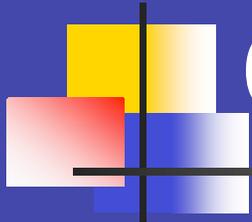


MEDICAL INSTITUTIONS, SMALL LABS, & OTHER SPECIAL WASTES

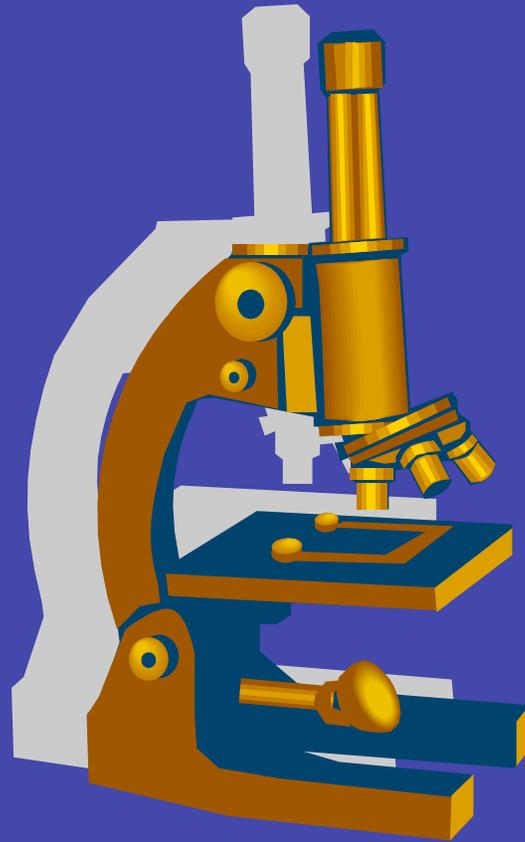
Presented by Charles McReynolds, P.E.
TCEQ – Tyler Region
(903) 535-5154
cmcreyno@tceq.state.tx.us

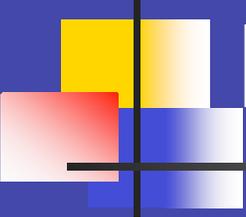


Good Morning!

- Welcome to the 2007 RCRA Inspector Training
- New Orleans, LA
- May 16, 2007

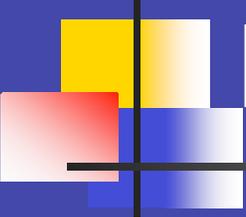
MEDICAL INSTITUTIONS, SMALL LABS, & OTHER SPECIAL WASTES





Regulated Medical Waste As Defined By HERC

- “Biohazardous” or “Infectious Medical” Waste
- Maybe contaminated by blood, body fluids, or other potentially infectious material
- Poses a significant risk of transmitting infection



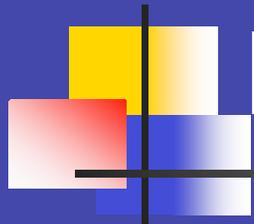
Regulated Medical Waste as Defined by the EPA

- The Medical Waste Tracking Act of 1988 defines Medical Waste as “any solid waste that is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals.”

Regulated Medical Waste

(RMW)

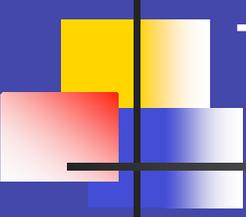
- RMW is unique to the healthcare sector & presents a number of compliance challenges.
- Regulatory definitions and management requirements for Medical Waste vary from state to state and may include more waste streams than the federal definition.
- Medical wastes generally fall into one of four categories: infectious, hazardous, radioactive, or other general wastes from healthcare and medical facilities.



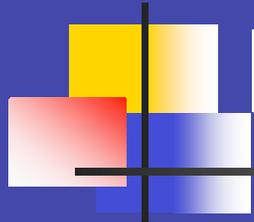
Regulated Medical Wastes

- Infectious, hazardous, and radioactive wastes represent only 10 to 15 percent of all medical waste generated each year, but receive the greatest amount of public concern.
- However, most state laws do require Medical Waste to be rendered “non-infectious” before it can be disposed of as a solid waste.
- The vast majority of medical waste, in fact, is very similar to wastes generated in households and offices across the country.

Medical Waste as Defined in Texas

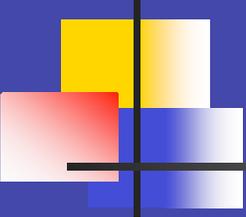


- Waste generated by “Health-care-related” facilities & associated with health-care activities
- Includes animal waste, bulk blood & blood products, microbiological waste, pathological waste, and sharps
- Does not include “nonhuman materials” removed from a patient such as implants



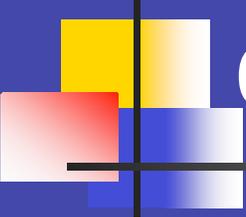
Health-Care-Related Facilities

- Hospitals; medical & dental offices; pharmacies; long-term-care facilities; electrolysis facilities; educational institutions; research laboratories; tattoo studios; acupuncturists offices; emergency medical services; blood banks & blood drawing centers; veterinary, clinical, & research labs; funeral establishments; birthing centers; etc.



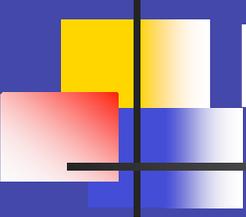
What Types of Facilities do We Investigate ?

- GENERATORS
- TRANSPORTERS
- PROCESSORS
- COLLECTION STATIONS & STORAGE FACILITIES
- DISPOSAL FACILITIES



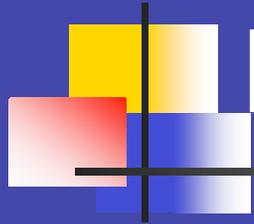
How does the facility dispose of its Medical Waste ?

- Is the waste treated on-site by the facility?
- Does a mobile on-site treater come to the facility?
- Does the facility self-transport the waste to a treatment facility?
- Is the waste picked up by a registered transporter who carries it to a permitted treatment facility?



Areas to be Reviewed during a Medical Waste Investigation

- Manifesting of the untreated Medical Waste shipped off-site
- Packaging of the untreated Medical Waste prior to shipping
- Storage of the untreated Medical Waste prior to shipping
- Proper transportation, disposal, & recordkeeping of the untreated Medical Waste



Medical Waste Investigation

- As you can see, conducting a Medical Waste Generator Investigation is very similar to a RCRA Waste Generator Investigation

Does this look like a good place to store Medical Waste?



TRASH CAN MEDICAL WASTE STORAGE

Is this waste being stored in a
“secure and protected manner” ?



Med Waste Transporter

Investigations

- Is the Med Waste Transporter properly Registered ?
- Is the untreated Med Waste being properly manifested during pick-up & shipping ?
- Is the untreated Med Waste properly packaged during shipping ?

Med Waste Transporter

Investigations

- Are they meeting the required cargo compartment identification & warning sign requirements & required on-board waste handling equipment ?
- Are they exceeding the holding time limits for untreated Medical Waste ?
- Is the Recordkeeping complete and up-to-date ?

Outside Temperature = 102 degrees F

53' Trailer Filled with Untreated Medical Waste

Holding Time on the Trailer 62 Days (July & August)

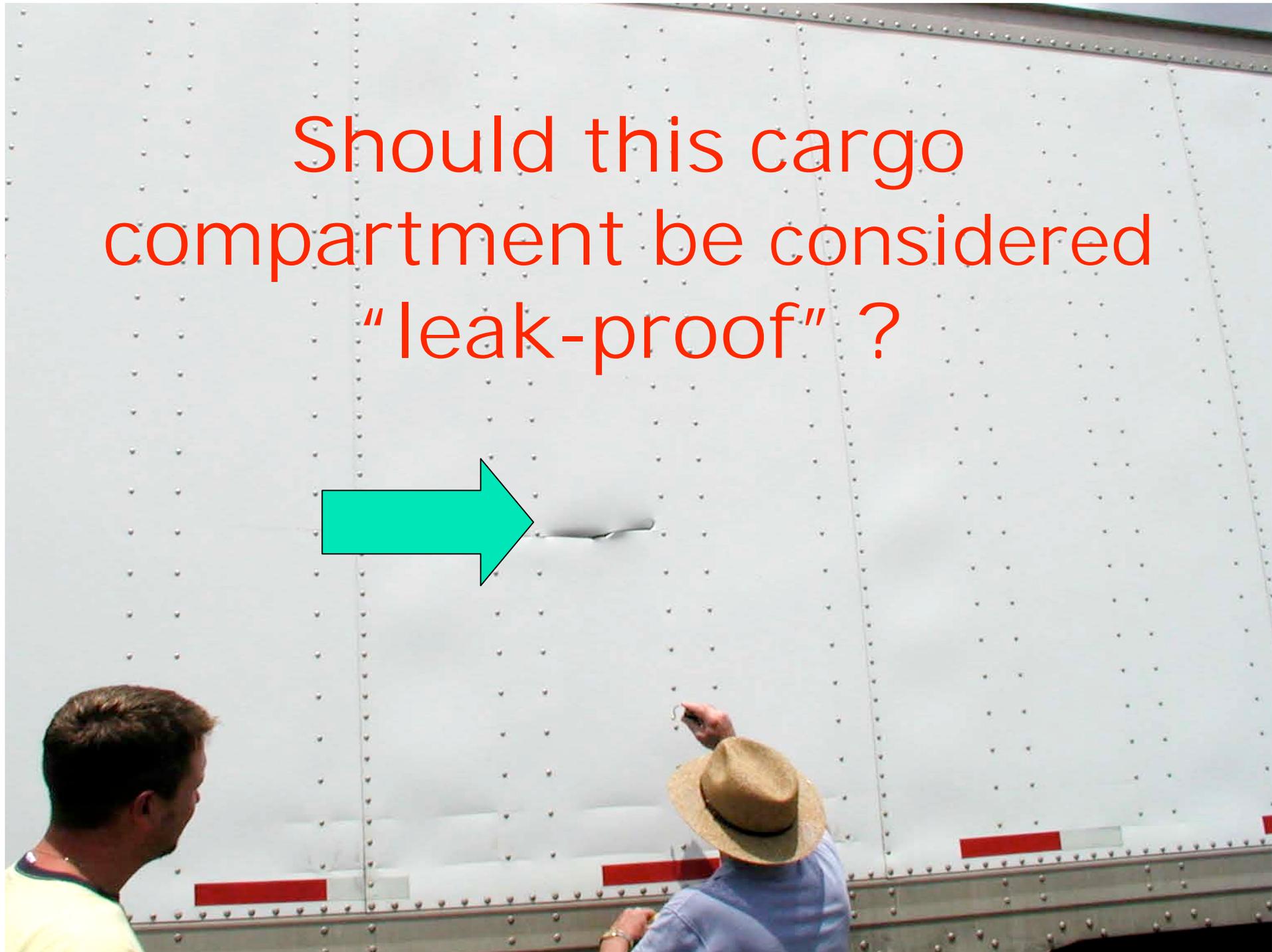
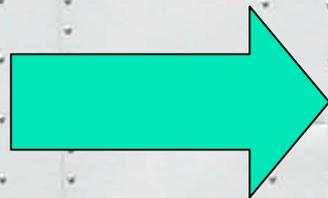
Excuse from Driver.....Priceless



Is the Cargo Compartment properly labeled?



Should this cargo compartment be considered "leak-proof" ?





How about this cargo compartment ?

Medical Institutions – Various Types of Waste

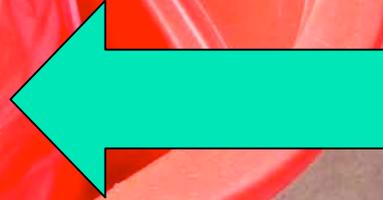


Use Door
Elevator
for Use.

OF
ODSON
KSON
RUCTION
SSING



Biohazard Bag Ripped



BASE #3526
USE LID #3527 - 13528
USE POLYMER WR20

MAR 20 2003

Please place
out-of-date
drugs in
proper bins.

**OUTDATED
DRUGS ONLY**

EXP
[Small illegible text]

**ATTENTION!!!!
EXPIRED MEDS**



NON-SCHEDULED
SCHEDULED DRUGS



MFG

UNIT DOSE

TABLETS

MFG

UNIT DOSE

TABLETS



ATTENTION!!!
EXPIRED MEDS
NON-SCHEDULED
SCHEDULED DRUGS

WADLEY

UNIT DOSE

TABLETS

MFG

UNIT DOSE

TABLETS

MFG

UNIT DOSE

TABLETS

WADLEY

UNIT DOSE

LIQUIDS

MFG

UNIT DOSE

LIQUIDS

MFG

UNIT DOSE

LIQUIDS

ABBOJECT
ONLY

ABBOJECT
ONLY

INJECTION

VIALS & AMPS

MAR 20 2003

HANDLE WITH CARE



**Photochemical
Recovery
Service**

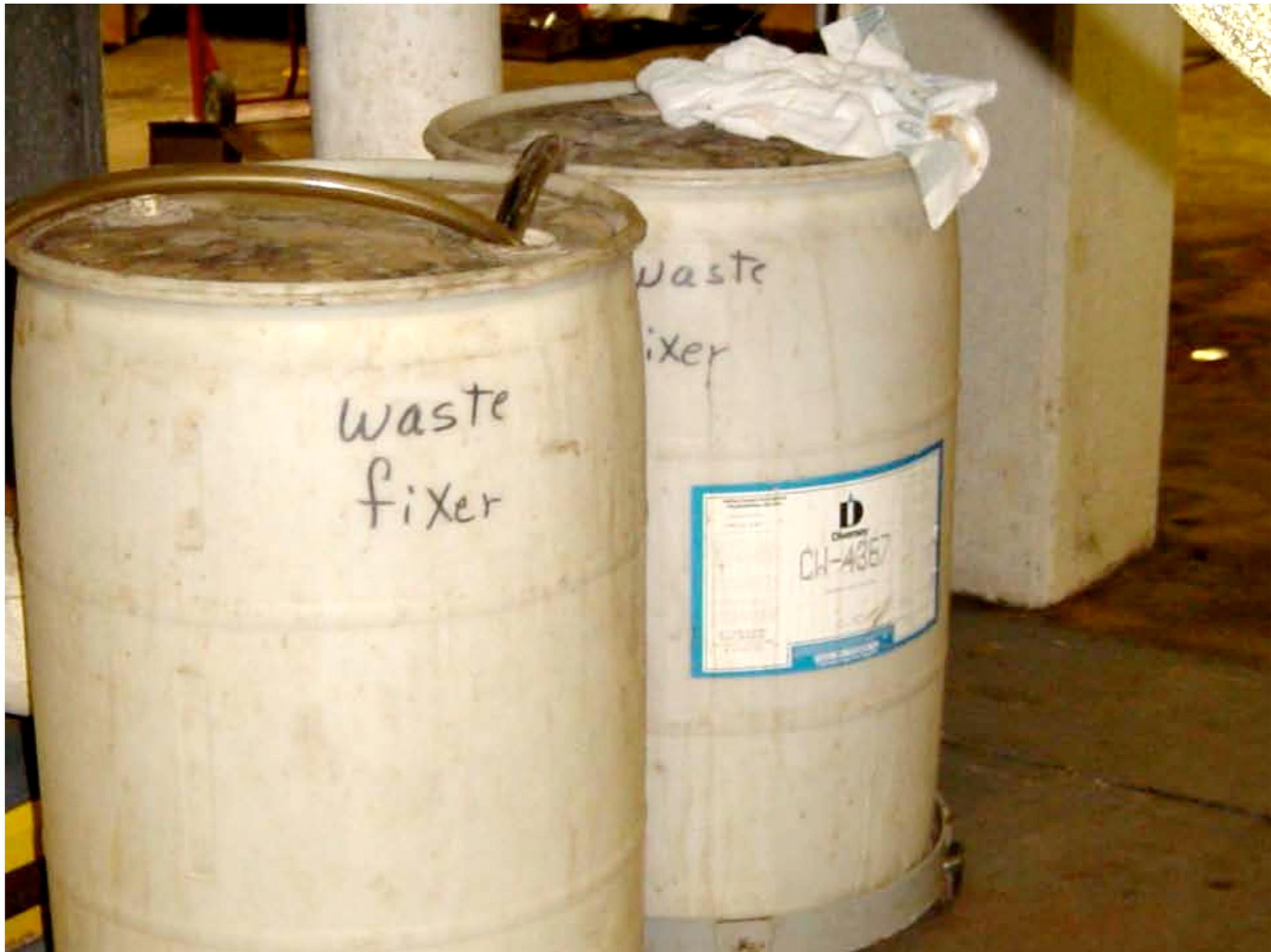
A Total Service to safely and efficiently recover
your spent Photo Processing Solutions



MAR 20 2000

Silver Recovery Unit Processing XRAY Developing Fluids





waste
fixer

waste
fixer

D
CW-4357

Corrosive Alkali Used in Industrial Water Treatment

PRECAUTIONARY STATEMENTS FOR INDUSTRIAL USE ONLY

DANGER!
CORROSIVE ALKALI

MAY CAUSE BURNS OR TISSUE DAMAGE

Do not get into eyes, on skin, or clothing. Do not ingest. Avoid breathing vapors, mist or dust. Keep container closed. Use with adequate ventilation. Wear long sleeve shirt and pants, impervious apron, safety glasses with side shields, goggles on face shield, and rubber gloves when handling. Wash thoroughly after handling and before eating, drinking or smoking.

FIRST AID

SKIN: In case of contact, remove contaminated clothing and wash before reuse. Flush skin with plenty of water. Then wash thoroughly with soap and water. Call a physician or poison control center if irritation persists.

EYES: Flush with water for 15 minutes and call poison control center or physician if irritation persists.

IF SWALLOWED, DO NOT INDUCE VOMITING. Show victim and call a physician or call collect (216)TEL-SAFE or (216)835-7233. Avoid alcoholic beverages. Never give anything by mouth to an unconscious person.

**FOR 24 HOUR EMERGENCY
MEDICAL INFORMATION
CALL COLLECT (216)TEL-SAFE
OR (216)835-7233**



Diversey

CW-4367

INDUSTRIAL WATER TREATMENT

LOT: C252064
NET WT 5500

Diversey Water Technologies Inc.
Cincinnati, Ohio, U.S.A.

Paint Sprayer Wash-up

Paint Waste

MAR 20 2003







MAR 20 2003

Paint Booth Filters

MAR 20 2003





USED OIL

MAR 20 2003



MAR 20 2003



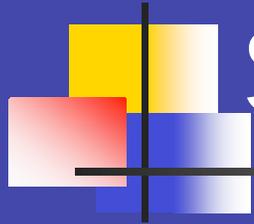
Flammable ? MAR 20 2003

Sharps Stolen by Vandals
from Locked Medical Waste
Storage Building

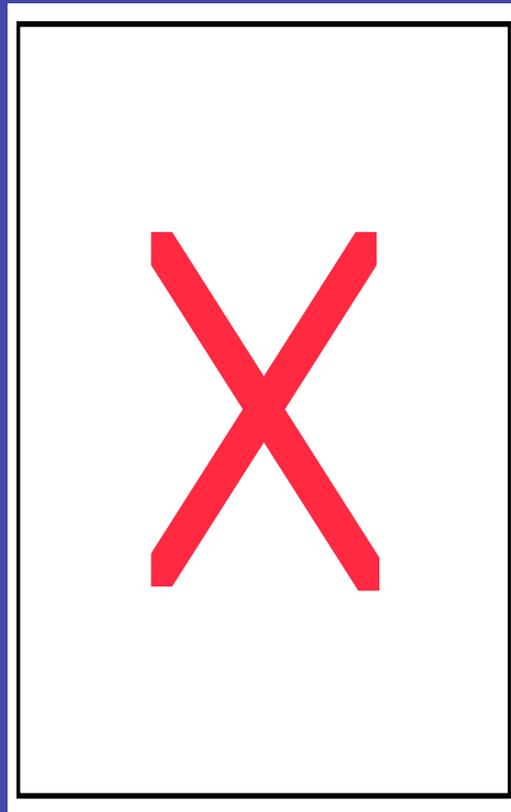


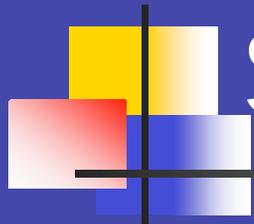
Syringe and
Sharp Discovered
in Playground
Area





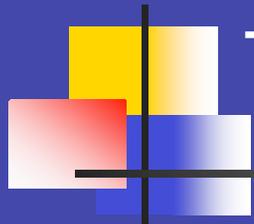
Small Laboratories





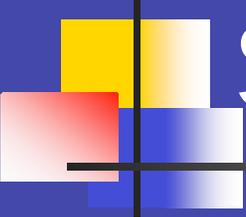
Small Laboratories

- Facility conducting experimental or routine testing
- Involve activities dealing with chemicals
- Small businesses operating on their own or "captive" to a larger organizations
- Typically labs generate small quantities of a wide variety of pollutants



Types of Small Laboratories

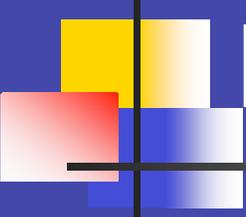
- Clinical Labs associated with Medical or Dental Practices
- Forensic Testing Labs
- Environmental Testing Labs
- QA Labs for Chemical or other Manufacturing Plants
- Teaching and Academic Research Labs



Environmental Challenges for Small Laboratories

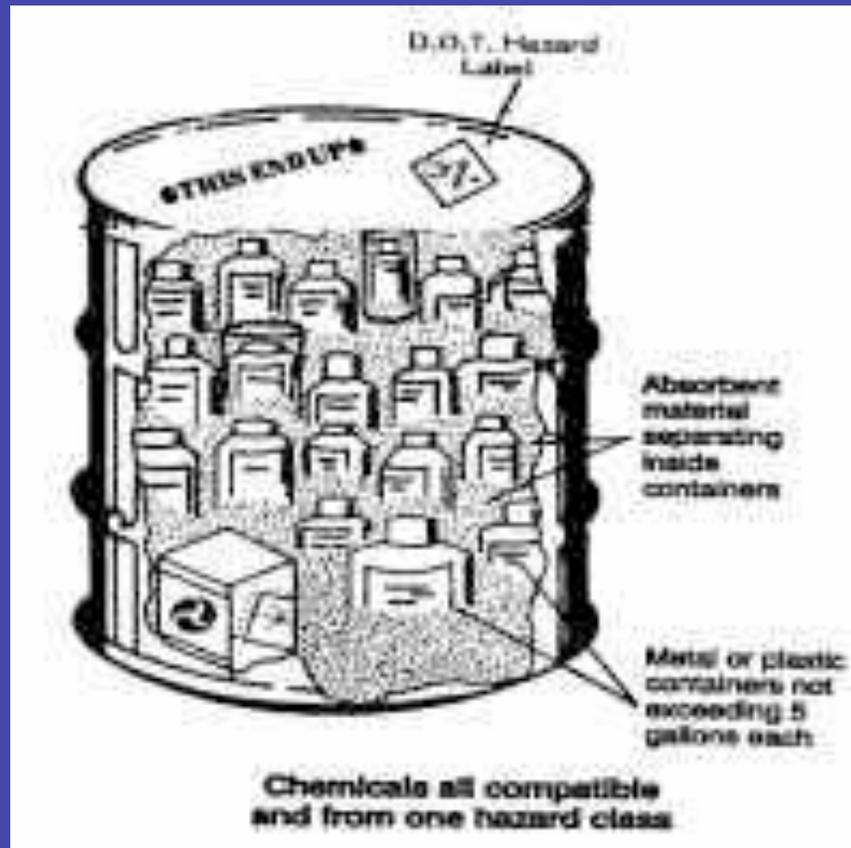
- Many labs perform “sink disposal”.
- Labs resist “recycling” solvents used in analyses due to possible compromising of the quality parameters in the test results.
- Labs often stockpile samples and “aged chemicals” until there is no longer sufficient storage space.

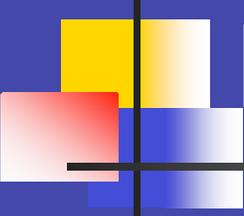
Waste Handling at Small Laboratories



- The term “LAB PACK” was coined years ago to describe a typical method of individually packaging a number of small containers of HAZ Waste in a traditional 55 gallon drum. Although the method appears “inefficient”, for legal and safety reasons, it’s a better waste handling method than allowing the mixing different lab wastes in a single container.

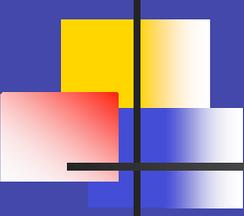
LAB PACK DIAGRAM





LAB PACK

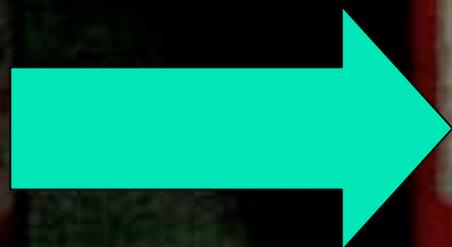




Out-of-date Lab Chemicals



Cold Storage Required?



 12,603-9 25g
2,6-Dichloroquinone-4-
chloroimide, 98%
May explode when heated!
Keep cold!
Research Chemical Company, Inc.

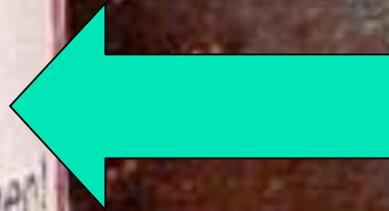


Chemical Co

CHEMISTRY - MILWAU



Flammable liquid! Irritant!
Refrigerate! Hygroscopic!
Handle and store under nitrogen!



Water < 0.005%
Evapn. residue < 0.0003%

29,608-2

100ml

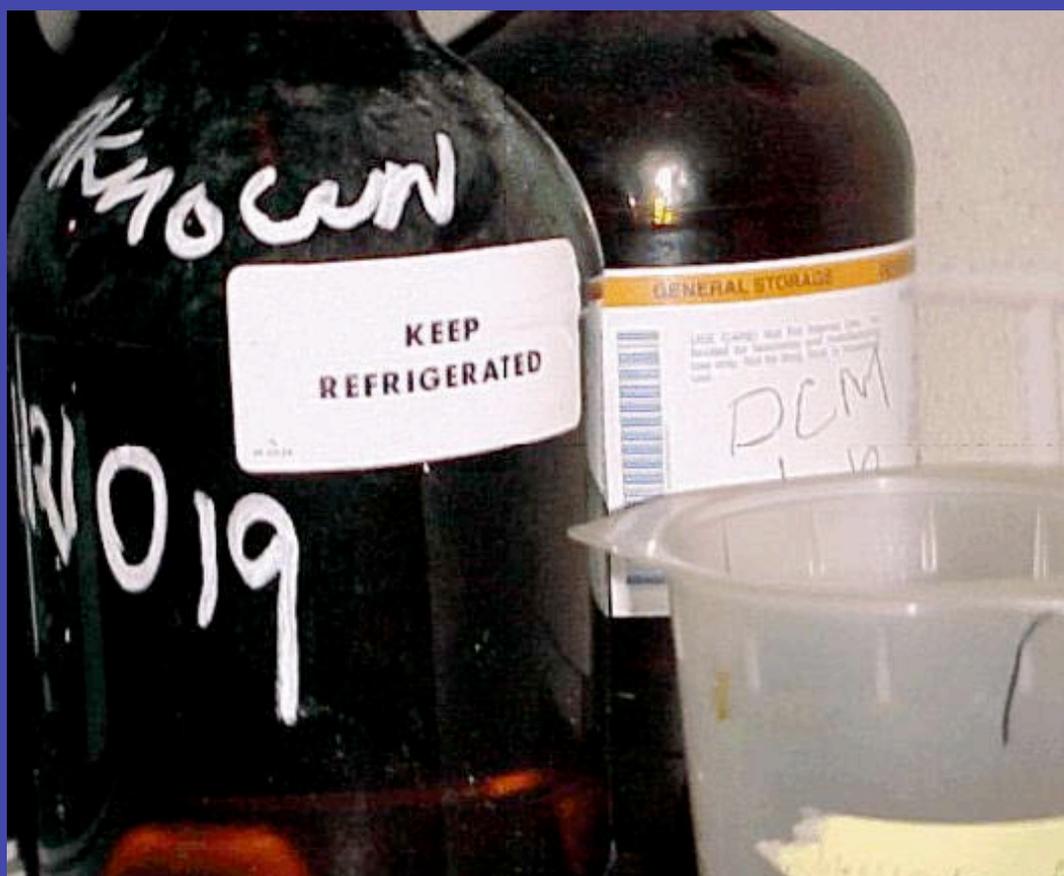
01103109

Ether, anhydrous, 99 + %
[60-29-7] $(C_2H_5)_2O$ F.W. 74.12
b.p. 34.6° n_D^{20} 1.3530 d 0.706
Inhibited with 0.0001% BHT

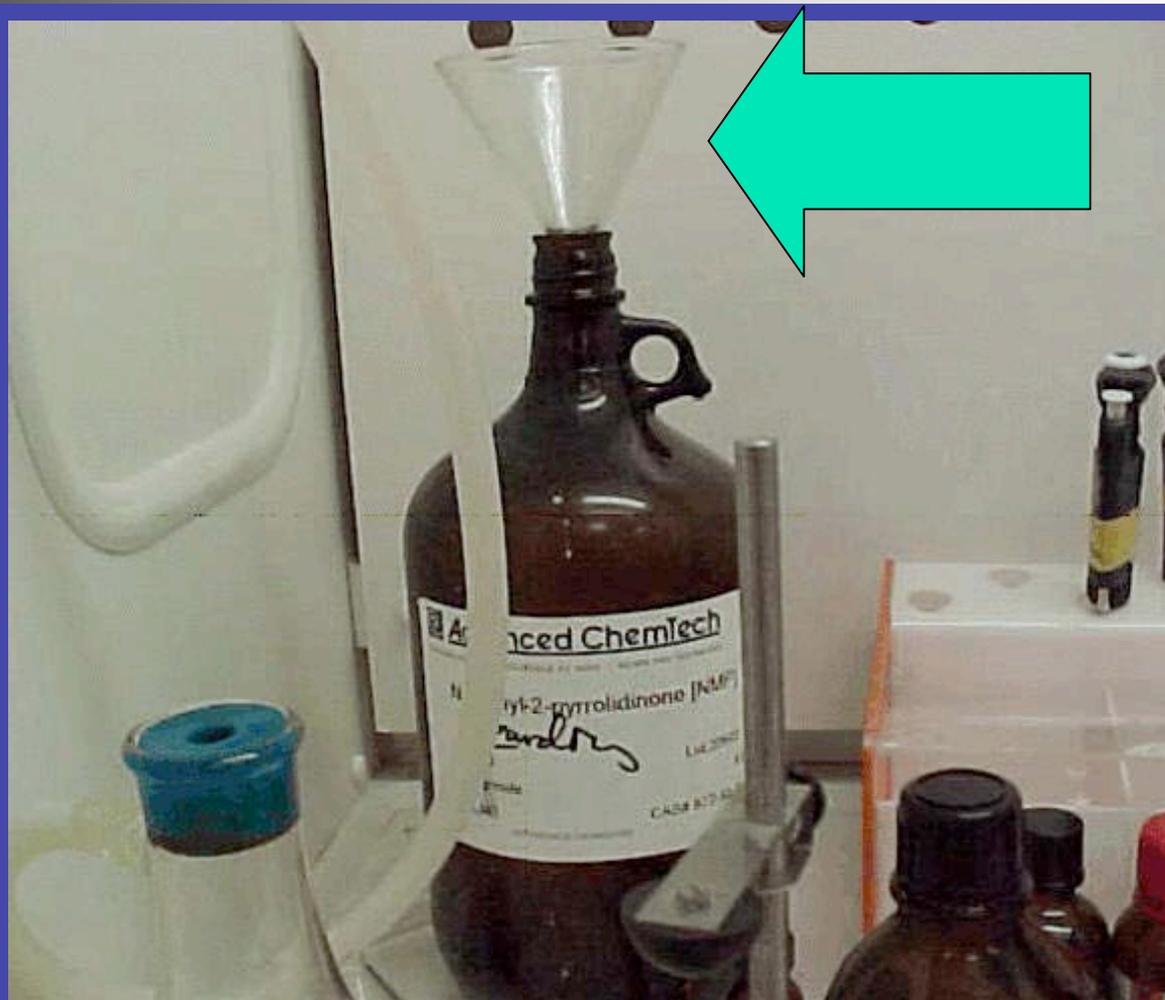
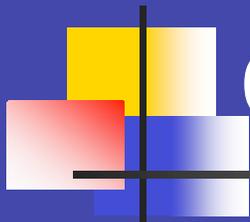
Fisher Scientific Company, Inc.

UNKNOWN

Keep Refrigerated



Is this Container properly closed?



P 106 - Acute Hazardous Waste.....Oops



Can you spot the three phase separation ?



Is this really "Hazardous Waste" ?



Vitamin C

Sugar

Laboratory Satellite Accumulation Area

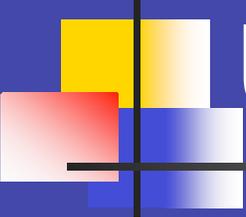


HEINZ
DISTILLED WHITE
VINEGAR
IDEAL FOR FOOD
5% ACV
NET CONTENTS 1.0 LITER

Zyleve

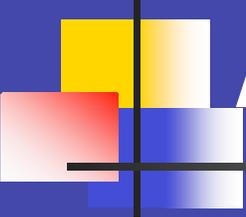
WASTE

MAR 20 2003



Small Laboratories have Unique Concerns

- In general, Laboratories present a unique *environmental compliance* and *pollution prevention situation* that is very different from any other small businesses needing assistance. Unique *health and safety concerns* and *specialized training* have been identified for laboratory workers.



EPA Tailored RCRA Regs for Academic Laboratories

- EPA has proposed a set of alternative Haz Waste generator regulations called the "Academic Labs Rule". It gives colleges & universities more flexibility in managing their Hazardous Waste. They can choose to manage their Haz Waste in accordance with the new Regs or remain subject to the existing Regs as set forth in 40 CFR 262.11 & 262.34(c).

Subpart K: Standards

Applicable to Academic Labs

- Hazardous Waste Determinations:
- Can be made in the Lab prior to removal & destined for the Central Accumulation Area,
- Can be made at an on- or off-site TSD, or
- Can be made at the Central Accumulation Area or on-site TSDF, provided certain provisions are met

Subpart K: Standards

Applicable to Academic Labs

- This flexibility in the Regulations will facilitate RCRA Hazardous Waste determinations and will require that they be performed by specifically trained personnel, instead of by untrained students.

Subpart K: Standards

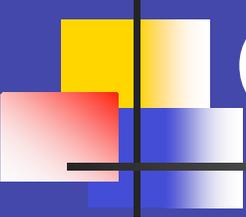
Applicable to Academic Labs

- At college labs, transient students often generate a large portion of the Haz Waste. However, the new Subpart K Regs will allow the college's trained environmental health and safety personnel to make the determinations and reduce the chance of improper waste management.

Subpart K: Standards

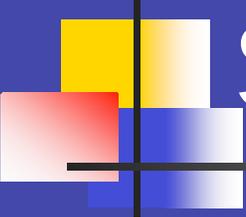
Applicable to Academic Labs

- Subpart K was developed with performance-based standards in part to account for the diversity among college and university operations and practices, curricula, and goals.



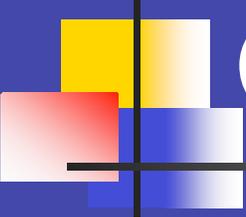
How do Academic Labs Comply with Subpart K ?

- Must manage unwanted material in accordance with the performance-based standards set out in the rule for container management, container labeling, and personnel training.



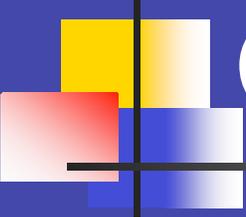
What are Performance-based Standards ?

- Means a flexible approach that will allow colleges or universities the discretion to determine the most appropriate and effective method of compliance with the requirements of today's Rule.



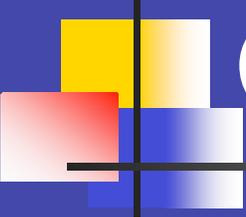
How do Academic Labs Comply with Subpart K ?

- Must remove their unwanted material on a regular interval not to exceed six months or when 55 gallons of unwanted materials, or one quart of reactive acutely hazardous unwanted material has been accumulated, whichever occurs first.



How do Academic Labs Comply with Subpart K ?

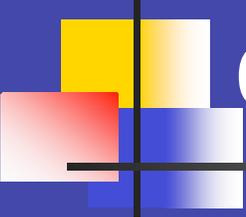
- Must follow the recordkeeping requirements and develop, implement, and retain a Laboratory Management Plan (LMP) describing in detail how the college or university laboratory plans to meet these performance-based requirements.



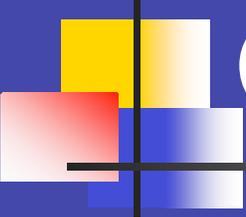
How do Academic Labs Comply with Subpart K ?

- A college or university laboratory may conduct an unlimited number of lab clean-outs each year. However, the frequency that they can take advantage of the incentives for laboratory clean-outs is limited to once per 12 month period per laboratory.

Subpart K Laboratory Clean-out Incentives



- 1. During a laboratory clean-out, labs have an increased amount of time that unwanted materials may remain in the laboratory (30 days).
- 2. Laboratories are not required to count wastes generated during the designated laboratory clean-out period toward their generator status in 40 CFR 262.34.



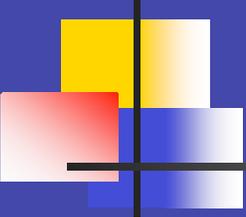
How do Academic Labs Comply with Subpart K ?

- Finally, the Rule recommends that laboratories implement an Environmental Management System (EMS), although an EMS is not required by the Rule.

Subpart K: Standards

Applicable to Academic Labs

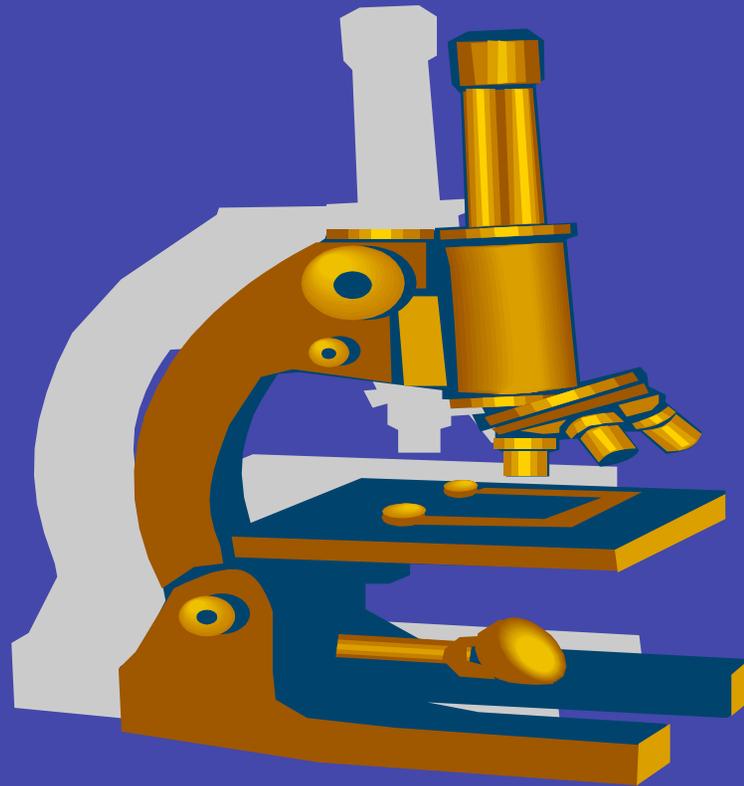
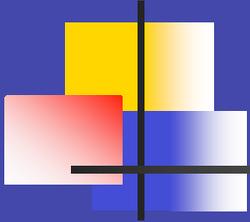
- Although Subpart K does give colleges and universities the option to select between the existing Hazardous Waste Regulations and the new alternate Regulations designed for Academic Labs, EPA does not intend for colleges and universities to make this decision on a laboratory-by-laboratory basis. All labs at the college or university must operate under the same set of Regulations.



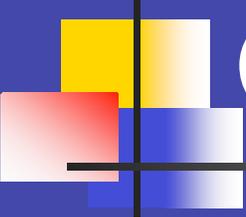
When can Subpart K be Implemented ?

- Colleges and universities may implement Subpart K on the day their state adopts the proposed Rule, for those states that have final HWSA authorization or on the proposed Rule's effective date in those states that do not have final HWSA authorization.

Other Concerns with Medical Institutions

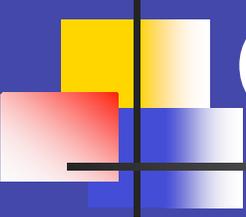


Dental Amalgam and Mercury Concerns



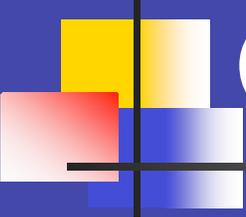
- Mercury is a neurotoxin that can cause developmental problems in fetuses and young children.
- It makes its way into the bloodstream when people eat contaminated fish.
- Elemental Mercury that is released into the air or water ends up in the sediments of lakes and accumulates in the fish.

Dental Amalgam and Mercury Concerns



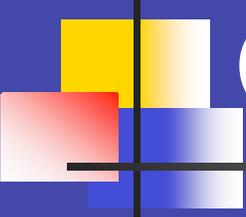
- Normally Mercury in dental amalgam is reasonably stable.
- The problem occurs when Med Waste containing Mercury or POTW sludge containing amalgam is incinerated.
- Incineration releases the elemental Mercury into the air which enters the water and starts the “environmental cycle of concern”.

Dental Amalgam and Mercury Concerns

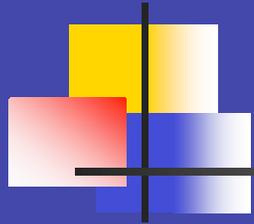


- The EPA & ADA have been pushing for a higher environmental awareness by dentists in reference to amalgam and Mercury disposal.
- Some states have even initiated focused waste management programs to deal with this rising public concern.

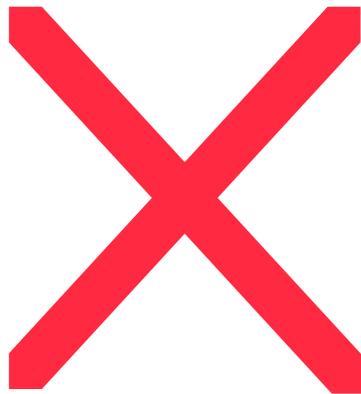
Dental Amalgam and Mercury Concerns

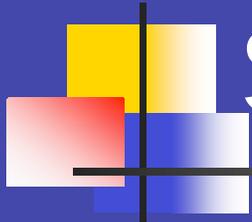


- By definition, Dental Amalgam is a “Special Waste”, not a “ Medical Waste”. Handle it appropriately.



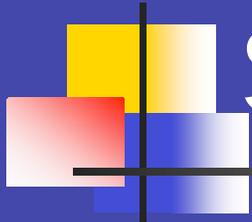
Investigation Safety





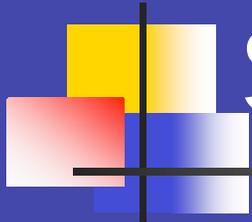
Safety Precautions

- Use common sense and avoid hazardous situations if possible.
- Wear gloves and wash hands when gloves are removed.
- Don't eat or drink in the area where contamination is processed or exposure is possible.



Safety Precautions

- Keep shots and vaccines up-to-date.
- Hepatitis A is contacted through a fecal/oral route.
- Hepatitis B & C infections are initiated through body fluids and blood coming in contact with a break in the skin such as cuts, sharps, etc.



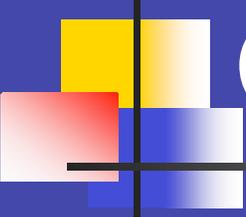
Safety Precautions

- The hepatitis virus can live for several days on an object. Note: There is no vaccine for "Hepatitis C".
- The AIDS virus does not have a very long life span when exposed. However, if it is inside of a sealed syringe, it has been known to live indefinitely.

Disposal of Materials from Captured Drug Labs



Clandestine Laboratory Committee



- Obtain the Chemical Information List
- Procedures for Disposal of Certain Chemicals Obtained from Drug Raids
- Complete a Chemical Inventory Form
- Coordinate with All Local Officials
- Complete a Site Safety Plan
- Utilize the Local Haz Mat Team

Disposal of 35 Tanks of Anhydrous Ammonia





County Impound Lot

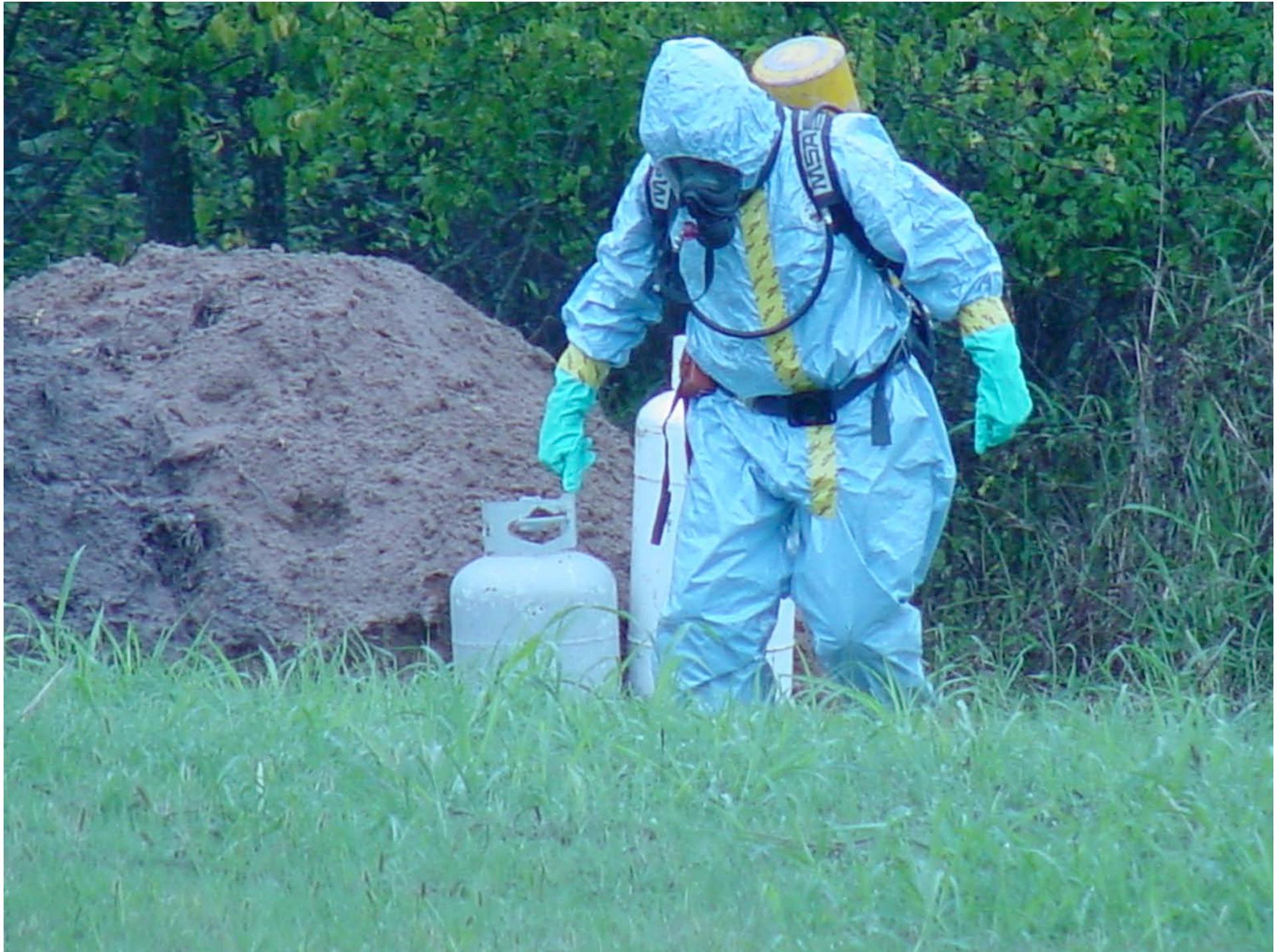
Problem – Located in a Residential Area inside the City







Fire Department Training Grounds





Ready on the Left....

Ready on the Right.....

Ready on the Firing Line





A photograph showing four gas cylinders lined up on a grassy field. From left to right, there is a red horizontal cylinder, two white vertical cylinders, and a red vertical cylinder. A white mist or spray is visible in the background behind the cylinders. The foreground is filled with green grass.

The Ammonia is Hydrated
by the Water Spray and
Forms Good Ole Fertilizer

Questions ?

