

EAGLE

C.L.A.W.S.



COMPLIANCE SOLUTIONS

Containment
Liquid Handling
Assessment
Waste Management
Safety Storage



EAGLE



Call us toll free @ 1-800-474-7294

Interstate Products, Inc.

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Program Summary

EAGLE'S CLAWS Program is designed as a compliance evaluation system utilized to promote employee and public safety, property protection and environmental conservation by specifying approved products that meet specific federal regulations concerning Containment, Liquid Handling, Waste Management, and Safety Storage of Hazardous Materials.

REGULATORY AGENCIES



U.S. Department of Labor Occupational Safety & Health Administration

The Occupational Safety and Health Administration (OSHA), established under the Department of Labor by the OSHA Act of 1970, regulates the storage and use of toxic and hazardous substances as they relate to worker health and safety. OSHA regulations are found in Title 29 of the Code of Federal Regulations, Part 1910, Subpart H.

The OSHA Act requires employers to comply with OSHA standards and regulations and to protect employees from recognized hazards in the workplace. OSHA enforces its rules and regulations by inspecting the workplaces of employers. When violations are discovered during inspections, OSHA issues citations and proposes monetary penalties. OSHA encourages companies to participate in Voluntary Protection Programs. Employers who participate in these Voluntary Compliance Programs develop a new relationship with OSHA and are not subject to programmed inspections; however, compliance remains mandatory.

OSHA: (202) 219-8271
<http://www.osha.gov>



U.S. Environmental Protection Agency

The Environmental Protection Agency (EPA) addresses through the Resource Conservation and Recovery Act (RCRA), the need for facilities with hazardous waste substances to store containers in some kind of containment system.

Stationary containers, such as tanks, as well as portable storage containers, such as 55 gallon drums, are required to have a system that will protect the environment from this waste if a leak were to occur. Hazardous waste regulations appear in Title 40 of the Code of Federal Regulations.

Portable container containment is addressed under Subpart I, Use and Management of Containers (EPA 40 CFR 264.175). Facilities dealing with the storage of hazardous materials may also be required to have containment if they are to meet the Uniform Fire Code (UFC) standards. Within the UFC standards, Section 80, Division III refers to Hazardous Materials Storage Requirements pertaining to containers and tanks and Division IV refers to Spill Control, Drainage Control and Secondary Containment with regard to hazardous materials.

EPA: (800) 621-3431
<http://www.epa.gov>



U.S. Department of Transportation

The U.S. Department of Transportation (DOT) serves as the focal point in the Federal Government for the coordinated National Transportation Policy. The DOT has authority over the shipping and transporting of hazardous materials, including packaging and labeling. The DOT regulations can be found in the Code of Federal Regulations under Title 49 and are based largely upon the recommendations as per the United Nations (UN).



National Fire Protection Association

Since 1896, the National Fire Protection Association (NFPA) has been the most recognized non-profit organization in the world dedicated to the protection of human life and property from the hazards of fire.

NFPA: (800) 344-3555
www.nfpa.org

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Compliance Evaluation

Conducted for _____

Facility Location _____

Date _____

Conducted By _____

Personnel Present _____

Notes _____

Do you have damaged or leaking drums of liquid waste materials?

 Yes

 No

Code(s)

✓ DOT 49 CFR 173.3:

(c) **Salvage Drums.** Packages of hazardous materials that are damaged or found leaking and hazardous materials that have been spilled or leaked may be placed in a metal removable head salvage drum that is compatible with the lading and shipped for repackaging or disposal under the following conditions. (Meet 3 psi test)

✓ DOT 49 CFR 173.25:

Authorized Packages & Overpacks

(a) Authorized packages containing hazardous materials may be offered for transportation in an overpack as defined in 171.8 of this subchapter, if all of the conditions of this section are met.

Recommendations

Eagle Salvage Drums



Model 1602



Model 1695

Eagle Overpack Drums



Model 1690



Model 1650

Do you have secondary containment to protect against leakage or spills of hazardous liquid waste?

 Yes

 No

Code(s)

✓ EPA 40 CFR 264.175:

Containment. (a) Container storage areas must have a containment system that is designed and operated in accordance with paragraph (b) of this section

(b) A containment system must be designed and operated as follows:

(3) The containment system must have sufficient capacity to contain 10% of the volume of containers or the volume of the largest container, whichever is greater. Containers that do not contain free liquids need not be considered in this determination.

Do you have a secure waste collection or dispensing center? Yes No

Recommendations

Eagle Spill Containment Pallets, Platforms & Work Stations



4 Drum Pallet
Model 1645



6 Drum Platform
Model 1686



8 Drum Platform
Model 1688






2 Drum Work Station
Model 1626

Containment of hazardous materials is required for the protection of the environment from contamination as well as for the protection of employees who work in areas where hazardous materials are stored and used.




Do you have a single-drum mobile pumping station, waste collection station or drum storage building?

Yes No

Code(s)	Recommendations
<p>✓ OSHA 29 CFR 1910.106 (e)(2)(iii): Separation and protection. Areas in which flammable or combustible liquids are transferred from one tank or container to another container shall be separated from other operations in the building by adequate distance or by construction having adequate fire resistance. Drainage or other means shall be provided to control spills.</p>	<p>Eagle Single Drum Containment Unit, Drum Funnel, Drip Pan & 4-Drum Building</p>  <p>Model 1612 w/1660 funnel</p>  <p>Model 1646RTC</p>  <p>Drip Pan Model 1670</p>
<p>Do you have drip pans under all drum faucets or leaks? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	
<p>Do you have large diameter funnels to transfer liquids into drums? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	
<p>Do you have drum covers or outside storage building to protect the integrity of drums stored outside as per 40 CFR 265.173? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	

Do you have an area where hazardous materials are dispensed into containers?

Yes No

Code(s)	Recommendations
<p>✓ Uniform Fire Code - Division IV, Section 80.402 (b)(2)(F). Dispensing and Use - Spill Control, Drainage Control and Secondary Containment. "Rooms or areas where hazardous material liquids are dispensed into containers exceeding a 1-gallon capacity or used in open containers or systems exceeding a 5-gallon capacity shall be provided with a means to control spills. Secondary containment shall be provided when the capacity of an individual container exceeds 55 gallons or the aggregate capacity of multiple containers exceeds 100 gallons."</p>	<p>Eagle Stackers, IBC Containment & Spill Pallets</p>  <p>Stacker</p>  <p>Model 1680</p>  <p>Model 1645</p>

EAGLE**C.L.A.W.S.****L**iquid Handling

Do you have approved safety containers for the safe use and temporary storage of flammable liquids?

 Yes No
General Industry Code(s)
 OSHA 29 CFR 1910.106 (a)(29):

Safety can shall mean an approved container, of not more than 5 gallons capacity, having a spring-closing lid and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure.

Are they in sound operating condition, leaktight, with flame arresters intact? Yes No

Construction Standard Code(s)
 OSHA 29 CFR 1926.152

Only approved containers and portable tanks shall be used for storage and handling of flammable and combustible liquids. Approved metal safety cans shall be used for the handling and use of flammable liquids in quantities greater than one gallon. For quantities of one gallon or less, only the original container or approved metal safety cans shall be used for storage, use and handling of flammable liquids.

Recommendations**Eagle Type I & Type II Metal Safety Cans**
 UI-20FS
Type I Safety Can

 UI-50S
Type I Safety Can

 U2-26-S
Type II Safety Can

 U2-51-S
Type II Safety Can
UL & FM Approved

Do you have nonmetallic safety cans where abusive or corrosive conditions exist or oval safety cans where shelf space is limited?

 Yes No
MAXIMUM ALLOWABLE CONTAINER SIZE

LIQUID TYPE Container Type	FLAMMABLE			COMBUSTIBLE
	Class IA	Class IB	Class IC	Class II
Glass or approved plastic	1 pt.	1 qt.	1 gal.	1 gal.
Metal (other than DOT drums)	1 gal.	5 gal.	5 gal.	5 gal.
Safety cans (incl. polyethylene)	2 gal.	5 gal.	5 gal.	5 gal.

NOTE: Container Exemptions: medicines, foodstuffs, cosmetics and other common consumer items.
REFERENCE: OSHA 29 CFR 1910.106

See safety can chemical compatibility on page 16.

Recommendations**Eagle Safety Cans:
Metal, Poly & Stainless
Steel Cans**

Models 1535 & 1537



Models 1541 & 1543



Model 1511

The handling of hazardous liquids is subject to both safety and health regulations requiring protection for employees who work with flammable, combustible and explosive liquids.

Do you have any open containers or hazardous liquids being used in your cleaning operations?

Yes

No

Code(s)

✓ **OSHA 29 CFR 1910.106 (e)(2)(ii):**
Incidental storage or use of flammable and combustible liquids.

Containers. Flammable or combustible liquids shall be stored in tanks or closed containers.

✓ **OSHA 29 CFR 1910.106 (a)(9):**
Closed container shall mean a container as herein defined, so sealed by means of a lid or other device that neither liquid nor vapor will escape from it at ordinary temperatures.

✓ **OSHA 29 CFR 1910.106 (e)(2)(iv)(a):**
Flammable liquids shall be kept in covered containers when not actually in use.

Do you have laboratory cans or faucet cans for safer transfers of flammables from dispensing containers? Yes No

Recommendations

*Eagle Plunger and Bench Cans
Eagle Lab Cans & Faucet Cans*



Model P-711



Model B-601



Models 1511 & 1513



Model 1417

Do you have adequate means of electrically bonding your containers during filling operations?

Yes

No

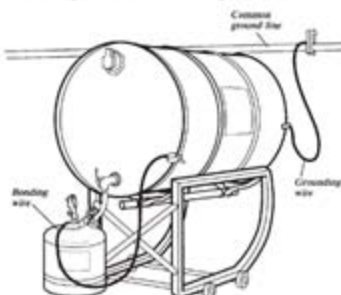
Code(s)

✓ **Uniform Fire Code - Division VIII, Section 79.803 (a) states:**

"Class I liquids shall not be run into containers unless the nozzle and containers are electrically interconnected. The provisions of this section shall be deemed to have been complied with where the metallic floor plates on which the container stands while filling are electrically connected to the fill stem or where the fill stem is bonded to the container during filling by means of a bond wire."

Recommendations

Eagle Grounding Wire



Models 1950 & 1951

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Workplace fires and explosions kill 200 and injure more than 5,000 workers each year.

More than 75,000 workplace fires cost businesses more than \$2 billion and wreak havoc among workers and their families and destroy thousands of businesses each year. CLAWS Assessment surveys should be conducted at least annually and should include observations of worksite safety and housekeeping issues and should specifically address proper handling and storage of chemicals and wastes as specified in this guide.

Objectives:

This assessment guide should give you a general understanding on how to:

- Identify potential environmental, health and safety risks associated with hazardous materials handling and storage in the work environment.
- Conduct a thorough CLAWS compliance assessment and evaluation.
- Comply with specific OSHA, EPA, DOT and local fire codes concerning handling and storage of flammable materials.
- Specify approved products for compliance in these areas.

Facility Assessment:

Know your facility! Know where your risk areas are, what materials are not being handled or stored in a manner that will let you be compliant with the many federal regulations. The CLAWS guide is an easy to use guide to evaluating your facility.

Part I - Identification

Divide the review facility into its functional or physical areas.

- Production area
- Machine Shop area
- Maintenance Area
- Laboratory Area
- Paint Shop Area
- Storage Area (Inside/Outside)
- Shipping Area

Part II - Definition

For each specific physical or functional area, note the following:

- Areas where chemicals are stored or used
- Areas where water or oils are used in the process
- Areas where dispensing and filling takes place
- Areas where leaks or spills are prevalent
- Areas that have self containment or fire suppression
- The temperature, ignition, and ventilation controls
- Potential ignition sources
- Volume of human and equipment traffic

Chemical & Waste Assessment

Know your chemicals. Know exactly what types of chemicals are in your facility and where they are being stored. Make sure all chemicals are in proper containers with proper labeling. Maintain corresponding MSDS sheets for every chemical in case of emergency.

Part I - Identification

Make a list of all chemicals used or stored in each area
Note any area that generates or accumulates waste materials
Note volume of each chemical or waste and type of container
Note the present method of storage (cabinet/counter/rack)
Note the state of the chemical or waste (liquid or solid)
Note any other pertinent information

Part II - Definition

Review MSDS, bill of lading, container label, hazardous I.D. label, numbered placard or other chemical reference material for each chemicals characteristics;

- Hazardous Characteristics
- Storage Requirements
- Compatibility Considerations
- Other Safety Concerns

All chemicals should be properly labeled and have secure lids, if not, contact an expert and dispose of properly.

Hazardous Characteristics - is the material:

Flammable or Combustible (flash point, boiling point)
Toxic
Corrosive
Light Sensitive
Oxidizer/Reducer
Poisonous/Pesticides
Require Special Handling?

Storage Requirements

Temperature (Minimum/Maximum)
Ventilation of Vapors
Ignition Control
Segregation for Compatibility
Special Identification
Volume Limitation
Spill Containment

Compatibility Consideration - when incompatible materials come into contact, fire, explosion, violent reactions or toxic gasses could result.

Do not store the following types of chemicals together:

Acids and Bases
Oxidizers and Organic Materials
Oxidizers and Reducing Agents
Other Incompatible Chemical Combinations

Specification of approved products for facility compliance

Throughout the CLAWS guide you will find the necessary products that will help you meet the federal regulations. You may find the Compliance worksheets on pages 14 and 15 useful on your walk through to record these products. For additional information you may also check out our web site at www.eagle-mfg.com.

Do you have FM Approved waste receptacles for discarding oily and waste solvent rags.

 Yes

 No

Code(s)

✓ OSHA 29 CFR 1910.108 (f)(2):

(2) Waste Cans. When waste or rags are used in connection with dipping operations, approved metal waste cans shall be provided and all impregnated rags or waste deposited therein immediately after use. The contents of waste cans shall be properly disposed of a least once daily at the end of each shift.

✓ OSHA 29 CFR 1910.106 (h)(8)(iii):

Waste and residues. Combustible waste material and residues in a building or operating area shall be kept to a minimum, stored in closed metal waste cans, and disposed of daily.

Do you have liquid waste cans for hazardous and combustible waste? Yes No

Do you have receptacles for clean, safe disposal of ashes and cigarettes? Yes No

Recommendations

Eagle Metal or Poly Oily Waste Cans, Butt Cans & Disposal Cans



Model 1525



Model 1208 & 1208



Model 935FL



Model 1205 & 1202
Butt Can

 Yes

 No

Do you have approved containers for shipping small quantities of hazardous liquids contained in bottles, jars, cans or 5 gallon pails?

Code(s)

✓ DOT 49 CFR 173.12:

(b) Outside packaging. The outside packaging must be a DOT specification metal or fiber drum. It may also be a polyethylene drum capable of withstanding:

(1) The vibration and compression tests specified in 178.19-7 (c)(1) and (2), and

(2) A four foot drop test as specified in 178.224-2 (b).

(c) Inside packagings. The inside packagings must be either glass packagings not exceeding 1-gallon rated capacity, or metal or plastic packagings not exceeding a rated capacity of 5 gallons.

Recommendations

Eagle Lab & Overpack Drums



Model 1650



Model 1601

Waste management is required to decrease the potential exposure associated with handling hazardous waste. The main hazard is flammability. To help prevent fire, hazardous waste needs special precautions for storage, handling and use.

Do you have flammable or combustible hazardous waste stored in drum storage cabinets?

Yes No

Code(s)

✓ **OSHA 29 CFR 1910.106 (e)(2)(ii)(b):** Incidental storage or use of flammable and combustible liquids.

(b) The quantity of liquid that may be located outside of an inside storage room or storage cabinet in a building or in any one fire area of a building shall not exceed:

- (1) 25 gallons of Class IA liquids in containers
- (2) 120 gallons of Class IB, IC, II, or III liquids in containers
- (3) 660 gallons of Class IB, IC, II, or III liquids in a single portable tank.

✓ **OSHA 29 CFR 1910.106 (d)(3)(i&ii):** Design, construction, and capacity of storage cabinets –(I) **Maximum capacity.** Not more than 60 gallons of Class I or Class II liquids, nor more than 120 gallons of Class III liquids may be stored in a storage cabinet.

Recommendations

Eagle Drum Cabinets



Model HAZ 1926

Do you have biohazard waste receptacles for temporary accumulation of waste contaminated with potentially infectious materials?

Yes No

Code(s)

✓ **OSHA 29 CFR 1910.1030**

The blood borne pathogens section applies to all occupational exposure to blood or other potentially infectious materials.

✓ **OSHA 29 CFR 1910.1030**

(d)(4) Housekeeping. (i) General. Employers shall ensure that the worksite is maintained in a clean and sanitary condition. (g) Communication of hazards to employees. (1)(i)(A) Warning labels shall be affixed to containers of regulated waste, (B) Labels required by this section shall include the Biohazard symbol. (C) These labels shall be fluorescent orange or orange-red, with lettering and symbols in contrasting color.

Recommendations

Eagle Bio-Haz Cans



Model 945BIO

Model 943BIO

Do you have flammables and combustibles stored in safety storage cabinets?

Yes No

Code(s)

✓ **OSHA 29 CFR 1910.106 (e)(2)(ii)(b):** Incidental storage or use of flammable and combustible liquids.

(b) The quantity of liquid that may be located outside of an inside storage room or storage cabinet in a building or in any one fire area of a building shall not exceed:

- (1) 25 gallons of Class IA liquids in containers.
- (2) 120 gallons of Class IB, IC, II, or III liquids in containers.
- (3) 660 gallons of Class IB, IC, II, or III liquids in a single portable tank.

Do your cabinets have operational self-closing doors as per the Uniform Fire Code 79.202? Yes No

✓ **OSHA 29 CFR 1910.106 (d)(3)(i & ii):** Design, construction, and capacity of storage cabinets –(i) **Maximum capacity.** Not more than 60 gallons of Class I or Class II liquids, nor more than 120 gallons of Class III liquids may be stored in a storage cabinet.

(ii) **Fire resistance.** Storage cabinets shall be designed and constructed to limit the internal temperature to not more than 325°F when subjected to a 10-minute fire test using the standard time-temperature curve as set forth in Standard Methods of Fire Tests of Building Construction and Materials, NFPA 251-1969. All joints and seams shall remain tight and the door shall remain securely closed during the fire test. Cabinets shall be labeled in conspicuous lettering, **FLAMMABLE-KEEP FIRE AWAY.**

(a) Metal cabinets constructed in the following manner shall be deemed to be in compliance. The bottom, top, door, and sides of cabinet shall be at least No. 18 gauge sheet iron and double walled with 1½-inch air space. Joints shall be riveted, welded or made tight by some equally effective means. The door shall be provided with a three-point lock, and a door sill shall be raised at least 2 inches above the bottom of the cabinet.

Recommendations

Eagle Safety Cabinets



ADD-15

Model 1932



Model 1947



Model 1945

4 to 120 gallon cabinets available

Improper storage and handling of flammable liquids is the leading cause of industrial fires. Proper storage of flammable liquids can help eliminate millions of dollars of damage and help save the lives of your employees.

Do you have drums containing flammable or combustible liquid stored in drum storage cabinets?

Yes No

Code(s)

✓ Uniform Fire Code 79.201

(g) Storage Cabinets. 1. General. When provisions of this code require that liquid containers be stored in storage cabinets, such cabinets and storage shall be in accordance with this section. Cabinets shall be conspicuously labeled in red letters on contrasting background **FLAMMABLE—KEEP FIRE AWAY**.

2. Quantities. The quantity of Class I or Class II liquids shall not exceed 60 gallons and the total quantities of all liquids in a storage cabinet shall not exceed 120 gallons.

3. Construction. Cabinets may be constructed of wood or metal. Cabinets shall be listed or constructed in accordance with the following:

A. Unlisted metal cabinets. Metal cabinets shall be of steel having a thickness of not less than 0.043 inch. The cabinet, including the door, shall be double walled with 1½-inch air space between the walls. Joints shall be riveted or welded and shall be tight fitting. Doors shall be well fitted, self-closing and equipped with a latching device. The bottom of the cabinet shall be liquid-tight to a height of at least two inches.

Recommendations

Eagle Drum Cabinets



Model 1926



Model 1928

Do you have adequate facilities for storage of corrosives, pesticides or paint and ink products?

Yes No

Maximum Storage Quantities For Cabinets

Liquid Class	Maximum Storage Capacity
Flammable/Class I	60 gal.
Combustible/Class II	60 gal.
Combustible Class III	120 gal.
Combination of Classes	120 gal.*

* Not more than 60 gallons may be Class I and Class II liquids. No more than 120 gallons of Class III liquids may be stored in a storage cabinet, according to OSHA 29 CFR 1910.106(d)(3) and NFPA 30 Section 4-3.1.

Note: Not more than three such cabinets may be located in a single fire area, according to NFPA 30 Section 4-3.1.

Recommendations

Eagle Acid Corrosive, Pesticide, and Paint & Ink Cabinets



Model CRA-47

High Density Polyethylene Chemical Resistance Guide

70°F 140°F (21°C)(60°C)			70°F 140°F (21°C)(60°C)			70°F 140°F (21°C)(60°C)		
Reagent			Reagent			Reagent		
Acetaldehyde	S	O	Butter	S	S	Dichlorobenzene (O&P)	U	U
Acetic acid 1-10%	S	S	Butyl acetate 100%	O	U	Diethylene glycol	S	S
Acetic acid 10-50%	S	O	Butyl alcohol 100%	S	S	Disodium phosphate	S	S
Acetic acid 50-100%	S	O	Butylene glycol	S	S	Dioxane	S	S
Acetic anhydride	S	S	Butyric acid 100%	S	S	Emulsions photographic	S	S
Acetone	S	S	Caffeine citrate saturated	S	S	Ether	O	O
Acids, aromatic	S	S	Calcium bisulfide	S	S	Ethyl acetate 100%	O	O
Acrylic emulsions	S	S	Calcium bromide	S	S	Ethyl alcohol 100%	S	S
Adipic acid	S	S	Calcium carbonate sat'd.	S	S	Ethyl alcohol 35%	S	S
Aluminum chloride dilute	S	S	Calcium chlorate saturated	S	S	Ethylbenzene	O	U
Aluminum chloride conc.	S	S	Calcium chloride saturated	S	S	Ethylene glycol	S	S
Aluminum fluoride conc.	S	S	Calcium hydroxide	S	S	Ferric chloride sat'd.	S	S
Aluminum sulfate conc.	S	S	Calcium hypochlorite			Ferric nitrate sat'd.	S	S
Alume (all types) conc.	S	S	bleach sol'n	S	S	Ferrous ammonium citrate	S	S
Amino acetic acid	S	S	Calcium nitrate 50%	S	S	Ferrous chloride sat'd.	S	S
Ammonia 100% dry gas	S	S	Calcium sulfate	S	S	Ferrous sulfate	S	S
Ammonium acetate	S	S	Camphor crystals	S	S	Fluoboric acid	S	S
Ammonium bromide	S	S	Camphor oil	U	U	Fluorine	S	U
Ammonium carbonate	S	S	Carbon dioxide 100% dry	S	S	Fluosilicic acid 32%	S	S
Ammonium chloride sat'd.	S	S	Carbon dioxide 100% wet	S	S	Fluosilicic acid conc.	S	S
Ammonium fluoride 20%	S	S	Carbon dioxide cold sat'd.	S	S	Formaldehyde		
Ammonium hydroxide	S	S	Carbon disulfide	O	U	10-30%	S	S
Ammonium			Carbon monoxide	S	S	30-40%	S	O
metaphosphates sat'd.	S	S	Carbon tetrachloride	U	U	Formic acid 20%	S	S
Ammonium nitrate sat's.	S	S	Carbonic acid	S	S	Formic acid 50%	S	S
Ammonium			Carnauba wax	S	S	Formic acid 100%	S	S
persulfate sat'd	S	S	Carrot juice	S	S	Fructose saturated	S	S
Ammonium phosphate	S	S	Castor oil conc.	S	S	Fuel oil	S	U
Ammonium sulfate sat'd.	S	S	Catsup	S	S	Furfural 100%	O	U
Ammonium sulfide sat'd.	S	S	Caustic soda	S	O	Furfuryl alcohol	S	O
Ammonium			Cedar leaf oil	U	U	Gallic acid saturated	S	S
thiocyanate sat'd.	S	S	Cedar wood oil	U	U	Gasolene	S	U
Amyl acetate 100%	O	U	Chlorine liquid	O	U	Glucose	S	S
Amyl alcohol 100%	S	S	Chlorobenzene	O	U	Glycerine	S	S
Amyl chloride 100%	O	U	Chloroform	U	U	Glycol	S	S
Aniline 100%	S	U	Chlorosulfonic acid 100%	U	U	Glycolic acid 30%	S	S
Anise seed oil	O	U	Chrome alum sat'd.	S	S	Grape juice	S	S
Antimony chloride	S	S	Chromic acid 10-20%	S	O	Grapefruit juice	S	S
Aqua regia	O	U	Chromic acid 50%	S	O	Heptane	O	U
Aromatic hydrocarbons	U	U	Cider	S	S	Hexachlorobenzene	S	S
Arsenic	S	S	Cinnamon	S	S	Hexane	U	U
Aspirin	S	S	Cinnamon oil	U	U	Hydrobromic acid 50%	S	S
Barium carbonate sat'd.	S	S	Citric acid sat'd.	S	S	Hydrochloric acid 10%	S	S
Barium chloride saturated	S	S	Citronella oil	O	U	Hydrochloric acid 30%	S	S
Barium hydroxide	S	S	Cloves (ground)	S	S	Hydrochloric acid 35%	S	S
Barium sulfate saturated	S	S	Coconut oil alcohols	S	S	Hydrocyanic acid	S	S
Barium sulfide saturated	S	S	Cod liver oil	S	S	Hydrocyanic acid sat'd.	S	S
Beer	S	S	Coffee	S	S	Hydrofluoric acid 40%	S	S
Benzaldehyde	S	O	Copper chloride sat'd.	S	S	Hydrofluoric acid 60%	S	S
Benzene	O	U	Copper cyanide sat'd.	S	S	Hydrofluoric acid 75%	S	S
Benzene sulfonic acid	S	S	Copper fluoride 2%	S	S	Hydrogen 100%	S	S
Benzic acid			Copper nitrate sat'd.	S	S	Hydrogen bromide 10%	S	S
Crystals	S	S	Copper sulfate dilute	S	S	Hydrogen chloride gas dry	S	S
Saturated	S	S	Corn oil	S	S	Hydrogen peroxide 30%	S	S
Bismuth carbonate sat'd.	S	S	Cottonseed oil	S	S	Hydrogen peroxide 90%	S	O
Black liquor	S	S	Cranberry sauce	S	S	Hydroquinone	S	S
Bleach lye 10%	S	S	Creola	S	O	Hydrogen sulfide	S	S
Borax cold saturated	S	S	Cuprous chloride sat'd	S	S	Hypochlorous acid conc.	S	S
Boric acid dilute	S	S	Cuprous oxide	S	S	Inks	S	S
Brine	S	S	Cyclohexane	U	U	Iodine crystals	O	O
Bromic acid 10%	S	S	Cyclohexanone	U	U	Isobutyl alcohol	S	S
Bromine liquid 100%	O	U	Decalin	S	U	Isopropyl alcohol	S	S
Bromochloromethane	U	U	Detergents synthetic	S	S	Isopropyl ether	O	U
Butadiene	U	U	Developers photographic	S	S	Kerosene	O	O
Butanediol 10%	S	S	Dextrin saturated	S	S	Lactic acid 10%	S	S
Butanediol 60%	S	S	Dextrose saturated	S	S	Lactic acid 90%	S	S
Butanediol 100%	S	S	Dibutyl ether	O	U	Lanolin	S	S

High Density Polyethylene Chemical Resistance Guide

70°F 140°F (21°C)(60°C)		70°F 140°F (21°C)(60°C)		70°F 140°F (21°C)(60°C)	
Reagent		Reagent		Reagent	
Lard	S S	Pine oil	O U	Sodium nitrate	S S
Lead acetate sat'd.	S S	Plating solutions		Sodium nitrite	S S
Lead nitrate	S S	Brass	S S	Sodium perborate	S S
Lemon juice	S S	Cadmium	S S	Sodium phosphate	S S
Lemon oil	O U	Chromium	S S	Sodium sulfide 25%	
Lime juice	S S	Copper	S S	to saturated	S S
Linseed oil	S S	Gold	S S	Sodium sulfite sat'd	S S
Magnesium sulfate sat'd.	S S	Indium	S S	Sodium thiosulphate	S S
Margarine	S S	Lead	S S	Soybean oil	S S
Magnesium carbonate sat'd.	S S	Nickel	S S	Stannous chloride sat'd.	S S
Magnesium chloride saturated	S S	Rhodium	S S	Stannic chloride sat'd.	S S
Magnesium hydroxide sat'd.	S S	Silver	S S	Starch solution sat'd.	S S
Magnesium nitrate sat'd.	S S	Tin	S S	Stearic acid 100%	S S
Mercuric chloride	S S	Zinc	S S	Sulfuric acid 0-50%	S S
Mercuric cyanide sat'd.	S S	Potassium		Sulfuric acid 70%	S O
Mercurous nitrate sat'd.	S S	bicarbonate sat'd.	S S	Sulfuric acid 80%	S U
Mercury	S S	Potassium borate 1%	S S	Sulfuric acid 96%	O U
Methyl alcohol 100%	S S	Potassium bromate 10%	S S	Sulfuric acid 96% conc.	O U
Methyl ethyl ketone 100%	U U	Potassium bromide sat'd.	S S	Sulfuric acid fuming	U U
Methylsulfuric acid	S S	Potassium carbonate	S S	Sulfurous acid	S S
Methylene chloride 100%	U U	Potassium chlorate sat'd.	S S	Tartaric acid	S S
Milk	S S	Potassium chloride sat'd.	S S	Tannic acid 10%	S S
Mineral oils	S U	Potassium cyanide sat'd.	S S	Tea	S S
Molasses	S S	Potassium dichromate 40%	S S	Tetrahydrofurane	O O
Mustard (prepared)	S S	Potassium ferri/fero cyanide	S S	Toluene	U U
Naphtha	O U	Potassium nitrate sat'd.	S S	Tomato juice	S S
Napthalene	S U	Potassium perborate sat'd.	S S	Transformer oil	S O
Natural gas (wet)	S S	Potassium persulfate 10%	S S	Trisodium phosphate sat'd.	S S
Nickel chloride sat'd.	S S	Potassium permanganate 20%	S S	Trichloroethylene	U U
Nickel nitrate conc.	S S	Potassium sulfate conc.	S S	Turpentine	O U
Nickel sulfate	S S	Potassium sulfide conc.	S S	Urea	S S
Nicotinic acid	S S	Nickel sulfate	S S	Urine	S S
Nitric acid 0-30%	S S	Potassium sulfite conc.	S S	Vanilla extract	S S
Nitric acid 30-50%	S O	Potassium		Vaseline	S S
Nitric acid 70%	S O	persulfate sat'd.	S S	Vinegar com.	S S
Nitric acid 85-90%	U U	Propane gas	S S	Wetting agents	S S
Nitrobenzene 100%	U U	Propargyl alcohol	S S	Whiskey	S S
Nitroglycerine	O U	Propyl alcohol	S S	Wines	S S
Octane	S S	Propylene glycol	S S	Xylene	U U
Oleura conc.	U U	Pyridine	S O	Yeast	S S
Olive oil	S S	Rayon coagulating bath	S S	Zinc chloride sat'd.	S S
Orange juice	S S	Resorcinol	S S	Zinc oxide	S S
Ozalic acid dilute	S S	Salicylic acid	S S	Zinc sulfate sat'd.	S S
Ozalic acid saturated	S S	Sea water	S S		
Ozone	O O	Shortening	S S		
Palm oil	S S	Silicic acid	S S		
Paraffin oil	S O	Silver nitrate sol'n.	S S		
Peanut butter	S S	Soap solution conc.	S S		
Perchloroethylene	U U	Sodium acetate sat'd.	S S		
Pepper (fresh ground)	S S	Sodium benzoate 35%	S S		
Peppermint oil	O U	Sodium bicarbonate sat'd.	S S		
Perchloric acid 50%	S O	Sodium bisulfate sat'd.	S S		
Petroleum ether	U U	Sodium bisulfite sat'd.	S S		
Petroleum jelly	S S	Sodium borate	S S		
Phenol	S S	Sodium carbonate conc.	S S		
Phosphoric acid 0-30%	S S	Sodium chlorate sat'd.	S S		
Phosphoric acid 30-90%	S S	Sodium chloride sat'd.	S S		
Phosphoric acid over 90%	S S	Sodium cyanide	S S		
Photographic solutions	S S	Sodium dichromate sat'd.	S S		
Phthalic anhydride	S S	Sodium ferricyanide sat'd.	S S		
Pickling baths		Sodium ferricyanide	S S		
Sulfuric acid	S S	Sodium fluoride sat'd.	S S		
Hydrochloric acid	S S	Sodium hypochlorite	S S		
Sulfuric-nitric	S U				

Legend:

S = Satisfactory

O = Some Attack

U = Unsatisfactory

Note:

The above information concerns general chemical resistance only. Since other factors such as permeation, ESCR, and container design are involved full compatibility testing is recommended.

Glossary

Approved - approved, or listed, by a nationally recognized testing laboratory.

Bloodborne Pathogens - pathogenic micro-organisms that are present in human blood and can cause disease in humans.

Boiling Point - the boiling point of a liquid at a pressure of 14.7 pounds per square inch absolute (p.s.i.a.).

Bonding - the interconnecting of two objects with clamps and wires to equalize the electrical potential to help prevent static sparks that could ignite flammable materials.

Closed Container - a container sealed by means of a lid or other device that neither liquid nor vapor will escape from it at ordinary temperatures.

Container - any can, canister, or drum.

Contaminated - the presence of the recognizable antiprimered presence of blood or other potentially infectious materials or an item or surface.

Fire Area is defined by NFPA Code 30 as an area of a building separated from the remainder of the building by construction having a fire resistance of at least 1 hour and having all communicating openings properly protected by an assembly having a fire resistance rating of at least 1 hour. The NFPA also provides a special provision for the grouping of flammable cabinets in an industrial facility due to the lack of walls or barriers. In an industrial occupancy additional cabinets may be located in the same fire area if the additional cabinets, or the group of not more than three (3) cabinets, is separated from the other cabinets or group of cabinets by at least 100 feet (30m).

Flammable Aerosol - an aerosol which is required to be labeled "Flammable" under the Federal Hazardous Substances Labeling Act. Such aerosols are considered Class IA liquids.

Flame Arrestor - a mesh or perforated metal insert within a flammable storage container (safety can, cabinet) which protects its contents from external flames or ignition by absorbing and dissipating heat entering the can, therefore keeping the vapor pressure below its ignition point.

Flashpoint - the lowest temperature at which a flammable vapor-air mixture above the liquid will ignite when an ignition source is present.

FM - Factory Mutual - a national testing laboratory and approval service recognized by OSHA.

Grounding - the conducting connection between a container and ground, usually with a wire, to prevent generation of static electric sparks.

Liquid - any material which has a fluidity greater than that of SUJ penetration asphalt when tested in accordance with ASTM Test for Penetration for Bituminous Materials.

Regulated Waste - liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

UN Markings - UN 1492/0340/SG/00USA/M990

- Type of Container (01, 02), Material of construction (plast), V - Removable head/X - Testing performance (X-Groups I, II, & III), 240 Max. Wt. of Contents, Kg/G-solids/90 - Year of Manufacture, USA-State & authorization Mark/W - certification compliance, 1000 - Testing Agency number.

Vapor Pressure - the pressure measured in pounds per square inch (absolute) exerted by a volatile liquid as determined by the U.S. standard Method of Test for Vapor Pressure of Petroleum Products (Reid Method).

FLAMMABLE AND COMBUSTIBLE LIQUIDS DEFINED		
Flammable		
Flashpoint less than 100 °F		
Class	Flashpoint	Boiling Point
IA	<73°F	<130°F
IB	<73°F	>130°F
IC	73°F - 100°F	—
Combustible		
Flashpoint at or above 100 °F		
Class	Flashpoint	Boiling Point
II	100° - 140°F	—
IIIa	140° - 200°F	—
IIIb	>200°F	—

Liquid volatility increases with temperature. Classes change with mixture and concentration. Reference: OSHA 29 CFR 1910.106 (b)(1)

SAFETY CAN-CHEMICAL COMPATIBILITY							
Reagent	1	2	3	Reagent	1	2	3
Acetic Acid	X	Y	Y	Acid 01	X	Y	Y
Acetone	X	Y	Y	Acid 02	X	Y	Y
Aniline	X	Y	Y	Alkali 01	X	Y	Y
Benzene	X	Y	Y	Alkali 02	X	Y	Y
Carbon Tetrachloride	X	Y	Y	Alkali 03	X	Y	Y
Chloroform	X	Y	Y	Alkali 04	X	Y	Y
Cyclohexane	X	Y	Y	Alkali 05	X	Y	Y
Dioxane	X	Y	Y	Alkali 06	X	Y	Y
Diethyl Ether	X	Y	Y	Alkali 07	X	Y	Y
Dimethyl Sulfoxide	X	Y	Y	Alkali 08	X	Y	Y
Formic Acid	X	Y	Y	Alkali 09	X	Y	Y
Hydrochloric Acid	X	Y	Y	Alkali 10	X	Y	Y
Hydrofluoric Acid	X	Y	Y	Alkali 11	X	Y	Y
Hydroperoxide	X	Y	Y	Alkali 12	X	Y	Y
Hydroxylamine	X	Y	Y	Alkali 13	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 14	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 15	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 16	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 17	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 18	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 19	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 20	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 21	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 22	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 23	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 24	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 25	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 26	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 27	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 28	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 29	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 30	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 31	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 32	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 33	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 34	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 35	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 36	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 37	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 38	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 39	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 40	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 41	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 42	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 43	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 44	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 45	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 46	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 47	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 48	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 49	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 50	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 51	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 52	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 53	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 54	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 55	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 56	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 57	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 58	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 59	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 60	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 61	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 62	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 63	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 64	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 65	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 66	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 67	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 68	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 69	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 70	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 71	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 72	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 73	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 74	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 75	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 76	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 77	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 78	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 79	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 80	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 81	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 82	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 83	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 84	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 85	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 86	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 87	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 88	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 89	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 90	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 91	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 92	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 93	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 94	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 95	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 96	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 97	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 98	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 99	X	Y	Y
Hydroxylamine Oxide	X	Y	Y	Alkali 100	X	Y	Y

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