


Idaho Department of Correction  	<b>Standard Operating Procedure</b>	Title: <b>Hazardous and Flammable Materials Handling and Control Procedures</b>		Page: 1 of 12
		Control Number: <b>509.02.01.003</b>	Version: <b>2.0</b>	Adopted: 10-30-2002

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Open to the public:  Yes

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Revision date (04/13/2014) version 2.0: Changed references of community custody to minimum custody, updated header and approval authority, added revision history section.

#### BOARD OF CORRECTION IDAPA RULE NUMBER

None

#### POLICY CONTROL NUMBER 509

Maintaining Institutional Inventory List

#### DEFINITIONS

**Direct Supervision:** Supervision of an inmate or inmates where the supervising staff is present in the same area as the inmate/inmates being supervised (e.g., a supervisor in a dayroom that is not separated from the inmate workers by glass, wall, or other partition). A supervisor in a schoolroom or shop area is in direct supervision of the inmates in that room or shop. If the supervising staff leaves that area, he is no longer in direct supervision of the inmates (even if he is still in the same building). In addition, direct supervision cannot be conducted from a tower or by securing an inmate worker in a cell or room while the work supervisor attends to other things.

#### PURPOSE

The purpose of this standard operating procedure (SOP) is to establish practices for handling and storing hazardous materials that are both environmentally conscious and provide for the safety and security of the public, staff members, and inmates at Idaho Department of Correction (IDOC) correctional facilities.

#### SCOPE

This SOP applies to all IDOC correctional facilities and governs the accountability, purchase, storage, use, and disposal of hazardous materials as well as related training.

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## RESPONSIBILITY

Facility heads are responsible for implementing this SOP and ensuring that staff members and inmates practice the provisions contained herein.

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## **GENERAL REQUIREMENTS**

### **1. Facility Safety Officer**

Each facility head must designate a staff member to serve as safety officer at the facility. The facility safety officer's responsibilities include, but are not limited to, the following:

- Maintaining a master inventory of all hazardous materials as defined in this SOP.
- Updating the master inventory when changes are received.
- Maintaining copies of material safety data sheets (MSDS) on all hazardous materials as discussed in this SOP either being used or stored at the facility.
- Ensuring that master inventories and MSDS are readily available for emergency preparedness.
- Providing oversight of storage, use, and safety issues related to the hazardous materials as discussed in this SOP.
- Providing assistance and guidance to work area supervisors regarding proper storage, use, and disposal of hazardous materials as discussed in this SOP.

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- Reviewing products to ensure that the facility is using the safest alternatives available that achieve acceptable results.
- Conducting facility audits and inspections in accordance with this SOP.
- Reporting safety violations and concerns to the facility head or designee.
- Serving as a liaison with state and local safety inspectors such as the state safety inspector and fire marshal.
- Ensuring that liquid petroleum gas (LPG) and compressed gas cylinders are refilled by an authorized representative of a state-licensed vendor.

## 2. General Definitions

### ***Hazardous Materials***

The U.S. Department of Transportation (DOT) and the International Air Transportation Association (IATA) define hazardous material as substances capable of posing a risk to health, safety, or property. **Hazardous** is the inherent characteristic of a material, condition, or activity that has the potential to cause harm to people, property, or the environment. In this SOP, the term **hazardous material** is used to encompass flammable, combustible, corrosive, caustic, and toxic materials.

Hazardous materials are present in almost every workplace. Everyone who works with hazardous materials must be aware of the hazards and how to work with them safely. Until unknown materials are positively identified, always treat them as very hazardous.

The following are examples of common materials that are considered hazardous:

Aerosols	Cleaning fluids	Herbicides
Ammonia	Corrosives	Insecticides
Antifreeze	Defoliants	Lye
Bleach	Explosive gasses	Paint thinners
Caustic acids	Flammable gasses, liquids & solids	Pharmaceuticals
Chlorine	Gasoline	Yeast

### ***Flammable and Combustible Liquids***

Flammable and combustible liquids are liquids that can burn. They are classified, or grouped, as either flammable or combustible in accordance with their respective "flashpoints". The **flashpoint** of a liquid is the lowest temperature at which the liquid gives off enough vapor to be ignited (start burning) at the surface of the liquid.

**Flashpoint** is used to classify flammable and combustible liquids because it is directly related to a liquid's ability to generate vapor thus its volatility. Since it is the vapor, and not the liquid itself that burns, the vapor generation is the primary factor in determining the fire hazard.

Generally speaking, **flammable liquids** will ignite and burn easily at normal working temperatures. Flammable liquids are liquids with a flashpoint below 100°F. Under no circumstances will flammable liquids be used for cleaning.

**Combustible liquids** have the ability to ignite but generally burn at temperatures that are above normal working temperatures. Combustible liquids are liquids with a flashpoint at or above 100°F and below 200°F.

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### ***Corrosive or Caustic Materials***

Corrosive or caustic materials are materials that can attack and chemically destroy exposed body tissues. Corrosives can also damage or even destroy metal. They start causing damage as soon as they touch the skin, eyes, respiratory tract, digestive tract, or metal. They might be toxic and hazardous in other ways too, depending on the particular corrosive material.

Most corrosives are either acids or bases. Basic materials or solutions are sometimes called **caustic** or **alkaline**.

### ***Toxic Materials***

Toxic materials, through chemical reaction or mixture, can produce possible injury or harm to the body through skin absorption, the digestive tract, or the respiratory tract. The toxicity is dependent on the quantity absorbed and the rate, method and site of absorption.

### ***Liquid Petroleum Gas (LPG)***

A product of petroleum gases, principally **propane** and **butane**, which must be stored under pressure to keep it in a liquid state. The flashpoint of LPG is -160°F and the flashpoint for butane is -76°F.

**LPG** is extremely flammable and cylinders must be handled with care. **Propane** is heavier than air and leaked vapors may accumulate in low areas such as drains. LPG and natural gas are scented with a pungent odor. If an odor is detected, do not allow any open flame or other source of ignition such as switching on a light. Vacate the area immediately and call for professional assistance.

LPG is extremely cold and will cause frost bite if exposed to the skin. Wear protective clothing when connecting or disconnecting cylinders.

### ***Compressed Gas***

Compressed gas includes **oxygen, chlorine, argon, and acetylene**.

### ***Chlorine Gas***

Chlorine is irritating and corrosive to all living flesh. Chlorine liquid is amber colored; gas is greenish-yellow with a sharp, suffocating odor. Individuals working on a chlorine system under normal conditions must wear the following protective equipment:

- Gloves that are polyvinyl chloride (PVC), Teflon®, or Kel-F®;
- Safety goggles or glasses; and
- An approved respirator with a canister approved for chlorine.

A respirator is only good for about 10 minutes in atmospheres having one (1) to two (2) % chlorine. A respirator will provide protection under normal conditions if a small amount of chlorine is released when making or breaking connection in a line. A shower, eyewash station, and self-contained breathing apparatus or positive pressure airline and mask must be available for use in an emergency. Staff and inmates who work with or could be exposed to chlorine gas must be familiar with the MSDS.

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### 3. Materials Classification

#### ***Flammable Class I Liquids***

**Class IA** – liquids with flashpoints below 73°F and a boiling point below 100°F.

**Class IB** – liquids with flashpoints below 73°F and a boiling point at or above 100°F.

**Class IC** – liquids with flashpoints at or above 73°F and below 100°F.

Examples of Class I flammable liquids include the following:

Acetone	Gasoline	Methyl ethyl ether
Benzene	Hexane	Naphtha Y,M, & P
Contact cement (flammable)	Lacquer thinner	Petroleum ether
Denatured alcohol	Lacquer	Toluidi (toluene)
Ethyl alcohol	Methyl ethyl ketone	Xylene (xylol)

#### ***Combustible Class II Liquids***

Class II liquids are combustible materials having flashpoints at or above 100°F and below 140°F.

Examples of Class II liquids include the following:

Agitane	Diesel fuel	Mineral spirits
Cleaning solvents	Kerosene	Motor oil

#### ***Combustible Class III Liquids***

Class III liquids are combustible materials having flashpoints at or above 140°F and below 200°F.

Examples of Class III liquids include the following:

Guardian fluid	Mineral oil	Paints (oil base)
Linseed oil	Neat's foot oil	Sunray conditions

#### ***Corrosive and Caustic Materials***

Examples of corrosive and caustic material include the following:

Acids (hydrochloric, sulfuric)	Bases (ammonia)	Caustic soda
Acids (muriatic, tannic)	Bases (drain & oven cleaners)	Lye

#### ***Toxic Materials***

Examples of toxic materials include the following:

Ammonia	Defoliant	Pesticides
Antifreeze (ethylene glycol)	Duplicating fluid	Rodenticides
Bases (drain & oven cleaners)	Herbicides	
Chlorine	Methyl alcohol	

**Note:** Only small samplings of hazardous materials are listed here. Hazardous materials include a wide variety of substances that can be solid, liquid, gas and may have more than one (1) risk; therefore, the safety requirements for all applicable properties should be considered. Always check the supplier labels on chemical product containers. In general, hazardous liquids that are diluted before use are no longer considered hazardous materials once diluted.

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#### 4. Inventory and Accountability

##### ***Facility Safety Officers***

The facility safety officers will:

- Maintain a master inventory of all hazardous materials in the facility to include maps of the storage areas. (See appendix A for the inventory format.) The inventory can be on a computer; however, a hard copy must also be maintained. The location of the hard copy of the inventory must be accessible to staff yet defensible from inmates during an emergency.
- Assist work area supervisors in the identification of hazardous materials.
- Update master inventories based on monthly inventories that work area supervisors submit.
- Make the master inventories and location maps accessible for emergency preparedness.

##### ***Work Area Supervisors***

Work area supervisors (in living units, kitchens, mechanical, and industries shops, medical, etc.) will:

- Maintain accurate and current running inventories of hazardous materials in their respective areas. (See appendix A for the inventory format.)
- Limit the number and quantity of hazardous materials that are used and stored to reduce the risks associated with hazardous materials.
- Update running inventories when new materials are received and maintain close estimates whenever the materials are drawn down for use.
- Contact the facility safety officer if there are any questions about what materials should be included on the inventories.

##### ***Hobby Craft Officers***

Hobby craft officers will:

- Provide facility administrators with a list of hazardous materials inmates use when participating in hobby craft. Facility administration will approve, by signature, the materials list, indicating which materials inmates may be allowed to purchase. Post the approved materials list in the hobby craft areas.

#### 5. Purchasing

The purchase of hazardous materials must be controlled. Whenever possible, staff members will purchase safe products that are less likely to be abused, misused, or dangerous in a correctional setting.

In addition to following state fiscal and purchasing procedures, work-area supervisors must ensure that when hazardous products are purchased that those products are closely supervised during transit to the storage area and then properly inventoried and secured.

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## 6. General Storage

Work area supervisors are responsible for the control and accountability of all hazardous materials stored in their respective work areas.

**Storage rooms and cabinets** must be properly secured and supervised by staff at all times when in use. Place cabinets so they do not obstruct access to exits, stairways, and other areas normally used for evacuation in the event of emergency.

**Portable containers** (other than original shipping containers) for flammable and combustible liquids must be approved safety cans listed or labeled by a nationally recognized testing laboratory and bear legible labels that identify the contents.

**Containers** must be properly closed when not in use.

### ***Flammable and Combustible Liquids***

Flammable and combustible materials, including aerosols, are required to be labeled “Flammable” or “Combustible” under the federal *Hazardous Substances Labeling Act* and must be stored and used according to label recommendations and in a way that does not endanger life or property.

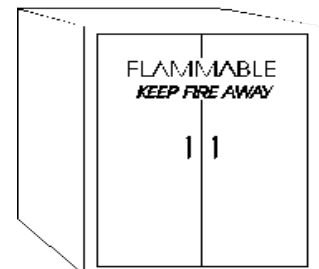
In **medium and close custody facilities**, no flammable or combustible materials, including aerosols, will be stored inside a secured perimeter whether in cell blocks, kitchens, administration buildings, medical units, mechanical or industrial shop, etc. (Exceptions may be approved by the facility head as identified in field memorandum.) In addition, all materials labeled “FLAMMABLE”, “COMBUSTIBLE”, “DANGER”, or “CAUTION” will be stored in areas that are inaccessible to inmates.

**Storage rooms** for flammable and combustible materials must:

- Be graded to divert spills away from living units or other occupied areas or must be surrounded with curbs or dikes at least six inches (6”) high.
- Have either a four inch (4”) sill or a four inch (4”) depressed floor.
- Have a ventilation system, either mechanical or gravity flow within 12” of the floor, that provides at least six (6) air changes per hour within the room.
- Be protected against tampering or trespassing and shall be kept free of weeds and debris.
- Meet electrical code requirements for lighting fixtures and electrical equipment in storage rooms.
- Be of fire resistant construction.
- Have self-closing fire doors at all openings.
- Be locked at all times when not in immediate use.

**Storage cabinets** for flammable and combustible materials must:

- Not obstruct access to exits, stairways, and other areas normally used for evacuation in the event of fire or other emergency.
- Be secured in accordance with Class A tool storage standards (See SOP [509.02.01.001](#), *Tool Control*.)





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- Be grounded, securely locked, and conspicuously labeled “Flammable Keep Fire Away.”
- Not contain more than 60 gallons of Class I or Class II liquids **or** 120 gallons of Class III liquids.

### ***LPG and Compressed Gas***

LPG and compressed gas must be stored in a safe, authorized location, outside the facility. The door entering the storage location must be clearly marked “Flammable Keep Fire Away.” **Cylinders** must be isolated from heat, ignition sources, and combustible materials. Never allow containers to reach temperatures exceeding 125°F.

**Oxygen cylinders** must be kept in a separate storage location from fuel gas cylinders or separated by a minimum distance of 20 feet **or** by a barrier of non-combustible material at least five feet (5') high, having a fire rating of at least one-half (½) hour.

### ***General Handling Procedures for All Gas Cylinders***

Secure **tall cylinders** such as oxygen and acetylene with a chain, cable, etc. to prevent the cylinders from falling over and store small LPG cylinders in a manner that will protect the cylinders from damage in an earthquake or similar event. Ensure that all cylinders are clearly marked with their contents.

Separate **full and empty cylinders** from one another and store all cylinders in an upright position. Install protective caps when cylinders are not connected for use. Treat empty containers as if they were full.

Store **empty cylinders** with their valves closed. Do not drop or abuse cylinders. The contents of cylinders are compressed under high levels of pressure to the extent that a cylinder can become a projectile if a valve is broken off. Keep cylinder valves closed and plugged or capped when not in use. Cylinders must be transported on a hand truck or cart designed for that purpose and never dragged or rolled.

Check **tanks** for damage or corrosion. Check valves and connections for leaks with soapy water. Never use a flame. Never try to force a stuck valve by using a hammer, screwdriver, pry bar, etc. A licensed vendor must inspect cylinders that have leaks, damage, or corrosion.

### ***Caustic and Toxic Substances***

All toxic and caustic materials are to be stored in their original containers in a secure area. The manufacturer’s label must remain intact on the container.

## **7. Material Safety Data Sheets (MSDS)**

The MSDS list information relative to the storage, use, and disposal of the material.

Each **work unit supervisor** will:

- Obtain MSDS for all hazardous materials used or stored in the work unit.
- Provide the facility safety officer with MSDS for existing and new products.
- Ensure the MSDS are readily available to inmates and staff.
- Be familiar with the MSDS information for hazardous materials used in their area.

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- Ensure that inmates working with hazardous materials have read and understand the MSDS for the materials they handle and sign appendix B, *Material Safety Data Sheet Log*, when being issued hazardous materials. If an inmate has difficulty reading or understanding the material, the work unit supervisor, or designee must review the information with the inmate.

## 8. Drawing and Issuing

Only authorized staff members can draw and issue hazardous materials to inmates. Staff must log all hazardous materials issued on appendix A, *Hazardous Materials Inventory*, and only issue the amount necessary for the job at hand. Return unused portions to storage or dispose of properly.

Staff must be cautious when dispensing or using **methyl alcohol** (also known as wood **alcohol** or **methanol**). **Methyl alcohol** is a flammable poisonous liquid commonly used in industrial applications (shellac thinner, paint solvent, duplicating fluid, solvents for leather cements and dyes, flushing fluid for hydraulic brake systems).

The only acceptable methods for drawing hazardous liquids from or transferring these liquids into containers from a drum or other bulk storage are:

- Transferred through a closed piping system
- Transfer from approved safety cans
- Drawn through the top using an approved pump device
- Gravity-drawn through an approved self-closing system
- Grounding and bonding system must be used when liquids are dispensed from a drum

## 9. Use and Supervision

The use of hazardous materials must conform to the provisions and precautions listed in the respective MSDS.

### ***Flammable and Combustible Materials***

In **medium and close custody** facilities, staff must closely monitor the use of flammable and combustible materials and following these precautions:

- Inmates using flammable materials must be under direct supervision of staff.
- Fuel dispensed must be limited to the fuel tanks on the machines.
- Inmates must not possess any containers that could carry fuel.
- Precautions must be taken to prevent inmates from removing or disconnecting fuel lines.
- Inmates must not possess any device that would allow siphoning fuel from fuel tanks.
- Inmates using any product containing methyl alcohol must be directly supervised. (Products containing methyl alcohol in a diluted state, such as shoe dye, may be issued to inmates, but only in the smallest workable quantities.)

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- Immediate medical attention is imperative whenever methyl alcohol poisoning is suspected.

### ***Other Specific Materials Standards***

The following standards apply for close, medium, minimum custody, and community work center facilities that are adjacent to a higher-custody facility:

- **Unused portions** are to be returned to the original containers in the storage areas or, if appropriate, stored in the storage areas in suitable, clearly labeled containers.
- **Ethyl alcohol, isopropyl alcohol and other antiseptic products:** Stored and used only in the medical department.
- **Cleaning fluids containing carbon tetrachloride, trichloroethane, tetrachloride, or trichloroethylene:** Used by inmates under direct supervision.
- **Dyes and cements for leather:** (Use non-flammable products if possible.) Flammable products must be issued and used in accordance with this SOP.
- **Pesticides, herbicides, fertilizers, and other poisons:** Facility head must identify the products approved for use. If a product requires an applicator's license, only individuals with a current applicator's license may handle or apply the product. These products must be stored in a secure area.
- **Lye:** Stored in a secure area and used only under the direct supervision of staff.
- **Cleaning solvents:** Hazardous combustible liquids with flashpoints at or above 100°F may be used for cleaning. Part cleaners or dip tanks must be fitted with lids that have a fusible link designed to close in event of a fire.

## **10. Disposal**

Hazardous materials must be disposed of properly. The MSDS for each substance states the proper method of disposal and related precautions. The **facility safety officer** will remove hazardous materials needing disposal from the facility and store them in an appropriate location until they can be disposed of properly. The **facility safety officer** will document storage and disposal using appendix A, *Hazardous Materials Inventory*.

## **11. Spills**

Information regarding the proper procedures for spills is contained in the MSDS for each substance. If a hazardous material is spilled, staff and inmates must follow the instructions on the MSDS.

## **12. Inventory and Audit Process**

The IDOC conducts audits and inventories to ensure accountability of hazardous materials. Staff will complete both processes twice a year. An audit is a check on a portion of the hazardous materials and processes for handling; an inventory is a physical count of every hazardous material, confirming it against the written inventory and reviewing all processes and documentation. If staff members discover exceptions during either process, the facility head may call for a complete re-inventory, investigation, facility search, lockdown, or other

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response based on the type of exception and the level of risk the exception presents to the safe and secure operation of the facility.

### ***Taking Inventories***

**Work area supervisors** (or appointed designees) will:

- Conduct inventories of all the work area's hazardous materials during the first and third quarters of the year.
- Visually verify that all hazardous materials are inventoried and that the running inventories are being properly used.
- Notify the facility safety officer of the results of the inventory.
- Notify the facility head if any exceptions are found.

### ***Audit***

The **facility safety officer** will:

- Audit at least 10% of the facility's hazardous materials during the second (2<sup>nd</sup>) and fourth (4<sup>th</sup>) quarter of the year.
- Verify that work area inventories are present and the running inventories are being properly used.
- Reconcile purchasing information and inventories to ensure that incoming items are being appropriately inventoried.
- Check the work area inventories against the master inventory and update the master inventory if necessary.
- Inspect some storage and work areas for compliance regarding MSDS, MSDS logs, proper labels, proper use, etc.
- Notify the work area supervisors of the results of the audits.
- Notify the facility heads if any exceptions are found.

## **REFERENCES**

Appendix A, *Hazardous Materials Inventory*

Appendix B, *Material Safety Data Sheet Log*

Idaho Division of Building Safety, *Idaho General Health and Safety Standards*, (Published in cooperation with the Idaho Industrial Commission.)

Material Safety Data Sheet for Chlorine

Material Safety Data Sheet for Propane

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