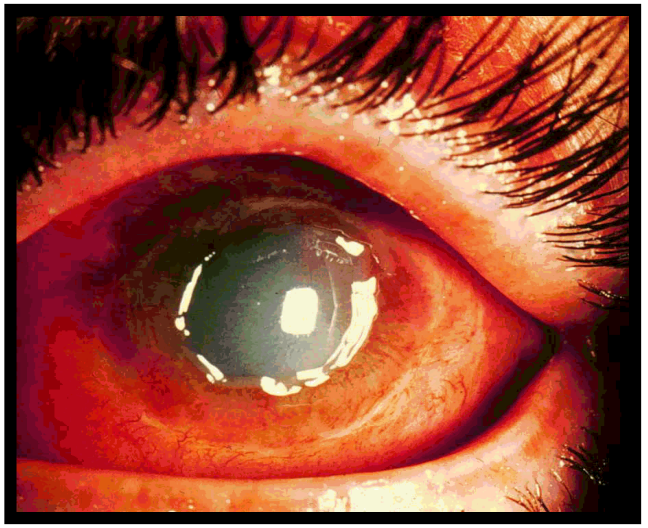
Factors that can affect the glove's protection against chemicals

2. ***Damage***

   - **A glove may rip/tear under your work conditions.**

Exposure Controls: *PPE - Eye Protection*

- **Eyes can be exposed to chemicals and particles in several ways:**
  - **Chemicals and particles can harm eyes directly.**
  - **Eyes can absorb chemicals from mists and vapors.**
  - **Chemicals can get trapped behind contact lenses.**



Cornea damaged by chemical splash

You need to flush your eyes for 15 minutes if you get chemicals in them.

Safety Data Sheet: *Format*

Section 4 – First Aid Measures:

- **For you, the layperson!**
- **Important symptoms / effects - acute, delayed**
- **Required treatment**

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Section 4 – First Aid Measures:

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4. First-aid measures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Notes to physician	Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
Most important symptoms/effects, acute and delayed	Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
General information	In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Corrosives: *Emergency Wash Equipment*

The emergency wash facilities must:

- **Be located within the immediate work area within ten seconds of travel or within one hundred feet.**
- **Provide the fifteen minute flow of tepid water at a minimum of 0.4 gallons per minute.**
- **WPS will provides an eyewash bottle to get you to a sink or eyewash.**

Deluge Shower

Eyewash Station

Portable Eyewash

Safety Data Sheet: *Format*

Section 7 – Handling & Storage:

- **Chemical compatibility**
- **Special storage equipment**
- **Safe handling practices**

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7. Handling and storage

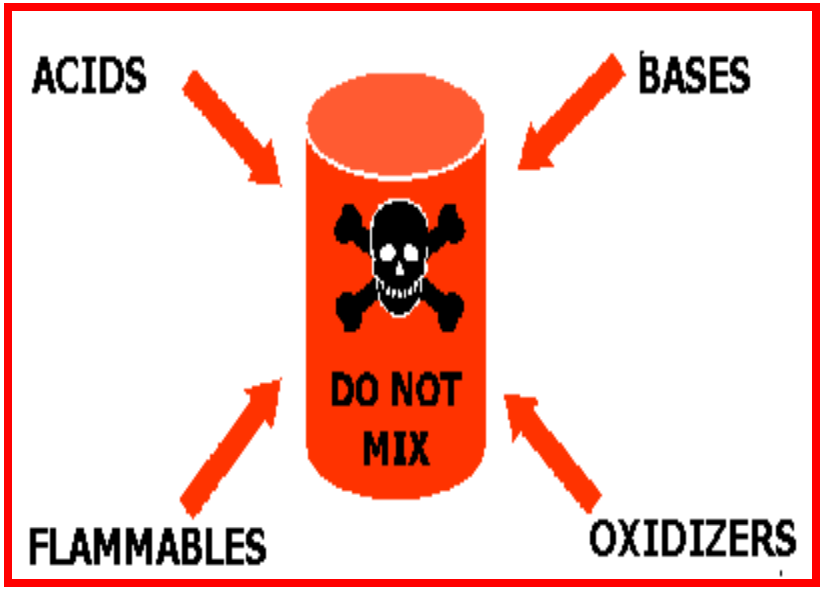
Precautions for safe handling	Mix only with water. Do not mix with other chemicals. Minimize dust generation and accumulation. Do not breathe dust. Do not get this material in contact with eyes. Do not taste or swallow. Provide adequate ventilation. Contamination with moisture, dirt, organic matter or other chemicals or any other foreign matter may start a chemical reaction with generation of heat, liberation of hazardous gases and possible generation of fire and explosion. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash thoroughly after handling. Wash contaminated clothing before reuse.
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Keep container dry. Do not store near acids. Contact with acids liberates toxic gas. Store away from incompatible materials (see Section 10 of the SDS).

Safety Data Sheet: *Format*

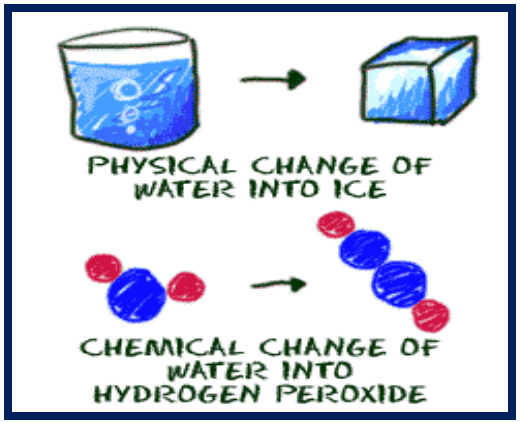
Section 7 - Handling and Storage

See also other SDS sections:

- **Section 10 - Stability and Reactivity (Check compatibility)**



- **Section 9 - Physical and Chemical Properties (check pH for corrosivity)**



Handling and Storage

Aside from SDS guidelines, best practices include:

- **Storing material off floor & *at* or *below* eye level.**
- **Maintaining uncrowded shelves and storeroom.**
- **Removing trip hazards.**
- **Properly disposing of products either no longer used or compromised.**

Handling and Storage

- **Storing only chemicals, not food.**

- **Returning all products to secured store room or closet.**

Safety Data Sheet: *Format*

Section 5 - Fire-Fighting Measures:

- **flammability of product**
- **extinguishing techniques & equipment**
- **chemical hazards from fire**

Bru Tabs

5. Fire-fighting measures

Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Safety Data Sheet: *Format*

Section 6 - Accidental Release Measures:

- **emergency procedures**
- **personal protective equipment**
- **methods of containment and cleanup**
- **environmental precautions**

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Collect spillage. Sweep up or gather material and place in appropriate container for disposal. Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS.

Safety Data Sheet: *Format*

- **Section 12 - Ecological information***
- **Section 13 - Disposal considerations***
- **Section 14 - Transport information***
- **Section 15 - Regulatory information***
- **Section 16 - Other information, date of preparation or last revision**

Note: Since other agencies regulate this information, OSHA does not enforce these sections 12-15