	Standard Operating Procedure		SOP Number A-103	Revision 4
	Understanding Safety Data Sheets		Effective Date 05/04/21	Page Page 1 of 6
Written by/ Date <i>Webster</i> 03/31/21	Reviewed by/ Date <i>SSS</i> 03/31/21		Approved by/ Date <i>J. A. Miller</i> 07/01/21	
Title: Safety Manager	Title: QC Laboratory Director		Title: QA Manager	

1.0 Purpose

This procedure is designed to give general guidelines on the information layout of Safety Data Sheets (SDS).

2.0 Scope

Guidelines on how the SDS is formatted to allow the reader to efficiently gain the necessary information to handle the chemical safely. SDS are documents that contain specific information on the physical properties, toxicity, first aid measures, accidental release measures, handling, and storage of a chemical. Format of an SDS is defined by the Occupational Safety and Health Administration (OSHA).

3.0 Responsibility

- 3.1 Management is responsible for overseeing that the SDS for all chemicals in the facility are properly archived for reference by any employee and ensuring employees are properly trained.
- 3.2 It is the responsibility of the Purchasing Department to request SDS for all incoming materials.
- 3.3 It is the responsibility of all employees involved in handling or using a chemical to be familiar with the associated SDS.
- 3.4 It is the responsibility of the Safety Manager to maintain current SDS books.

4.0 Definitions

- 4.1 **SDS** – Safety Data Sheet
- 4.2 **HCS** – Hazard Communication Standard
- 4.3 **HCP** – Hazard Communication Program
- 4.4 **OSHA** – Occupational Safety and Health Administration

4.5 **HMIS** – Hazardous Materials Identification System

4.6 **PPE** – Personnel Protective Equipment

4.7 **Flammable Liquids** –

4.7.1 OSHA 29CFR1910.106 defines a flammable liquid as having a flash point below 100°F (37.8°C).

4.7.2 GHS defines flammable liquids as follows:

4.7.2.1 Class IA liquids had flash points below 73°F (22.8°C) and boiling points below 100°F (37.8°C).

4.7.2.2 Class IB liquids had flash points below 73°F (22.8°C) and boiling points above 100°F (37.8°C)

4.7.2.3 Class IC liquids had flash points at or above 73°F (22.8°C) and below 100°F (37.8°C)

4.8 **GHS** – Globally Harmonized System of Classification and Labelling of Chemicals

4.9 **SARA** – Superfund Amendments and Reauthorization Act (SARA) of 1986, or SARA Title III

5.0 Training

5.1 Effective HazCom/GHS training will be conducted at the time of their initial assignment and whenever a new physical or health hazard the employees have not previously been trained about is introduced into their work area.

5.2 Training will be coordinated by the Safety Manager.

6.0 References

6.1 OSHA 29CFR1910.1200

7.0 Procedure

7.1 The main sections in the SDS:

7.1.1 IDENTIFICATION includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

- 7.1.2 HAZARD(S) IDENTIFICATION includes all hazards regarding the chemical; required label elements.
- 7.1.3 COMPOSITION/INFORMATION ON INGREDIENTS includes information on chemical ingredients; trade secret claims.
- 7.1.4 FIRST AID MEASURES includes important symptoms/effects, acute, delayed; required treatment.
- 7.1.5 FIREFIGHTING MEASURES lists suitable extinguishing techniques, equipment; chemical hazards from fire.
- 7.1.6 ACCIDENTAL RELEASE MEASURES lists emergency procedures; protective equipment; proper methods of containment and cleanup.
- 7.1.7 HANDLING AND STORAGE lists precautions for safe handling and storage, including incompatibilities.
- 7.1.8 EXPOSURE CONROLS/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)
- 7.1.9 PHYSICAL AND CHEMICAL PROPERTIES lists the chemical's characteristics.
- 7.1.10 STABILITY AND REACTIVITY lists chemical stability and possibility of hazardous reactions.
- 7.1.11 TOXOLOGICAL INFORMATION includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.
- 7.1.12 ECOLOGICAL INFORMATION describes the stability and toxicity of the chemical when released into the environment.
- 7.1.13 DISPOSAL CONSIDERATIONS gives information on how to safely dispose of spent, expired or unwanted chemical.
- 7.1.14 TRANSPORT INFORMATION gives hazard ratings of the chemical related to transport.
- 7.1.15 REGULATORY INFORMATION gives any special requirements by OSHA, SARA or other state health organizations.

7.1.16 OTHER INFORMATION includes the date of preparation or last revision.

7.2 Locations and responsible parties of SDS books.










7.2.1 Purchasing will provide the Safety Department with an SDS for all raw materials. The Safety Department will maintain SDS book(s) and will keep SDS book(s) in the Production Hallway.

7.2.2 QC Laboratory Manager will maintain SDS book(s) for all chemicals used in the lab and will keep SDS book(s) in the lab storage room.

7.2.3 The Safety Manager will maintain SDS book(s) for all cleaning chemicals and will keep SDS book(s) in the Production Hallway.

7.3 HCS Pictograms and Hazards. Shows the picture and the associated hazard that is mandatory on labels and in the chemical's SDS.


HCS Pictograms and Hazards

Health Hazard  <ul style="list-style-type: none"> • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	Flame  <ul style="list-style-type: none"> • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides 	Exclamation Mark  <ul style="list-style-type: none"> • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  <ul style="list-style-type: none"> • Gases Under Pressure 	Corrosion  <ul style="list-style-type: none"> • Skin Corrosion/ Burns • Eye Damage • Corrosive to Metals 	Exploding Bomb  <ul style="list-style-type: none"> • Explosives • Self-Reactives • Organic Peroxides
Flame Over Circle  <ul style="list-style-type: none"> • Oxidizers 	Environment (Non-Mandatory)  <ul style="list-style-type: none"> • Aquatic Toxicity 	Skull and Crossbones  <ul style="list-style-type: none"> • Acute Toxicity (fatal or toxic)

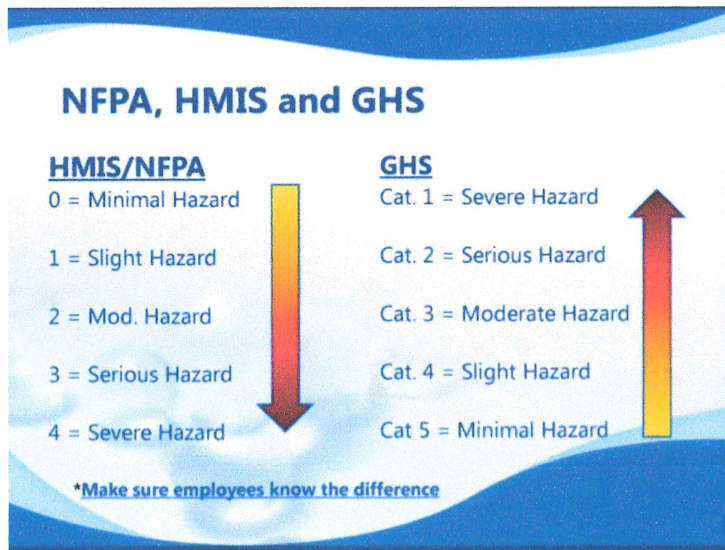
7.4 Hazard Communication Standard Labels. A label needs to be present on all hazardous

chemicals and secondary containers that are used to store hazardous chemicals.

SAMPLE LABEL

CODE _____ Product Name _____	}	Product Identifier	<div style="text-align: center;">Hazard Pictograms</div> 
Company Name _____ Street Address _____ City _____ State _____ Postal Code _____ Country _____ Emergency Phone Number _____	}	Supplier Identification	<div style="text-align: center;">Signal Word Danger</div>
Keep container tightly closed. Store in a cool, well-ventilated place that is locked. Keep away from heat/sparks/open flame. No smoking. Only use non-sparking tools. Use explosion-proof electrical equipment. Take precautionary measures against static discharge. Ground and bond container and receiving equipment. Do not breathe vapors. Wear protective gloves. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Dispose of in accordance with local, regional, national, international regulations as specified.			Highly flammable liquid and vapor. May cause liver and kidney damage.
In Case of Fire: use dry chemical (BC) or Carbon Dioxide (CO ₂) fire extinguisher to extinguish.			Hazard Statements
First Aid If exposed call Poison Center. If on skin (or hair): Take off immediately any contaminated clothing. Rinse skin with water.			Supplemental Information Directions for Use _____ _____ _____ Fill weight: _____ Lot Number: _____ Gross weight: _____ Fill Date: _____ Expiration Date: _____
Precautionary Statements			

7.5 Secondary containers used for diluted or cleaning chemicals need to be labeled with the common name of the chemical, intended use, and an HMIS label indicating the hazard level and required PPE.



8.0 Revision History

Revision	Date	Description of Changes	CCR #	By
0	08/27/10	New	-	-
1	01/30/13	Updated SOP to new format. Updated SOP to emphasize safety and handling of chemicals. Changed title of SOP.	13-031	B. Johns
2	02/23/15	Updated SOP format. Refocused SOP to provide information on SDS structure and the information that each main section provides. Biennial Review.	15-0159	B. Johns
3	08/03/18	Changed MSDS to SDS to reflect changes made by OSHA. Updated the information sections of an SDS to reflect changes made by OSHA. Included information about Hazard Communication Program, including the HCS pictogram, hazardous chemical label standard, and HMIS label for secondary containers. Added responsibility and locations of all SDS books.	18-0256	K. Tyrrell
4	03/05/21	Updated definitions; added section 5.0 Training; Added 6.0 References; 6.5 Updated hazard identifier. Changed the responsibility to maintain current SDS books from Operations Manager to Safety Manager. Revised section 7.2	CC-21-0091	B. Almand