

Chemical Hazard Communication Program for Non-Laboratories

(EHS Program Manual 4.2)



1.0 Overview

Environmental Health and Safety (EHS) at Weill Cornell Medicine (WCM) has developed this Chemical Hazard Communication Plan to promote a safe work environment for employees who handle or come in contact with hazardous chemicals in the course of their work activity. This Plan complies with the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 Code of Federal Regulations [1910.1200](https://www.federalregister.gov/documents/2012/05/25/1910-1200), May 25, 2012.

2.0 Table of Contents

1.0 Overview	1
3.0 Objectives	2
4.0 Applicability	2
4.1 EXEMPTIONS	2
4.2 LABORATORY USE OF HAZARDOUS CHEMICALS	3
5.0 Responsibilities	3
5.1 ENVIRONMENTAL HEALTH AND SAFETY (EHS)	3
5.2 CHEMICAL OWNERS	3
5.3 WCM EMPLOYEES	3
5.4 CONTRACTORS	4
6.0 Hazardous Chemical Definitions	4
6.1 HAZARD DETERMINATION	4
7.0 Exposure and Medical Monitoring	4
7.1 EXPOSURE MONITORING	4
7.1.1 Exposure Monitoring Methods	4
7.1.2 Exposure Evaluation	4
7.2 MEDICAL MONITORING	5
7.2.1 Scenarios Requiring Additional Medical Monitoring	5
7.2.2 Accident Reports	5
8.0 Exposure Prevention and Control	5
8.1 SOURCE CONTROLS	5
8.2 PATHWAY CONTROLS	5
8.3 RECEIVER CONTROLS	5
9.0 Chemical Inventory	5
10.0 Safety Data Sheet (SDS)	6
10.1 SDS GENERAL INFORMATION	6
10.2 OBTAINING SDS	6
10.3 CHEMICAL OWNER REVIEW OF SDS	6
11.0 Chemical Labeling Requirements	6
11.1 ORIGINAL LABEL REQUIREMENTS	7
11.2 PICTOGRAMS	7
11.3 TRANSFER LABEL REQUIREMENTS	8
11.3.1 Secondary and Transfer Containers	8
11.3.2 Exemption	8
12.0 Personal Protective Equipment (PPE)	8
12.1 EYE AND FACE PROTECTION	8
12.1.1 Eye and Face Protection Selection	8
12.2 GLOVES	9

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 1 of 27
-------------------------------------	------------------------------------	--	------------------



12.2.1	Glove Selection and Glove Chart.....	9
12.2.2	Glove Use Requirements.....	10
12.3	CLOTHING.....	10
12.4	RESPIRATORS.....	10
13.0	Recognizing New Hazards and Work Tasks.....	11
14.0	Chemical Waste Disposal and Spill Response.....	11
15.0	Training.....	11
15.1	CLINICAL AND GENERAL SAFETY TRAINING.....	11
15.2	NON-CLINICAL/NON-LAB DEPARTMENT SAFETY TRAINING.....	12
16.0	Record Retention, Availability, and Revisions.....	12
16.1	EXPOSURE MONITORING.....	12
16.2	ACCIDENT INVESTIGATIONS.....	12
16.3	TRAINING RECORDS AND CERTIFICATES.....	12
16.4	PROGRAM REVIEW.....	12
17.0	Definitions.....	12
18.0	References.....	15
	Appendix A – Safety Data Sheet (SDS) Format and Content.....	16
	Appendix B – Safety Data Sheet (SDS) Example.....	19

3.0 Objectives

The purpose of this Chemical Hazard Communication Plan (“Plan”) is to minimize or eliminate occupational exposure to hazardous chemicals.

To achieve this goal, this Plan aims to ensure that the hazards of chemicals present in the workplace are evaluated; and that both employers and employees receive relevant safety information and training about those hazards.

Specifically, this plan strives to:

- Safeguard the health and safety of the WCM community.
- Ensure compliance with local, state, and federal standards.
- Create guidelines for the implementation and maintenance of this Plan.

4.0 Applicability

This Plan applies to all chemical use at WCM, except in areas where chemicals are ONLY handled in sealed containers (e.g., in a receiving or warehouse area).

This Plan addresses employees in the following departments:

- Clinical Departments
- Facilities and Campus Services
- Housekeeping
- Research Animal Resource Center (RARC)
- Printing and Duplicating
- Medical Art and Photography
- Additional non-laboratory personnel working with hazardous materials- unless the materials are exempted as consumer products.

4.1 EXEMPTIONS

DATE REVIEWED:	DATE UPDATED:	CLASSIFICATION & LOCATION:	PAGE:
December 12, 2024	December 12, 2024	Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	2 of 27



This Plan does not apply to the following materials, as they are exempt from the OSHA Hazard Communication Standard:

- Any **consumer product or hazardous substance**, as those terms are defined in the [Consumer Product Safety Act](#) (15 U.S.C. 2051 et seq.) and [Federal Hazardous Substances Act](#) (15 U.S.C. 1261 et seq.) respectively.

Note: The employer must show that the substance is used in the workplace for the purpose intended by the chemical manufacturer or importer of the product, and the **use results in a duration and frequency of exposure that is not greater than the range of exposures that could reasonably be experienced by consumers when used for the purpose intended.**

For example, intermittent or occasional uses of a copying machine, Windex®, White Out® are exempt from the rule. However, if an employee handles the chemicals for repeated, long periods of time that could result in exposures higher than those of a consumer could, then such uses are not exempt.

- Hazardous waste, food, wood, tobacco, and potentially hazardous substances, such as drugs and cosmetics, brought to WCM for personal consumption (e.g., rubbing alcohol in a first aid kit would not be covered by this Plan).
- Any drug in its final form for direct administration to patients.
- Ionizing and nonionizing radiation.
- Biological hazards.

4.2 LABORATORY USE OF HAZARDOUS CHEMICALS

Laboratory areas must comply with the requirements of the EHS Program Manual 4.1 – [Laboratory Chemical Hygiene Plan](#).

5.0 Responsibilities

The WCM Chemical Hazard Communication Plan establishes the following duties for each department or group.

5.1 ENVIRONMENTAL HEALTH AND SAFETY (EHS)

EHS responsibilities include:

- Maintain and update the written WCM Hazard Communication Plan.
- Provide training to departments and personnel on Plan requirements.
- Assist departments with implementing the guidelines outlined in this Plan.
- Review SDSs, as requested, to determine the hazards for which WCM personnel may have exposure.
- Monitor, as needed, personnel exposure to hazardous chemicals.

5.2 CHEMICAL OWNERS

Chemicals owners must:

- Ensure that all staff in their team follow the guidelines outlined in this Plan.
- Keep an up-to-date chemical inventory for each location.
- Maintain Safety Data Sheets (SDSs) readily available for all hazardous chemicals in the department.
- Verify that all chemical containers have proper labels.
- Confirm that all personnel attend Hazard Communication Training.

5.3 WCM EMPLOYEES

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 3 of 27
--	---	---	-------------------------



Employees are required to:

- Follow the procedures outlined in this Plan.
- Use assigned Personal Protective Equipment (PPE).
- Attend Hazard Communication Training.

5.4 CONTRACTORS

Contractors working at WCM must:

- Comply with all OSHA standards and requirements where applicable.
- Have a chemical inventory and SDSs for the materials they will introduce in the work area.
- Provide information regarding the location of chemical use and storage.

6.0 Hazardous Chemical Definitions

The definition of hazardous chemicals as given by OSHA is “any chemical which is classified as

- a physical hazard or
- a health hazard,
- a simple asphyxiant,
- combustible dust,
- pyrophoric gas, or
- a hazard not otherwise classified.”

Refer to [Section 17.0- Definitions](#) for details on these terms.

6.1 HAZARD DETERMINATION

EHS relies upon the hazard determination and SDS supplied by the chemical manufacturer or distributor to determine the hazards of all chemicals bought, used, or stored at WCM.

EHS will use this information and any other resources available in helping to determine hazards.

7.0 Exposure and Medical Monitoring

7.1 EXPOSURE MONITORING

EHS is available to monitor and evaluate exposure to chemicals in the workplace. This evaluation can help determine the success of a hazard control program or to appraise levels of exposures prior to designing a program.

EHS will also conduct monitoring upon request from personnel if they think they are exposed to risk in their work with a particular chemical.

7.1.1 Exposure Monitoring Methods

Monitoring is conducted using direct-reading instruments or collection media, which is sent for processing and analysis to an independent environmental laboratory.

7.1.2 Exposure Evaluation

Assessment findings are interpreted according to current accepted industrial hygiene practices. Reported levels are compared to the OSHA Permissible Exposure Levels or other pertinent health data to determine if the individual is being exposed at an unsafe level.

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 4 of 27
--	---	---	-------------------------



If exposure levels require additional exposure prevention and control, EHS will determine the appropriate modifications to the work activity.

7.2 MEDICAL MONITORING

New York-Presbyterian Hospital Workforce Health and Safety (WHS) or WCM Student Health Services (SHS) performs medical monitoring on all WCM faculty, staff, and students carrying out work in an area where hazardous materials are present. A baseline examination shall be conducted for all faculty, staff, and students prior to beginning work; with annual health assessments conducted thereafter.

7.2.1 Scenarios Requiring Additional Medical Monitoring

The following situations may require additional medical monitoring by WHS or SHS:

- **Symptoms Develop** – Personnel develops signs or symptoms associated with hazardous chemical exposure.
- **Exposure Monitoring** – Exposure monitoring reveals an exposure level routinely above the action level or the permissible exposure limit (PEL) for an OSHA-regulated substance for which there are exposure monitoring and medical surveillance requirements. Medical surveillance shall be established for the affected employee(s) as prescribed by the particular standard.
- **Hazardous Event** – An event such as a spill, leak, explosion, or other occurrence resulting in the likelihood of hazardous exposure. The affected individual(s) can choose to receive medical consultation and/or examination at WHS or SHS as appropriate.

7.2.2 Accident Reports

WHS and Human Resources keep accident reports on file and send a copy to the EHS office. EHS will evaluate and investigate the exposure, then make recommendations to avoid a re-occurrence.

8.0 Exposure Prevention and Control

Exposure prevention and control methods are generalized into three categories, described in this section.

8.1 SOURCE CONTROLS

Source controls are measures which reduce and/or prevent exposures to a hazardous chemical. Substitution, minimization, and/or alteration of the compound(s) or procedure are examples of source control. For example, when applying chemical substitution, exposure to a high hazard chemical is controlled by utilizing a less hazardous chemical.

8.2 PATHWAY CONTROLS

Pathway controls are administrative or engineering controls (e.g., standard operating procedures or chemical hoods) which minimize exposure to a chemical hazard in the work area of the employee.

8.3 RECEIVER CONTROLS

Receiver controls are personal protective equipment (e.g., respirators, gloves) utilized to minimize exposure to a chemical hazard for each employee. Personal Protective Equipment is further discussed in [Section 12.0](#).

When examining exposure control methods, source controls should be utilized first, followed by pathway controls, and finally, receiver controls.

9.0 Chemical Inventory

All departments in WCM locations (e.g., laboratories, clinics, service areas, mechanical rooms, print shops) that store and/or use hazardous chemicals are required to maintain a complete inventory of all such compounds.

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 5 of 27
--	---	---	-------------------------



WCM chemical inventories are maintained by a chemical owner and their delegates in [Salute](#). Salute is a web-based EHS management system that allows authorized users to access and edit their chemical inventory. Detailed guidance is outlined in the [Salute: Chemical Inventory System](#) EHS Update, or by contacting EHS directly with questions.

10.0 Safety Data Sheet (SDS)

10.1 SDS GENERAL INFORMATION

Safety Data Sheets, formerly known as Material Safety Data Sheets (MSDSs), are written or printed documents prepared and distributed with chemicals by chemical manufacturers and distributors.

SDSs are written in English and have a standardized format, shown in [Appendix A - Safety Data Sheet \(SDS\) Format and Content](#).

SDSs provide critical information about the safety and health hazards posed by a chemical, as well as precautions to take when using it or in case of accidental release (see [Appendix B](#) for an example of an SDS).

The OSHA Hazard Communication Standard requires that:

- SDSs be kept for every hazardous chemical used and stored in all WCM spaces.
- SDSs be readily accessible to all personnel who work with or who may come into contact with hazardous chemicals.
- SDSs are visible to emergency response personnel.
- All personnel knows where the SDSs are kept.
- As new chemicals are ordered, the SDSs must be obtained from the manufacturer.

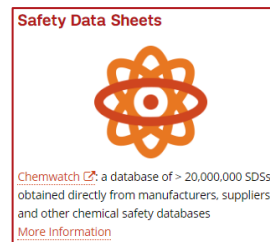
10.2 OBTAINING SDS

All departments should receive an SDS from the chemical manufacturer at the time of purchase. If the SDS is not provided with the chemical shipment, the chemical owner must obtain the SDS within a reasonable amount of time.

Chemical owners and users may obtain a copy of the SDS by:

- Downloading it from the manufacturer's website;
- Retrieving it from the ChemWatch SDS database via the [EHS website](#) (must be connected to WCM secure network);
- Downloading it from the link on the Salute chemical inventory; or
- Contacting EHS for assistance.

Note: If an SDS for a particular substance is not available in ChemWatch, users can send a copy of the document to EHS for upload to the ChemWatch database.



10.3 CHEMICAL OWNER REVIEW OF SDS

Each chemical owner needs to review all incoming SDSs for new and significant health and safety information.

Any new information must be provided to employees so that appropriate safety measures can be taken (e.g., training, PPE, engineering controls).

Upon request, EHS will assist in evaluating SDSs, determining hazards, and selecting protective measures. If deficiencies exist or additional information is needed concerning SDSs, the chemical owner or EHS will contact the chemical manufacturer or supplier to obtain the necessary information.

11.0 Chemical Labeling Requirements

All chemical containers must have proper labeling. Original labels from chemical manufacturers must not be removed or defaced.

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 6 of 27
--	---	---	-------------------------



11.1 ORIGINAL LABEL REQUIREMENTS

Manufacturers are required under the Federal OSHA Hazard Communication Standard to provide the following information on original labels, including the six elements shown below:

The Basic Parts of A GHS-Compliant Label

1 → **n-Propyl Alcohol**
 UN No. 1274
 CAS No. 71-23-8

2 → **DANGER**

3 → Highly flammable liquid and vapor. Causes serious eye damage. May cause drowsiness and dizziness.

4 → Keep away from heat/sparks/open flames/hot surfaces. No smoking. Avoid breathing fumes/mist/vapours/spray. Wear protective gloves/protective clothing/eye protection/face protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present. Continue rinsing.

Fill Weight: 18.65 lbs. Lot Number: B56754434
 Gross Weight: 20 lbs. Fill Date: 6/21/2013
 Expiration Date: 6/21/2020 See SDS for further information.










5 → Acme Chemical Company • 711 Roadrunner St. • Chicago, IL 60601 USA • www.acmechem.com • 123-444-5567

6 →

1. **Product Identifier** - Should match the product identifier on the Safety Data Sheet.
2. **Signal Word** - Either use "Danger" (severe) or "Warning" (less severe)
3. **Hazard Statements** - A phrase assigned to a hazard class that describes the nature of the product's hazards
4. **Precautionary Statements** - Describes recommended measures to minimize or prevent adverse effects resulting from exposure.
5. **Supplier Identification** - The name, address and telephone number of the manufacturer or supplier.
6. **Pictograms** - Graphical symbols intended to convey specific hazard information visually.

11.2 PICTOGRAMS

There are nine GHS pictograms to identify hazard categories. The symbols and corresponding hazard category are:

Health Hazard Carcinogens, respiratory sensitisers, reproductive toxicity, target organ toxicity, germ cell mutagens 	Flame Flammable gases, liquids, & solids; self-reactives; pyrophorics; 	Exclamation Mark Irritant, dermal sensitiser, acute toxicity (harmful) 
Gas Cylinder Compressed gases; liquefied gases; dissolved gases 	Corrosion Skin corrosion; serious eye damage 	Exploding Bomb Explosives, self-reactives, organic peroxides 
Flame Over Circle Oxidisers gases, liquids and solids 	Environment Aquatic toxicity 	Skull & Crossbones Acute toxicity (severe) 

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 7 of 27
--	---	---	-------------------------



11.3 TRANSFER LABEL REQUIREMENTS

11.3.1 Secondary and Transfer Containers

If a product is transferred from one container to another, the new container must be labeled either with an extra copy of the original manufacturer's label or with a label that includes:

- A product identifier, and
- The appropriate hazard warning.



- | | |
|----------|---------------------------|
| 1 | Product Identifier |
| 2 | Chemical Hazards |
| 3 | Pictogram |

11.3.2 Exemption

A label is not required on portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use (i.e., only within the work shift in which it is transferred) of the employee who performs the transfer.

12.0 Personal Protective Equipment (PPE)

Choose Personal Protective Equipment (PPE) based on the types of chemicals handled, the degree of protection required, and the areas of the body that may become contaminated.

All clothing and equipment must meet standards set by the applicable American National Standards Institute (ANSI), at a minimum. Every effort must be made to evaluate the effectiveness of equipment and make improvements where possible. Special consideration must be given to purchasing appropriate PPE and other safety equipment when extremely hazardous substances are involved.

12.1 EYE AND FACE PROTECTION

Eye protection acts as a protection not only from chemicals but also from physical hazards.

All eyewear must meet ANSI's "Practice for Occupational and Educational Eye and Face Protection," Z87.1-2020. Prior to use, personnel will verify that the equipment is approved for the procedure (e.g., ANSI certified for chemical splashes but not for impact).

12.1.1 Eye and Face Protection Selection

Ordinary prescription glasses are not adequate to protect eyes from injury. Safety glasses and goggles designed to fit over prescription glasses, as shown in the picture, are often designated "OTG" or "Over the Glasses" in the manufacturers' catalog.

The following table should be consulted in selecting protective eyewear based on the application:



Condition Requiring Eye/Face Protection	Type of Eye/Face Protection Required
Handling of aqueous solutions, biologicals, mild corrosives	Standard safety glasses with side shields and brow guard
Handling strong corrosives, solvents, a large volume of chemicals	Chemical resistant goggles, indirect vents
Working with glassware under reduced or elevated pressure; glassware in high-temperature operations	Impact protection glasses/goggles
Potential for flying objects, particles, or chemical splash	Face shields for impact and splash
Vacuum system, reactions with potential for explosions	Both goggles and face shield
Lasers, ultraviolet, infrared or other light sources, glass blowing, welding, torch use	Specialized eye protection

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 8 of 27
--	---	---	-------------------------



12.2 GLOVES

Gloves must be worn at all times whenever there is a chance for hand contact with chemicals or other hazardous materials.

At a minimum, disposable latex or nitrile gloves should be worn. The addition of heavier gloves may be required if the chemicals involved are easily absorbed through the skin or are acute or chronic toxins or toxicants.

There are a variety of gloves, both disposable and non-disposable, which resist degradation and permeation (chemical breakthrough) depending on the material they are made of and their thickness.

12.2.1 Glove Selection and Glove Chart

- Personnel with latex allergies must receive latex-free gloves.
- Personnel should consult the glove manufacturer's permeation and resistance charts to ensure the glove provides adequate protection for the required duration of use and chemical hazards.

General selection guidelines are provided in the table below.

Glove Type	Recommended Use	Good for Specific Chemicals
Natural Rubber (Latex)	Good for dilute acids and bases Biologicals, buffers, water-based dyes Not suitable for chlorinated hydrocarbons, aromatic hydrocarbons, diethyl ether	Solutions of acetic, hydrochloric, sulfuric acids; ammonium hydroxide; sodium hydroxide; ethanol; isopropanol; methanol, formaldehyde, acetone
Butyl Rubber	Good for ketones, esters, and acids Not suitable for aliphatic, aromatic, and chlorinated hydrocarbons; gasoline; and petroleum products	Glycol ethers, acetone, ethanol
Nitrile Rubber	Good for a wide variety of solvents and petroleum products Not suitable for aromatic hydrocarbons, chlorinated hydrocarbons, acetone	Oils, greases, aliphatic hydrocarbons, DMSO, alcohols, acid solutions, formalin
Neoprene	Good for acids and bases, peroxides, petroleum products, hydrocarbons, alcohols, phenols Not suitable for halogenated and aromatic hydrocarbons	Ethanol, isopropanol, acetic acid, acetone, acetonitrile, DMSO, formalin, hydrochloric acid, ethidium bromide
Polyvinyl Chloride (PVC)	Good for acids and bases; limited for organics, amines, and peroxides; Not good for most organics	Solutions of acids and bases, alcohols
Polyvinyl Alcohol (PVA)	Good for aromatics, ketones, and chlorinated solvents; Not good for water-based solutions—PVA coating is water soluble	Benzene, toluene, chlorobenzene, chloroform, methylene chloride, carbon tetrachloride, hexane, carbon disulfide

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 9 of 27
--	---	---	-------------------------



Glove Type	Recommended Use	Good for Specific Chemicals
Viton™	Exceptional for chlorinated and aromatic hydrocarbons	Benzene, toluene, chloroform, PCBs
Silver shield™ / 4H™	Laminated gloves with exceptional resistance for a large variety of chemicals, poor dexterity.	Aromatics, esters, chlorines, and ketones

12.2.2 Glove Use Requirements

- **Employees must inspect gloves prior to use.** No glove completely resists degradation or permeation and must be replaced periodically depending on the frequency and duration of use and contact, as well as the concentration of the chemicals used.
- Reusable gloves must be washed before removal, except when they are permeable to water.
- When there is potential for hand contamination/exposure during glove removal, use two pairs of disposable gloves.
- If the need for gloves arises when walking through public spaces, the individual must glove one hand only. The other hand should be gloveless and used to open doors or press elevator buttons.

12.3 CLOTHING

Protective clothing is required when a potential exists for chemical splashes with hazardous substances, fire, extreme heat or cold, excessive moisture, and radiation. The choice of protective clothing depends upon the degree of protection required.

Protective clothing should be readily available to personnel and includes:

- Lab coats
- Aprons
- Shoe covers
- Coveralls
- Sleeve covers

Staff must be instructed to consider the following characteristics in selecting and purchasing PPE:

- Ability to resist fire, heat, and chemicals used.
- Chemical impermeability when needed.
- Comfort level that permits easy execution of tasks when worn.
- Ease of cleaning (unless disposable).
- Ability to remove during an emergency or chemical splash (fasteners instead of buttons).

12.4 RESPIRATORS

Under no circumstance is respiratory protective equipment to be used by any person at WCM, unless approved by EHS as mandated in the [EHS Program 7.1, Respiratory Protection](#).

The Respiratory Protection Program requires training, assignment, fit testing and medical exam consistent with the OSHA Respiratory Standard ([29 CFR 1910.134](#)). All respiratory protection must be chosen in conjunction with EHS since there are strict legal requirements regarding the use and distribution of these devices.

Respirators must be worn when performing non-routine operations, such as chemical waste disposal, spill response, or other procedures that pose a respiratory hazard (working with extremely toxic materials). These processes will require the use of a negative pressure half-face, full-face, or self-contained breathing apparatus.

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 10 of 27
--	---	---	--------------------------



Respirators are available to those individuals who are routinely responsible for conducting the following activities:

- Chemical Hood repair
- Filter changes on HVAC systems
- Painting and working with paint products
- Welding
- Grinding, sanding, and cutting
- Maintaining and treating water systems

13.0 Recognizing New Hazards and Work Tasks

Some WCM employees are periodically required to perform non-routine tasks (i.e., work with chemicals that are new or unfamiliar). **The employee's department is responsible for identifying and informing employees of the hazards associated with the substances before carrying out new or non-routine work with hazardous chemicals.**

EHS is available upon request to assist in evaluating the hazards and determining the appropriate precautions for non-routine tasks.

Employees will receive the following information:

- Specific chemical hazard
- Protective safety measures the employee should take, such as wearing gloves or protective clothing
- Emergency procedures

14.0 Chemical Waste Disposal and Spill Response

For chemical waste disposal information, refer to [EHS Program Manual 5.2 - Waste Disposal Procedure](#) or contact ehs@med.cornell.edu.

For chemical spill response information, refer to [EHS Program Manual 4.3 - Chemical Spill Planning and Response](#) or contact ehs@med.cornell.edu.

15.0 Training

Non-laboratory personnel who handle or may come into contact with hazardous chemicals in the course of their work at WCM must annually attend or complete an online training course that includes Chemical Hazard Communication.

For information on scheduled training programs or on how to arrange group-training sessions, please consult the [EHS website](#) or contact ehs@med.cornell.edu.

The Chemical Hazard Communication Plan training will focus on the following topics:

- OSHA Hazard Communication Standard, 1910.1200
- Written WCM Hazard Communication Plan
- Safety Data Sheets
- Physical and health hazards of chemicals present in the work area
- Exposure prevention measures
- Chemical labeling requirements

15.1 CLINICAL AND GENERAL SAFETY TRAINING

EHS provides training to PA and MD students who may be exposed to a bloodborne pathogen or hazardous chemicals, but do not work in a laboratory. Training topics include Bloodborne Pathogens, Chemical Hazard Communication, and Fire Safety. EHS training program complies with the Occupational Safety and Health Administration (OSHA) Bloodborne Pathogens ([1910.1030](#)) and Hazard Communication ([1910.1200](#)) Standards.

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 11 of 27
--	---	---	--------------------------



Participation in the NYP Annual Hospital Training (AHT) is required on an annual basis under OSHA regulations for all staff and students who do not work in a laboratory but do come in direct contact with patients, handle clinical specimens, routinely work in a clinical environment, or handle biological (red bag/sharps) waste. This includes graduate students, medical students, physicians, post-doctoral fellows, clinical and housekeeping staff. For more information, refer to the [EHS website](#).

15.2 NON-CLINICAL/NON-LAB DEPARTMENT SAFETY TRAINING

EHS has developed safety training programs for service departments at WCM that have been customized to address the specific job hazards associated with their work activities. Safety training for service department staff includes Chemical Hazard Communication training and programs designed to reduce accidents and injuries.

EHS provides Service Department Safety Training programs for the following service departments:

- Capital Planning
- Duplicating
- Facilities and Campus Services
- Gross Anatomy/Autopsy
- Housekeeping
- Information Technology Services
- Research Animal Resource Center
- Shipping and Receiving

16.0 Record Retention, Availability, and Revisions

16.1 EXPOSURE MONITORING

EHS maintains exposure monitoring reports for at least 30 years.

16.2 ACCIDENT INVESTIGATIONS

EHS maintains Incident Reports for at least five (5) years, following the end of the calendar year that these records cover. Incident reports are available by request.

16.3 TRAINING RECORDS AND CERTIFICATES

EHS maintains training records. Certificates of training are available in each employee learning account on the Weill Business Gateway or by request to EHS. Instructions on how to log into Weill Business Gateway are available on the [EHS website](#).

To request a certificate from EHS, please email ehs@med.cornell.edu with the date of training and the training title.

16.4 PROGRAM REVIEW

This program manual is reviewed annually and updated as needed.

17.0 Definitions

- **Article:** A manufactured item other than a fluid or particle, which is:
 - (i) formed to a specific shape or design during manufacture;
 - (ii) has end use function(s) dependent in whole or in part upon its shape or design during end use; and
 - (iii) which under normal conditions of use does not release more than minimal quantities, (i.e., minute or trace amounts of a hazardous chemical,) and does not pose a physical hazard or health risk to employees.
- **Chemical:** Any substance or mixture of substances.

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 12 of 27
--	---	---	--------------------------



- **Chemical Manufacturer:** An employer with a workplace where chemical(s) are produced for use or distribution.
- **Chemical Name:** The scientific designation of a chemical, as required by the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature; or a name that will clearly identify the chemical for conducting a hazard classification.
- **Common Name:** Any designation or identification; such as code name, code number, trade name, brand name, or generic name used to identify a chemical other than by its chemical name.
- **Container:** Any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this program, pipes or piping systems and engines, fuel tanks, or other operating systems in a vehicle are not considered containers.
- **Designated Representative:** Any individual or organization to which an employee gives written authorization to exercise such employee's rights under this program. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.
- **Distributor:** A business other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or employers.
- **Employee:** A worker who may be exposed to hazardous chemicals under normal operating conditions, or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous chemicals only in non-routine, isolated instances are not covered.
- **Employer:** A person engaged in a business, including a contractor or subcontractor, where chemicals are used, distributed, or produced for use or distribution.
- **Exposure or Exposed:** In the course of employment, an employee is subjected to a chemical that is a physical or health hazard; this includes potential (i.e., accidental or possible) exposure. In terms of health hazards, "subjected" includes any route of entry (i.e., inhalation, ingestion, skin contact or absorption).
- **Foreseeable Emergency:** Any potential occurrence including equipment failure, rupture of containers, or failure of control equipment; which could result in an uncontrolled release of a hazardous chemical into the workplace.
- **Hazard Category:** The division of criteria within each hazard class (e.g., oral acute toxicity and flammable liquids include four hazard categories). These categories compare hazard severity within a hazard class, and should not be taken as a comparison of hazard categories more generally.
- **Hazard Class:** The nature of the physical or health hazards (e.g., flammable solid, carcinogen, oral acute toxicity).
- **Hazard Not Otherwise Classified (HNOC):** An adverse physical or health effect identified through evaluation of scientific evidence during the classification process, which does not meet the specified criteria for the physical and health hazard classes addressed in this section. This definition does not extend coverage to adverse physical and health effects for which there is a hazard class discussed in this section, but the impact either falls below the cut-off value/concentration limit of the hazard class or is under a GHS hazard category not adopted by OSHA (e.g., acute toxicity Category 5).
- **Hazard Statement:** A statement assigned to a hazard class, and a category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.
- **Hazardous Chemical:** Any chemical classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.
- **Health Hazard:** A chemical classified as posing one of the following hazardous risks:
 - Acute toxicity (any route of exposure);
 - Skin corrosion or irritation;
 - Serious eye damage or eye irritation;
 - Respiratory or skin sensitization;
 - Germ cell mutagenicity; carcinogenicity;
 - Reproductive toxicity;

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 13 of 27
--	---	---	--------------------------



- Specific target organ toxicity (single or repeated exposure); or
- Aspiration hazard.

The criteria for determining whether a chemical is classified as a health hazard are detailed in [Appendix A to §1910.1200 – Health Hazard Criteria](#).

- **Immediate Use:** A hazardous chemical will be under the control of and only used by the person who transfers it from a labeled container, and only within the work shift in which it is transferred.
- **Importer:** The first business with employees within the Customs Territory of the United States that receives hazardous chemicals produced in other countries; to supply them to distributors or employers within the United States.
- **Label:** An appropriate group of written, printed, or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical or the outside packaging.
- **Label Elements:** The specified pictogram, hazard statement, signal word, and precautionary statement for each hazard class and category.
- **Mixture:** A combination or solution composed of two or more substances in which no reaction takes place.
- **Physical Hazard:** A chemical that is classified as posing one of the following hazardous effects:
 - Explosive;
 - Flammable (gases, aerosols, liquids, or solids);
 - Oxidizer (liquid, solid, or gas);
 - Self-reactive;
 - pyrophoric (liquid or solid);
 - Self-heating;
 - Organic peroxide;
 - Corrosive to metal;
 - Gas under pressure; or
 - Emits flammable gas in contact with water.

See [Appendix B of §1910.1200 – Physical Hazard Criteria](#).

- **Pictogram:** A composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color; that is intended to convey specific information about the hazards of a chemical. Nine pictograms are designated under the GHS standard for application to a hazard category.
- **Precautionary Statement:** A phrase that describes recommended measures to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or the improper storage or handling of it.
- **Product Identifier:** The name or number used to identify a hazardous chemical on a label or in the SDS. This data provides a unique means by which the user can identify the compound. The product identifier used shall permit cross-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label, and the SDS.
- **Produce:** To manufacture, process, formulate, blend, extract, generate, emit, or repackage.
- **Pyrophoric Gas:** A chemical in a gaseous state that will ignite spontaneously in air at a temperature of 130 F (54.4 C) or below.
- **Responsible Party:** Someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.
- **Safety Data Sheet (SDS):** Written or printed material concerning a hazardous chemical that is prepared as required by this manual. Replaces the Material Safety Data Sheet (MSDS).

DATE REVIEWED:	DATE UPDATED:	CLASSIFICATION & LOCATION:	PAGE:
December 12, 2024	December 12, 2024	Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	14 of 27



- **Signal Word:** A word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used in this section are “Danger” and “Warning.” “Danger” is used for the more severe hazards, while “Warning” is used for the less severe.
- **Simple Asphyxiant:** A substance or mixture that displaces oxygen in the ambient atmosphere and can thus cause oxygen deprivation in those exposed, leading to unconsciousness and death.
- **Specific Chemical Identity:** The chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.
- **Substance:** Chemical elements and their compounds; either in the natural state or obtained by any production process. This includes any additive necessary to preserve the stability of the product and any impurities derived from the method used but excludes any solvent that may be separated without affecting the stability of the substance or changing its composition.
- **Trade Secret:** Any confidential formula, pattern, process, device, information, or compilation of information that is used in an employer's business that gives the employer an opportunity to obtain an advantage over competitors who do not know about it or use it.
- **Use:** To package, handle, react, emit, extract, generate as a byproduct, or transfer.
- **Water-Reactive:** A chemical that reacts with water to release a gas that is either flammable or presents a health hazard.
- **Work Area:** A room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.
- **Workplace:** An establishment, job site, or project at one geographical location containing one or more work areas.

18.0 References

- OSHA Regulations (Standards – 29 CFR), Hazard Communication – [1910.1200](#), Subpart Z Toxic and Hazardous Substances
- OSHA Regulations (Standards – 29 CFR) Air Contaminants – [1910.1000](#), Tables [Z-1](#), [Z-2](#), [Z-3](#)
- OSHA Regulations (Standards – 29 CFR), Bloodborne Pathogens - [1910.1030](#)

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 15 of 27
--	---	---	--------------------------



Appendix A – Safety Data Sheet (SDS) Format and Content

Section I - Identification

This section provides the following information:

- Product identifier used on the label.
- Other means of identification.
- Recommended use of the chemical and restrictions on use.
- Name, address, and telephone number of the chemical manufacturer, importer, or another responsible party.
- Emergency phone number.
- The manufacturer telephone number is provided to allow the user to obtain information about the substance. The emergency telephone number is intended for use by emergency response and medical personnel.

Section II – Hazard(s) Identification

This section provides the following information:

- Classification of the chemical according to paragraph (d) of §1910.1200.
- Signal word, hazard statement(s), symbol(s) and precautionary statement(s) as stated in paragraph (f) of §1910.1200.
- Describe any hazards not otherwise classified that have been identified during the classification process.

Section III – Composition / Information on Ingredients

This section provides the following information for **substances**:

- Chemical name.
- Common name and synonyms.
- CAS number and other unique identifiers.
- Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance.

This section provides the following information for **mixtures**:

- The information listed for substances.
- The chemical name and concentration (exact percentage unless trade secret) or concentration ranges of all ingredients.

Section IV – First-aid Measures

This section contains the following:

- 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.
- Indications of immediate medical attention and special treatment needed, if necessary.

Section V – Firefighting Measures

This section provides the following information:

- Suitable (and unsuitable) extinguishing media.
- Specific hazards arising from the chemical (e.g., the nature of any hazardous combustion products).
- Special protective equipment and precautions for firefighters.

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 16 of 27
--	---	---	--------------------------



Section VI – Accidental Release Measures

This section provides the following information:

- Personal precautions, protective equipment, and emergency procedures.
- Methods and materials for containment and cleaning up.

Section VII – Handling and Storage

This section provides the following information:

- Precautions for safe handling.
- Conditions for safe storage, including any incompatibilities.

Section VIII – Exposure Controls / Personal Protection

This section provides the following information:

- OSHA permissible exposure limit (PEL).
- American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.
- Appropriate engineering controls.
- Individual protection measures such as personal protective equipment.

Section IX – Physical and Chemical Properties

This section provides the following information:

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

Section X – Stability and Reactivity

This section provides the following:

- Reactivity
- Chemical stability
- Possibility of hazardous reactions
- Conditions to avoid (e.g., static discharge, shock, or vibration)
- Incompatible materials
- Hazardous decomposition products.

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 17 of 27
--	---	---	--------------------------



Section XI – Toxicological Information

This section describes the various toxicological (health) effects and the available data used to identify those effects, including:

- 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).
- Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or is a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition) or by OSHA.

Section XII – Ecological Information

This section provides the following information:

- Ecotoxicity (aquatic and terrestrial, where available).
- Persistence and degradability.
- Bioaccumulative potential.
- Mobility in the soil.
- Other adverse effects (e.g., hazardous to the ozone layer).

Section XIII – Disposal Considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.

Section XIV – Transport Information

- UN number
- UN proper shipping name
- Transport hazard class(es)
- Packing group, if applicable
- Special precautions a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises.

Section XV – Regulatory Information

Safety, health, and environmental regulations specific for the product in question.

Section XVI – Other Information

The date when the SDS was prepared or the last change was made to it.

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 18 of 27
--	---	---	--------------------------



Appendix B – Safety Data Sheet (SDS) Example

SIGMA-ALDRICH

sigma-aldrich.com

SAFETY DATA SHEET

Version 3.20
Revision Date 10/03/2017
Print Date 07/14/2018

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Acetone

Product Number : 650501
Brand : Sigma-Aldrich
Index-No. : 606-001-00-8

CAS-No. : 67-64-1

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

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

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
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

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 : Highly flammable liquid and vapour.
H319 : Causes serious eye irritation.
H336 : May cause drowsiness or dizziness.

Precautionary statement(s)

P210 : Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 : Keep container tightly closed.
P240 : Ground/bond container and receiving equipment.
P241 : Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 : Use only non-sparking tools.
P243 : Take precautionary measures against static discharge.
P261 : Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

Sigma-Aldrich - 650501

Page 1 of 9

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 19 of 27
-------------------------------------	------------------------------------	--	-------------------



P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS
Repeated exposure may cause skin dryness or cracking.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	: C ₃ H ₆ O
Molecular weight	: 58.08 g/mol
CAS-No.	: 67-64-1
EC-No.	: 200-662-2
Index-No.	: 606-001-00-8
Registration number	: 01-2119471330-49-XXXX

Hazardous components

Component	Classification	Concentration
Acetone	Flam. Liq. 2; Eye Irrit. 2A; STOT SE 3; H225, H319, H336	90 - 100 %

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

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.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

DATE REVIEWED:	DATE UPDATED:	CLASSIFICATION & LOCATION:	PAGE:
December 12, 2024	December 12, 2024	Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	20 of 27



- 4.3 Indication of any immediate medical attention and special treatment needed**
No data available

5. FIREFIGHTING MEASURES

- 5.1 Extinguishing media**
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide
- 5.2 Special hazards arising from the substance or mixture**
No data available
- 5.3 Advice for firefighters**
Wear self-contained breathing apparatus for firefighting if necessary.
- 5.4 Further information**
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures**
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.
- 6.2 Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
- 6.3 Methods and materials for containment and cleaning up**
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).
- 6.4 Reference to other sections**
For disposal see section 13.

7. HANDLING AND STORAGE

- 7.1 Precautions for safe handling**
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.
- 7.2 Conditions for safe storage, including any incompatibilities**
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
- 7.3 Specific end use(s)**
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Acetone	67-64-1	TWA	250 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation 2015 Adoption Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		

Sigma-Aldrich - 650501

Page 3 of 9

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 21 of 27
--	---	---	--------------------------



		STEL	500 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation 2015 Adoption Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	250 ppm 590 mg/m ³	USA. NIOSH Recommended Exposure Limits
		TWA	1,000 ppm 2,400 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m ³ is approximate.		
		STEL	750 ppm 1,780 mg/m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		C	3,000 ppm	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		PEL	500 ppm 1,200 mg/m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Acetone	67-64-1	Acetone	25 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

Derived No Effect Level (DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Skin contact	Long-term systemic effects	186mg/kg BW/d
Consumers	Ingestion	Long-term systemic effects	62mg/kg BW/d
Consumers	Skin contact	Long-term systemic effects	62mg/kg BW/d
Workers	Inhalation	Acute systemic effects	2420 mg/m ³
Workers	Inhalation	Long-term systemic effects	1210 mg/m ³
Consumers	Inhalation	Long-term systemic effects	200 mg/m ³

Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	33.3 mg/kg
Marine water	1.06 mg/l
Fresh water	10.6 mg/l
Marine sediment	3.04 mg/kg
Fresh water sediment	30.4 mg/kg
Onsite sewage treatment plant	100 mg/l

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.

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 22 of 27
--	---	---	--------------------------



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

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Impervious clothing, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	Form: liquid, clear Colour: colourless
b) Odour	No data available
c) Odour Threshold	No data available
d) pH	No data available
e) Melting point/freezing point	Melting point/range: -94 °C (-137 °F)
f) Initial boiling point and boiling range	56 °C (133 °F) at 1,013 hPa (760 mmHg)
g) Flash point	-17.0 °C (1.4 °F) - closed cup
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or	Upper explosion limit: 13 %(V) Lower explosion limit: 2 %(V)

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 23 of 27
-------------------------------------	------------------------------------	--	-------------------



	explosive limits	
k)	Vapour pressure	533.3 hPa (400.0 mmHg) at 39.5 °C (103.1 °F) 245.3 hPa (184.0 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	0.791 g/mL at 25 °C (77 °F)
n)	Water solubility	completely miscible
o)	Partition coefficient: n-octanol/water	log Pow: -0.24
p)	Auto-ignition temperature	465.0 °C (869.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available
9.2	Other safety information	
	Surface tension	23.2 mN/m at 20.0 °C (68.0 °F)

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**
Vapours may form explosive mixture with air.
- 10.4 Conditions to avoid**
Heat, flames and sparks.
- 10.5 Incompatible materials**
Bases, Oxidizing agents, Reducing agents, Acetone reacts violently with phosphorous oxychloride.
- 10.6 Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - 5,800 mg/kg

Remarks: Behavioral: Altered sleep time (including change in righting reflex). Behavioral: Tremor. Behavioral: Headache. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

LC50 Inhalation - Rat - 8 h - 50,100 mg/m³

Remarks: Drowsiness Dizziness Unconsciousness

LD50 Dermal - Guinea pig - 7,426 mg/kg

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: Mild skin irritation - 24 h

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 24 of 27
--	---	---	--------------------------

**Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Eye irritation - 24 h

Respiratory or skin sensitisation

- Guinea pig

Result: Does not cause skin sensitisation.

Germ cell mutagenicity

No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: AL3150000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Kidney - Irregularities - Based on Human Evidence

Skin - Dermatitis - Based on Human Evidence

Kidney - Irregularities - Based on Human Evidence

Skin - Dermatitis - Based on Human Evidence

12. ECOLOGICAL INFORMATION**12.1 Toxicity**

Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - 5,540 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates LC50 - Daphnia magna (Water flea) - 8,800 mg/l - 48 h

Toxicity to algae Remarks: No data available

12.2 Persistence and degradability

Biodegradability Result: 91 % - Readily biodegradable.
(OECD Test Guideline 301B)

12.3 Bioaccumulative potential

Does not bioaccumulate.

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 25 of 27
--	---	---	--------------------------

**12.4 Mobility in soil**

No data available

12.5 Results of PBT and vPvB assessment

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

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods****Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

UN number: 1090 Class: 3 Packing group: II
 Proper shipping name: Acetone
 Reportable Quantity (RQ): 5000 lbs
 Poison Inhalation Hazard: No

IMDG

UN number: 1090 Class: 3 Packing group: II EMS-No: F-E, S-D
 Proper shipping name: ACETONE

IATA

UN number: 1090 Class: 3 Packing group: II
 Proper shipping name: Acetone

15. REGULATORY INFORMATION**SARA 302 Components**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Acetone	67-64-1	1993-02-16

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Acetone	67-64-1	1993-02-16

New Jersey Right To Know Components

	CAS-No.	Revision Date
Acetone	67-64-1	1993-02-16

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 26 of 27
--	---	---	--------------------------



16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only. 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. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.20

Revision Date: 10/03/2017

Print Date: 07/14/2018

DATE REVIEWED: December 12, 2024	DATE UPDATED: December 12, 2024	CLASSIFICATION & LOCATION: Chemical Safety T:\Documentation\EHS-Manual\4.2_Chemical_HazComm.docx	PAGE: 27 of 27
--	---	---	--------------------------