

“Consult the SDS”



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Why do we want a student to “consult an SDS”?

- We want students to recognize the hazards of the chemicals they will be working with
- We want to engage students in all aspects of research
- The SDS is a recognized source of information organized specifically to alert the user about specific hazards
 - As the instructor or PI, have you looked at the SDS for the chemical?





These Fact Sheets summarize key requirements of WHMIS Classification and Labelling of Chemicals (GHS) for Canada.

Safety Data Sheet

Safety Data Sheets (SDSs) are an essential component to protect themselves from hazards and for safe handling.

	SDS Section	
1	Identification	Product identifier, recommended use, and supplier information.
2	Hazard Identification	Classification (hazard class, hazard statement, precautionary statement).
3	Composition/Information on Ingredients	For a hazardous product, list the ingredients and their concentrations. For a hazardous mixture, list the ingredients and their concentrations. Note: Confidential Business Information (CBI) is not required.
4	First-aid measures	First-aid measures by route of exposure.
5	Fire-fighting measures	Suitable (and unsuitable) extinguishing media.
6	Accidental release measures	Protective equipment, containment, and cleanup procedures.
7	Handling and storage	Precautions for safe handling and storage.
8	Exposure controls/personal protection	Exposure limits, engineering controls, and personal protective equipment.
9	Physical and chemical properties	Appearance, odour, odour threshold, pH, melting/freezing point, boiling point and range, flash point, flammability or explosive limits.
10	Stability and reactivity	Reactivity, chemical stability, possible hazardous reactions, conditions to avoid, incompatible materials, decomposition products.
11	Toxicological information	Description of various toxic effects by route of entry, including effects of acute or chronic exposure, reproductive effects, respiratory sensitization.
12	Ecological information*	Aquatic and terrestrial toxicity (if available), persistence and degradability, bioaccumulative potential.
13	Disposal considerations*	Safe handling and methods of disposal, including contaminated packaging.
14	Transport information*	UN number and proper shipping name, hazard classes, packing group.
15	Regulatory information*	Safety, health and environmental regulations specific to the product.
16	Other information	Other information, including date of the latest revision of the SDS.

The SDSs must be accurate at the time of sale or import, for each sale or import. SDSs must be updated when significant new data become available. Suppliers must provide this new information at the time of sale.

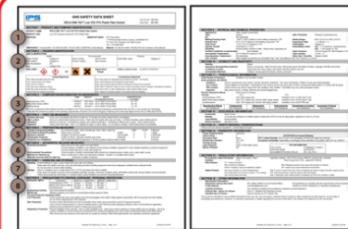
* Sections 12 to 15 require the headings to be present. The supplier has the option to not provide information in these sections.

September 2016



GLOBALLY HARMONIZED SYSTEM (GHS)

Right To Understand - Safety Data Sheets (SDS)



SAFETY DATA SHEETS

The Globally Harmonized System Safety Data Sheet (SDS) has 2 basic differences compared to the traditional MSDS. The SDS requires 16 elements and each element must be in a specified order as listed in the chart.

Benefits of (Material) Safety Data Sheets (SDS) include:

- Complete information to support chemical management programs
- Information about hazards to obtain guidance on safety precautions
- Allows the employer to develop worker protection procedures including employee training and environmental protection
- Provides a source of information for other key audiences including transporters of dangerous goods, emergency responders, poison centers and others

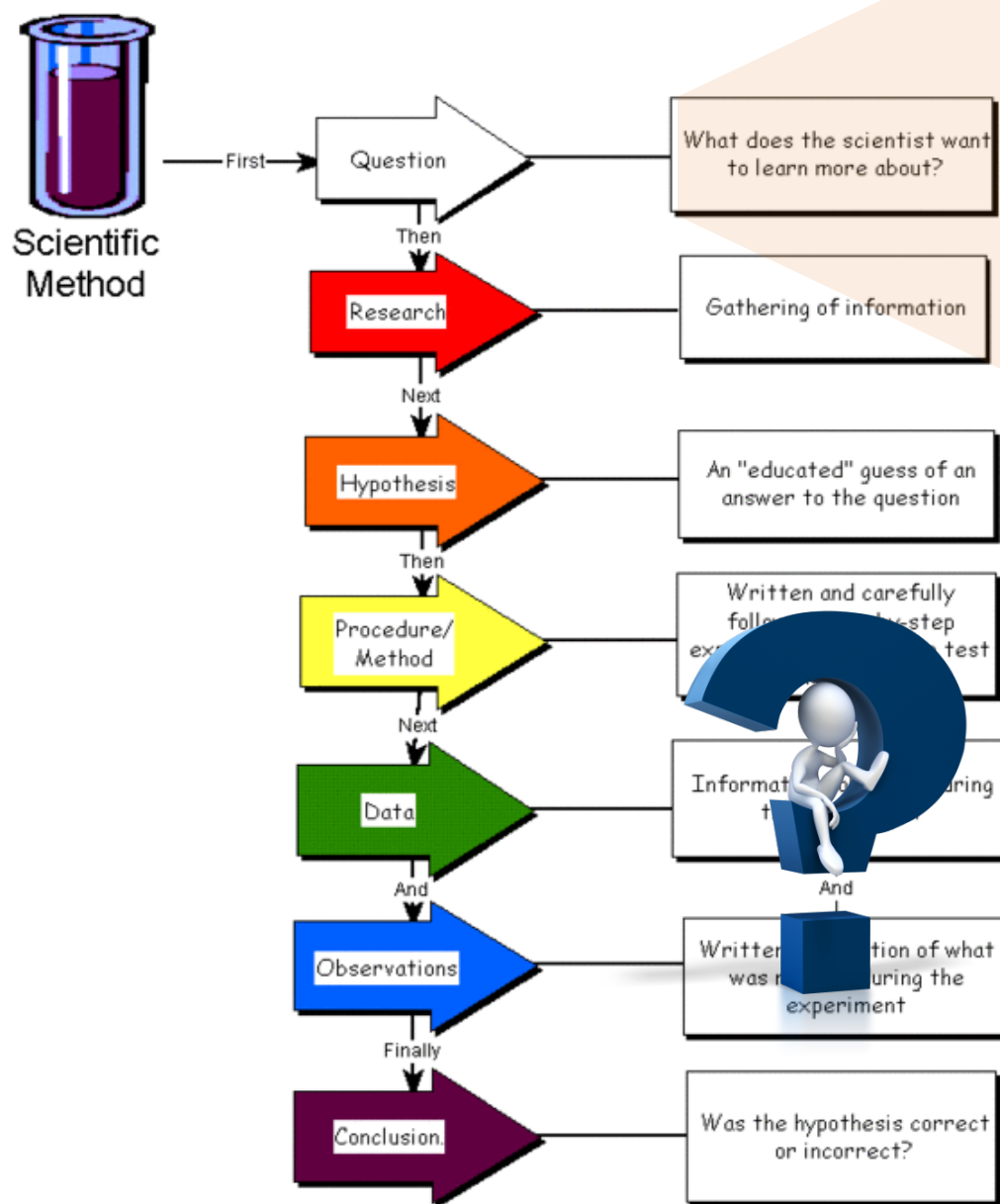
- 1. Identification of the substance or mixture and of the supplier**
 - GHS product identifier.
 - Other means of identification.
 - Recommended use of the chemical and restrictions on use.
 - Supplier's details (including name, address, phone number, etc.).
 - Emergency phone number.
- 2. Hazards identification**
 - GHS classification of the substance/mixture and any national or regional information.
 - GHS label elements, including precautionary statements (hazard symbols may be provided as a graphical reproduction of the symbols in black and white or the name of the symbol, e.g., flame, skull and crossbones).
 - Other hazards which do not result in classification (e.g., dust explosion hazard) or are not covered by the GHS.
- 3. Composition/Information on Ingredients**
 - Substance**
 - Chemical identity
 - CAS number, EC number, etc.
 - Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance.
 - Mixture**
 - The chemical identity and concentration or concentration ranges of all ingredients which are hazardous within the meaning of the GHS and are present above their cutoff levels.

NOTE: For information on ingredients, the competent authority rules for CBI take priority over the rules for product identification.
- 4. First aid measures**
 - Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion.
 - Most important symptoms/effects, acute and delayed.
 - Indication of immediate medical attention and special treatment needed, if necessary.
- 5. Firefighting measures**
 - Suitable (and unsuitable) extinguishing media.
 - Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products).
 - Special protective equipment and precautions for firefighters.
- 6. Accidental release measures**
 - Personal precautions, protective equipment and emergency procedures.
 - Environmental precautions.
 - Methods and materials for containment and cleaning up.
- 7. Handling and storage**
 - Precautions for safe handling.
 - Conditions for safe storage, including any incompatibilities.
- 8. Exposure controls/personal protection**
 - Control parameters, e.g., occupational exposure limit values or biological limit values.
 - Appropriate engineering controls.
 - Individual protection measures, such as personal protective equipment.
- 9. Physical and chemical properties**
 - Appearance (physical state, color, etc.).
 - Odour.
 - 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.
 - Relative density.
 - Solubility(ies).
 - Partition coefficient: n-octanol/water.
- 10. Stability and reactivity**
 - Reactivity.
 - Chemical stability.
 - Possible hazardous reactions.
 - Conditions to avoid.
 - Incompatible materials.
 - Decomposition products.
- 11. Toxicological information**
 - Concise but complete and comprehensible description of the various toxicological (health) effects and the available data used to identify those effects, including:
 - Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact).
 - Symptoms related to the physical, chemical and toxicological characteristics.
 - Delayed and immediate effects and also chronic effects from short- and long-term exposure.
 - Numerical measures of toxicity (such as acute toxicity estimates).
- 12. Ecological information**
 - Ecotoxicity (aquatic and terrestrial, where available).
 - Persistence and degradability.
 - Bioaccumulative potential.
 - Mobility in soil.
 - Other adverse effects.
- 13. Disposal considerations**
 - Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.
- 14. Transport information**
 - UN Number.
 - Transport Hazard classes.
 - Packing group, if applicable.
 - Marine pollutant (Yes/No).
 - Special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises.
- 15. Regulatory information**
 - Safety, health and environmental regulations specific for the product in question.
- 16. Other information including information on preparation and**



WHMIS 2015 is based on the 5th revision of the GHS. See www.ccohs.org for more information.

Will the chemicals I need to use in this experiment present hazard(s) for me?





**“How do you know
when your students
are learning?”**

**“When they are
asking the right
questions.”**

David Truss

<http://pairadimes.davidtruss.com/>

Will Consulting a Tool Protect a Student When Working with a Chemical?



- Do I have a “good” SDS?
- Do I know what to look for on an SDS?
- Can I recognize incorrect or incomplete information on the SDS?
- Will I do the assignment?
- Do I know when to ask for help?

...but will an authoritarian assignment will not protect students who do not have the knowledge and/or skill to work through the previous questions?





Include an SDS assignment as an educational tool – this can increase ***knowledge and skill and improve culture***

This can start in teaching labs, but should definitely be pursued in the research lab



A Few Guidelines for Teaching Students

DO I HAVE A “GOOD” SDS?

Be Suspicious of Documents with Missing Information

OSHA® BRIEF

Hazard Communication Standard: Safety Data Sheets

The Hazard Communication Standard (29 CFR 1910.120) requires that the chemical manufacturer, importer, or distributor provide Safety Data Sheets (SDSs) (formerly Material Safety Data Sheets) for each chemical to downstream users. The SDSs contain information on the hazards of the chemical, the physical and chemical properties, and the health and environmental effects. The SDSs also provide information on the safe handling and use of the chemical, and the emergency control measures.



The SDSs include information on the physical and chemical properties, health and environmental effects, and the safe handling and use of the chemical. The information contained in the SDSs must be in English (although it may be in other languages as well). In addition, OSHA requires that SDS preparers provide specific minimum information as detailed in Appendix D of 29 CFR 1910.1200. The SDS preparers may also include additional information in various sections.

and Labeling of Chemicals (GHS), but will not enforce the content of these SDSs because they concern matters handled by other agencies.

A description of all 16 sections of the SDS, along with their contents, is presented in the following table.

Sections 1 through 8 contain general information about the chemical, identification, hazards, composition, safe handling practices, and emergency control measures (e.g., fire fighting). This information should be helpful to those that need to get the information quickly. Sections 9 through 11 and 16 contain other technical and scientific information, such as physical and chemical properties, stability and reactivity information, toxicological information, exposure control information, and other information including the date of preparation or last revision. **The SDS must also state that no applicable information was found when the preparer does not find relevant information for any required element.**

Do I Have A “good” SDS?

OSHA Does Not Regulate Non-Mandatory Sections

- The SDS must also contain Sections 12 through 15, to be consistent with the UN Globally Harmonized System of Classification and Labeling of Chemicals (GHS), but OSHA will not enforce the content of these sections because they concern matters handled by other agencies.
- Section 12:
 - Ecological Information
- Section 13:
 - Disposal Considerations
- Section 14:
 - Transport Information
- Section 15:
 - Regulatory Information

[OSHA Brief](#)

Do I Have A “good” SDS?



“N/A” Means What?

What does "not available" or "not applicable" mean when I see these on the SDS?

With the exception of Sections 12-15, the supplier is required to provide information on each specific information element required on the SDS. In some cases, it may be appropriate for the supplier to state “not available” or “not applicable” instead of providing the specific information.

- "Not available" means that the information could not be located or does not exist. For example, if the supplier cannot locate any studies that measure the odour threshold, which is reported in Section 9 of the SDS, the supplier would report "not available".
- "Not applicable" means that the information element is not relevant. For example, if the product is odourless, then the odour threshold would be reported as "Not applicable".

Note that the supplier should not use the abbreviation "n.a." or "NA" without defining it, as it could mean "not applicable" or "not available" or something entirely different.

https://www.ccohs.ca/oshanswers/chemicals/whmis_ghs/sds.html

“No Data Available”
Or
“Not Applicable”

They could simply mean that the preparer did not locate the data



DOES NOT = SAFE

Do I Have A “good” SDS?



Look For More Useful Terms



CONTROL PARAMETERS/PERSONAL PROTECTION

Control Parameters

Chemical Name	ACGIH® TLV®		OSHA PEL		AIHA® WEEL®	
	TWA	STEL [C]	TWA	Ceiling	8-hr TWA	Short-term TWA [C]
Acetone	250 ppm A4	500 ppm	1000 ppm		Not established	
Diethylene glycol monoethyl ether	Not established		Not established		25 ppm	
Terpene	Not established		Not established		30 ppm	
Naphtha (petroleum), hydrotreated heavy	Not established		Not established		Not established	

Consult local authorities for provincial or state exposure limits.

ACGIH® = American Conference of Governmental Industrial Hygienists. TLV® = Threshold Limit Value. TWA = Time-Weighted Average. STEL = Short-term Exposure Limit. A4 = Not classifiable as a human carcinogen.

OSHA = US Occupational Safety and Health Administration. PEL = Permissible Exposure Limits.

Do I Have A “good” SDS?



A Few Guidelines for Teaching Students

WHAT SHOULD I LOOK FOR ON SDS?

Spot Check General Information

- Make sure that you have the SDS of your chemical in **GHS format** – Preferably with the hazard codes and categories
- Make sure ***your use*** is as intended by the manufacturer or supplier as listed on the SDS in **Section 1**
- Check **Section 2** for any known signs or symptoms
- Check **Section 3** to see which components are hazardous
- Check **Section 8** for a glove material recommendation
- Check **Section 9** to see if an “Odor Threshold” has been established. Not always reliable – but if you are smelling something, you know you are being exposed
 - Is it lower than the OELs? What is an OEL?

RED ALERT

- Chemicals which have these pictograms have significant hazard and may require more than an SDS look



So check the category and be especially concerned when the chemical is in category 1

- Chemicals with a “DANGER” signal word – check to see which hazard(s) triggered the signal word when there are multiple pictograms

<http://www.sigmaaldrich.com/safety-center/globally-harmonized.html>

RED ALERT

- Look at the toxicological data in **Section 11**
 - This is the information that manufacturers used to classify the chemical for GHS in “Acute Toxicity” category
 - Terms you need to understand here “LD” and “LC”
 - What animal was tested?
 - What was the Route of Entry (ROE)
 - The ***form*** of the chemical?
 - Refer to the slide on “Reliable Information”

Table 3.8 Acute Toxicity

Acute toxicity	Cat. 1	Cat. 2	Cat. 3	Cat. 4	Category 5
Oral (mg/kg)	≤ 5	> 5 ≤ 50	> 50 ≤ 300	> 300 ≤ 2000	Criteria: • Anticipated oral LD50 between 2000 and 5000 mg/kg; • Indication of significant effect in humans;* • Any mortality at class 4;* • Significant clinical signs at class 4;* • Indications from other studies.* *If assignment to a more hazardous class is not warranted.
Dermal (mg/kg)	≤ 50	> 50 ≤ 200	> 200 ≤ 1000	> 1000 ≤ 2000	
Gases (ppm)	≤ 100	> 100 ≤ 500	> 500 ≤ 2500	> 2500 ≤ 5000	
Vapors (mg/l)	≤ 0.5	> 0.5 ≤ 2.0	> 2.0 ≤ 10	> 10 ≤ 20	
Dust & mists (mg/l)	≤ 0.05	> 0.05 ≤ 0.5	> 0.5 ≤ 1.0	> 1.0 ≤ 5	

General Guidance: The lower the lethal dose number within the each row, the more acutely toxic the substance

RED ALERT

- What exposure data is available for the chemical?
 - Check **Section 8**. So many acronyms (PEL, TLV, STEL, IDLH)! – Refer to the slide on “Reliable Information”
 - Look at the occupational exposure data – Why are units different? The units of this data depend on the form of the chemical
 - For substances that are gas and vapor at normal T & P, ppm for other forms, mg/m³
 - Need to convert? Try the converter at [NIOSH](#)
 - Need a better explanation? Try [CCOSH](#)
 - General guidance on OELs – the lower the number, the more important it is to ensure that your ventilation is appropriate and sufficient



A Few Guidelines for Teaching Students

**CAN I RECOGNIZE INCORRECT OR
INCOMPLETE INFORMATION ON THE SDS?**

Practice! Compare documents – Start with a Familiar Chemical



Nitric Acid

CAS 7697-37-2

5% Acetic Acid

CAS 8028-52-2

Can I recognize incorrect or incomplete information on the SDS?

Nitric Acid

SDS 1

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Alkali metals, Acetic anhydride, Organic materials, Alcohols, Acetonitrile, Acrylonitrile

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides (NO_x)

Other decomposition products - No data available

In the event of fire: see section 5

Reactivity: Nitric acid is a strong oxidizer. It attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Reactive or incompatible with alkalis and metals. Violent reactions possible with combustible materials, organic solvents, oxidizable substances, alcohols, ketones, aldehydes, acid anhydrides, amines, anilines, nitriles, organic nitro compounds, hydrazine, acetylidenes, metal alloys, metal oxides, alkali metals alkaline earth metals, ammonia, acids, hydrides, halogens, nonmetallic oxides, nitrides, hydrogen peroxide, charcoal, turpene, and many other substances. Attacks some synthetic materials and rubber. Hazardous polymerization will not occur.

Chemical Stability: Stable under recommended storage conditions. Decomposes in the presence of air, light or organic matter. Yellow/brown color is due to the release of nitrogen dioxide on exposure to light.

Possibility of Hazardous Reactions: Reacts with strong oxidizing agents, strong bases. Avoid excessive heat and sources of ignition. The substance decomposes on burning and may produce irritating fumes.

Conditions to Avoid: Extreme temperatures. Contact with incompatible materials. Light. Moisture.

Incompatible Materials: Reacts or is incompatible with over 150 chemical combinations. Refer to NFPA Fire Protection Guide for specifics. Metals, metal powders, reducing agents, strong bases, acetic acid, alcohols, acetone, aniline, hydrogen sulfide, carbides, anhydrides, organic solvents, combustible materials, chromic acid, flammable liquids, cyanides, sulfides. Incompatible with many other substances. DO NOT add water to the acid. ALWAYS add the acid to water while stirring to prevent release of heat, steam, and fumes.

Hazardous Decomposition Products: Thermal decomposition products include oxides of nitrogen.



SDS 2

Can I recognize incorrect or incomplete information on the SDS?

1

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	Form: liquid Colour: colourless
b) Odour	No data available
c) Odour Threshold	No data available
d) pH	< 1.0
e) Melting point/freezing point	No data available
f) Initial boiling point and boiling range	120.5 °C (248.9 °F) - lit.
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	49 hPa (37 mmHg) at 50 °C (122 °F)
l) Vapour density	No data available
m) Relative density	1.413 g/cm ³ at 20 °C (68 °F)
n) Water solubility	No data available
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

Section 9. Physical and Chemical Properties

Information on Basic Physical and Chemical Properties**Appearance:** Clear, colorless to pale yellow or brown liquid**Odor:** Acrid, pungent**Odor Threshold:** 0.75 - 2.5 ppm**Molecular Weight:** 63.01 g/mol (nitric acid)**Chemical Formula:** HNO₃ (nitric acid)**pH:** < 1**Freezing Point, Range:** -20 - -31.7°C (-4 - -25°F)**Boiling Point, Range:** 117 - 120°C (243 - 248°F)**Evaporation Rate:** -1 (BuAc = 1)**Flammability (solid, gas):** Not applicable**Flash Point:** Not applicable**Autoignition Temperature:** Not applicable**Decomposition Temperature:** 110°C (230°F)**Lower Explosive Limit (LEL):** Not applicable**Upper Explosive Limit (UEL):** Not applicable**Vapor Pressure:** 9 - 10 mm Hg at 25°C (70°F)**Vapor Density:** >1 (Air= 1)**Relative Density:** 1.3551 - 1.4078 g/mL (11.31 - 11.75 lb/gal)**Viscosity:** 2.0 - 2.2 cps**Solubility in Water:** Complete**Partition Coefficient:** n-octanol/water: Log Pow= -2.3**Volatiles by Volume (at 70°F):** 100%

Can I recognize incorrect or incomplete information on the SDS?

Nitric Acid

Section 5 – Firefighting Measures

Special Hazards arising from the Substance or Mixture: Closed containers may explode (due to the build-up of pressure) when exposed to extreme heat. During emergency conditions overexposure to decomposition products may cause a health hazard. Hazardous decomposition products include nitrogen oxides, ammonia and amines. Symptoms may not be immediately apparent. Obtain medical attention.

Section 6 – Accidental Release

Methods and Materials for Containment and Cleaning up: Cover drains. Approach the release from upwind. Contain spill. Cover with a large quantity of non-combustible, inert absorbent (e.g. sand, dry earth, vermiculite, diatomaceous earth) and place into approved container for proper disposal. Spilled material may be neutralized with sodium carbonate, sodium bicarbonate or dilute sodium hydroxide. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

Section 8 – Exposure Controls

Gloves made of the Following Materials are Suitable: Butyl rubber, Viton, Neoprene, polyethylene, PVC.

Gloves made of the following Materials are Not Suitable: Natural rubber (latex), nitrile rubber, polyvinyl alcohol (PVA), leather, and textiles.

Can I recognize incorrect or incomplete information on the SDS?

Nitric Acid

Section 8 – Exposure Controls

Hand Protection: Wear gloves recommended by glove supplier. Gloves should be impermeable to chemicals and oil. Breakthrough time of selected gloves must be greater than the intended use period.

Gloves made of the Following Materials are Suitable: Butyl rubber, Viton, Neoprene, polyethylene, PVC.

Gloves made of the following Materials are Not Suitable: Natural rubber (latex), nitrile rubber, polyvinyl alcohol (PVA), leather, and textiles.

Full contact

Material: Fluorinated rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact

Material: Nature latex/chloroprene

Minimum layer thickness: 0.6 mm

Break through time: 120 min

Material tested: Lapren® (KCL 706 / Aldrich Z677558, Size M)

Can I recognize incorrect or incomplete information on the SDS?

2.2. GHS Label Elements

Pictograms:



Signal Word: **Danger**

Hazard Statements:

Hazard Number	Hazard Statement
H315	Causes skin irritation.
H318	Causes serious eye damage.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H370	Causes damage to organs.
H373	May cause damage to organs through prolonged or repeated exposure.

SDS 1

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification:

H315 - Skin irritation (Category 2)

H319 - Eye irritation (Category 2A)

GHS Label elements, including hazard and precautionary statements:

Pictogram:



Hazard Statements:

H315 – Causes skin irritation.

H319 – Causes serious eye irritation.

5% Acetic Acid

Signal Word: **Warning**

Precautionary Statements:

P280 – Wear protective gloves/protective clothing/eye protection/face protection.

P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

SDS 2

Can I recognize incorrect or incomplete information on the SDS?

1

5% Acetic Acid

SDS 1

SECTION 3: Composition / Information on Ingredients

3.1. Components of Substance or Mixture

Chemical Name	Formula	Molecular Weight	CAS Number	Weight%
Water	H ₂ O	18.01 g/mol	7732-18-5	94.79%
Acetic Acid	CH ₃ COOH	60.05 g/mol	64-19-7	5.21%

SDS 2

Ingredient	CAS Number	Percent	Hazardous
White Distilled Vinegar	8028-52-2	~100%	No OSHA limit levels established

Can I recognize incorrect or incomplete information on the SDS?

Remember SDSs are “Legal” Documents



“The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.”

Can I recognize incorrect or incomplete information on the SDS?

Find Reliable Information

- Look for peer reviewed data – NIH
 - [ChemIDPlus Advanced](#)
 - PubChem's Laboratory Chemical Safety Summaries (LCSSs) ([Search Compounds](#))
- Concise Information on GHS hazard classes and categories – [Sigma Aldrich](#)
- [Interactive Learning Paradigms, Incorporated](#) resources for understanding terms on SDSs
 - [The MSDS Hyper Glossary](#)
 - [The MSDS Demystifier](#)

Can I recognize incorrect or incomplete information on the SDS?



A Few Guidelines for Teaching Students

DO I HAVE TO DO THE ASSIGNMENT?

Use Group Assignments

- Have each person find an SDS for the chemical and then the group can compare quality – Collaborate! (You might even learn something)



Do I Have to Do the Assignment?

Grade Assignments

- Include the SDS assignment on the syllabus in classes and make it a graded component



Project Requirement

- If it is an upper level class lab and there are individual projects, do not let work begin until the assignment has been completed



Lead By Example

As the instructor or PI, have you looked at the SDS for the chemical?



Be ready when the students have questions because they will value the assignment or effort if you do!

Ask Questions!

Sometimes it comes down to trusting your instinct to recognize when you don't know what you don't know!



Do I know when to ask for help?



**How do you know
when your students
are learning safety?**

**When they are
recognizing what they
don't know and then
asking & answering
the right questions**

Do I know when to ask for help?

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Questions?

