



What Everyone Should Know About **GHS**

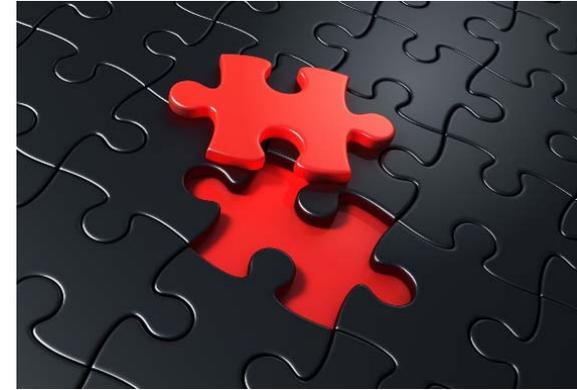
Lake County Safety Council

By: Douglas Dunbar, CSP, CIH

15 January 2016

Agenda

- What is GHS?
- GHS as Global Standard
- GHS in the United States
- Product Manufacturers and GHS
- SDS Requirements
- Requirements: Packaging, Labeling & Warnings
- **GHS in the Workplace**
- Resources
- Questions





GHS Implementation Fundamentally Changed the Requirements for Product Labeling & Safety Data Sheets

GHS



What is GHS?

- **Globally Harmonized System of Classification and Labeling of Chemicals**
- **Internationally recognized system for chemical hazard communication**
- **HazCom Shift: Performance Based > Mandatory Criteria**



What is GHS?

- **GHS refers to the United Nations (UN) Globally Harmonized System of Classification and Labeling of Chemicals**
- **Initiated at the UN Conference on the Environment and Development in Rio de Janeiro in 1992**
- **Harmonize the classification and the hazard communication elements of chemicals (labeling and safety data sheets)**
- **GHS harmonizes most classification criteria for supply and transportation and is based on the intrinsic properties of substances**
- **Building Block Approach**

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Stated Benefits of the GHS

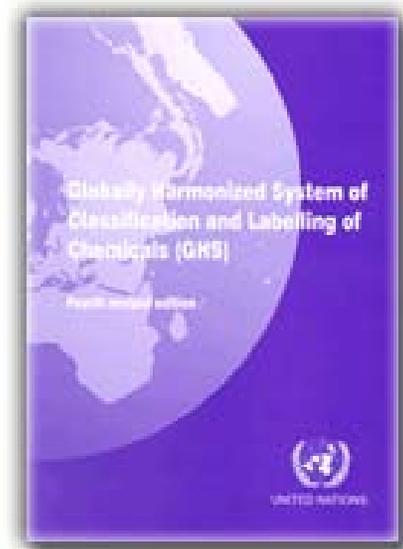
- **Provides global benefits, as well as benefits to governments, industry, and chemical users (workers and consumers)**
 - **Enhances the protection of human health and the environment through the provision of harmonized chemical safety and health information**
 - **Reduces the need for duplicative testing of chemicals**
 - **Provides the informational infrastructure for chemical safety and health management programs**
 - **Increases efficiencies, reduces costs of compliance, etc.**
 - **(Reduce barriers to free global trade)**



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Purple Book

- **The first version became available in 2003 in the form of the so called “purple book” (compared to the orange book for transportation). Regular updates should take place every two years**
- **United Nations (UN) publication of the GHS**
- **Fifth edition (Rev. 5), 2013**
- **Outlines the provisions in four parts:**
 - **Introduction (scope, definitions, hazard communication)**
 - **Classification criteria for physical hazards**
 - **Classification criteria for health hazards**
 - **Classification of environmental hazards**



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GHS Building Blocks

➤ Classification

- **Physical Hazards**
 - **Hazard Class**
 - Hazard Category
- **Health Hazard**
 - **Hazard Class**
 - Hazard Category
- **Environmental Hazards**
 - **Hazard Class**
 - Hazard Category

➤ Labels

- **Pictograms**
- **Signal Words**
- **Hazard Statements**
- **Precautionary Statements**

➤ SDS

➤ Risk based labeling for consumer products

GHS Hazard classes – physical hazards

Hazard classes	Categories / Divisions / Types						
	Unstable	Div 1.1	Div 1.2	Div 1.3	Div 1.4	Div 1.5	Div 1.6
Explosives	Unstable	Div 1.1	Div 1.2	Div 1.3	Div 1.4	Div 1.5	Div 1.6
Flammable gases	1	2					
Flammable aerosols	1	2					
Oxidising gases	1						
Gases under pressure							
Compressed gas	1						
Liquefied gas	1						
Refrigerated liquefied gas	1						
Dissolved gas	1						
Flammable liquids	1	2	3	4			
Flammable solids	1	2					
Self-reactive substances and mixtures	Type A	Type B	Type C	Type D	Type E	Type F	Type G
Pyrophoric liquids	1						
Pyrophoric solids	1						
Self-heating of substances or mixtures,	1	2					
Substances or mixtures which in contact with water emit flammable gases	1	2	3				
Oxidising liquids	1	2	3				
Oxidising solids	1	2	3				
Organic peroxides	Type A	Type B	Type C	Type D	Type E	Type F	Type G
Corrosive to metals	1						

GHS building blocks

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Criteria for Flammable Liquids

Category	Criteria
1	Flash point < 23°C and initial boiling point ≤ 35°C
2	Flash point < 23°C and initial boiling point > 35°C
3	Flash point ≥ 23°C and ≤ 60°C
4	Flash point > 60°C and ≤ 93°C

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GHS Hazard classes – health hazards

Hazard classes	Categories				
Acute toxicity	1	2	3	4	5
Skin corrosion/irritation	1A	1B	1C	2	3
Serious eye damage/eye irritation	1	2	2A	2B	
Respiratory or skin sensitisation	1	1A	1B		
Germ cell mutagenicity	1A	1B	2		
Carcinogenicity	1A	1B	2		
Reproductive toxicity	1A	1B	2	Lactation	
STOT - Single exposure	1	2	3		
STOT - Repeated exposure	1	2			
Aspiration hazard	1	2			

GHS building blocks

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Criteria for Acute Toxicity

Acute Toxicity	Cat. 1	Cat. 2	Cat. 3	Cat. 4	Cat. 5 (not Hazcom 2012)
Oral (mg/kg)	≤ 5	$>5 - \leq 50$	$>50 - \leq 300$	$>300 - \leq 2000$	Criteria: ≤ 5000 ≤ 5000 Anticipated significant effects in human Any mortality at class 4 Significant clinical signs at class 4 Indications from other studies
Dermal (mg/kg)	≤ 50	$>50 - \leq 200$	$>200 - \leq 1000$	$>1000 - \leq 2000$	
Gases (ppm)	≤ 100	$>100 - \leq 500$	$>500 - \leq 2500$	$>2500 - \leq 20000$	
Vapours (mg/l)	≤ 0.5	$>0.5 - \leq 2.0$	$>2 - \leq 10$	$>10 - \leq 20$	
Dust and mists (mg/l)	≤ 0.05	$>0.05 - \leq 0.5$	$>0.5 - \leq 1.0$	$>1.0 - \leq 5$	

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Category 1			Category 2	Category 3
Destruction of dermal tissue: visible necrosis in at least one of three animals			Reversible adverse effects in dermal tissue	Reversible adverse effects in dermal tissue
Subcat. 1 A Exposure ≤ 3 min Observation < 1 hour	Subcat. 1 B Exposure >3 min ≤ 1 hour Observation < 14 days	Subcat. 1 C Exposure >1 hr ≤ 4 hours Observation < 14 days	Mean Draize score in 2 of 3 animals: $\geq 2.3 \leq 4.0$ erythema/ eschar/edema or persistent inflammation	Mean Draize score in 2 of 3 animals: $\geq 1.5 < 2.3$ erythema/ eschar/edema

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GHS Hazard classes – environmental hazards

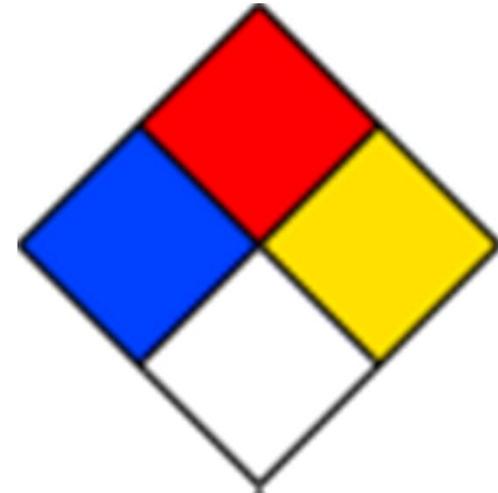
Hazard classes	Categories			
Hazardous to the aquatic environment - acute	1	2	3	
Hazardous to the aquatic environment - chronic	1	2	3	4
Hazardous to the ozone layer	1			

GHS building blocks

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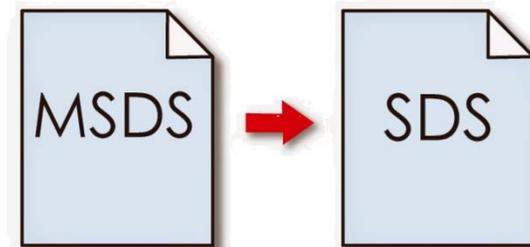
GHS & OSHA HazCom in the U.S.

- **Mandatory Requirement for Provision of (M)SDS Sheets and Product Hazard Communication Labels since 1984**
- **“Old” System was Performance Based**
- **Format and Content Details up to the Discretion of the Manufacturer/Supplier**

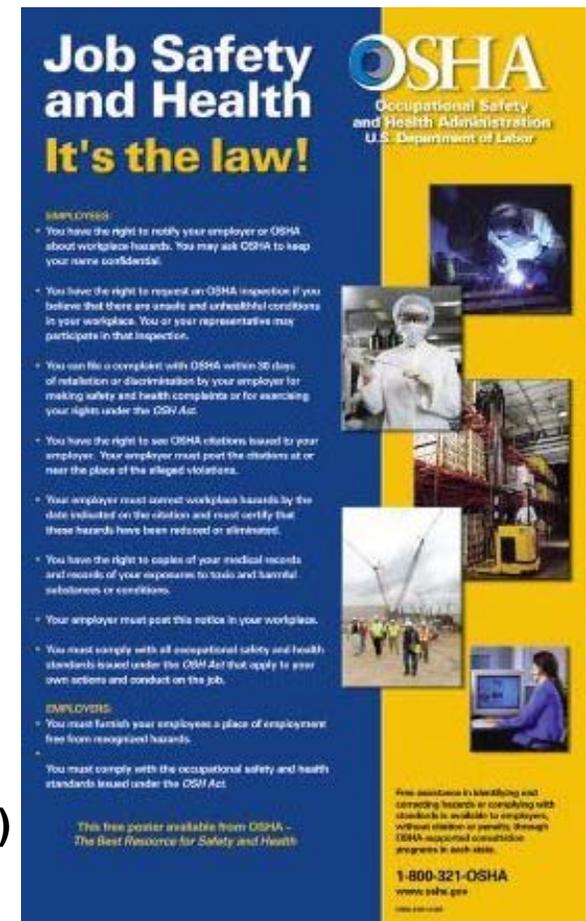
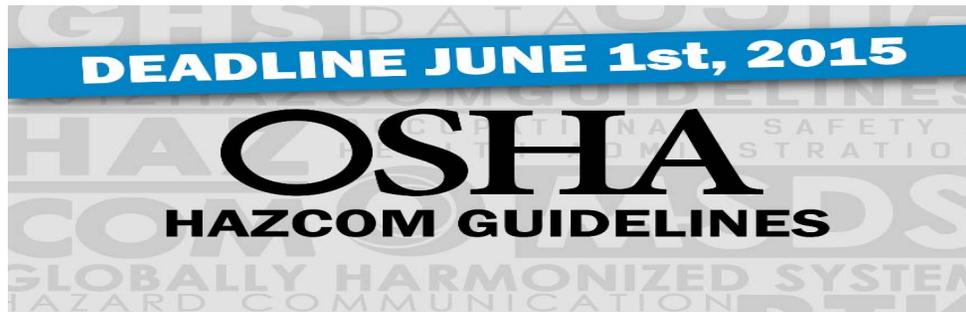


GHS & OSHA HazCom in the U.S.

- Mandatory Requirement for Provision of **SDS** Sheets and **GHS** Compliant Product **Labels** (as of **June 1, 2015**)
- “New” **GHS** System is Prescriptive, Rule-Based
- Format, Data and Graphics must be Presented in Accordance with Specific Rules and Mandatory Outputs
- Consistent Globally



Legal Regulatory Requirement



OSHA: 29 CFR 1910.1200: Hazard Communication Standard (HazCom)

- 1910.1200 - Hazard Communication.
- 1910.1200 App A - Health Hazard Criteria (**Mandatory**)
- 1910.1200 App B - Physical Criteria (**Mandatory**)
- 1910.1200 App C - Allocation Of Label Elements (**Mandatory**)
- 1910.1200 App D - Safety Data Sheets (**Mandatory**)
- 1910.1200 App E - Definition of "Trade Secret" (**Mandatory**)
- 1910.1200 App F - Guidance for Carcinogenicity (Non-Mandatory)

Regulatory Deadlines



HAZCOM 2012 - OSHA Adopts GHS – Revised Hazard Communication Standard aligns United States with GHS

- **Chemical users:** Continue to update safety data sheets when new ones become available, provide training on the new label elements and update hazard communication programs if new hazards are identified.
- **Chemical Producers:** Review hazard information for all chemicals produced or imported, classify chemicals according to the new classification criteria, and update labels and safety data sheets.

Effective Completion Date	Requirement(s)	Who
December 1, 2013	Train employees on the new label elements and SDS format.	Employers
June 1, 2015*	Comply with all modified provisions of this final rule, except:	Chemical manufacturers, importers, distributors and employers
December 1, 2015	Distributors may ship products labeled by manufacturers under the old system until December 1, 2015.	
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	Comply with either 29 CFR 1910.1200 (this final standard), or the current standard, or both.	All chemical manufacturers, importers, distributors and employers

* This date coincides with the European Union implementation date for classification of mixtures.

GHS & OSHA HazCom in the U.S.

- GHS Hazard Classification Drives the Mandatory Outputs on SDS and Labels
- Depends on Constituent Compounds or Elements and their Concentrations
- Can be derived by product testing or published data on the compounds present



TOLUENE

CAS # 108-88-3.

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.



DANGER

Highly flammable liquid and vapour. May be fatal if swallowed and enters airways. Causes damage to central nervous system if inhaled. Causes damage to central nervous system, liver and kidneys through prolonged or repeated exposure. May damage fertility or the unborn child. Harmful if inhaled. May be harmful if swallowed. Causes skin irritation. May cause respiratory irritation. May cause drowsiness and dizziness. Toxic to aquatic life.

Keep away from heat, sparks and flame - No smoking. Take precautionary measures against static discharge. Ground/bond container and receiving equipment. Use only non-sparking tools. Do not breathe vapours. Wear protective gloves and eye/face protection. Use only in a well-ventilated area. Keep container closed when not in use. Store in a cool, well-ventilated place away from heat and ignition sources. Store locked up in a closed container.

IN CASE OF FIRE: Use carbon dioxide, dry chemicals or appropriate foam.

FIRST AID:

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting. IF ON SKIN: Remove/take off immediately all contaminated clothing. Wash with plenty of soap and water. Get medical advice/attention. IF INHALED: Call a POISON CENTER or doctor/physician.

REFER TO SAFETY DATA SHEET

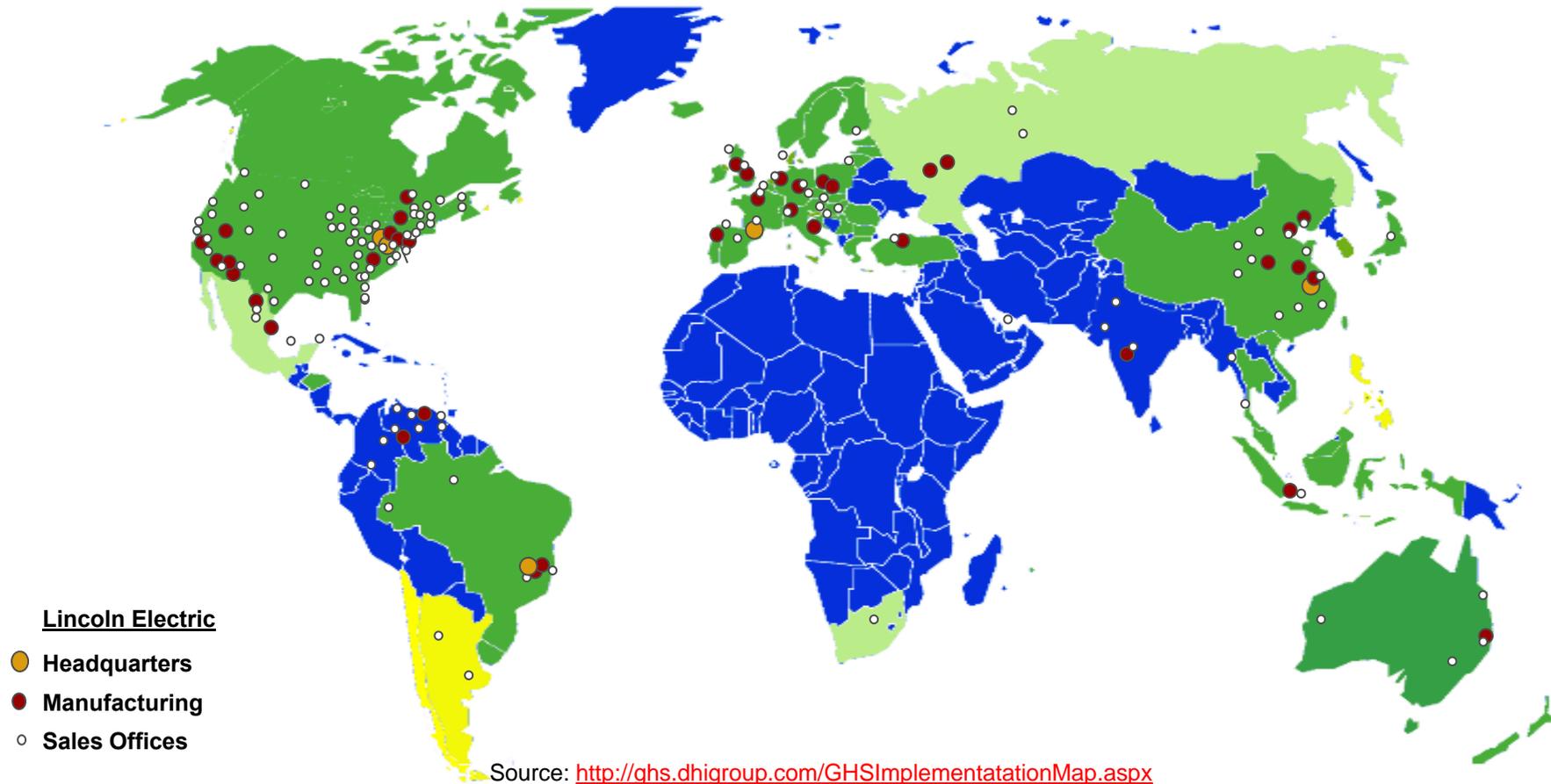
The Compliance Center Inc.™
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Example: GHS Impact on Lincoln Electric 70 GHS Countries & counting...

■ : Countries/regions that have already implemented GHS. ■ : Countries/regions where GHS is voluntary.
■ : Countries/regions that are in the process of implementing GHS. ■ : Countries/regions where GHS is not implemented or not available.



GHS Impacts on Manufacturing

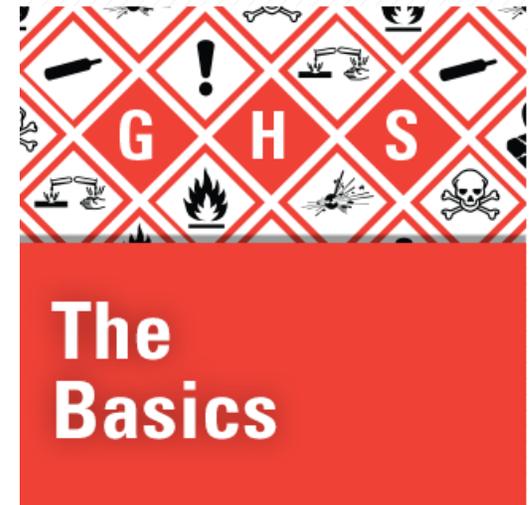
➤ The two major elements of GHS are:

1. Hazard Classification according to GHS rules

- » applies to pure chemicals, mixtures and preparations

2. Hazard Communication via Labels and Safety Data Sheets

- » GHS prescribed format and content



Mixture Classification

- **Classify based on data for the mixture as a whole**
 - Generally all physical hazards
- **Follow bridging principles**
 - Dilution, batching, concentration, interpolation, substantially similar mixtures, aerosols
- **Use additivity formulas**
 - Only certain hazard classes
- **Cut-off values – Hazard class specific**

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Acute Toxicity - Mixture Calculation

$$\frac{100}{ATE_{mix}} = \sum_{n=i} \frac{C_i}{ATE_i}$$

➤ **Where:**

- **C_i** = concentration of ingredient i
- **ATE_i** = Acute Toxicity Estimate of ingredient i
- **ATE_{mix}** = Acute Toxicity Estimate of mixture
- n ingredients in the mixture and i runs from 1 to n

➤ **Formula adjusted if >10% unknown toxicity**

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Carcinogen / Cut-off values

Mixture classified as a carcinogen when at least one carcinogen has been classified as a Category 1 or 2 carcinogen and is present at or above the cut-off value/concentration limit below

Ingredient Classified as	Category 1 carcinogen	Category 2 carcinogen
Category 1 carcinogen	$\geq 0.1\%$	
Category 2 carcinogen		$\geq 0.1\%$

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GHS/Hazcom 2012 Safety Data Sheet (g)

- **Incorporates a standard 16 section SDS**
- **Headings (Nearly) Same as ANSI Z400.1**
- **Classification detailed in Section 2**
- **Labeling appears in Section 2 of the SDS**

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Old vs New

OSHA MSDS

- **Manufacturer information**
- **Hazard Ingredients/Identity Information**
- **Physical/chemical properties**
- **Fire and Explosion Hazard Data**
- **Reactivity Data**
- **Health Hazard Data**
- **Precautions for Safe Handling and Use**
- **Control Measures**

GHS SDS

1. Identification
2. Hazard(s) identification
3. Composition/information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure control/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

Hazard Communication SDS Distribution

- Typical SDS sheet is much larger to accommodate all the prescriptive requirements
- Multiple published credible sources for supporting data – hazard classification, i.e. toxicological data
- Information presented is targeted towards the EHS professional
- Employers more challenged to find ways to improve training and/or summarize info to make it more accessible to the workforce

LINCOLN
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Revision Date: 03/24/2015

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: JET-LH® 78 MR®-RSP
Product Size: 1/8 in.

Other means of identification
SDS number: 20000000632

Recommended use and restriction on use
Recommended use: SMAW (Shielded Metal Arc Welding)
Restrictions on use: Not known. Read this SDS before using this product.

Manufacturer/Importer/Supplier/Distributor Information

Manufacturer/Supplier:
The Lincoln Electric Company
22801 Saint Clair Avenue
Cleveland, Ohio 44117 USA
Phone: +1 (216) 481-8100

The Lincoln Electric Company of Canada LP
179 Wicksteed Avenue
Toronto, Ontario M4G 2B9 CANADA
Phone: +1 (416) 421-2600

Safety Data Sheet Questions: SDS@lincolnelectric.com
Arc Welding Safety Information: www.lincolnelectric.com/safety

24-Hour Emergency Response Telephone Numbers:

Area	Telephone
USA/Canada/Mexico	+1 (888) 809-1762
Americas/Europe	+1 (216) 383-8962
Asia Pacific	+1 (216) 383-8966
Middle East/Africa	+1 (216) 383-8969

3E Company Access Code: 333988

2. HAZARDS IDENTIFICATION

Classified according to the criteria of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), OSHA Hazard Communication Standard (29 CFR 1910.1200) and the Canadian Controlled Products Regulations.

Hazard Classification
SDS_North America - 20000000632

1/26

Hazard Communication SDS Distribution

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Eye irritation (Category 2A), H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H225
H302 + H312 + H332
H319

Highly flammable liquid and vapour.
Harmful if swallowed, in contact with skin or if inhaled
Causes serious eye irritation.

Precautionary statement(s)

P210
P233
P240
P241
P242

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting/ equipment.
Use only non-sparking tools.

Hazard Communication SDS Distribution



11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male - 1,320 - 6,690 mg/kg

LC50 Inhalation - Mouse - 4 h - 3587 ppm
(OECD Test Guideline 403)

LC50 Inhalation - Rat - 4 h - 26.8 mg/l

LD50 Dermal - Rabbit - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irritating to eyes.
(OECD Test Guideline 405)

Respiratory or skin sensitisation

Buehler Test - Guinea pig

Did not cause sensitisation on laboratory animals.
(OECD Test Guideline 406)

Germ cell mutagenicity

Hamster

ovary

Result: negative

Mutation in mammalian somatic cells.

Ames test

S. typhimurium

Result: Not mutagenic in Ames Test.

Hazard Communication SDS Distribution

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 1,640.00 mg/l - 96 h NOEC - Oryzias latipes - 102 mg/l - 21 d
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 3,600 mg/l - 48 h (OECD Test Guideline 202) NOEC - Daphnia magna (Water flea) - 160 mg/l - 21 d

12.2 Persistence and degradability

Biodegradability Result: 84 % - Readily biodegradable.
(OECD Test Guideline 301C)

12.3 Bioaccumulative potential

No bioaccumulation is to be expected (log Pow \leq 4).

12.4 Mobility in soil

Not expected to adsorb on soil.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Hazard Communication SDS Distribution



4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Hazard Communication SDS Distribution

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

Labeling (f)

- **The requirement for labeling unchanged**
- **Label content changed – based on**
 - Hazard classification
 - Refer to **Appendix C** for the specific requirements

GHS Label Requirements

- *Six Elements of a GHS Compliant Label*

- All GHS labels for shipped containers

must have:

1. Pictogram(s);

2. A product identifier (*as used on the SDS*);

3. Signal word(s);

4. Hazard statement(s); and

5. Precautionary statement(s)

6. The name, address, and telephone number of the chemical manufacturer, importer, or other responsible party;

- For transport, the pictograms prescribed by the UN Model Regulations on the Transport of Dangerous Goods should be used.

Red elements will vary by regulatory agency.

Components of a GHS Label



GHS Hazard Communication



- Labels (cont.)
 - Nine symbols
 - Includes “Environment”

<p><u>Flame over circle</u></p>  <ul style="list-style-type: none"> • Oxidizers 	<p><u>Flame</u></p>  <ul style="list-style-type: none"> • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self Reactives • Organic Peroxides 	<p><u>Exploding bomb</u></p>  <ul style="list-style-type: none"> • Explosives • Self Reactives • Organic Peroxides
<p><u>Skull and crossbones</u></p>  <ul style="list-style-type: none"> • Acute toxicity (severe) 	<p><u>Corrosion</u></p>  <ul style="list-style-type: none"> • Corrosives 	<p><u>Gas cylinder</u></p>  <ul style="list-style-type: none"> • Gases under pressure
<p><u>Health Hazard</u></p>  <ul style="list-style-type: none"> • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	<p><u>Environment</u></p>  <ul style="list-style-type: none"> • Aquatic Toxicity 	<p><u>Exclamation mark</u></p>  <ul style="list-style-type: none"> • Irritant • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic effects • Respiratory Tract Irritation • Hazardous to Ozone Layer

GHS Hazard Communication

- Labels (cont.)
 - GHS Label Elements for Flammable Liquids

Table 3: GHS Label Elements for Flammable (and Combustible) Liquids

	Category 1	Category 2	Category 3	Category 4
Symbol				No symbol
Signal Word	Danger	Danger	Warning	Warning
Hazard Statement	Extremely flammable liquid and vapor	Highly flammable liquid and vapor	Flammable liquid and vapor	Combustible liquid

GHS label example



ToxiFlam (Contains: XYZ)

Danger! Toxic If Swallowed, Flammable Liquid and Vapor



Do not eat, drink or use tobacco when using this product. Wash hands thoroughly after handling. Keep container tightly closed. Keep away from heat/sparks/open flame. – No smoking. Wear protective gloves and eye/face protection. Ground container and receiving equipment. Use explosion-proof electrical equipment.

Take precautionary measures against static discharge. Use only non-sparking tools. Store in cool/well-ventilated place.

IF SWALLOWED: Immediately call a POISON CONTROL CENTER or doctor/physician. Rinse mouth.

In case of fire, use water fog, dry chemical, CO₂, or “alcohol” foam.

See Material Safety Data Sheet for further details regarding safe use of this product

MyCompany, MyStreet, MyTown, NJ 00000, Tel: 444 999 9999

Example 1

- **Gas LEL 0.9% UEL 6%**
- **Classification Flammable Gas Category 1**
 - Consider also classification as compressed gas

Table B.2.1: Criteria for flammable gases

Category	Criteria
1	Gases, which at 20°C (68°F) and a standard pressure of 101.3 kPa (14.7 psi): (a) are ignitable when in a mixture of 13% or less by volume in air; or (b) have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit.
2	Gases, other than those of Category 1, which, at 20°C (68°F) and a standard pressure of 101.3 kPa (14.7 psi), have a flammable range while mixed in air.

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Example 1

C.4.15 FLAMMABLE GASES (Classified in Accordance with Appendix B.2)

Hazard category **Signal word** **Hazard statement**
1 Danger Extremely flammable gas

Pictogram
Flame



Precautionary statements			
Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces. -No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition source(s).	Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.	Store in well-ventilated place.	

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Example 1 Label

FLAMMABLE GAS PRODUCT

DANGER

Extremely flammable gas

Prevention

Keep away from heat, sparks, open flames and hot surfaces. No smoking.

Response

Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

Eliminate all ignition sources if safe to do so.

Storage

Store in well-ventilated place.



ABC Chemical Company, 3 Main Street, Hartford, CT 860-123-2222

Solid Materials

- **Solid metal, wood, plastic items not exempted as articles**
- **Label may be transmitted to the customer at initial shipment**
 - With shipment
 - With SDS
- **Not required with subsequent shipments unless label changes**
- **Materials that form combustible dusts when processed**

This Slide Courtesy of: Denese A. Deeds, CIH - Industrial Health & Safety Consultants, Inc.
Shelton, CT

Label Content in the Workplace

- Product identifier
- Signal word (danger or warning)
- Hazard statements
- Pictograms
- Precautionary statements

Isopropanol LE Part Number: E3225	
	Danger Highly flammable liquid and vapor. Causes serious eye irritation. May cause respiratory irritation. May cause drowsiness or dizziness. May cause damage to organs through prolonged or repeated exposure. Wash face, hands and any exposed skin thoroughly after handling. Do not breathe dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wear protective gloves/protective clothing/eye protection/face protection. Keep cool. Get medical advice/attention if you feel unwell. IF INHALED: 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. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: G...
Supplemental Label Information Refer to SDS for more details	Contains 2-Propanol
Fisher Scientific 32245 Drury Lane, Askaweege, WI, 65578 Phone: 1 (800) 556-1212	

Workplace Labeling

- Will you continue to use HMIS or NFPA?
- While the hazard category number does not appear on the label, consider:

HAZARD

Category Hazard

1	highest
2	high
3	medium
4	low

HMIS/NFPA

Index Hazard

1	slight
2	moderate
3	serious
4	severe

This Slide Courtesy of: Denese A. Deeds, CIH - Industrial Health & Safety Consultants, Inc.
Shelton, CT

Written Hazard Communication Programs (e)

- **No changes to the requirements**
- **Employers need to assure that the program is current and reflects the revised requirements**
 - **Will workplace labeling change?**
 - **Does your program include reference to hazard definitions that may need to be updated?**
 - **Change MSDS references to SDS**
 - **Update the list of hazardous chemicals as needed based on revised SDS received**

This Slide Courtesy of: Denese A. Deeds, CIH - Industrial Health & Safety Consultants, Inc.
Shelton, CT

EU Substance Classification Approach

- **CLP**
- **Includes both industry notified classifications and EU Harmonized classifications**
- **EU Harmonized classification for Carcinogens, Mutagens, Reproductive Toxins (CMR) – Categories 1 and 2, Respiratory Sensitizers – Category 1 and Active substances in pesticides/biocides**
- **Use of EU Harmonized classification is Mandatory – found in Annex VI (Equivalent to previous Annex 1).**
- **Theoretically agreed classifications should be used unless the ECHA is notified, must be substantiated.**
- **Inventory is now available to the public on the ECHA website**

This Slide Courtesy of: Denese A. Deeds, CIH - Industrial Health & Safety Consultants, Inc.
Shelton, CT

What Does This Mean?

- **Chemicals may require different classification and labeling in the US and other countries**
- **Raw Material SDS you receive may be different if prepared for another country**
- **You will have to decide what substance classifications to use (or rely on supplier)**
- **Your products may look different than your competitor's.**

This Slide Courtesy of: Denese A. Deeds, CIH - Industrial Health & Safety Consultants, Inc.
Shelton, CT

GHS Rationale – Solid Consumables Classification

- **Consistent approach to classification**

- *Does a solid welding wire possess an “Intrinsic” hazard?*

1.3.2.2 *Concept of “classification”*

1.3.2.2.1 The GHS uses the term “hazard classification” to indicate that only the **intrinsic** hazardous properties of substances or mixtures are considered.

Source: Globally Harmonized System of Classification and Labelling of Chemicals, Third revised edition, United Nations

How is Lincoln Electric Complying as a Manufacturer?

New Safety Data Sheets

Available online and via email in GHS format.

Automatic Email Distribution

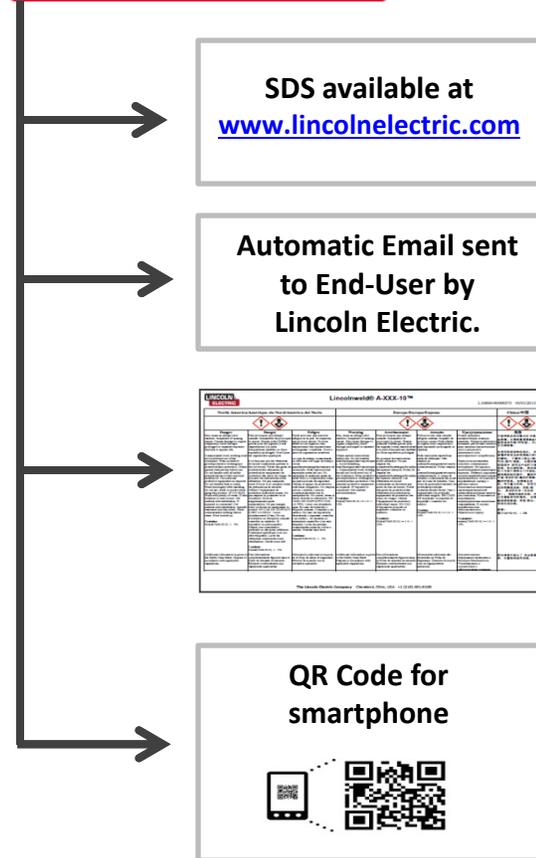
Providing customers with programmed email alerts regarding changes to SDS and product.

New Labels

Updated to comply with mandatory GHS label criteria.

Safe Use Guides

Lincoln Electric is the only welding company to provide an informative welder-friendly guide for the safe use of products in every package.



Automatic SDS Email Distribution

SDSs are emailed as PDF attachments

LINCOLN ELECTRIC
THE WELDING EXPERTS®

Revision Date: 08/11/2014

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Lincolnweld® 9508
Other means of identification
SDS number: 20000000892
Recommended use and restriction on use
Recommended use: SAW (Submerged Arc Welding)
Restrictions on use: Not known. Read this SDS before using this product.
Manufacturer/Importer/Supplier/Distributor Information
Manufacturer/Supplier:
The Lincoln Electric Company
22801 Saint Clair Avenue
Cleveland, Ohio 44117 USA
Phone: +1 (216) 481-8100
The Lincoln Electric Company of Canada LP
179 Wicksteed Avenue
Toronto, Ontario M4G 2B9 CANADA
Phone: +1 (416) 421-2600
Safety Data Sheet Questions: SDS@lincolnelectric.com
Arc Welding Safety Information: www.lincolnelectric.com/safety
24-Hour Emergency Response Telephone Numbers:

Area	Telephone
USA/Canada/Mexico	+1 (688) 609-1762
Americas/Europe	+1 (216) 383-8962
Asia Pacific	+1 (216) 383-8966
Middle East/Africa	+1 (216) 383-8969

3E Company Access Code: 333988

2. HAZARDS IDENTIFICATION

Classified according to the criteria of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), OSHA Hazard Communication Standard (29 CFR 1910.1200) and the Canadian Controlled Products Regulations.

Hazard Classification

Health Hazards	
Carcinogenicity	Category 1A
Specific Target Organ Toxicity - Repeated Exposure	Category 1

Label Elements
SDS_North America - 20000000892 1/25

Order
Fulfillment

- Sent automatically after the first Delivery for a product is created

Change in
SDS
Version

- Sent automatically to customers who purchased the product within the last 12 months

Manually

- Sent on a requested basis to existing customers or ad hoc recipient

GHS: Is it Harmonized?

Globally (*dis-*) Harmonized System (GhS)

- Product Labeling Non-conformity:
 - Country and Regional variation in classification rules drives differing outputs
 - The EU does not consider the same reference source for carcinogenicity classification as NA (IARC)
 - Places potential challenges on labeling and distribution channels

US, MX GHS

Lincolnweld 860



Danger
May cause cancer
May cause damage to organs (Lung, Bone) through prolonged or repeat exposure

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/protective clothing/eye protection/face protection.
If exposed or concerned: Get medical advice/attention.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
Do not breathe dust/fume/gas/mist/vapors/spray.
Get medical advice/attention if you feel unwell.

Contains: Quartz (14808-60-7) 5-10%; Titanium dioxide (13463-67-7 - 1-5%; Fluorides (7789-75-5)

Additional information is given in the Safety Data Sheet.

Canada WHMIS

PRODUCT IDENTIFIER
IDENTIFICATEUR du PRODUIT

RISK PHRASES		MENTIONS de RISQUES
PRECAUTIONARY MEASURES		PRÉCAUTIONS à PRENDRE
FIRST AID MEASURES		PREMIERS SOINS

SEE MATERIAL SAFETY DATA SHEET
VOIR FICHE SIGNALÉTIQUE

SUPPLIER IDENTIFIER
IDENTIFICATEUR du FOURNISSEUR

China GHS

Lincolnweld 860



Danger
May cause cancer
May cause damage to organs (Lung, Bone) through prolonged or repeat exposure

[Prevention:] Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/vapors/spray.

[Response:] Get medical advice/attention if you feel unwell.

[Storage:] Store locked up.

[Disposal:] Dispose of contents/container in accordance with local/regional/national/international regulations.

Contains: Quartz (14808-60-7) 5-10%; Titanium dioxide (13463-67-7 - 1-5%; Fluorides (7789-75-5)

Additional information is given in the Safety Data Sheet.

EU GHS

Lincolnweld 860



Warning
May cause damage to organs (Lung) through prolonged or repeat exposure

Do not breathe dust/fume/gas/mist/vapours/spray.
Get medical advice/attention if you feel unwell.
Dispose of contents/container in accordance with local/regional/national/international regulations.

Contains: Quartz (14808-60-7) 5-10%;

Additional information is given in the Safety Data Sheet.

Resources!

GHS

Denese A. Deeds, CIH - Industrial Health & Safety Consultants, Inc. Shelton, CT – Expert Technical GHS and EHS Services:
<http://www.ih-sc.com/> (203) 929-3473

The European Chemicals Association (ECHA)
<http://echa.europa.eu/web/guest/regulations/clp/classification>

OSHA GHS:
<https://www.osha.gov/dsg/hazcom/>

Thank you for your attention!



Doug Dunbar

Health & Product Evaluation Manager

Phone: +1 216.383.2170

Email: doug_dunbar@lincolnelectric.com