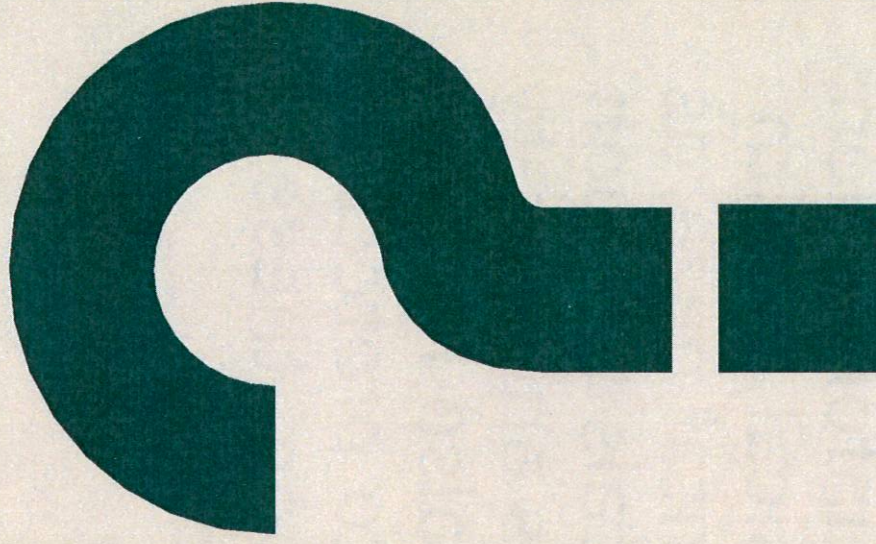


HAZARD COMMUNICATION, GHS TRAINING

HMIS

SDS

MSDS



NEPA

HAZCO

M

GHS



Hazard communication provides people working with chemicals information about the physical, health and environmental hazards of those chemicals through the use of labels and safety data sheets. It also informs people how to protect themselves from these hazards.



There have been different systems over the years used to communicate these hazards.



A lot has depended on the intended audience.

Labeling systems are used to provide quick identification of the hazards associated with a chemical or products

They use symbols, colors and numbers / letter codes to identify the item and its hazards



GHS	
Chemical Name	
HEALTH	* 2
FLAMMABILITY	1
PHYSICAL HAZARD	0
PERSONAL PROTECTION	A

Emergency Overview:
Summarize the nature and appearance of the chemical and the important health hazards.

© 2001 ECH, Inc. ECH, Inc. - Hazardous Waste - USA, Inc. 2001



The transportation industry uses a series of placards containing certain colors, symbols and numbers to identify any hazards involved with shipping & transportation activities, these labels and placards will not be effected by GHS.



Current System Today

Chemicals & products being used in industrial situations need a way to communicate their hazards quickly to their employees

The **HMIS** (hazard material information system) was developed to communicate daily workplace hazards to employees

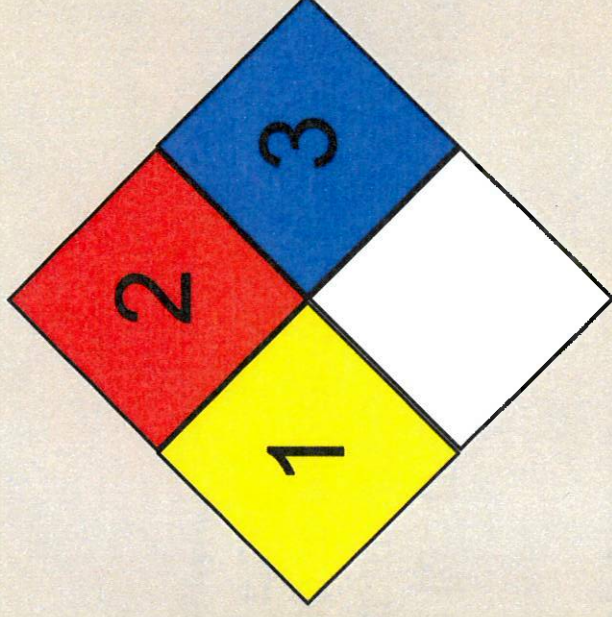
HMIS [®]	
Chemical Name	
HEALTH	* 2
FLAMMABILITY	1
PHYSICAL HAZARD	0
PERSONAL PROTECTION	A

Emergency Overview:
Summarize the nature and appearance of the chemical and the important health hazards.

HMIS - 2008-2009 Edition - November 2008 - Revision 1.01 - © 2008 IAP-MSHA



- Emergency response personnel in the United States need a way to alert fire fighters arriving on the scene of a fire to the hazards associated with materials present at that location



- The **NFPA 704**, (National Fire Protection Association) developed a system using colors and numbers to post on buildings or containers



Both the NFPA and HMIS systems use colors and numbers to identify the hazards associated with the chemical

Colors identify the hazard:

- **Red** - flammability hazard
- **Blue** - health hazard
- **Yellow** - reactivity hazard
- White - any specific hazard (e.g. no water) or PPE (personal protective equipment) (e.g. goggles) to be used (if applicable)

Level of risk for that hazard identified by number from 0-4

- 4 is the most hazardous / highest degree of risk
- 0 is the lowest risk

● Sometimes people need more information about a chemical or product such as what to do in the case of a fire, spill or health issue.

● Material Safety Data Sheets provided this information, but they varied greatly in format, quantity of information, etc.

● Some companies provided minimal information while others went into great detail.

MATERIAL SAFETY DATA SHEET

Product and Data
Revised February 2001
Revised Date: February 2001

I. COMPANY INFORMATION:

Distributor's Name/Agent: SERVICE CHEMICAL, INC.
Address: 2650 Route 100, Suite 100, Allentown, PA 19446
Emergency Telephone No: (610) 262-4924 (CHEMTTEL)
Other Information Call: 215-342-9411

II. PRODUCT CLASSIFICATION:

PRODUCT NAME: Red Gum
Synonyms: Red Gum Resin
CHEMICAL FAMILY: Solid solution of Oxypolide & Escorbinamide
SYNONYMS: Gum Acrolein, Crystal Tree Gum, Black Ink, Botany Bay Resin
FORMULA: N/A

III. PHYSICAL PROPERTIES:

PHYSICAL FORM: Amorphous powder
COLOR: Brown Red/Pearly Red
ODOR: Heavy Balsam, Woody
MELTING POINT: N/A
BOILING POINT: 104.20°C
SOLVENT SYSTEM: Alcoholic and aqueous ethaline solutions
SPECIFIC GRAVITY: 1.34 at 20°C
VAPOR PRESSURE: N/A
VAPOR DENSITY: N/A

IV. HAZARDOUS INGREDIENTS:

INGREDIENT NAME CAS NUMBER CONCENTRATION % EXPOSURE LIMITS
N/A



SAFETY DATA SHEET

Revision Date 05-Dec-2011

Revision Number 3

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Identifier:
ACROS
CAS No.
Synonyms

Reductive carbamide
19844900K 18184001P 19304005D
Potash, Pearl ash, Dipotassium salt of carbonic acid

Relevant identified uses of the substance or mixture and uses advised against
Laboratory chemicals
Uses advised against: No information available

Details of the supplier of the safety data sheet

Company:
Acros Organics BVBA
De Wulfstraat 34
2440 Geel, Belgium
E-mail address: page1.acros@thermolab.com

Emergency Telephone Number:
For information in the US: Call 1-800-ACROS-01
For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 60
Emergency Number, US: 001-201-796-7700

CHEMTREC: Phone Number, US: 001-606-666-6890
CHEMTREC: Phone Number, Europe: 001-703-327-3887

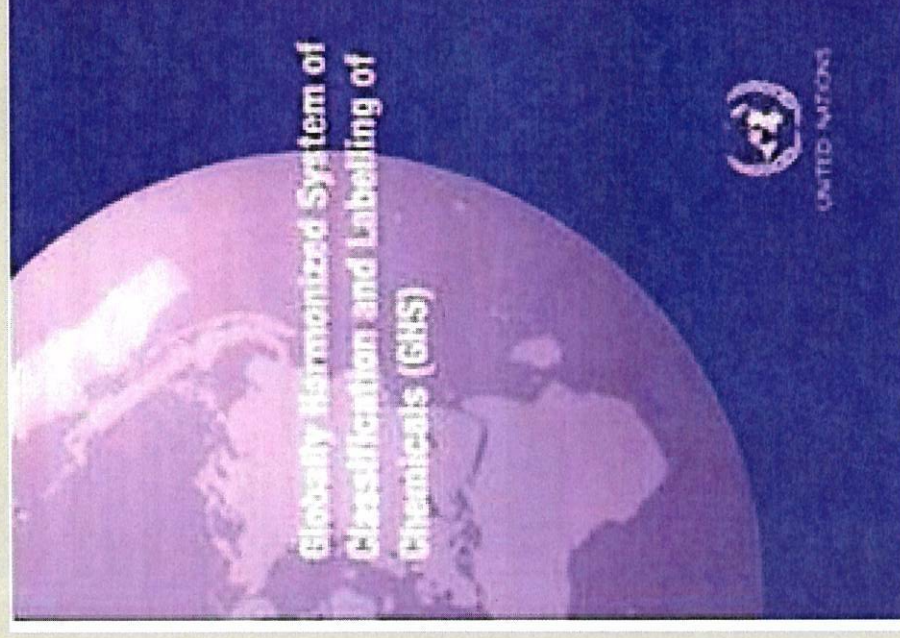
SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture
REGULATION (EC) No 1272/2008

Acute oral toxicity	Category 4
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Irritation	Category 2
Specific target organ toxicity - (single exposure)	Category 3

Classification according to EU Directive 67/548/EEC or 1989/45/EEC
For the full text of the Regulations and EC-Statements mentioned in this Section, see Section 16
Symbol(s): Harmful
Risk Statement(s): R36/37/38 - Irritating to eyes, respiratory system and skin
Risk Combination Phrases

- As chemicals & products are being manufactured, shipped and used all over the world, a system needed to be developed to ensure that chemicals and their hazards could be understood throughout the world.
- The United Nations developed the Globally Harmonized System (GHS) with input from all of its member nations.
- Countries have adopted this system and are in the process of transitioning to it



- The new system dictates exactly what must be on the label or data sheet and where it must be located
- This fosters greater understanding and more uniformity
- In the U.S., OSHA has adopted the GHS plan.



OSHA® QUICK CARD™
Hazard Communication Safety Data Sheets

Section 8. Exposure controls/personal protection lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).

Section 9. Physical and chemical properties list 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.

For more information:
OSHA® Occupational Safety and Health Administration
 U.S. Department of Labor
www.osha-slc.gov (800) 321-OSHA (6742)

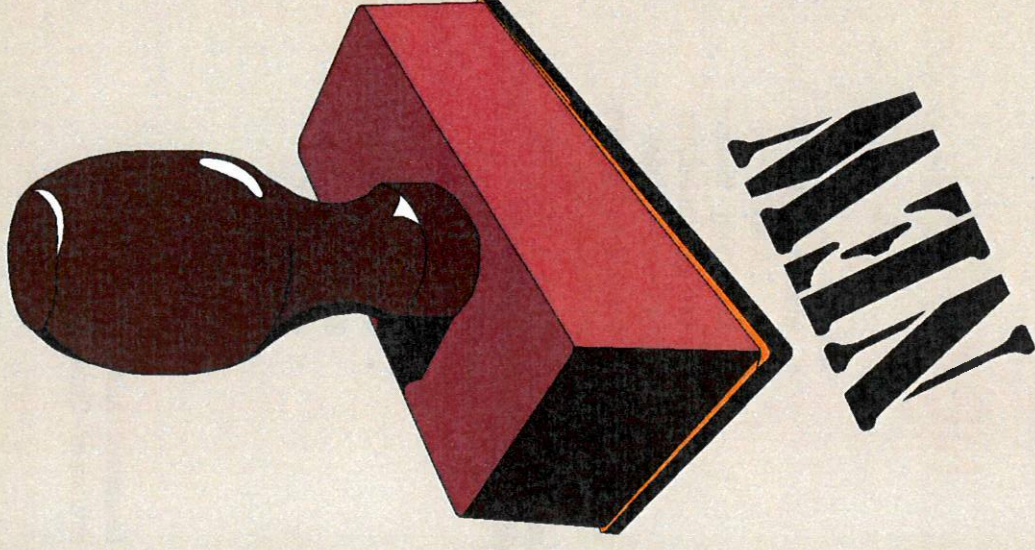
OSHA 3090 (Rev. 11/90)

- The United States adopted this system in March of 2012 and we are in the process of replacing the current OSHA system with this new one.
- **Employee Training** on this new system must be completed by **December 1** of this year !



Changes include:

- Reclassifying types of hazards
- Adding new information to labels
- Producing new / redesigned safety data sheets (SDS's) with much more detailed information



HAZARD CLASSIFICATIONS

OL

HCS Listed Hazard Categories

<p>Physical Hazards Fire Hazards Combustible liquid Flammable liquid Flammable aerosol Flammable gas Flammable solid Oxidizer Pyrophoric</p>	<p>Health Hazards Systemic Effects Carcinogen Toxic agent Highly toxic agent Corrosive Irritant Sensitizer</p>
<p>Explosion Hazards Compressed gas Explosive</p>	<p>Target Organ Effects Hepatotoxin Nephrototoxin Neurotoxin Blood/hematopoietic toxin</p>
<p>Reactive Hazards Organic peroxide Unstable (reactive) Water-reactive</p>	<p>Respiratory toxin Reproductive toxin Cutaneous hazard Eye hazard</p>

NEW

New

Hazard classification

Physical

- Explosives
- Flammable Gases
- Flammable Aerosols
- Oxidizing Gases
- Gases Under Pressure
- Flammable Liquids
- Flammable Solids
- Self-Heating Substances and Mixtures
- Self-Heating Substances and Mixtures
- Pyrophoric Liquids
- Pyrophoric Solids
- Oxidizing Liquids
- Oxidizing Solids
- Organic Peroxides

Health

- Acute Toxicity - Oral
- Acute Toxicity - Dermal
- Acute Toxicity - Inhalation
- Skin Corrosion / Irritation
- Eye Damage / Irritation
- Sensitization – Respiratory
- Sensitization - Skin
- Germ Cell Mutagenicity
- Carcinogenicity
- Reproductive Toxicity
- STOT –(Specific Target Organ Toxicity) Single Exposure
- STOT –(Specific Target Organ Toxicity) - Repeated Exposure
- Aspiration Hazard

Environmental

- Hazardous to the Aquatic Environment - Acute Hazard
- Hazardous to the Aquatic Environment - Chronic Hazard

LABELS

OLD

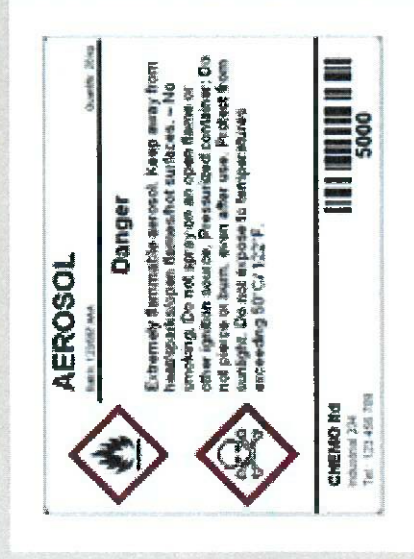
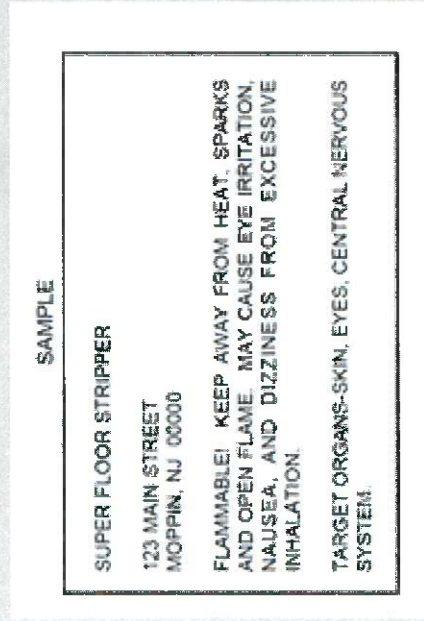
- Identity of the hazardous chemical
- Appropriate hazard warnings
 - can use words, symbols or *mfpa/fmnis* info
 - up to person doing label as to what goes on and how it is presented
- Name and address of the chemical manufacturer, importer, or other responsible party.

The HCS 1994 does not require the use of pictograms, specific signal words, or precautionary statements

NEW

- Product identifier
- Signal word
- Hazard statements
- Pictograms
- Precautionary statements
- Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party.

Mandatory compliance with what specific information is to be provided for each hazard class and category once a chemical is classified.



Draft Example: New Fireworks (Consumer) 1.4G UN0336 Label

Fireworks (Consumer) 1.4G, UN0336

 **WARNING**

Contains Pyrotechnic Composition / A solid mixture of oxidizer and fuel that will burn vigorously if ignited by flame or high temperature. These items are classed as 1.4G Explosives by U.S. DOT. No chemical composition is exposed during normal handling, transportation & storage.

Precautionary/ Prevention
Keep away from excessive high heat (above 200 degrees F), sparks & open flame / absolutely No Smoking
Do not pierce or puncture cartons with forklift, sharp objects
Do not throw or drop packages
Keep cartons in a cool, dry location

Response / In Case of Fire
Fireworks will burn rapidly in the event of a fire. Do not use suffocation methods since burning devices produce their own oxygen and the fire may become more violent if confined.
Fire projections may occur during a fire

Special Fire Fighting Procedures
Protect surrounding area. If conditions permit, allow material to burn to completion. Keep all personnel a safe distance away, focus firefighting efforts on containing any spread of fire using water deluge

Inhalation - Avoid prolonged exposure to smoke in a fire situation

**APA Fireworks Company, Star RD, Celebration, PA 11178
Telephone: (800) 555-5555**

SAFETY DATA SHEETS

NEW

OLD










- The chemical and common name(s) of all ingredients which have been determined to be health or physical hazard when present in the mixture;
- Physical and chemical characteristics of the hazardous chemical
- The physical hazards of the hazardous chemical, including the potential for fire, explosion, and reactivity;
- The health hazards of the hazardous chemical, including signs and symptoms of exposure, and any medical conditions which are generally recognized as being aggravated by exposure to the chemical;
- Any generally applicable precautions for safe handling and use which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, including appropriate hygienic practices, protective measures during repair and maintenance of contaminated equipment, and procedures for clean-up of spills and leaks;
- Any generally applicable control measures which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, such as appropriate engineering controls, work practices, or personal protective equipment;
- Emergency and first aid procedures;
- The date of preparation of the material safety data sheet or the last change to it; and,
- The name, address and telephone number of the chemical manufacturer, importer, employer or other responsible party preparing or distributing the material safety data sheet, who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

1. identification
2. hazard identification
3. composition/information on ingredients
4. first aid measures
5. firefighting measures
6. accidental release measures
7. handling and storage
8. exposure controls/personal protection
9. physical and chemical properties
10. stability and reactivity
11. toxicological information
12. ecological information
13. disposal considerations
14. transport information
15. regulatory information
16. other information

USE OF PICTOGRAMS

Figure 4.9

GHS Pictograms and Hazard Classes

 <ul style="list-style-type: none"> ■ Oxidizers 	 <ul style="list-style-type: none"> ■ Flammables ■ Self Reactives ■ Pyrophorics ■ Self-Heating ■ Emits Flammable Gas ■ Organic Peroxides 	 <ul style="list-style-type: none"> ■ Explosives ■ Self Reactives ■ Organic Peroxides
 <ul style="list-style-type: none"> ■ Acute toxicity (severe) 	 <ul style="list-style-type: none"> ■ Corrosives 	 <ul style="list-style-type: none"> ■ Gases Under Pressure
 <ul style="list-style-type: none"> ■ Carcinogen ■ Respiratory Sensitizer ■ Reproductive Toxicity ■ Target Organ Toxicity ■ Mutagenicity ■ Aspiration Toxicity 	 <ul style="list-style-type: none"> ■ Environmental Toxicity 	 <ul style="list-style-type: none"> ■ Irritant ■ Dermal Sensitizer ■ Acute toxicity (harmful) ■ Narcotic Effects ■ Respiratory Tract Irritation

- Pictograms provide quick information about the hazards of the chemical
- They may not provide the exact hazard, but will at least give you general information

Levels of Danger

- Pictogram w/
image



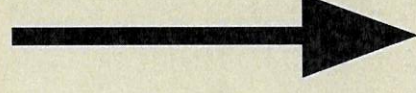
- Most Dangerous

- Pictogram with
exclamation point



- No pictogram

- Least Dangerous



Levels of Danger Example



Danger

**Causes severe
skin burns and
eye damage**



Warning

**Causes skin
irritation**

Fireworks



1.3G / Danger

**Mass Explosion Hazard
Evacuate to a Safe
Distance**

1.4G / Warning

**No exposed composition
Fireworks will burn rapidly**

The information found in
the signal word,
hazard statement and
precautionary
statement will give you
more information
about that chemical's
or products hazards

Product J
(abc chemical)



Danger

Fatal if swallowed
Causes skin irritation

Precautions:

Wear protective gloves.
Take off contaminated clothing and wash before reuse.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.

Store locked up.

Dispose of contents/containers in accordance with local regulations.

IF ON SKIN: Rinse skin with water/shower.

IF IN EYES: Rinse cautiously with water.

IF SWALLOWED: Immediately call a Poison Center or
doctor/physician. Do not induce vomiting.

ABC Chemical Co., 123 Anywhere St., (123) 456-7890

See the SDS for more information

Signal words
Indicate the relative
degree of severity
of a hazard.

"Danger"
for the more severe
hazards

"Warning"
for the less severe
hazards.

Hazard

Statements

- Standardized and assigned phrases that describe the hazard(s) as determined by hazard classification.
- Each GHS hazard should be included on the label for products possessing more than one hazard.

Examples

Explosive; mass explosion hazard.

Extremely flammable gas.

Heating may cause a fire or explosion.

Fatal if swallowed.

Harmful in contact with skin.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Very toxic to aquatic life with long lasting effects.

Precautionary statements

- Briefly providing measures to be taken to minimize or prevent adverse effects from physical, health or environmental hazards.
- First aid is included in precautionary information.

Examples

Keep out of reach of children.

Keep away from heat / sparks / open flames / hot surfaces. – No smoking.

Keep container tightly closed.

Do not get in eyes, on skin, or on clothing.

Avoid release to the environment.

Get medical advice/attention.

SAFETY DATA SHEETS EXAMPLE (Road Flares / Fusee)

Documents which provide details about a chemical's hazards as well as measures to prevent or at least minimize the impact of those hazards



SAFETY DATA SHEET

1. Product and Company Identification

Emergency Road Flare / Fusee / Railway Flare
NSM#: 1370-91-008-2293

Use: Emergency signal
Forest fire control

Backfire Torches NSM#: 1370-00-294-1279

SAR Signal Flare / Campfire Starter

Orion Safety Products
26320 St. Michaels Rd
Eaton, MD 21601

Emergency signal / campfire starter
US 1-800-637-7607
Int'l (11) 1-410-822-0318
EMERGENCY CHEMTEC 1-800-424-9300

2. Hazards Identification

Emergency Overview



Classification	Division 1-4
Acute Toxicity	Category 5
Skin Corrosion / Irritation	Category 2
Serious Eye Damage / Irritation	Category 2
Respiratory or Skin Sensitization	Category 1
STOT - Repeated Exposure	Category 3

Hazard Statements:
May be harmful if inhaled
May irritate the respiratory system
May cause dizziness or headache
May cause drowsiness or dizziness

Precautionary Statements:
Avoid breathing dusts or fumes
Avoid contact with skin
Avoid contact with eyes
Avoid contact with clothing
Avoid contact with water
Avoid contact with food and drink
Avoid contact with animals

NFPA Rating
Flammability 2
Health 2
Reactivity 1

HMS Rating
Flammability 1
Health 3
Physical Hazard 1

3. Composition / Information on Ingredients

Component	CAS #	EMGS #	Weight
Sulfuric Nitrate	1002576-9	285-331-9	43%
Potassium Dichromate	7782-76-7	201-912-9	35%
Potassium Chloride	58113-8-3	201-304-6	15%
Barium Chloride	10303-72-8	201-304-6	5%
Potassium Oxide	6242-52-7	285-331-2	2%
Sulfuric Wood Saw	8004-382-6	285-331-9	41%

4. First Aid Measures

Inhalation: If fumes from ignition or contents are inhaled, remove to fresh air. Watch for signs of allergic reaction. If other symptoms develop, get medical aid immediately.
Skin: For burns, cool with water and bandage appropriately. If contents are contacted, wash with soap and water for 15 minutes. Remove contaminated clothing and wash before reuse. Get medical aid if burned or irritation occurs.
Eyes: If burned, cover eye and get medical help immediately. If contents get into eye, flush with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lid. Remove contact lenses if easily possible. Do not use boric acid to flush with; water is an excellent first aid measure. Get medical aid immediately.
Ingestion: Get medical aid immediately.

5. Firefighting Measures

Extinguishing Media: Water spray
Unsuitable Extinguishing Media: Foam and dry chemical extinguishers and substitution are ineffective.
Protective Equipment and Precautions for Firefighters: Wear full protective clothing and NOCSH-approved self-contained breathing apparatus with full face piece operated in the pressure-demand or other positive pressure mode. Prevent further propagation of fire by spraying ambient nearby product with water. Contact fire from a safe distance.
Specific Hazards Arising from this Chemical: Flares and torches are ignited at the open end of the fuse when it functions. Do not point the open end of the fuse at anyone or flammable material. ONLY USE OUTDOORS - smoke is normal. Contents may ignite and burn explosively when suspended in air and exposed to open flame or spark.

Flashpoint: Not Applicable
Flammability Limits: Not Applicable
Ignition Temperature: >100F

Conclusion:

The way we conduct Hazard Communication is changing!

We are now transitioning to new labels & Safety Data Sheets, (SDS's).

This training is the first phase to begin understanding how to identify and understand the new GHS Program. You are now seeing these new labels & Safety Data Sheets enter the workplace now!

TRANSITION DATES

USA

Effective Dates

The table below summarizes the phase-in dates required under the revised Hazard Communication Standard (HCS):

Effective Completion Date	Requirement(s)	Who
December 1, 2013	Train employees on the new label elements and safety data sheet (SDS) format.	Employers
June 1, 2015	Compliance with all modified provisions of this final rule, except:	Chemical manufacturers, importers, distributors and employers
December 1, 2015	The Distributor shall not ship containers labeled by the chemical manufacturer or importer unless it is a GHS label	
June 1, 2016	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.	Employers
Transition Period to the effective completion dates noted above	May comply with either 29 CFR 1910.1200 (the final standard), or the current standard, or both	Chemical manufacturers, importers, distributors, and employers

Other Countries Status to date

Canada	Final phase
China	Implemented (?)
Japan	Just Implemented
Mexico	standard is not mandatory, it is authorized to be used as an alternate
EU	Implemented
France	Implemented
Germany	Implemented

Questions???

Thank You



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Carrolltown, PA 15722