

# Hazardous Materials Emergencies

## Identifying Hazardous Materials

Any substance that in any quantity poses a threat or unreasonable risk to life, Health, or property if not properly controlled during manufacture, processing, packaging, handling, storage, use, and disposal.

### Identify from a distance



NFPA 704 placards

### Placards



US DOT Placards

### Material safety data sheets

THE Clorox Company 7200 Johnson Drive Pleasanton, California 94566 Tel. (415) 847-6100		Material Safety Data Sheets							
		Health	2+						
		Flammability	0						
		Reactivity	1						
		Personal Protection	B						
<b>I – CHEMICAL IDENTIFICATION</b>									
Name	regular Clorox Bleach	CAS No.	N/A						
Description	clear, light yellow liquid with chlorine odor	RTECs No.	N/A						
<b>Other Designations</b> EPA Reg. No. 5813-1 Sodium hypochlorite solution Liquid chlorine bleach Clorox Liquid Bleach	<b>Manufacturer</b> The Clorox Company 1221 Broadway Oakland, CA 94612	<b>Emergency Procedure</b> • Notify your supervisor • Call your local poison control center OR • Rocky Mountain Poison Center (303)573-1014							
<b>II – HEALTH HAZARD DATA</b>		<b>III – HAZARDOUS INGREDIENTS</b>							
<p>• Causes severe but temporary eye injury. May irritate skin. May cause nausea and vomiting if ingested. Exposure to vapor or mist may irritate nose, throat and lungs. The following medical conditions may be aggravated by exposure to high concentrations of vapor or mist: heart conditions or chronic respiratory problems such as asthma, chronic bronchitis or obstructive lung disease. Under normal consumer use conditions the likelihood of any adverse health effects are low.</p> <p><b>FIRST AID: EYE CONTACT:</b> Immediately flush eyes with plenty of water. If irritation persists, see a doctor. <b>SKIN CONTACT:</b> Remove contaminated clothing. Wash area with water. <b>INGESTION:</b> Drink a glassful of water and call a physician. <b>INHALATION:</b> If breathing problems develop remove to fresh air.</p>		<table border="1"> <thead> <tr> <th>Ingredients</th> <th>Concentration</th> <th>Worker Exposure Limit</th> </tr> </thead> <tbody> <tr> <td>Sodium hypochlorite CAS# 7681-52-9</td> <td>5.25%</td> <td>not established</td> </tr> </tbody> </table> <p>None of the ingredients in this product are on the IARC, NTP or OSHA carcinogen list. Occasional clinical reports suggest a low potential for sensitization upon exaggerated exposure to sodium hypochlorite if skin damage (e.g., irritation) occurs during exposure. Routine clinical tests conducted on intact skin with Clorox Liquid Bleach found no sensitization in the test subjects.</p>		Ingredients	Concentration	Worker Exposure Limit	Sodium hypochlorite CAS# 7681-52-9	5.25%	not established
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Sodium hypochlorite CAS# 7681-52-9	5.25%	not established							
<b>IV – SPECIAL PROTECTION INFORMATION</b>		<b>V – SPECIAL PRECAUTIONS</b>							
<p><b>Hygienic Practices:</b> Wear safety glasses. With repeated or prolonged use, wear gloves.</p> <p><b>Engineering Controls:</b> Use general ventilation to minimize exposure to vapor or mist.</p> <p><b>Work Practices:</b> Avoid eye and skin contact and inhalation of vapor or mist.</p>		<p>Keep out of reach of children. Do not get in eyes or on skin. Wash thoroughly with soap and water after handling. Do not mix with other household chemicals such as toilet bowl cleaners, rust removers, vinegar, acid or ammonia containing products. Store in a cool, dry place. Do not reuse empty container; rinse container and put in trash container.</p>							
<b>VI – SPILL OR LEAK PROCEDURES</b>		<b>VII – REACTIVITY DATA</b>							
<p>Small quantities of less than 5 gallons may be flushed down drain. For larger quantities wipe up with an absorbent material or mop and dispose of in accordance with local, state and federal regulations. Dilute with water to minimize oxidizing effect on spilled surface.</p>		<p>Stable under normal use and storage conditions. Strong oxidizing agent. Reacts with other household chemicals such as toilet bowl cleaners, rust removers, vinegar, acids or ammonia containing products to produce hazardous gases, such as chlorine and other chlorinated species. Prolonged contact with metal may cause pitting or discoloration.</p>							
<b>VIII – FIRE AND EXPLOSION DATA</b>		<b>IX – PHYSICAL DATA</b>							
<p>Not flammable or explosive. In a fire, cool containers to prevent rupture and release of sodium chlorate.</p>		<p>Boiling point.....212°F/100°C (decomposes) Specific Gravity (H<sub>2</sub>O = 1).....1.085 Solubility in Water.....complete pH.....11.4</p>							

### Clues

- Signs restricting entry
- Storage tanks
- Containers with placards
- Smoking or self-igniting materials
- Extraordinary fire conditions
- Boiling or splattering of materials that have not been heated
- Wavy or unusually colored vapors
- Characteristically colored vapors
- Frost near a container
- Unusual condition or deterioration of containers

## Emergency Response Code Book

### Chemtrec

(United States & Canada)

24-hour toll-free service that provides information about hazardous materials

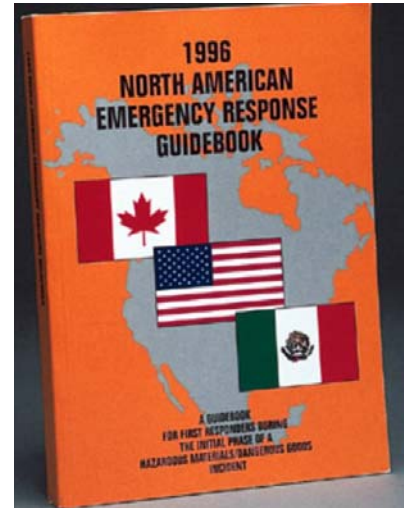
**(800) 424-9200**

Additional resources

Chemtrel, Inc.

800-255-3924

Regional poison control center



### Training required

OSHA 29 CFR 1910.120-

*Hazardous waste*

*Operations and Emergency Response Standard*

NFPA 473 *Competencies for EMS Personnel*

*Responding to Hazardous Materials Incidents*

### Training Levels

- First Responder Awareness
- First Responder Operations
- Hazardous Materials Technician
- Hazardous Materials Specialist

Guidelines for Hazardous Materials Response

Do not enter a HazMat area unless you are trained as a **HazMat Tech** and have proper training in **SCBA**

### General Rules

- Protect the safety of all rescuers
- Provide patient care
- Decontaminate clothing, equipment, and the vehicle
- Avoid contact with any unidentified material
- Avoid risking your life or health; do not enter the scene if no victims are involved.

## Emergency Procedures

### Hot Zone

- Wear proper protective equipment in all zones
- Remove patient from accident site
- Perform initial (gross) decontamination
- Leave patient's clothing, tools, and equipment in hot zone.

### Warm Zone

- Perform initial assessment
- Perform complete decontamination
- Perform rapid assessment
- Treat major injuries
- Immobilize spine as appropriate
- Splint where needed

### Decontamination area

- Remove all protective clothing

### Cold Zone

- Take vital signs
- Take SAMPLE history
- Prepare patient for transport

### Emergency Procedures

- Protect vehicle and equipment from contamination during transport
- Decontaminate yourself if accidentally exposed during rescue
- Follow-up exposure with a thorough medical examination and medical surveillance

### Radiation Emergencies

- Exposure – Patient is in presence of radioactive material without material actually touching clothing or body, is not radioactive, and does not pose a major threat to rescue personnel.
- Contamination – Patient has come into direct contact with radioactive gas, liquid, or particles – patient's clothes and skin contain radioactive material, and patient poses a major hazard to rescuers and staff.

### Guidelines

- Make your first priority the protection of yourself and others from contamination
- Wait for a Radiation Safety Officer (RSO)
- If no RSO, transport patient to hospital for decontamination experts.

## Procedures

- Assure scene safety and take personal protection measures
- Patient care
- Personal decontamination
- Vehicle/equipment decontamination

## Radiation Sickness

Starts day after exposure to large amounts of radiation and lasts from a few days to 8 weeks.

- |               |                  |
|---------------|------------------|
| • Nausea      | Appetite loss    |
| • Vomiting    | Malaise          |
| • Diarrhea    | Fever            |
| • Hemorrhage  | Mouth sores      |
| • Weight Loss | Lower resistance |

## Radiation Injury

Caused by exposure to large amounts of alpha particles

- Hair loss
- Skin burns
- Generalized skin lesions

## Radiation Poisoning

Caused by exposure to dangerous amounts of internal radiation and results in host of serious disease including cancer and anemia

## Radiation Damage Factors

- Amount and type of shielding
- Strength/source of radiation
- Distance from source
- Type of radiation
- Length of exposure
- Percent of body exposed

## Reducing Risk

- Divide rescue work among many rescuers
- Shield the radiation source
- Know how to reach your RSO
- Know your community's plan
- Always wear protective gear and SCBA as soon as you suspect radiation.