

MSA FACILITIES SAFETY AND HEALTH INSPECTION PROGRAM

Chemical Management



Approved for Public Release;
Further Dissemination Unlimited

Chemical Management

At the completion of this unit you shall be able to:

1. Utilize section L of the Safety and Health Hazard Inspection Program Checklist to identify compliant and non-compliant safety behaviors.
2. Identify areas of concern requiring immediate action to.

Please use "Slide Show" to properly view this presentation!

Chemical Management

- Section L of the checklists deals with chemical management and includes not only Industrial Safety but Environmental issues as well. Due to the size of this section it will be presented in two sections.

MSA GENERAL INDUSTRY-BASED SAFETY AND HEALTH
HAZARD INSPECTION CHECKLIST

No.	Inspection Observations	Compliant?	See Comments (indicate with X)
		Y•N•N/A	
4	Hearing protection devices are provided and worn by employees where noise level exposures cannot be adequately reduced thru application of engineering or administrative controls.		
5	Other.		
L	CHEMICAL MANAGEMENT		
1	Chemical storage area is neat and well maintained (separates non-compatible materials such as oxidizers, flammables, acids, bases, and caustics).		
2	Chemical storage area is away from heat and ignition sources and protected from disturbance by routine activities.		
3	Chemical containers have legible labels, are properly sealed and are not rusty, bulging or otherwise degraded. Manufacturer expiration dates on chemical containers have not been exceeded.		
4	Chemical storage cabinets are structurally sound have no indication of leakage, standing liquids, or corrosion and are in a condition to contain any liquids that might spill or collect inside.		
5	Universal Waste Lamps, Batteries, etc. are being managed according to WAC 173-303-573 (22) (c) and the CCRC Management Plan requirements.		
6	Chemical spill kits are available and properly stocked.		
7	Satellite Accumulation Area Containers are at or near the point of generation, and being managed according to WAC-173-303-630 and MSC-PRO-15333.		
8	Applicable Material Safety Data Sheets (MSDS) are available and readily accessible for employees to review.		
9	Hazardous material containers are properly labeled and stored including secondary containers.		
10	Liquids are stored in approved storage cabinets and containers.		
11	Flammable and combustible storage quantity limits are not exceeded.		
12	Storage areas are bermed (if required), ventilated, and protected from physical damage, etc.		
13	When transferring flammable liquids, containers are bonded and grounded.		
14	Combustible waste is stored in closed containers and disposed of when full.		
15	Oily or used shop rags are collected in closed metal containers and emptied as required.		
16	Other.		
M	COMPRESSED GASES (Including LPG)		
1	Compressed gas cylinders (full or empty) are stored as designed (horizontal /vertical) and secured with protective caps in place.		

Chemical Management (section 1)

1. Chemical storage area is neat and well maintained (separates non-compatible materials such as oxidizers, flammables, acids, bases, and caustics).
2. Chemical storage area is away from heat and ignition sources and protected from disturbance by routine activities.
3. Chemical containers have legible labels, are properly sealed and are not rusty, bulging or otherwise degraded. Manufacturer expiration dates on chemical containers have not been exceeded.
4. Chemical storage cabinets are structurally sound have no indication of leakage, standing liquids, or corrosion and are in a condition to contain any liquids that might spill or collect inside.
5. Universal Waste Lamps, Batteries, etc. are being managed according to WAC 173-303-573 (22) (c) and the CCRC Management Plan requirements.
6. Chemical spill kits are available and properly stocked.
7. Satellite Accumulation Area Containers are at or near the point of generation, and being managed according to WAC-173-303-630 and MSC-PRO-15333.

Chemical Management

1. Chemical storage area is neat and well maintained (separates non-compatible materials such as oxidizers, flammables, acids, bases, and caustics).
 - ▣ The purpose of this item is to ensure that chemicals are stored properly and safely and that the chemical storage area is orderly. Specifically that incompatible chemicals are separated and the storage unit is organized.



Chemical Management

1. Chemical storage area is neat and well maintained (separates non-compatible materials such as oxidizers, flammables, acids, bases, and caustics).
 - ▣ A compliant rating would indicate that chemicals are stored with other “compatible” chemicals and that an unforeseen leak will not end up in a serious reaction.



Chemical Management

1. Chemical storage area is neat and well maintained (separates non-compatible materials such as oxidizers, flammables, acids, bases, and caustics).
 - ❑ A non compliant rating would indicate that either the organization of the storage unit was lacking or incompatible chemicals were stored together.
 - ❑ In this example (from a university lab) leakage of the chemicals could create an explosion that would completely destroy the cabinet and the room itself.



Chemical Management

2. Chemical storage area is away from heat and ignition sources and protected from disturbance by routine activities.



- ▣ This item deals with the location of the chemical storage. Is it located where it could be exposed to excessive heat? Is it located where it could be struck by material handling equipment?
- ▣ In a nutshell is the cabinet located such that it will not be damaged?

Chemical Management

2. Chemical storage area is away from heat and ignition sources and protected from disturbance by routine activities.
 - ▣ A compliant rating would indicate that it was located properly.



Chemical Management

2. Chemical storage area is away from heat and ignition sources and protected from disturbance by routine activities.



- ▣ A non compliant rating would indicate that the storage is in a location where problems could arise.

Chemical Management

3. Chemical containers have legible labels, are properly sealed and are not rusty, bulging or otherwise degraded. Manufacturer expiration dates on chemical containers have not been exceeded.
- ▣ The purpose of this item is to ensure that all chemicals are labeled, sealed, in good condition, and have not exceeded their expiration dates.
 - ▣ Let's take a look at some of these issues.



Chemical Management

3. Chemical containers have legible labels, are properly sealed and are not rusty, bulging or otherwise degraded. Manufacturer expiration dates on chemical containers have not been exceeded.

▣ Labeling:

- Are the labels legible not only on the original can but any applicable secondary containers?
- A compliant finding would indicate labels are present and legible.



Chemical Management

3. Chemical containers have legible labels, are properly sealed and are not rusty, bulging or otherwise degraded. Manufacturer expiration dates on chemical containers have not been exceeded.

▣ Labeling:

- Are the labels legible not only on the original can but any applicable secondary containers?
- A compliant finding would indicate labels are present and legible.
- A non compliant rating would indicate a problem.



Chemical Management

3. Chemical containers have legible labels, are properly sealed and are not rusty, bulging or otherwise degraded. Manufacturer expiration dates on chemical containers have not been exceeded.
- ▣ Another issue is to ensure that the chemicals in use have not exceeded their expiration dates.
 - ▣ Expired chemicals can create some of the issues discussed in the previous item (rusting, crystallizing, expansion, etc.)



Chemical Management

3. Chemical containers have legible labels, are properly sealed and are not rusty, bulging or otherwise degraded. Manufacturer expiration dates on chemical containers have not been exceeded.

- Is the container misshapen such that reactions in the container could've caused a vacuum or overpressure?



Chemical Management

3. Chemical containers have legible labels, are properly sealed and are not rusty, bulging or otherwise degraded. Manufacturer expiration dates on chemical containers have not been exceeded.
 - ▣ Is the container misshapen such that reactions in the container could've caused a vacuum or overpressure?
 - ▣ What about crystals forming on the outside?



Chemical Management

3. Chemical containers have legible labels, are properly sealed and are not rusty, bulging or otherwise degraded. Manufacturer expiration dates on chemical containers have not been exceeded.

- ▣ Is the container misshapen such that reactions in the container could've caused a vacuum or overpressure?
- ▣ What about crystals forming on the outside?
- ▣ Excessive corrosion?
- ▣ If you do not have any of these issues than you are compliant.



Chemical Management

3. Chemical containers have legible labels, are properly sealed and are not rusty, bulging or otherwise degraded. Manufacturer expiration dates on chemical containers have not been exceeded.

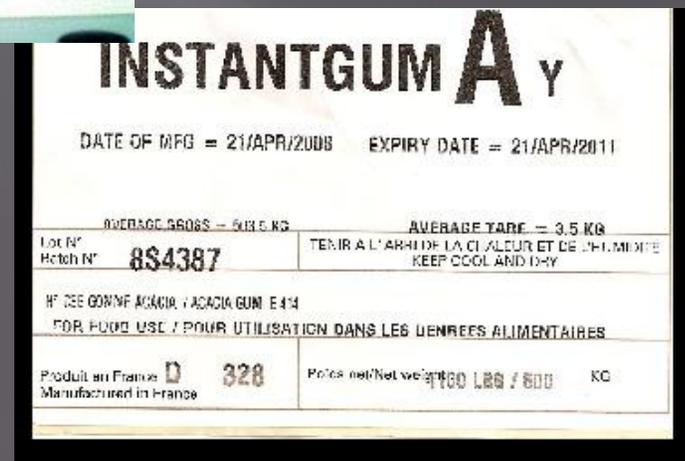
DO NOT attempt to handle a damaged container, contact your ECO or OHS immediately so a determination of disposal can be made.



Chemical Management

3. Chemical containers have legible labels, are properly sealed and are not rusty, bulging or otherwise degraded. Manufacturer expiration dates on chemical containers have not been exceeded.

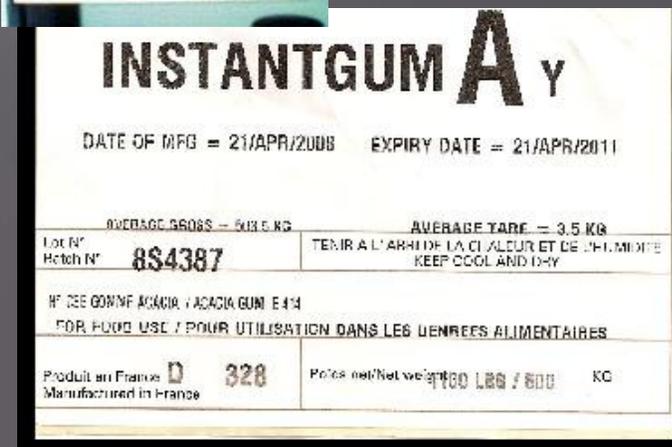
- Another issue in this item deals with the actual condition of the container. Does it appear to be able to safely contain the chemical?
- Let's look a little closer at some things that could be wrong.



Chemical Management

3. Chemical containers have legible labels, are properly sealed and are not rusty, bulging or otherwise degraded. Manufacturer expiration dates on chemical containers have not been exceeded.

- Overall if all the containers were labeled, had not exceeded their expiration dates, and were in good shape you can mark this as a compliant item.



Chemical Management

4. Chemical storage cabinets are structurally sound have no indication of leakage, standing liquids, or corrosion and are in a condition to contain any liquids that might spill or collect inside.
 - ▣ This item is to ensure that chemical storage cabinets are properly labeled and in good shape.



Chemical Management

4. Chemical storage cabinets are structurally sound have no indication of leakage, standing liquids, or corrosion and are in a condition to contain any liquids that might spill or collect inside.
 - ▣ The importance of this item can be shown from these pictures of a cabinet containing Xylene (an highly flammable liquid) that was involved in a fire at a University Lab.



There was excessive heat and much of the building was destroyed.



Despite the heat the cabinet was able to protect the Xylene. This also means should the fire have started inside the cabinet, the building (and occupants) would've had sufficient time to evacuate.

Chemical Management

4. Chemical storage cabinets are structurally sound have no indication of leakage, standing liquids, or corrosion and are in a condition to contain any liquids that might spill or collect inside.
 - ▣ We also need to look to see if there is any standing liquid or evidence of liquid leaking out of the cabinet.



Chemical Management

4. Chemical storage cabinets are structurally sound have no indication of leakage, standing liquids, or corrosion and are in a condition to contain any liquids that might spill or collect inside.
 - ▣ We also need to look to see if there is any standing liquid or evidence of liquid leaking out of the cabinet.
 - ▣ This could mean rust holes or cracked seams.



Chemical Management

4. Chemical storage cabinets are structurally sound have no indication of leakage, standing liquids, or corrosion and are in a condition to contain any liquids that might spill or collect inside.
- ▣ As a rule of thumb if the cabinet is in good shape, no holes or standing liquid or evidence of leakage then this item is compliant.



Chemical Management

4. Chemical storage cabinets are structurally sound have no indication of leakage, standing liquids, or corrosion and are in a condition to contain any liquids that might spill or collect inside.
- ▣ On the other hand if the cabinet does have these issues you need to note it as non compliant and take corrective actions.



Chemical Management

5. Universal Waste Lamps, Batteries, etc. are being managed according to State and the CCRC Management Plan requirements.

▣ Universal wastes are defined as specific hazardous/dangerous waste streams where regulations are tailored to encourage recycling.

▣ Among these are:

- Light bulbs
- Batteries
- Mercury Containing Equipment (MCE)



Chemical Management

5. Universal Waste Lamps, Batteries, etc. are being managed according to State and the CCRC Management Plan requirements.
 - ▣ The purpose of this item is to ensure that these types of materials have been identified and are tracked to ensure that they are in a condition to be recycled to another facility without creating a hazard for employees.



Chemical Management

5. Universal Waste Lamps, Batteries, etc. are being managed according to State and the CCRC Management Plan requirements.
- Let's talk a bit about light bulbs.
 - The type of bulbs we are concerned about as universal waste include:
 - Fluorescent Lamps
 - High Intensity Lamps
 - Mercury Vapor Lamps
 - High Pressure Sodium Lamps
 - Metal Halide Lamps
 - AND Projector Lamps



Chemical Management

5. Universal Waste Lamps, Batteries, etc. are being managed according to State and the CCRC Management Plan requirements.

- Sort lamps by type to minimize Breakage.
- Accumulation start date will be marked on each container based on the date first lamp is put in container.
- If several containers are composited in one container, the accumulation date will match the earliest date of any container

UNIVERSAL WASTE
FEDERAL LAW PROHIBITS IMPROPER DISPOSAL
The following materials are regulated as a Universal Waste in accordance with 40 CFR Part 273, WAC 173-303-077 and 173-303-573.
<input type="checkbox"/> UNIVERSAL WASTE-BATTERIES _____ <small>Type of Battery</small>
<input type="checkbox"/> UNIVERSAL WASTE-MERCURY THERMOSTATS _____
<input type="checkbox"/> UNIVERSAL WASTE-MERCURY CONTAINING EQUIPMENT _____
<input checked="" type="checkbox"/> UNIVERSAL WASTE-LAMPS _____ <small>Type of Lamp</small>
ACCUMULATION START DATE: _____



Chemical Management

5. Universal Waste Lamps, Batteries, etc. are being managed according to State and the CCRC Management Plan requirements.

- ❑ Used lamps should be stored in suitable containers. Original boxes are best – but any sturdy box or drum they fit in is fine.
- ❑ Containers must have a universal waste label identify the type of lamp, be dated and kept closed.
- ❑ Do not store boxes outside.
- ❑ Do not tape lamps together in bundles!
- ❑ Universal waste can be accumulated for 1 year after the accumulation start date.

UNIVERSAL WASTE
FEDERAL LAW PROHIBITS IMPROPER DISPOSAL
The following materials are regulated as a Universal Waste in accordance with 40 CFR Part 273, WAC 173-303-077 and 173-303-573.
<input type="checkbox"/> UNIVERSAL WASTE-BATTERIES _____ <small>Type of Battery</small>
<input type="checkbox"/> UNIVERSAL WASTE-MERCURY THERMOSTATS _____
<input type="checkbox"/> UNIVERSAL WASTE-MERCURY CONTAINING EQUIPMENT _____
<input checked="" type="checkbox"/> UNIVERSAL WASTE-LAMPS _____ <small>Type of Lamp</small>
ACCUMULATION START DATE: _____



Chemical Management

5. Universal Waste Lamps, Batteries, etc. are being managed according to State and the CCRC Management Plan requirements.

▣ Universal Waste Batteries include the following but are not limited to:

- Alkaline
- Nickel Cadmium
- Metal Hydride
- Silver Oxide
- Mercury Oxide
- Lithium
- Zinc Cadmium
- NOTE: Spent Lead-Acid Batteries must be managed under the optional lead-acid battery exemption (WAC 173-303-520) if they are to be sent to the CCRC.



Chemical Management

5. Universal Waste Lamps, Batteries, etc. are being managed according to State and the CCRC Management Plan requirements.

- Batteries that are > 9 Volts, with a specific DOT shipping name (such as Lithium(Li) and Nickel Cadmium (NiCd) shall have their terminals taped with duct tape, electrical tape, or may be placed individually in a plastic bag.
- All liquid filled batteries (such as lead acid) shall have caps, plugs, or covers over the opening to prevent spills or releases.



Chemical Management

5. Universal Waste Lamps, Batteries, etc. are being managed according to State and the CCRC Management Plan requirements.

- Place batteries into a labeled UW container appropriate for the battery type
 - Each container shall be marked Universal Waste – Batteries (insert type)
 - Each container shall list the date when it was placed into service.
 - A container should be removed when full or when 1 year has lapsed since it was placed into service.



<p>UNIVERSAL WASTE</p> <p>FEDERAL LAW PROHIBITS IMPROPER DISPOSAL</p> <p>The following materials are regulated as a Universal Waste in accordance with 40 CFR Part 273, WAC 173-303-077 and 173-303-573.</p> <p><input checked="" type="checkbox"/> UNIVERSAL WASTE-BATTERIES _____ <i>Type of Battery</i></p> <p><input type="checkbox"/> UNIVERSAL WASTE-MERCURY THERMOSTATS _____</p> <p><input type="checkbox"/> UNIVERSAL WASTE-MERCURY CONTAINING EQUIPMENT _____</p> <p><input type="checkbox"/> UNIVERSAL WASTE-LAMPS _____ <i>Type of Lamp</i></p> <p>ACCUMULATION START DATE: _____</p>

Chemical Management

5. Universal Waste Lamps, Batteries, etc. are being managed according to State and the CCRC Management Plan requirements.
- ◆ Mercury-Containing Equipment (MCE) is defined as a device or part of a device that contains elemental mercury integral to its function.
 - ◆ Some commonly recognized types of MCE include the following, but are not limited to:
 - Thermometers
 - Thermostats
 - Barometers
 - Manometers
 - Temperature and Pressure Gauges
 - Mercury Switches



Chemical Management

5. Universal Waste Lamps, Batteries, etc. are being managed according to State and the CCRC Management Plan requirements.
 - It is not the intent of this program to cover all aspects of MCE handling or use. But, just as the other Universal Wastes discussed previously the containers must be intact, appropriate, labeled and dated.

UNIVERSAL WASTE
FEDERAL LAW PROHIBITS IMPROPER DISPOSAL
The following materials are regulated as a Universal Waste in accordance with 40 CFR Part 273, WAC 173-303-077 and 173-303-573.
<input type="checkbox"/> UNIVERSAL WASTE-BATTERIES _____ <i>Type of Battery</i>
<input type="checkbox"/> UNIVERSAL WASTE-MERCURY THERMOSTATS
<input checked="" type="checkbox"/> UNIVERSAL WASTE-MERCURY CONTAINING EQUIPMENT
<input type="checkbox"/> UNIVERSAL WASTE-LAMPS _____ <i>Type of Lamp</i>
ACCUMULATION START DATE: _____

UNIVERSAL WASTE
FEDERAL LAW PROHIBITS IMPROPER DISPOSAL
The following materials are regulated as a Universal Waste in accordance with 40 CFR Part 273, WAC 173-303-077 and 173-303-573.
<input type="checkbox"/> UNIVERSAL WASTE-BATTERIES _____ <i>Type of Battery</i>
<input checked="" type="checkbox"/> UNIVERSAL WASTE-MERCURY THERMOSTATS
<input type="checkbox"/> UNIVERSAL WASTE-MERCURY CONTAINING EQUIPMENT
<input type="checkbox"/> UNIVERSAL WASTE-LAMPS _____ <i>Type of Lamp</i>
ACCUMULATION START DATE: _____

Chemical Management

5. Universal Waste Lamps, Batteries, etc. are being managed according to State and the CCRC Management Plan requirements.

- ❑ This item is compliant if all the labeling and packaging of the waste is correct and in accordance with the standards.
- ❑ It is non compliant if it is not.



Chemical Management

6. Chemical spill kits are available and properly stocked.

- ▣ This item is to ensure where there is large amounts of chemicals (oils, lubricants, fuels, or chemicals such as acids, caustics, etc.) that there are spill kits designed for the type of chemicals present and that they are stocked.



Chemical Management

6. Chemical spill kits are available and properly stocked.
 - ▣ Generally the type and content of these kits are based upon recommendations from the ECO group that supports your organization. Generally a compliant rating means that the kits are present and fully stocked. An non compliant rating would indicate this was not the case.



Chemical Management

7. Satellite Accumulation Area Containers are at or near the point of generation, and being managed according to State regulations and contractor/DOE requirements.
 - ▣ Companies are allowed under both the state and federal environmental regulations to establish an area where chemical wastes can be stored near the point of generation prior to their final disposition as regulated waste.
 - ▣ Some of the key points are:



Chemical Management

7. Satellite Accumulation Area Containers are at or near the point of generation, and being managed according to State regulations and contractor/DOE requirements.
 - ▣ The amount of hazardous waste being accumulated in the satellite accumulation area is one 55-gallon drum or less of non-acute waste and 1 quart or less of acute waste. Your ECO should have details on the type of waste.
 - ▣ The hazardous waste container is properly labeled with “Hazardous Waste” or other applicable wording.
 - ▣ The hazardous waste container must be marked with the date when the accumulation of the excess waste began.



Chemical Management

7. Satellite Accumulation Area Containers are at or near the point of generation, and being managed according to State regulations and contractor/DOE requirements.
 - ▣ The drum/container in the hazardous waste satellite accumulation area is located at or near the waste generating process and within control of the waste generating process operator. This can mean either line of site or locked up to prevent unauthorized access.
 - ▣ Once the 55 gallon limit (or 1 quart) is met, the drum/container in the hazardous waste satellite accumulation area must be moved to the main storage area and dated within 3 days. That is when the waste becomes fully regulated.



Chemical Management

7. Satellite Accumulation Area Containers are at or near the point of generation, and being managed according to State regulations and contractor/DOE requirements.
 - ▣ A compliant rating would indicate that these requirements were met and that the SAA was inspected on a weekly basis by the facility “owner”.
 - ▣ A non compliant rating would indicate this was not the case.



Chemical Management (section 2)

8. Applicable Material Safety Data Sheets (MSDS) are available and readily accessible for employees to review.
9. Hazardous material containers are properly labeled and stored including secondary containers.
10. Liquids are stored in approved storage cabinets and containers.
11. Flammable and combustible storage quantity limits are not exceeded.
12. Storage areas are bermed (if required), ventilated, and protected from physical damage, etc.
13. When transferring flammable liquids, containers are bonded and grounded.
14. Combustible waste is stored in closed containers and disposed of when full.
15. Oily or used shop rags are collected in closed metal containers and emptied as required.
16. Other.

Chemical Management

8. Applicable Material Safety Data Sheets (MSDS) are available and readily accessible for employees to review.
 - We are required by Law and by DOE regulation to have MSDS's for all of our chemicals.
 - The MSDS has the information we need to be able to safely work with the chemicals that may be used in our work places.
 - It is a requirement that the MSDS be available to the employees using the chemical for their review.



S.C. Johnson Wax Racine, Wisconsin 53403-5011 Phone: (414) 631-2777 Emergency Phone: (800) 851-7145		4=Very High 3=High 2=Moderate 1=Slight 0=Insignificant	HAZARD RATING HMIS 0 Health 2 Flammability 0 Reactivity
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MATERIAL SAFETY DATA SHEET

SECTION I-PRODUCT IDENTIFICATION			
PRODUCT NAME: BLUE WINDEX	DATE ISSUED: 02/10/94	SUPERSEDES: 07/09/93	PRODUCT CODE: 126000-3
CHEMICAL OR COMMON NAME: NA	MSDS SECTIONS WITH CHANGES: II III	PREPARED BY: Terry A. Meyers Chemical Info. Adm.	

SECTION II-INGREDIENT INFORMATION		
INGREDIENTS	WEIGHT %	EXPOSURE LIMIT
[SARA, PA, NJ, MA] Ethylene glycol Monobutyl Ether (CAS# 111-76-2)	1-3	25 PPM ACGIH/OSHA TWA (SKIN)
[PA, NJ, MA] Ammonium Hydroxide (CAS# 1336-21-6)	<0.5	25 PPM ACGIH/OSHA TWA; 35 PPM ACGIH/OSHA STEL
Isopropyl Alcohol (CAS# 67-63-0)	3-8	400 ppm OSHA/ACGIH TWA; 500 ppm OSHA/ACGIH STEL
Water (CAS# 7732-18-5)	>90.0	NA
See Regulatory Information (Section XII) for explanation of bracketed information.		
MSDS# 73172A		

SECTION III-PHYSICAL DATA	
APPEARANCE/ODOR: Clear Blue with Liquid Ammonia Odor	SPECIFIC GRAVITY (20/15): 0.99
VAPOR PRESSURE (mm Hg): 17.6	PERCENT VOLATILE BY VOLUME (V): ND
SOLUBILITY IN WATER: Complete	VAPOR DENSITY (Air=1): 1.2
FREEZING POINT (°F): ND	BOILING POINT (°F): 212
PH: 10.3- 11.3	EVAPORATION RATE (Butyl Acetate=1): 0.3
VOC (as packaged, minus H2O): Glycol Ether, isopropanol	THEORETICAL VOC (lb/gal): 0.373

SECTION IV-FIRE AND EXPLOSION INFORMATION	
FLASH POINT (°F) (Method Used): 117(TCC)	
FLAMMABLE LIMITS: ND	
EXTINGUISHING MEDIA: Form. CO2. Dry Chemical. Water Fog.	
SPECIAL FIREFIGHTING PROCEDURES: Normal fire fighting procedures may be used.	
UNUSUAL FIRE AND EXPLOSION HAZARDS: No special hazards known.	

SECTION V-HEALTH HAZARD DATA	
PRIMARY ROUTE OF ENTRY: Eye contact.	
SIGNS AND SYMPTOMS: Eye contact - sensation of irritation.	

Chemical Management

8. Applicable Material Safety Data Sheets (MSDS) are available and readily accessible for employees to review.
- Compliant rating would indicate that the MSDS for the chemical was available and readily accessible.

S.C. Johnson Wax Racine, Wisconsin 53403-5011 Phone: (414) 631-2777 Emergency Phone: (800) 851-7145		4=Very High 3=High 2=Moderate 1=Slight 0=Insignificant	HAZARD RATING HMIS 0 Health 2 Flammability 0 Reactivity
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MATERIAL SAFETY DATA SHEET

SECTION I-PRODUCT IDENTIFICATION			
PRODUCT NAME: BLUE WINDEX	DATE ISSUED: 02/10/94	SUPERSEDES: 07/09/93	PRODUCT CODE: 126000-3
CHEMICAL OR COMMON NAME: NA	MSDS SECTIONS WITH CHANGES: II III	PREPARED BY: Terry A. Meyers Chemical Info. Adm.	

SECTION II-INGREDIENT INFORMATION		
INGREDIENTS	WEIGHT %	EXPOSURE LIMIT
[SARA, PA, NJ, MA] Ethylene glycol Monobutyl Ether (CAS# 111-76-2)	1-3	25 PPM ACGIH/OSHA TWA (SKIN)
[PA, NJ, MA] Ammonium Hydroxide (CAS# 1336-21-6)	<0.5	25 PPM ACGIH/OSHA TWA; 35 PPM ACGIH/OSHA STEL
Isopropyl Alcohol (CAS# 67-63-0)	3-8	400 ppm OSHA/ACGIH TWA; 500 ppm OSHA/ACGIH STEL
Water (CAS# 7732-18-5)	>90.0	NA
See Regulatory Information (Section XII) for explanation of bracketed information.		MSDS# <u>73172A</u>

SECTION III-PHYSICAL DATA		
APPEARANCE/ODOR: Clear Blue with Liquid Ammonia Odor	SPECIFIC GRAVITY (20/15):	0.99
VAPOR PRESSURE (mm Hg): 17.6	PERCENT VOLATILE BY VOLUME (V):	ND
SOLUBILITY IN WATER: Complete	VAPOR DENSITY (Air=1):	1.2
FREEZING POINT (°F): ND	BOILING POINT (°F):	212
pH: 10.3- 11.3	EVAPORATION RATE (Butyl Acetate=1):	0.3
VOC (as packaged, minus H2O): Glycol Ether, isopropanol	THEORETICAL VOC (lb/gal):	0.373

SECTION IV-FIRE AND EXPLOSION INFORMATION	
FLASH POINT (°F) (Method Used):	117(TCC)
FLAMMABLE LIMITS:	ND
EXTINGUISHING MEDIA:	Form. CO2. Dry Chemical. Water Fog.
SPECIAL FIREFIGHTING PROCEDURES:	Normal fire fighting procedures may be used.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	No special hazards known.

SECTION V-HEALTH HAZARD DATA	
PRIMARY ROUTE OF ENTRY:	Eye contact.
SIGNS AND SYMPTOMS:	Eye contact - sensation of irritation.

Chemical Management

8. Applicable Material Safety Data Sheets (MSDS) are available and readily accessible for employees to review.
 - ▣ Compliant rating would indicate that the MSDS for the chemical was available and readily accessible.
 - ▣ A non compliant rating indicates that the MSDS was not available or not accessible.
 - ▣ This needs to be immediately brought to the attention of the facility manager.



Chemical Management

9. Hazardous material containers are properly labeled and stored including secondary containers.
 - ▣ The purpose of this item is to ensure that hazardous material containers in the facility are properly labeled and stored.
 - ▣ Labeling – Many formats of labels are used. Generally, they must all state the chemical name and associated hazards.



Chemical Management

9. Hazardous material containers are properly labeled and stored including secondary containers.
 - ▣ The purpose of this item is to ensure that hazardous material containers in the facility are properly labeled and stored.
 - ▣ Labeling – Many formats of labels are used. Generally, they must all state the chemical name and associated hazards.
 - ▣ Some common labels include;
 - Manufacturers Label



Chemical Management

9. Hazardous material containers are properly labeled and stored including secondary containers.
 - ▣ Some common labels include;
 - Manufacturers Label
 - NFPA 704 labels (typically bulk)



Chemical Management

9. Hazardous material containers are properly labeled and stored including secondary containers.
 - ▣ Some common labels include;
 - Manufacturers Label
 - NFPA 704 labels (typically bulk)
 - HMIS labels (secondary containers)



HMIS [®] XY 12 Solvent	
HEALTH	3
FLAMMABILITY	1
REACTIVITY	2
PERSONAL PROTECTION	C

Chemical Management

9. Hazardous material containers are properly labeled and stored including secondary containers.
 - ▣ Storage – We must also ensure that the chemicals are stored safely based upon their hazards and characteristics. Some concerns are;
 - Protection from physical damage
 - Do not store incompatible chemicals together (oxidizers and flammables, acids and bases, etc.)



Chemical Management

9. Hazardous material containers are properly labeled and stored including secondary containers.
 - ▣ A compliant rating would indicate that the containers were labeled and stored properly.



Chemical Management

9. Hazardous material containers are properly labeled and stored including secondary containers.
 - ▣ A non compliant rating would indicate that the containers did not meet these requirements.
 - ▣ They were not labeled or stored in a manner that was unsafe;
 - exposed to damaging conditions
 - or;



Chemical Management

9. Hazardous material containers are properly labeled and stored including secondary containers.
 - ▣ They were not labeled or stored in a manner that was unsafe;
 - exposed to damaging conditions or;
 - stored improperly or;



Chemical Management

9. Hazardous material containers are properly labeled and stored including secondary containers.
 - ▣ They were not labeled or stored in a manner that was unsafe;
 - exposed to damaging conditions or;
 - stored improperly or;
 - stored in an incompatible manner.



Hazardous Chemicals

Chemical Management

10. Liquids are stored in approved storage cabinets and containers.
 - ▣ This item deals with ensuring that liquids are stored in the proper cabinets and containers.



Chemical Management

10. Liquids are stored in approved storage cabinets and containers.



- ▣ A compliant rating on this item would indicate that all flammables were properly stored in labeled and listed containers.

Chemical Management

10. Liquids are stored in approved storage cabinets and containers.
 - ▣ A non compliant rating on this item would indicate that flammables were either not stored in proper containers or the containers were not listed.



Chemical Management

10. Liquids are stored in approved storage cabinets and containers.
 - ▣ One issue that arises often in construction and industry is the type of container you can use for flammable materials.
 - ▣ Bear in mind that OSHA requires that the can be NFPA approved and UL Listed. The plastic gas can you buy at a retail store may not meet this requirement.
 - ▣ The container must be self closing with a spark arrestor and designed that it should fall over it won't leak. It must also be designed that if it overheats it will relieve the pressure in a controlled manner.

Chemical Management

10. Liquids are stored in approved storage cabinets and containers.

- ▣ This is a typical plastic gas can that is obtained from any retail outlet. These are not allowed in our facilities, they have no way of automatically closing, no spark suppression system, and if they over heat when closed will explode.



Chemical Management

10. Liquids are stored in approved storage cabinets and containers.

- ▣ This is an approved container. It is designed with a spark arrestor, automatically closed, can be bonded, and if it over pressurizes it will relieve the pressure in a non catastrophic manner.



Chemical Management

10. Liquids are stored in approved storage cabinets and containers.
 - Let's take a moment to discuss some terms concerned with the proper control, storage and use of flammable and combustible liquids in our facilities.



Chemical Management

10. Liquids are stored in approved storage cabinets and containers.
 - ▣ To help you identify what types of liquids you are looking for, let's start with a description of what Flammable and Combustible Liquids are.



Chemical Management

10. Liquids are stored in approved storage cabinets and containers.
 - ▣ Flammable liquid is any liquid having a flash point below 100°F (37.8°C) (The lowest temperature at which the vapor of a combustible liquid can be made to ignite momentarily in air.)
 - ▣ Some good examples include Gasoline, Acetone, and Alcohol.



Chemical Management

10. Liquids are stored in approved storage cabinets and containers.



- ▣ Combustible liquid is any liquid having a flash point at or above 100°F (37.8°C).
- ▣ Some good examples include diesel, jet fuel, kerosene, and canola oil.

Chemical Management

11. Flammable and combustible storage quantity limits are not exceeded.

This item deals with limits on the amount of the flammable or combustible liquid that is in place.

There are really three things you can look for:

1. Is the cabinet/location over full with containers of material?
2. Are there cases of material sitting on the floor because they won't fit into the cabinet?
3. Are the NFPA limits exceeded?
 - a) >60 Gallons of Class I or II material.
 - b) >120 Gallons of Class III material.

(Please contact your ECO or OH&S Group for help in making this determination.)

Chemical Management

11. Flammable and combustible storage quantity limits are not exceeded.

- ▣ A compliant rating on this item would indicate that the storage of the flammable and combustible material was adequate and did not violate and quantity limits.



Chemical Management

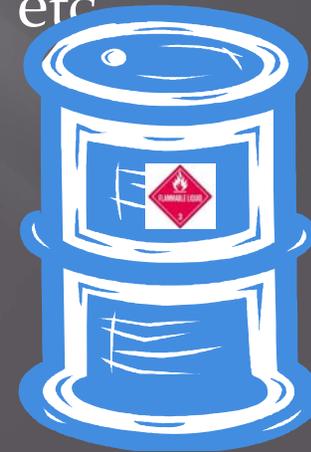
11. Flammable and combustible storage quantity limits are not exceeded.



- ▣ A non compliant rating would indicate that the storage was inadequate or too much material was present to safely store in cabinets.

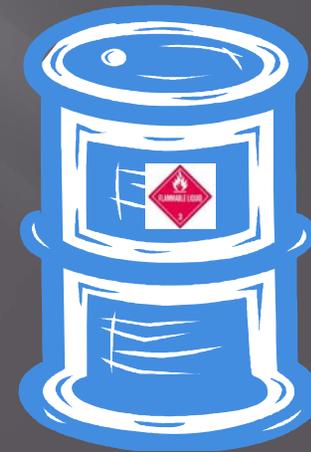
Chemical Management

12. Storage areas are bermed (if required), ventilated, and protected from physical damage, etc.
 - ▣ This item is to note that storage areas are set up such that if there is a leak that it will be caught in a secondary containment (berm) that any fumes that may collect will be safely ventilated, and that the location is protected from external hazards such as vehicles, material handling, hot work, etc.



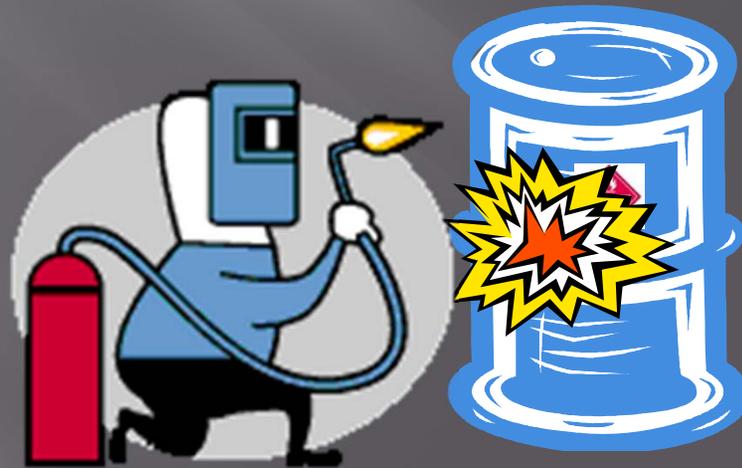
Chemical Management

12. Storage areas are bermed (if required), ventilated, and protected from physical damage, etc.
 - ▣ A compliant rating on this item would indicate that protection form external hazards and environmental impact from leaks are present.



Chemical Management

12. Storage areas are bermed (if required), ventilated, and protected from physical damage, etc.
 - ▣ A non compliant rating on this item would indicate that protection from external hazards and environmental impact from leaks is either compromised or absent.

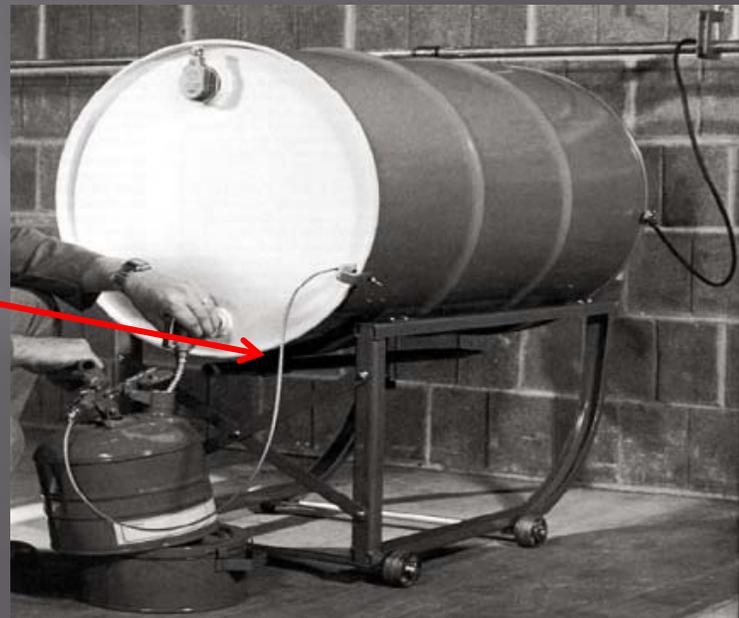


Chemical Management

13. When transferring flammable liquids, containers are bonded and grounded.
 - ▣ This item deals with the system in place for the transfer (fill/refill) of containers that contain flammable liquids.
 - ▣ Often the liquids will come in large containers that we use to fill approved secondary containers that are easier handle.
 - ▣ During the transfer of some liquids you can build up a static charge between the containers that can build up to a high enough potential that it will discharge between the two containers (spark).
 - ▣ This spark can ignite fumes present from the transfer and cause an explosion.

Chemical Management

13. When transferring flammable liquids, containers are bonded and grounded.
 - ▣ A compliant rating on this item would indicate that there is a bonding system in place and it is used.
 - ▣ Simply a typical bonding system is almost like a set of jumper cables that electrically connect the two containers.



Chemical Management

13. When transferring flammable liquids, containers are bonded and grounded.
 - ▣ A non compliant rating on this item would indicate that there is either not a bonding system in place or it is not being used.



Chemical Management

14. Combustible waste is stored in closed containers and disposed of when full.
 - ▣ This item deals with the requirement to safely dispose of waste that is contaminated with combustible or flammable liquids. The waste such as rags can give off vapors such that they can create an explosion/fire hazard and as such are treated as hazardous waste.



Chemical Management

14. Combustible waste is stored in closed containers and disposed of when full.
 - ▣ A compliant rating on this item would indicate that the material is picked up and containers are emptied into a central approved container daily. *Note: The central approved container does not have to be emptied daily.*



Chemical Management

14. Combustible waste is stored in closed containers and disposed of when full.
 - ▣ A non compliant rating on this item would indicate that the material is either not picked up or containers are not emptied into a central approved container daily.



Chemical Management

15. Oily or used shop rags are collected in closed metal containers and emptied as required.
 - ▣ Oil and solvent-soaked rags must be stored and disposed of properly to prevent combustion fires. It is important to maintain proper fire extinguishing equipment in all areas where flammable and combustible materials are being used and stored.
 - ▣ Oil-soaked rags are a spontaneous combustion hazard because as the oil oxidizes, heat is released. If the heat is not dissipated, it can build up and ignite the rags. Special oily-waste cans should be used to store oil-soaked rags. These containers allow air to flow around the rags, thus dissipating the heat.



Chemical Management

15. Oily or used shop rags are collected in closed metal containers and emptied as required.
 - ▣ Solvent-soaked rags are not a spontaneous combustion hazard but may be a fire hazard, since many solvents are flammable. In addition, the solvents can evaporate creating a health hazard. Solvent-soaked rags should be placed in closed containers to reduce evaporation and minimize the chance of someone tossing a lit cigarette onto the rags and causing a fire.
 - ▣ These containers must be emptied when full or on a cycle determined by the type of oil or solvent used. If you have any questions on this cycle contact your Environmental Compliance Officer (ECO) for that facility.



Chemical Management

15. Oily or used shop rags are collected in closed metal containers and emptied as required.
 - ▣ A compliant rating would indicate that an approved can was in use and emptied as required.



Chemical Management

15. Oily or used shop rags are collected in closed metal containers and emptied as required.
 - ▣ A non compliant rating would indicate that an approved can was not in use, or



This fire was caused by a pile of oil soaked rags that were not contained in the proper container.

Chemical Management

15. Oily or used shop rags are collected in closed metal containers and emptied as required.
 - ▣ A non compliant rating would indicate that an approved can was not in use, or
 - ▣ Was not emptied as required.



Chemical Management

- If at any time you have any questions about how to fill out the form or about the items on the form please contact your project safety group.

**MSA GENERAL INDUSTRY-BASED SAFETY AND HEALTH
HAZARD INSPECTION CHECKLIST**

Facility:		Facility Representative:	
Date:		Team Member:	
Total Items Reviewed:		Team Member:	
Total Non-Compliant Items:		Team Member:	

No.	Inspection Observations	Compliant?	See Comments (indicate with X)
		Y•N•N/A	
A	FIRE PROTECTION INSPECTION <i>(All issues must be observed as applicable see note 2)</i>		
1	Emergency Lights - Each unit must be operable when tested.		
2	Portable Fire Extinguishers (PFE) - Each unit is properly mounted, an inspection tag is in place and reflects through previous month, the pressure gauge is in the "green" zone (where applicable).		
3	PFE is not obstructed, is visible, and the seal is not broken.		
4	Sprinkler Clearance - Clearance between the sprinkler deflector and the top of any storage is 18 inches or greater.		
5	Fire Riser Pressure Gauge Inspection - Inspect gauges to verify pressure to the building and pressure held in the fire system. Typically both gauges will have similar pressure readings.		
6	Fire Risers - Access to fire system sprinkler risers and other system components must be unobstructed.		
7	Fire Riser Valve Inspection - Check all seals, position and supervision for broken seals or possible tampering.		
8	Post Indicating Valve Inspection - This valve will be located outside of the facility. It must be verified that the window on the side of the valve reads "OPEN".		
9	Exit Signs - Exit signs with an internal lighting source must be checked to ensure all lamps are functional. - Exit signs that use Tritium must be observed that they have not been damaged, all applicable labels are present, the sign has not expired, and it is not covered with another sign.		
10	Fire Doors - Identify that fire doors operate freely and latch securely upon closure. Fire doors must not be propped open.		
11	Ceiling Tiles - Where automatic sprinklers are installed drop ceiling tiles are in place. Missing tiles slow response of fire suppression sprinklers.		
12	Manual alarm stations are easily identified and readily accessible.		
13	Other.		
B	GENERAL SAFE BEHAVIORS		
1	Employees are taking the necessary safety precautions for the work being performed.		
2	Work is being performed such that collocated employees in the area are not exposed to occupational hazards or unsafe conditions.		

1 A-6004-299 (REV 2)

Chemical Management

Thank you for your time
and desire to help us have
a safer workplace