

**2018 NEWEA**

# **How to Read (and Understand) Safety Data Sheets!**

January 23, 2018  
Boston, MA

**David P. Horowitz, P.E., CSP,** Project Manager

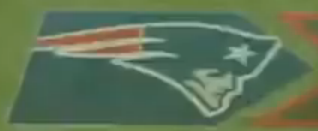
Slideshare @dphorowitz

# Agenda

- **SDS – why do we care?**
- **GHS**
- **Common concerns**
- **Takeaways**

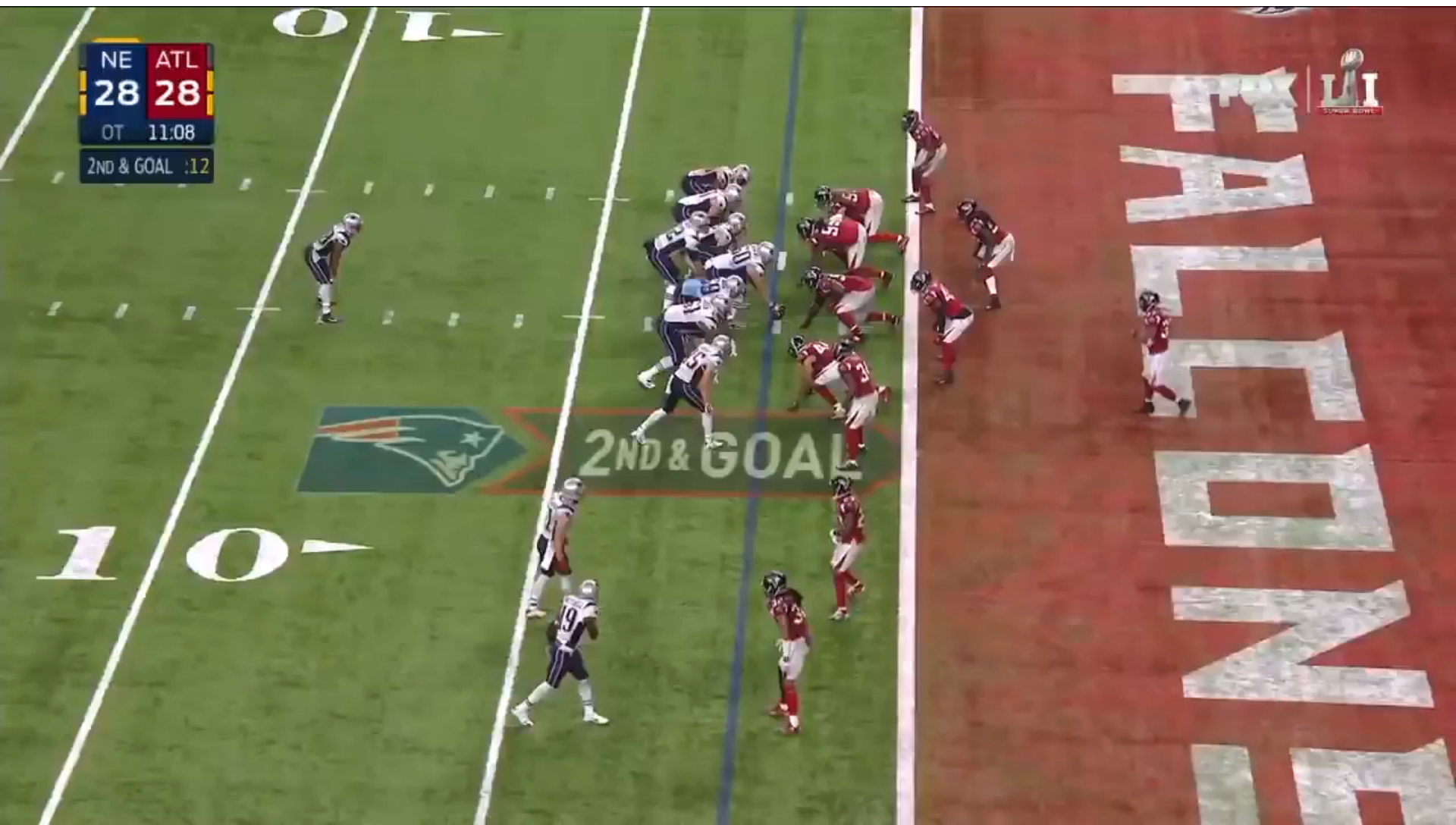


NE ATL  
28 28  
OT 11:08  
2ND & GOAL :12



2ND & GOAL

FA  
L  
O  
O  
N  
E



# Why do we care?

## #2 Hazard Communication



# Why do we care?

## EPA Changes – Tier II's

### Physical and Health Hazards (to be effective January 1<sup>st</sup>, 2018)

Physical Hazard	Health Hazard
Flammable (gases, aerosols, liquids, or solids)	Carcinogenicity
Gas under pressure	Acute toxicity (any route of exposure)
Explosive	Reproductive toxicity
Self-heating	Skin Corrosion or Irritation
Pyrophoric (liquid or solid)	Respiratory or Skin Sensitization
Pyrophoric Gas	Serious eye damage or eye irritation
Oxidizer (liquid, solid or gas)	Specific target organ toxicity (single or repeated exposure)
Organic peroxide	Aspiration Hazard
Self-reactive	Germ cell mutagenicity
In contact with water emits flammable gas	Simple Asphyxiant
Combustible Dust	Hazard Not Otherwise Classified (HNOC)
Hazard Not Otherwise Classified (HNOC)	
Corrosive to metal	

### What is the Effective Date of this Final Rule?

Many states have developed their own software for hazardous chemical inventory reporting. Other states use Tier2 Submit, electronic software developed by EPA. To provide enough time for states (as well as EPA) to modify the software to incorporate the new hazard classes, this final rule will be effective on January 1<sup>st</sup>, 2018. This means that, by March 1<sup>st</sup>, 2018, facilities are required to report the revised physical and health hazards for their hazardous chemicals present during 2017 calendar year.

# Why do we care?

## EPA Changes – Tier II's

### Significant Changes in Tier2 Submit 2017

- Modified behavior of Hazard Not Otherwise Classified checkbox so it can now be checked together with other physical and health hazard categories, if appropriate (changed in "rev 2")
- Added new physical and health hazard categories (to match the revised safety data sheet options)
- Adjusted validation requirement so that "county" is now required for all facilities
- Adjusted validation requirements so that "type", "pressure", and "temperature" are now required for all storage locations (even those marked confidential)
- Added import check for older MER files to warn users if there are record ID issues that must be resolved this year
- Added export check to warn users if the file contains invalid characters that would prevent an XML export file from being generated
- Incorporated 2017 North American Industry Classification System (NAICS) codes
- Added "Outside Storage Pile" to the list of storage types
- Updated state-specific fields
- Revised helps
- Made additional minor changes and bug fixes

## Physical and Health Hazards (to be effective January 1<sup>st</sup>, 2018)

Physical Hazard	Health Hazard
Flammable (gases, aerosols, liquids, or solids)	Carcinogenicity
Gas under pressure	Acute toxicity (any route of exposure)
Explosive	Reproductive toxicity
Self-heating	Skin Corrosion or Irritation
Pyrophoric (liquid or solid)	Respiratory or Skin Sensitization
Pyrophoric Gas	Serious eye damage or eye irritation
Oxidizer (liquid, solid or gas)	Specific target organ toxicity (single or repeated exposure)
Organic peroxide	Aspiration Hazard
Self-reactive	Germ cell mutagenicity
In contact with water emits flammable gas	Simple Asphyxiant
Combustible Dust	Hazard Not Otherwise Classified (HNOC)
Hazard Not Otherwise Classified (HNOC)	
Corrosive to metal	

### What is the Effective Date of this Final Rule?

Many states have developed their own software for hazardous chemical inventory reporting. Other states use Tier2 Submit, electronic software developed by EPA. To provide enough time for states (as well as EPA) to modify the software to incorporate the new hazard classes, this final rule will be effective on January 1<sup>st</sup>, 2018. This means that, by March 1<sup>st</sup>, 2018, facilities are required to report the revised physical and health hazards for their hazardous chemicals present during 2017 calendar year.

# Hazard Communication Revisions



The  
**GHS**  
Globally Harmonized System  
of Classification and Labeling of Chemicals



# Compliance Schedule

Completion Date	Requirement(s)	Who
December 1, 2013	Training <ul style="list-style-type: none"><li>•New Label Elements</li><li>•Safety Data Sheets</li></ul>	Employers
June 1, 2015	Manufacturer full compliance HAZCOM plans updated	Chemical Manufacturers Employers
December 1, 2015	Distribution Prohibitions for non GHS labels	Chemical Manufacturers, Importers and Distributors
June 1, 2016	Updates to program and training based on new hazard classifications	Employers

# Training Requirements

- **Labels**
- **Safety Data Sheets**
  
- **Mawasiliano njia**
  - Utendaji ya msingi
  - Biashara forodha
  - Tu swahili



# Training Requirements

- **Labels**
- **Safety Data Sheets**
- **Methods of communication**
  - Performance based
  - Customary business methods
  - English



**Figure C.1 – Hazard Symbols and Classes**

Flame



Flammables  
Self Reactives  
Pyrophorics  
Self-heating  
Emits Flammable Gas  
Organic Peroxides

Corrosion



Corrosives

Flame Over Circle



Oxidizers

Gas Cylinder



Gases Under Pressure

Exclamation Mark



Irritant  
Dermal Sensitizer  
Acute Toxicity (harmful)  
Narcotic Effects  
Respiratory Tract Irritation

Health Hazard



Carcinogen  
Respiratory Sensitizer  
Reproductive Toxicity  
Target Organ Toxicity  
Mutagenicity  
Aspiration Toxicity

Exploding Bomb



Explosives  
Self Reactives  
Organic Peroxides

Skull and Crossbones



Acute Toxicity (severe)

**Figure C.1 – Hazard Symbols and Classes**

Flame



Flammables  
Self Reactives  
Pyrophorics  
Self-heating  
Emits Flammable Gas  
Organic Peroxides

Corrosion



Corrosives

Flame Over Circle



Oxidizers

Gas Cylinder



Gases Under Pressure

Exclamation Mark



Irritant  
Dermal Sensitizer  
Acute Toxicity (harmful)  
Narcotic Effects  
Respiratory Tract Irritation

Health Hazard



Carcinogen  
Respiratory Sensitizer  
Reproductive Toxicity  
Target Organ Toxicity  
Mutagenicity  
Aspiration Toxicity

Exploding Bomb



Explosives  
Self Reactives  
Organic Peroxides

Skull and Crossbones



Acute Toxicity (severe)

**Hazard  
Classifications**

**Physical  
Hazards**

**Figure C.1 – Hazard Symbols and Classes**

Flame



Flammables  
Self Reactives  
Pyrophorics  
Self-heating  
Emits Flammable Gas  
Organic Peroxides

Flame Over Circle



Oxidizers

Exclamation Mark



Irritant  
Dermal Sensitizer  
Acute Toxicity (harmful)  
Narcotic Effects  
Respiratory Tract Irritation

Exploding Bomb



Explosives  
Self Reactives  
Organic Peroxides

Corrosion



Corrosives

Gas Cylinder



Gases Under Pressure

Health Hazard



Carcinogen  
Respiratory Sensitizer  
Reproductive Toxicity  
Target Organ Toxicity  
Mutagenicity  
Aspiration Toxicity

Skull and Crossbones



Acute Toxicity (severe)

**Hazard  
Classifications**

**Health  
Hazards**

# Quick Quiz

- What's the most common chemical used at treatment plants??

PRODUCT: OD-12%, PCP29852, DIN02245211, CFIA CODE: OD 12

**SECTION 01: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

PRODUCT NAME: OD-12%, PCP29852, DIN02245211, CFIA  
 PRODUCT CODE(S): OD 12  
 CHEMICAL FAMILY: Sodium Hypochlorite Solution 10%-12%, Commercial Grade  
 RECOMMENDED USE: NSF and ITM-101. Alkaline Hypochlorite Solution is used as an oxidizing and bleaching agent. For industrial, institutional, swimming pool uses. Food plant use. For use in industrial recirculating cooling water systems. For municipal water treatment of sewage and industrial effluent and for sanitization. Use for sanitization and disinfection. Brewery pasteurizers.

MANUFACTURING NAME AND ADDRESS:  
 LAVO Inc.  
 11900 Blvd. Saint-Jean-Baptiste  
 Montreal, QC, H2C 2J3  
 CANADA  
 1-800-361-6888  
 CANUTEC 24-Hour Number: 613-996-6666.

24 HOUR EMERGENCY NUMBER: 613-996-6666.

**SECTION 02: HAZARD IDENTIFICATION**



IGNAL WORD: DANGER  
 GHS CLASSIFICATION: Serious Eye Damage Eye Irritation Category 1, Skin Corrosion Category 1, Specific Target Organ Toxicity Single Category 3, Respiratory Tract Irritation Category 1, Acute Aquatic Toxicity Category 1, Chronic Aquatic Toxicity Category 1.  
 HAZARD STATEMENTS: H314 Causes severe skin burns and eye damage. H330 May cause respiratory irritation. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects.  
 PRECAUTIONARY STATEMENTS: P260 Do not breathe dust/fume/gas/mist/vapours/spray. P264 Wash thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment. P280 Wear protective gloves/protective clothing/eye protection/face protection. P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P310 Immediately call a POISON CENTER or doctor/physician. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P501 Dispose of contents/container to an approved waste disposal plant.

**SECTION 03: COMPOSITION/INFORMATION ON INGREDIENTS**

HAZARDOUS INGREDIENTS	CAS #	WT. %
Sodium Hypochlorite	7681-82-9	10-15
Sodium Hydroxide	1310-73-2	0.5-1.5

**SECTION 04: FIRST AID MEASURES**

ROUTES OF EXPOSURE: Eye, Skin, Ingestion and Inhalation.  
 INHALATION: Remove victim to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get immediate medical attention. Call a poison center or physician.  
 EYE CONTACT: Immediately hold eyelids open and flush with water for at least 15 minutes. Check for and remove any contact lenses if easy to do. Consult a physician.  
 SKIN CONTACT: Immediately flush skin with plenty of water for 15 minutes. Remove contaminated clothing and wash before reuse. Consult a physician.  
 INGESTION: Call immediately a poison centre or a doctor. Do not induce vomiting or give anything by mouth to an unconscious person. Rinse out mouth with water.  
 ACUTE SYMPTOMS/EFFECTS: Eyes: Causes eye burns. Causes eye irritation.



SDS & Labels by ZECIS www.trivalent.com



**Safety Data Sheet  
Sodium Hypochlorite, 12.5%**

SDS Revision Date: 05/06/2015

**1. Identification**

1.1. Product Identifier  
**Product Identity** Sodium Hypochlorite, 12.5%  
**Alternate Names** Sodium Hypochlorite, 12.5%  
 1.2. Relevant identified uses of the substance or mixture and uses advised against  
**Intended use** Laundry Bleach  
**Application Method** See Technical Data Sheet.  
 1.3. Details of the supplier of the safety data sheet  
**Company Name** Gurrier Industries, Inc.  
 15475 South LaSalle St.  
 South Holland, IL 60473 US

**Emergency**  
**24 hour Emergency Telephone No.** (708) 331-2550  
**Customer Service: Gurrier Industries, Inc.** INFOTRAC - (800) 535-5053

**2. Hazard(s) Identification**

2.1. Classification of the substance or mixture  
 Skin Corr. 1C, H314 Causes severe skin burns and eye damage

2.2. Label elements  
 Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.



**Danger**

H314: Causes severe skin burns and eye damage

**[Prevention]:**

P260: Avoid breathing gas/mist/vapours/spray  
 P264: Wash thoroughly after handling.  
 P273: Avoid release to the environment.

**Safety Data Sheet**  
according to 29CFR1910/1200 and GHS Rev. 3

Effective date : 12.14.2014

Page 1 of 7

**Sodium Hypochlorite,13%**

**SECTION 1 : Identification of the substance/mixture and of the supplier**

**Product name :** Sodium Hypochlorite,13%  
**Manufacturer/Supplier Trade name:**  
**Manufacturer/Supplier Article number:** S25552  
**Recommended uses of the product and uses restrictions on use:**  
**Manufacturer Details:**  
 AquaPhoenix Scientific  
 9 Barnhart Drive, Hanover, PA 17331

**Supplier Details:**

Fisher Science Education  
 15 Jet View Drive, Rochester, NY 14624

**Emergency telephone number:**

Fisher Science Education Emergency Telephone No.: 800-535-5053

**SECTION 2 : Hazards identification**

**Classification of the substance or mixture:**

**Corrosive**  
 Corrosive to metals, category 1  
 Serious eye damage, category 1

**Irritant**  
 Skin Irritation, category 2

Eye corr. 1  
 Skin Irrit. 2  
 Aquatic Acute 2  
 Aquatic Chronic 3  
 Metal Corr. 1

**Signal word** :Danger

**Hazard statements:**  
 May be corrosive to metals  
 Causes serious eye damage  
 Causes skin irritation

**Precautionary statements:**  
 Toxic to aquatic life with long lasting effects

If medical advice is needed, have product container or label at hand  
 Keep out of reach of children  
 Read label before use

Wear protective gloves/protective clothing/eye protection/face protection  
 Wash skin thoroughly after handling

Wear protective gloves/protective clothing/eye protection/face protection  
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do.  
 Continue rinsing





LAVO Inc.  
11900 Boul. Saint-Jean Baptiste  
Montréal, QC, H3C 2J3  
CANADA  
1-800-361-6898

PRODUCT: OD-12%, PCP29852, DIN02245211, CFIA

CODE: OD 12

## SECTION 01: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:..... OD-12%, PCP29852, DIN02245211, CFIA  
 PRODUCT CODE(S)..... OD 12  
 CHEMICAL FAMILY..... Sodium Hypochlorite Solution 10%-15% Commercial Grade  
 RECOMMENDED USE:..... NSF mil 97mg/L. Alkaline Hypochlorite Solution is used as an oxidizing and bleaching agent. For industrial, institutional, swimming pool uses. Food plant use. For use in industrial recirculating cooling water systems. For municipal water treatment of sewage and industrial effluent and for sanitization. Use for sanitization and disinfection. Brewery pasteurizers.  
 MANUFACTURING NAME AND ADDRESS..... LAVO Inc.  
 11900 Boul. Saint-Jean-Baptiste  
 Montréal, QC, H3C 2J3  
 CANADA  
 1-800-361-6898  
 24 HOUR EMERGENCY NUMBER..... CANUTEC 24-Hour Number: 613-956-6666.

## SECTION 02: HAZARD IDENTIFICATION



SIGNAL WORD..... DANGER  
 GHS CLASSIFICATION:..... Serious Eye Damage/Eye Irritation Category 1, Skin corrosion Category 1, Specific Target Organ Toxicity - Single Category 3, Respiratory tract irritation Category 1, Acute aquatic toxicity Category 1, Chronic aquatic toxicity Category 1.  
 HAZARD STATEMENTS..... H290 May be corrosive to metals. H314 Causes severe skin burns and eye damage. H335 May cause respiratory irritation. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects.  
 PRECAUTIONARY STATEMENTS..... P260 Do not breathe dust/fume/gas/mist/vapours/spray. P264 Wash thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment. P280 Wear protective gloves/protective clothing/eye protection/face protection. P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P310 Immediately call a POISON CENTER or doctor/physician. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P501 Dispose of contents/container to an approved waste disposal plant.

## SECTION 03: COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS	CAS #	WT. %
Sodium Hypochlorite	7681-52-9	10-15
Sodium Hydroxide	1310-73-2	0.5-1.5

## SECTION 04: FIRST AID MEASURES

ROUTES OF EXPOSURE..... Eye, Skin, Ingestion and Inhalation.  
 INHALATION..... Remove victim to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get immediate medical attention. Call a poison center or physician.  
 EYE CONTACT..... Immediately hold eyelids open and flush with water for at least 15 minutes. Check for and remove any contact lenses if easy to do. Consult a physician.  
 SKIN CONTACT..... Immediately flush skin with plenty of water for 15 minutes. Remove contaminated clothing and wash before reuse. Consult a physician.  
 INGESTION..... Call immediately a poison centre or a doctor. Do not induce vomiting or give anything by mouth to an unconscious person. Rinse out mouth with water.  
 ACUTE SYMPTOMS/EFFECTS  
 Eyes:..... Causes eye burns. Causes eye irritation.



# Safety Data Sheet

## Sodium Hypochlorite, 12.5%

SDS Revision Date:

05/06/2015

### 1. Identification

#### 1.1. Product identifier

**Product Identity** Sodium Hypochlorite, 12.5%  
**Alternate Names** Sodium Hypochlorite, 12.5%

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**Intended use** Laundry Bleach  
**Application Method** See Technical Data Sheet.

#### 1.3. Details of the supplier of the safety data sheet

**Company Name** Gurtler Industries, Inc.  
15475 South LaSalle St.  
South Holland, IL 60473 US

#### Emergency

**24 hour Emergency Telephone No.** (708) 331-2550  
**Customer Service: Gurtler Industries, Inc.** INFOTRAC - (800) 535-5053

### 2. Hazard(s) identification

#### 2.1. Classification of the substance or mixture

Skin Corr/Irr. 1C, H314 Causes severe skin burns and eye damage

#### 2.2. Label elements

Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.



**Danger**

H314: Causes severe skin burns and eye damage

#### [Prevention]:

P260: Avoid breathing gas/mist/vapours/spray  
P264 Wash thoroughly after handling.  
P273: Avoid release to the environment.

**Sodium Hypochlorite,13%**

**SECTION 1 : Identification of the substance/mixture and of the supplier**

**Product name :** Sodium Hypochlorite,13%

**Manufacturer/Supplier Trade name:**

**Manufacturer/Supplier Article number:** S25552

**Recommended uses of the product and uses restrictions on use:**

**Manufacturer Details:**

AquaPhoenix Scientific  
9 Barnhart Drive, Hanover, PA 17331

**Supplier Details:**

Fisher Science Education  
15 Jet View Drive, Rochester, NY 14624

**Emergency telephone number:**

Fisher Science Education Emergency Telephone No.: 800-535-5053

**SECTION 2 : Hazards identification**

**Classification of the substance or mixture:**



**Corrosive**

Corrosive to metals, category 1  
Serious eye damage, category 1



**Irritant**

Skin irritation, category 2

Eye corr. 1  
Skin Irrit. 2  
Aquatic Acute 2  
Aquatic Chronic 3  
Metal Corr. 1

**Signal word :**Danger

**Hazard statements:**

May be corrosive to metals  
Causes serious eye damage  
Causes skin irritation  
Toxic to aquatic life with long lasting effects

**Precautionary statements:**

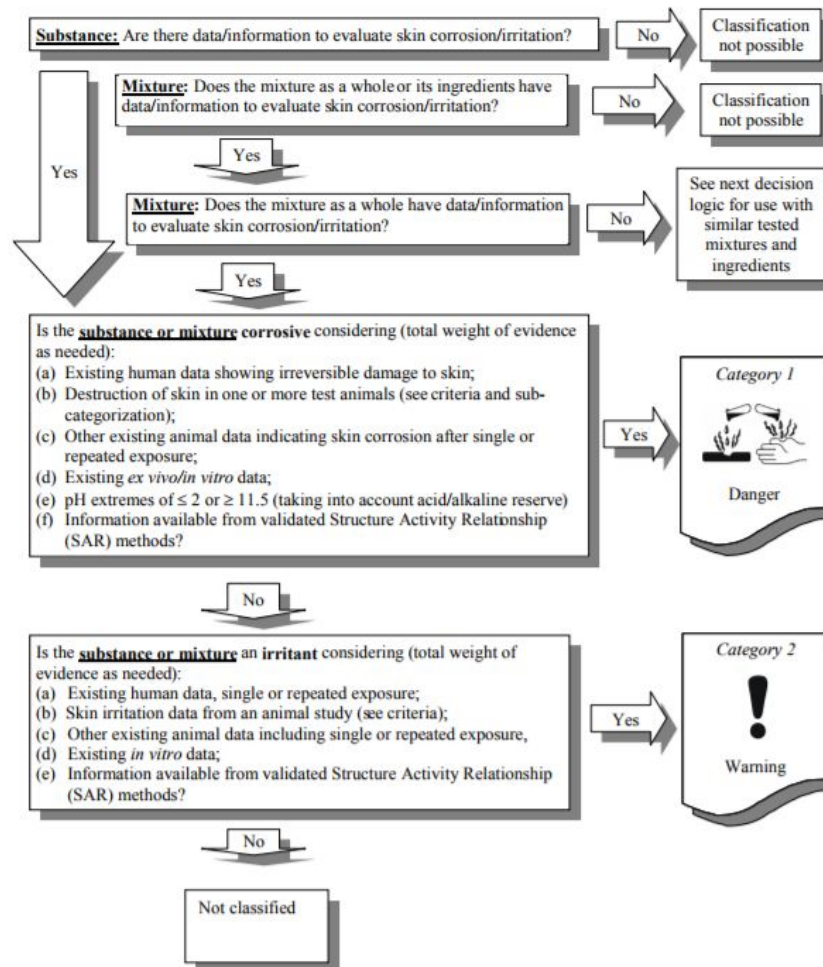
If medical advice is needed, have product container or label at hand  
Keep out of reach of children  
Read label before use  
Wear protective gloves/protective clothing/eye protection/face protection  
Wash skin thoroughly after handling  
Wear protective gloves/protective clothing/eye protection/face protection  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do.  
Continue rinsing

# 3 SDS for Sodium Hypochlorite

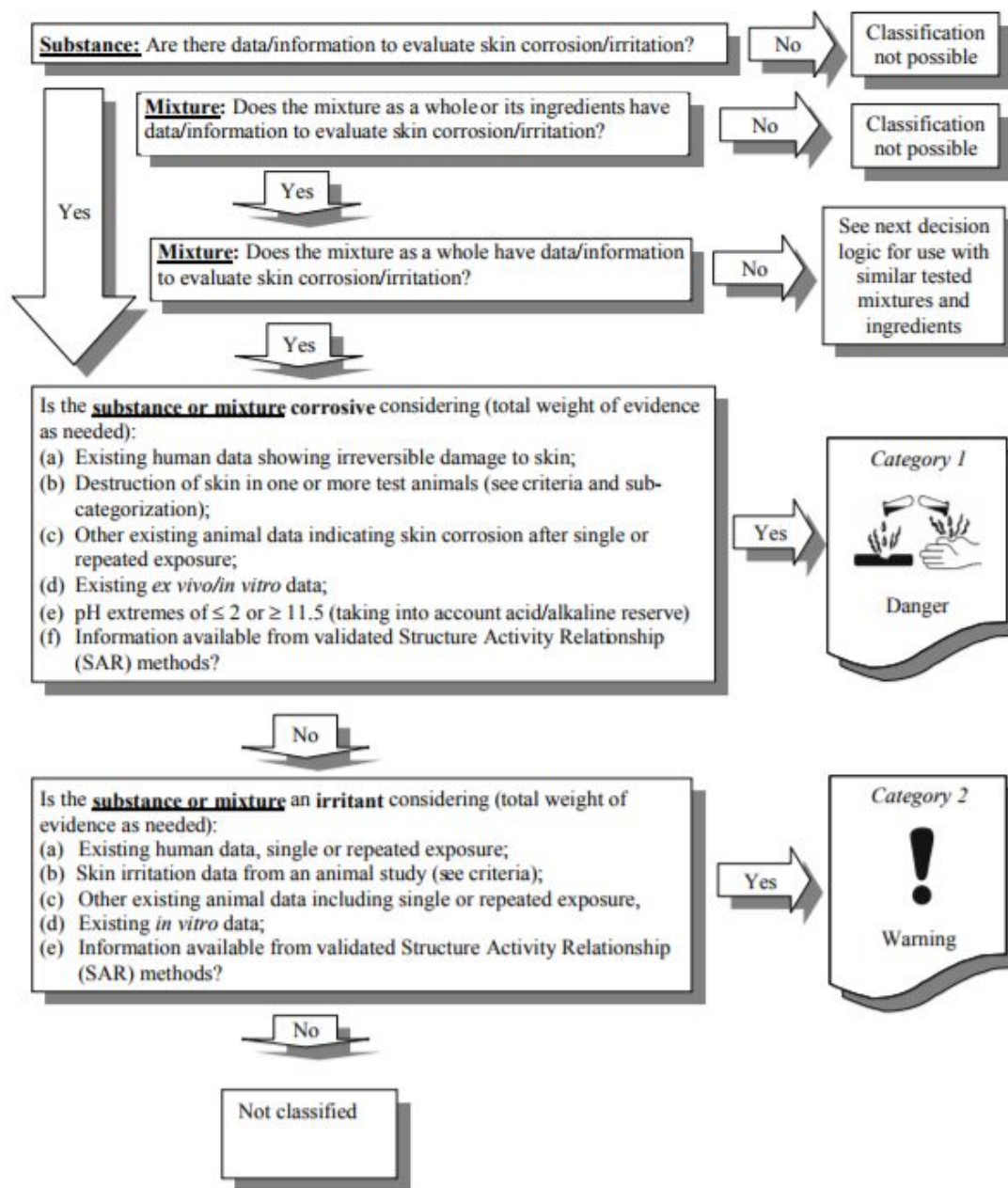


# Decision Logic for Corrosives

## Decision logic for skin corrosion/irritation



## Decision logic for skin corrosion/irritation



# SDS Sections

- **Section 1, Identification**
- **Section 2, Hazard(s)**
- **Section 3, Composition/information**
- **Section 4, First-aid measures**
- **Section 5, Fire-fighting measures**
- **Section 6, Accidental release measures**
- **Section 7, Handling and storage**
- **Section 8, Exposure controls/personal protection**

# SDS Sections

- **Section 9, Physical and chemical properties**
- **Section 10, Stability and reactivity**
- **Section 11, Toxicological information**
- Section 12, Ecological information
- Section 13, Disposal considerations
- Section 14, Transport information
- Section 15, Regulatory information
- **Section 16, Other information, includes the date of preparation or last revision.**



# SDS – Section Elements



## Section 9: Physical and Chemical Properties

This section identifies physical and chemical properties associated with the substance or mixture. The minimum required information consists of:

- Appearance (physical state, color, etc.);
- Odor;
- Odor threshold;
- pH;
- Melting point/freezing point;
- Initial boiling point and boiling range;
- Flash point;
- Evaporation rate;
- Flammability (solid, gas);
- Upper/lower flammability or explosive limits;
- Vapor pressure;
- Vapor density;
- Relative density;
- Solubility(ies);
- Partition coefficient: n-octanol/water;
- Auto-ignition temperature;
- Decomposition temperature; and
- Viscosity.

The SDS may not contain every item on the above list because information may not be relevant or is not available. When this occurs, a notation to that effect must be made for that chemical property. Manufacturers may also add other relevant properties, such as the dust deflagration index (Kst) for combustible dust, used to evaluate a dust's explosive potential.

# Classification Changes

	Flashpoint																				
	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
Old definition	Flammable										Combustible										
NFPA 704 Diamond	4							3			2										
EPA / DOT	Flammable													Combustible							
NFPA 30 class	Class IA/IB							IC		II		IIIA									
GHS category	1 or 2							3					4								
Signal Word	Danger							Danger					Warning								
Hazard Statement	Extremely flammable liquid and vapor Highly flammable liquid and vapor							Flammable liquid and vapor					Combustible liquid								
Pictogram													Nothing								

# Take Away Points

- **Chemicals haven't changed**
- **Standardized SDS**
  - Not so standardized
- **Employee focused sections**
- **Changes not immediate**



# What hasn't changed

- **Applicable chemicals**
- **Exclusions and exemptions**
- **Elements of the HAZCOM**
- **Training requirements**
- **Secondary container labeling**
- **Temporary container exclusion**
- **Special labeling systems**
  - NFPA 704
  - HMIS



# Compliance Schedule

Completion Date	Requirement(s)	Who
December 1, 2013	Training <ul style="list-style-type: none"><li>•New Label Elements</li><li>•Safety Data Sheets</li></ul>	Employers
June 1, 2015	Manufacturer full compliance HAZCOM plans updated	Chemical Manufacturers Employers
December 1, 2015	Distribution Prohibitions for non GHS labels	Chemical Manufacturers, Importers and Distributors
June 1, 2016	Updates to program and training based on new hazard classifications	Employers

# Closing



- **GHS implementation deadlines have passed**
- **Updated SDS should be provided**
- **Other programs now reference GHS**
  - EPCRA (Tier II Reporting) deadline coming soon
- **OSHA has tools**
  - Quickcard example

## Hazard Communication Safety Data Sheets

The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products. The HCS requires new SDSs to be in a uniform format, and include the section numbers, the headings, and associated information under the headings below:

**Section 1, Identification** includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

**Section 2, Hazard(s) identification** includes all hazards regarding the chemical; required label elements.

**Section 3, Composition/information on ingredients** includes information on chemical ingredients; trade secret claims.

**Section 4, First-aid measures** includes important symptoms/effects, acute, delayed; required treatment.

**Section 5, Fire-fighting measures** lists suitable extinguishing techniques, equipment; chemical hazards from fire.

**Section 6, Accidental release measures** lists emergency procedures; protective equipment; proper methods of containment and cleanup.

**Section 7, Handling and storage** lists precautions for safe handling and storage, including incompatibilities.

*(Continued on other side)*



U.S. Department of Labor

For more information:  
**OSHA<sup>®</sup>** Occupational Safety and Health Administration  
[www.osha.gov](http://www.osha.gov) (800) 321-OSHA (6742)

OSHA 3453-01R 2016

## Hazard Communication Safety Data Sheets

**Section 8, Exposure controls/personal protection** lists OSHA's Permissible Exposure Limits (PELs); ACGIH Threshold Limit Values (TLVs); and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the SDS where available as well as appropriate engineering controls; personal protective equipment (PPE).

**Section 9, Physical and chemical properties** lists the chemical's characteristics.

**Section 10, Stability and reactivity** lists chemical stability and possibility of hazardous reactions.

**Section 11, Toxicological information** includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12, Ecological information\*

Section 13, Disposal considerations\*

Section 14, Transport information\*

Section 15, Regulatory information\*

**Section 16, Other information**, includes the date of preparation or last revision.

\*Note: Since other Agencies regulate this information, OSHA will not be enforcing Sections 12 through 15 (29 CFR 1910.1200(g)(2)).

**Employers must ensure that SDSs are readily accessible to employees.**

See Appendix D of 29 CFR 1910.1200 for a detailed description of SDS contents.



U.S. Department of Labor

For more information:  
**OSHA<sup>®</sup>** Occupational Safety and Health Administration  
[www.osha.gov](http://www.osha.gov) (800) 321-OSHA (6742)

# Thanks

Dave Horowitz  
Project Manager

413.572.3211

[DPHorowitz@tighebond.com](mailto:DPHorowitz@tighebond.com)

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



# Questions

