



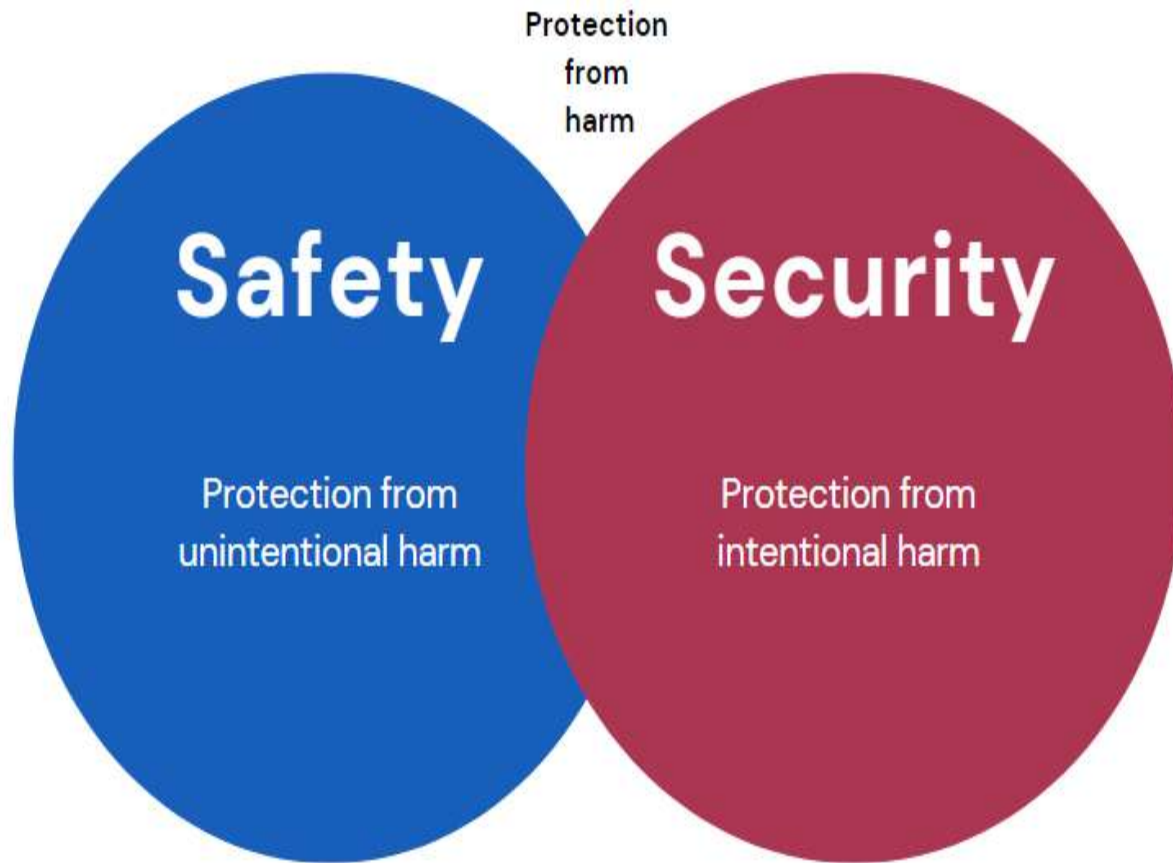
Best Practices on Chemical Safety and Security for Chemical Users

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NACWC

National Authority for Implementation of the Chemical Weapons Convention

Diffenernce between Safety and Security



Key Benefits

01

Improved Health and Safety

02

Enhanced Operational Efficiency

03

Significant Cost Savings

04

Regulatory Compliance

05

Environmental Protection and Sustainability

01. Physical Security Arrangements



Physical Barriers



Perimeter Monitoring
(Fence-line Monitoring)



Access Control Systems



Perimeter intrusion
detection



Security Guards



Electronic gates



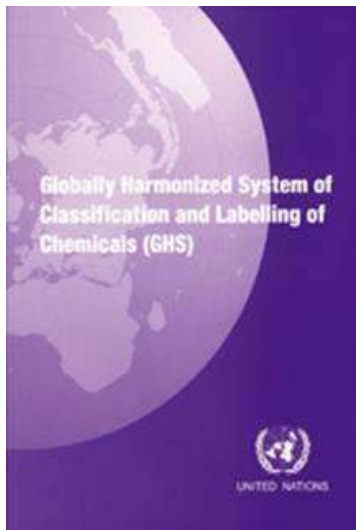
CCTV Surveillance



Security Alarm system

2. Hazard Communication

GHS (Globally Harmonized System of classification and labeling of Chemicals)













Labels

Safety Data Sheets (SDS)

Training

Written program

2. Hazard Communication - Hazard Pictograms

GHS – Hazard Pictograms and correlated exemplary Hazard Classes				
Physical Hazards				
				
Explosives	Flammable Liquids	Oxidizing Liquids	Compressed Gases	Corrosive to Metals
Health Hazards			Env. Hazards	
				
Acute Toxicity	Skin Corrosion	Skin Irritation	CMR ¹⁾ , STOT ²⁾ , Aspiration Hazard	Hazardous to the Aquatic Environment

1) carcinogenic, germ cell mutagenic, toxic to reproduction / 2) specific target organ toxicity

2. Hazard Communication - Label

1 Product Identifier
AMMONIA

2 Signal Word
DANGER

3 Pictograms
Skull and crossbones, Flame, Hand being poured

4 Hazard Statements
TOXIC IF INGESTED

5 Precautionary Statements
Avoids and open flames - stay upwind when exposed to high heat. Use in an open area that is well ventilated. Breathing in ammonia is irritating and corrosive. Wear protective gloves and safety goggles to prevent burns and irritation.

If swallowed: immediately call Poison Control or doctor/physician. Drink water or milk to dilute ammonia.

6 Supplier Information
ABC Chemicals - 123 Main Street - Cincinnati, OH - www.abcchem.com - 800-999-9999

2. Hazard Communication - Label

1. The **identity** or contents of the container.
2. Appropriate **hazard warnings**, including words, pictures, symbols, or combinations that convey the health and/or physical hazards of the container's contents
3. The **name and address** of the chemical manufacturer and the emergency telephone number.
4. Containers that are too small to be labeled should be kept in a **labeled larger container**
5. Any **secondary container** into which hazardous chemicals are transferred should be labeled fully
6. Existing labels on containers carrying hazardous chemicals should not be removed or defaced
7. **Date of preparation** and/or date placed in service and where appropriate, the date of expiration wherever warranted
8. Unlabeled containers of chemicals should not be opened.



2. Hazard Communication - SDS

A Material Safety Data Sheet (MSDS) is a document that contains information on the potential hazards (health, fire, reactivity and environmental) and how to work safely with the chemical product. It is an essential starting point for the development of a complete health and safety program. It also contains information on the use, storage, handling and emergency procedures all related to the hazards of the material



2. Hazard Communication – SDS – 16 Categories

- Identification and supplier
- Hazards Identification
- Composition
- First Aid Measures
- Firefighting Measures
- Accidental Release Measures
-
- Handling and Storage
- Exposure Controls/Personal Protection
- Physical and Chemical Properties
- Stability and Reactivity
- Toxicological Information
- Ecological information
- Disposal considerations
- Transport Information
- Regulatory information
- Other Information



2. Hazard Communication – Importance of SDS



3. Chemical Inventory Management



Sample Chemical Inventory

CHP Part 3 Chemical Inventory 1/12/06

Chemical	Location	Bottle Size	No.	Bio*	Ca	Cor	FI	R	RTx	Tx	Date Updated
Ethoxyethanol	C3	50 mL	2				X		X		2/12/04
Acetone	F2	4L	3				X				12/12/05
NaOH pellets	B1	200 g	6			B					14/06
Mercury	D4	3#	1							X	4/9/90
Mercuric chloride	D4	50g	1			A			X	X	6/10/90
HCl	A1	3L	1			A					4/9/90

*Bio = Biological Toxin
Ca = Carcinogen
Cor = Corrosive (Acid or Base)
F = Flammable
R = Reactive
RTx = Reproductive Toxin
Tx = Acute Toxin

Identity | Physical | Structure | Hazards | Quantity/Location | Properties | Ingredients

NFPA

Fire: 2, Health: 2, Reactive: 0, Specific: 0

1=Corrosive
2=Radioactive
3=Oxidizer
4=Use no water

Warnings:

General Description of any Hazard warnings and/or precautions

Flammable Corrosive Hazardous
 Explosive Carcinogenic
 Radioactive Biohazardous

Protective Equipment:

Gloves Clothing
 Goggles Respirator
 Fume Hood

Instructions:
 In the event of a spill please call emergency response team

MSDS Information:

MSDS ID: 45-161
 Reviewed Date:
 Expires Date:
 MSDS Located/Filed At: Mount Olive

Spill Control Caution Label



4. Warehouse Management



a. Storage plan



b. Engineering controls



c. Isolation

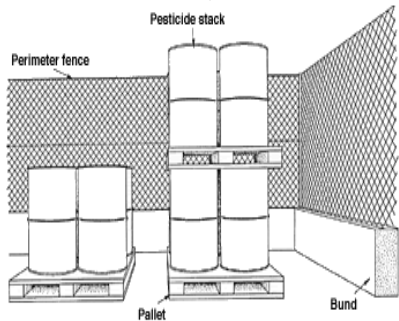


d. Separation & Segregation



e. Warehouse operation

4. Warehouse Management - a. Storage Plan

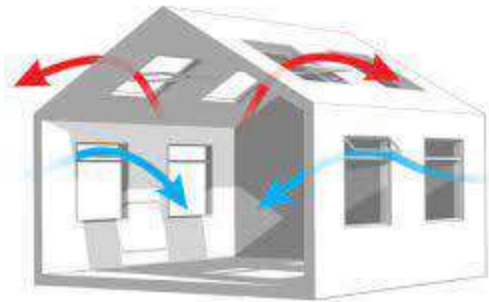


- A clear space should be left between all walls nearest packs and within block stacks
- Forklift truck routes should be clearly defined by markings on the floor and kept free
- Store large bottles/containers no higher than 2 feet from the floor. Store corrosives on lower shelves.
- Location and quantities of the stored chemicals or groups of chemicals with their hazard characteristics
- Location of available emergency and fire-fighting equipment, access and escape routes

4. Warehouse Management - b. Engineering Control

Processes that minimize generation of hazardous chemicals, suppress or contain hazardous chemicals, or that limit the area of contamination in the event of spills and leaks.

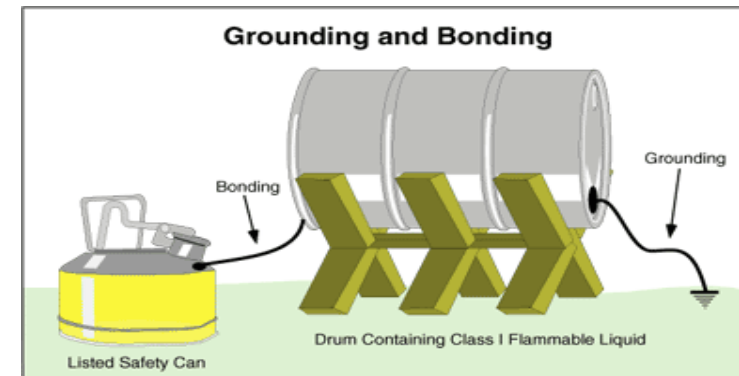
Ventilation control



Automation of process



Controls for static electricity



Cover motor parts



Total or partial enclosures



4. Warehouse Management - c. Isoation

The separation of a hazardous chemicals from those who might be exposed by distance or by the use of physical barriers.

Segregated storage



Storage cabinets



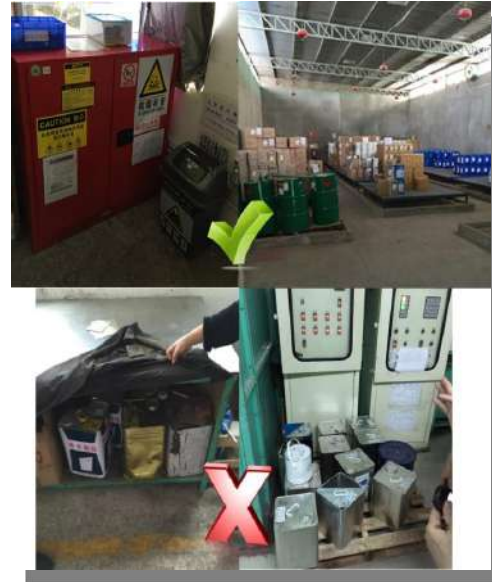
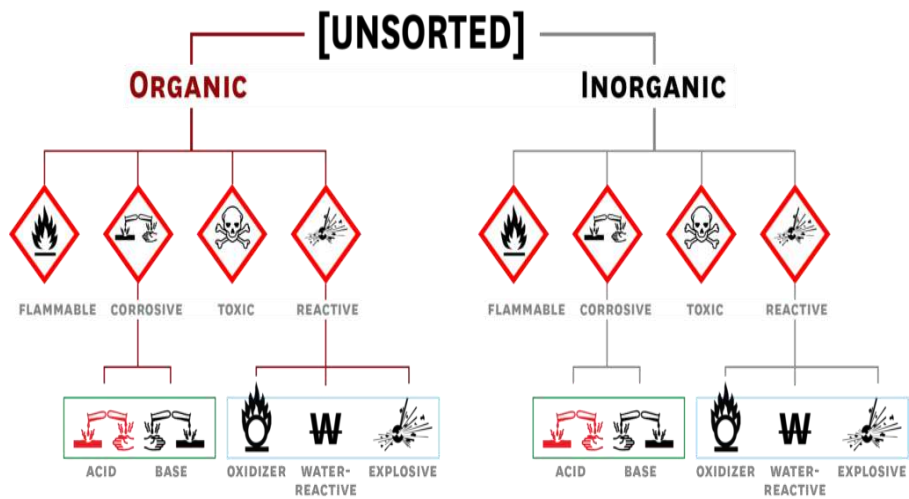
Fire-rated walls



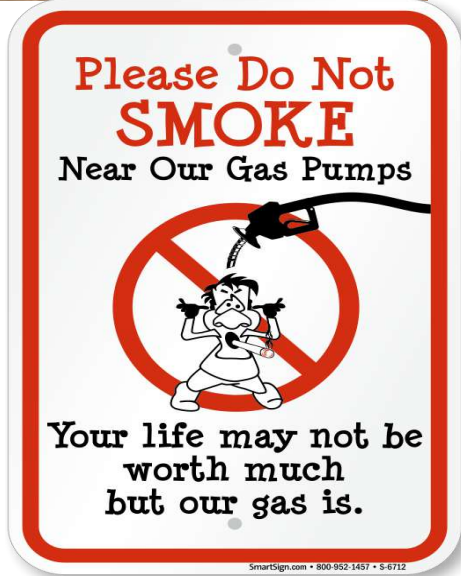
Containers



4. Warehouse Mgt. - d. Separation & Segregation



4. Warehouse Management - e. Warehouse Operation



5. Safe Handling Practices



Spill Control



First Aid Facilities



Warehouses should have basic first-aid materials facilities and selected employees should be trained in first-aid procedures.

- First Aid Box; (Eg : First aid manual, Elastic bandage, Sterile eye pads, etc.)
- First Aid Equipment; (Eg : Emergency showers and eye-wash facilities)
- First Aid Room. (Eg : First aid box, antiseptic hand wash soap, etc.)



6. Personal Exposure & Protection



7. Training



- Regular periodic safety meetings,
- Training sessions
- Practices of emergency procedures



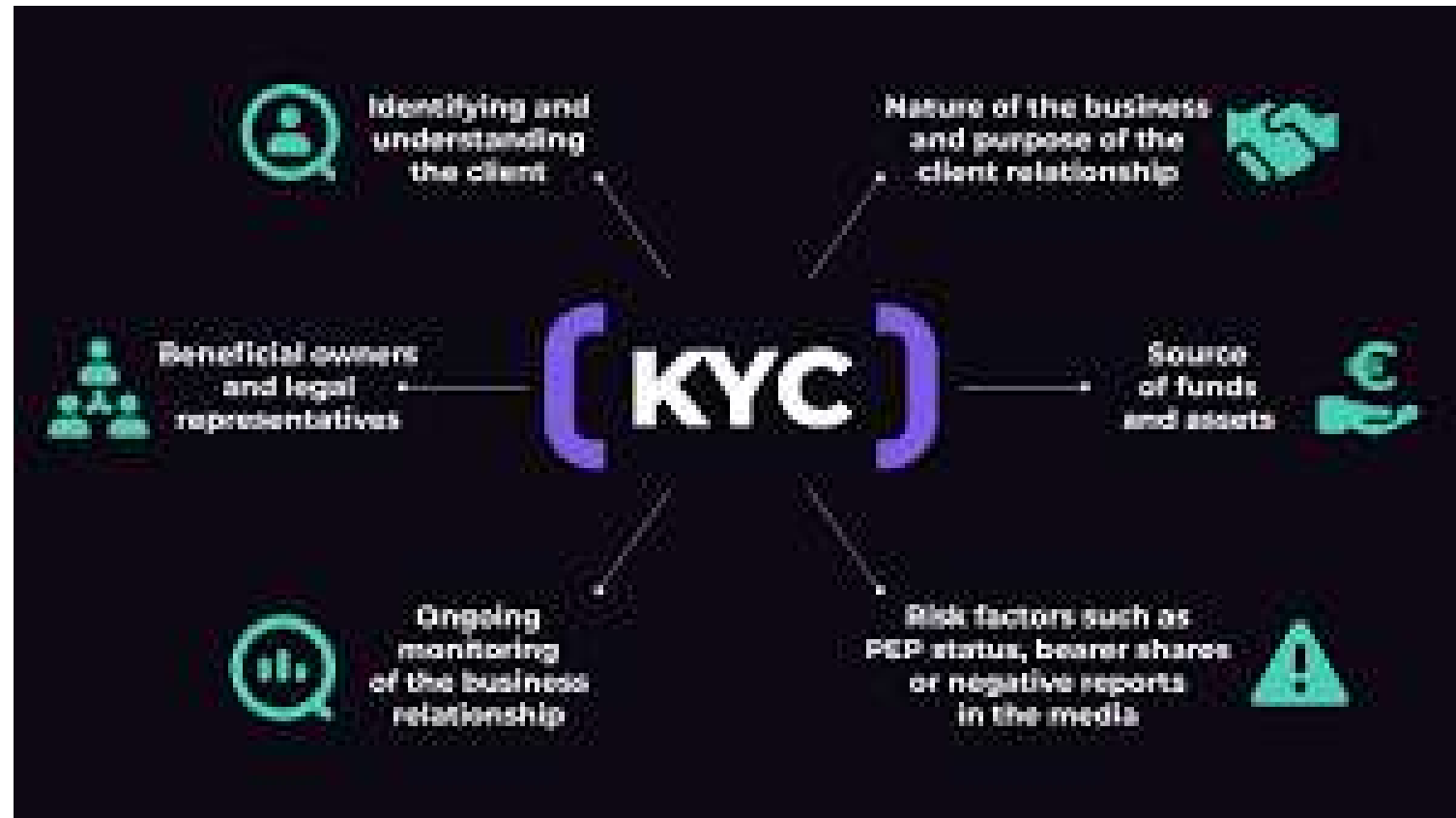
Health & Safety Inspection & Investigation

Safety and health inspection and investigation of the whole warehousing covering equipment and procedures help to:

- Ensure that objectives are understood by all concerned;
- Ensure that deficiencies are brought to light and corrected; and
- Stimulate safety awareness.



8. Know Your Customer



Staying Safe Means That You



Read **labels** on containers of chemicals



Read Material Safety Data Sheets (**MSDS**)



Handle chemicals with **care**



Use correct **protective** clothing and equipment



Remember **emergency procedures**

- S - Management Systems
- A - Proper Attitude
- F - Understand Fundamentals
- E - Experience
- T - Time to do thing Safely
- Y - Your Participation

Thank you