



...WORKERS...
...FOR A...
...WORKING MAN AND WOMEN...
...IN THE NATION SAFE AND...
...HEALTHY WORKING...
...CONDITIONS, AND TO...
...RESERVE OUR FUTURE...
...FOR OTHERS...

OSHA, Exxon and You!

MODULE BR-102

REVISION 10/75

3.

WORKBOOK

MODULE BR-102

"OSHA, EXXON AND YOU"

FEBRUARY, 1975

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Not To Be Copied

Training and Development
Department

Baton Rouge Refinery

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Introductory Comments

The purpose of this workbook is to help you to remember the important facts which you are getting from the videotapes. Experience shows that participation by class members, through written responses to questions and incomplete statements reinforces what is taught through the primary medium, in this case - videotape.

Your instructor will tell you when to begin and when to stop each workbook exercise. Correct answers and filled-in spaces appear on the back of each sheet that you'll be asked to fill in. These exercises are not intended to be tests!

If you don't know the answer to a question, don't waste a lot of time on it. Turn the page, check the correct answer, then go back and write the answer in the appropriate space.

WRITING THE ANSWER IS AN IMPORTANT PART OF THE LEARNING EXPERIENCE!!

MODULE OBJECTIVE

The objective of this module is to inform first and second line supervisors in the Exxon Manufacturing circuit of the purpose of the Occupational Safety and Health Act, of the rights and duties of the employer and employee under the Act, of how an OSHA inspection is conducted, and of some of the basic safety and health standards which affect our workplace.

BACKGROUND INFORMATION

1. The module is not designed to replace a safety program.
2. The module is designed to "broaden" supervisors' knowledge beyond that which they actually need in the plant, because it is believed that this yields a more "rounded" supervisor.
3. The module is designed to be instructive to a relatively broad group of supervisors - as to both age and experience background.
4. It points out what OSHA has been putting emphasis on, in the safety area. Many of these things are elementary.
5. Some of the important requirements of the law have not been included - not because they don't deserve the attention of Exxon supervisors, but rather because OSHA has not been concentrating on them in their inspections.
6. The health portion of this module represents a pioneering effort, because it gets into an area that previously has not commanded the attention of supervisors. In this health area, the module leads OSHA.

TERMINAL PERFORMANCE OBJECTIVES

By means of a written test, without the aid of written notes, the supervisor will demonstrate his knowledge of the Occupational Safety and Health Act by -

Recognizing -

- that "OSHA" stands for the Occupational Safety and Health Act of 1970
- a statement of the employer's general duty under the Act
- a statement of the employee's responsibilities under the law
- that some states have been authorized by OSHA to develop and enforce their own safety and health laws
- a statement of what group of employees are covered by the Act
- the organization which provided the source of the current safety and health standards
- the method by which OSHA standards are enforced
- the method by which an employer can seek relief from unjust citations, unjust penalties, and/or too short a period being allowed to correct deficiencies

Recognizing key safety items from a current list of frequently-cited and/or potential "workplace" violations:

- general housekeeping violations (scattered trash, slippery floors, etc.)
- open sided floors, platforms and runways
- stairway handrails
- exit markings (location, lighting, visibility)
- fire extinguishers (location and accessibility)
- aisle markings
- floor load limits
- storing flammables
- excavation and trenching
- scaffolding (tubular and "horse") safety

EXERCISE NO. 1
WHAT OSHA IS AND HOW IT WORKS
SEGMENT 1

1. The letters OSHA stand for the _____
and _____.
2. The objective of Congress when it passed OSHA was to assure, so far as possible, every working man and woman in the nation safe and healthful working conditions and to preserve our human resources. True _____.
False _____.
3. The OSH Act was signed into law:
_____ June 1970 _____ April 1971
_____ Dec. 1970 _____ Dec. 1971
_____ None of these
4. All employees whose employer is engaged in business affecting
_____ excluding federal,
state and local governments are covered by the Act. Also excluded are
those employees who are covered by similar governmental programs
already in effect such as the Federal Coal Mine Act and the Atomic
Energy Act.

5. OSHA lists two employer responsibilities:

- To furnish each of his employees working conditions that are free from recognized safety and health hazards that are causing or likely to cause death or serious physical harm.
- To comply with the specific safety and health standards which have been made law.

The first responsibility as given above is frequently referred to as the _____ Clause.

6. The Act states that an employee must comply with the Occupational Safety and Health Standards and all rules, regulations and orders issued by OSHA concerning the employee's actions. The Act does not permit the Compliance Officer to issue the employee a citation. Do you consider this logical/illogical?

7. OSHA will permit individual states to develop and administer their own safety and health standards and to establish their own inspection force as long as the state's program is as effective as OSHA's -
True _____. False _____.

8. In developing Safety and Health Standards OSHA was prohibited from adopting national standards such as those published by the American National Standards Institute and the National Fire Protection Association because these standards were not well accepted by businesses and industry.

True _____. False _____.

9. Name five of the types of things you saw in this segment that an OSHA inspector checks for when inspecting a typical workplace:

10. If an employer believes he has been unjustly cited for a violation of OSHA or that the proposed fine is excessive or the time allowed to correct the deficiency is not sufficient he may contest the citation by writing the OSHA area office that issued the citation. He has _____ working days to do this. If no action is taken the citation becomes final.

END OF WORKBOOK EXERCISE NO. 1. DO NOT CONTINUE UNTIL INSTRUCTED TO DO SO.

EXERCISE NO. 2
OSHA INSPECTIONS
SEGMENT 2

1. To meet the goal of providing each employee a safe and healthful workplace it is important that employers voluntarily comply with the OSHA safety and health regulations because it is impractical for OSHA to have enough inspectors to find all the deficiencies in a reasonable period of time.

True _____. False _____.

2. OSHA has established a priority system to decide which businesses to inspect. The factors considered are listed below but not in order of importance. Arrange the factors in order of decreasing importance by placing the appropriate number to the left of the factor with 1 being the most important.

_____ Target Industry - Those industries with poor accident and health records such as lumber and wood products, roofing and sheet metal, mobile home manufacturing, longshoring, industries with high and repeated exposure to harmful materials such as asbestos, cotton dust, silica, lead, carbon monoxide.

_____ Random selection

_____ An accident or industrial disease which involved a fatality or requires the hospitalization of 5 or more persons.

_____ Employee complaint of an OSHA violation.

3. A minimum of fifteen days advance notice is required by law prior to an OSHA inspection so the employer can have his desired representative present.

True _____. False _____.

4. OSHA permits an employee who has submitted a complaint of an OSHA violation to have his name withheld from the employer. Further the law protects an employee submitting a complaint from any act of reprisal due to his submitting a complaint.

True _____. False _____.

-E-1

EXERCISE NO. 6
OCCUPATIONAL DISEASE
SEGMENT 4A

1. As a supervisor your eyesight, your hearing, your sense of smell and your _____ can be important tools in detecting possible industrial hygiene problems.
2. Name the 10 troublemakers you were told about in this segment.

(a) _____	(f) _____
(b) _____	(g) _____
(c) _____	(h) _____
(d) _____	(i) _____
(e) _____	(j) _____
3. Dust is defined as particles of any solid material which are so small that they can become airborne. ____ T ____ F
4. Fumes are a collection of tiny droplets of high boiling point oils which will not vaporize at normal atmospheric conditions. ____ T ____ F
5. _____ are tiny liquid droplets which are suspended in air. Fog is a common example of a _____ of water.
6. _____ are simply liquids which through evaporation or boiling have been changed into a gas. The _____ which come out of your gas tank when you remove the cap is one example.
7. All of the troublemakers except noise are contacted either by breathing them, by absorbing them through the skin or by ingesting them along with something we eat, drink or smoke. ____ T ____ F
8. The contact of _____ is the most frequent but not only means by which employees in a refinery or chemical plant atmosphere become exposed to our troublemakers.

15. The general rule is that all conduit entering an explosion proof housing should have a sealed fitting. ____ T ____ F
16. A simple rule to remember is that electrical equipment which could become energized if there were an insulation failure should be grounded if it can be contacted by an employee who would be part of the path to ground. ____ T ____ F
17. OSHA requires the use of grounded extension cords. ____ T ____ F
18. Because of OSHA, manufacturers are constructing extension cords with a fine wire mesh sheath within the exterior covering of extension cords to prevent mechanical damage therefore providing mechanical protection for these cords is no longer required. ____ T ____ F
19. The problem with connecting dissimilar materials such as copper and aluminum is that it is difficult to get a lasting good connection. Poor connections have resulted in fires. ____ T ____ F
20. Unqualified personnel must be restricted from buildings and enclosures containing exposed energized equipment. Danger signs and locks are used to exclude unauthorized personnel. ____ T ____ F
21. OSHA requires that switches, circuit breakers, or other disconnects for a motor, electrical feeder or other electrical equipment be legibly marked. ____ T ____ F
22. Electrical equipment or motor driven equipment should be shut down and _____ before mechanical work is done on it.
23. The minimum safe distance that a crane or its load should be from exposed power lines is _____ feet. Even greater distances are required where the line voltage exceeds 50,000 volts.
24. A simple but important rule to remember is: only _____ employees should do skilled electrical work.

END OF WORKBOOK EXERCISE NO. 4. DO NOT CONTINUE UNTIL INSTRUCTED TO DO SO.

15. True - The fitting must also be filled with sealing compound.
16. True
17. True - The only exception would be where a double insulated tool is used.
18. False - Providing mechanical protection or running extension cords where they can't be damaged is essential.
19. True
20. True
21. True
22. tagged out or locked out. The correct answer depends upon the practice followed at your plant.
23. ten
24. qualified

EXERCISE NO. 5
MACHINE GUARDING & OTHER
SEGMENT 3C

1. There are more OSHA citations issued for machine guarding violations than any other category of violations. ____ T ____ F
2. More of the OSHA citations involving machine guarding are classed as (de minimis/non-serious/serious/imminent danger) than in any other category of violations.
3. _____ means the precise point at which the cutting, the shaping, or the forming operation is being performed.
4. _____ are those points where some part moves toward a stationary object or where machine parts rotate toward each other.
5. OSHA requires that "points of operation" and "in-going nip points" be guarded.
 - (a) Only enclosure guards are acceptable by OSHA for guarding points of operation. ____ T ____ F
 - (b) The most common type of guard used to protect against in-going nip points is the enclosure guard. ____ T ____ F
6. Arrange the following methods of machine guarding in order of increasing complexity with the simplest listed as "a": automatic guards, enclosure guards, interlocking guards and special protective devices.
 - (a) _____
 - (b) _____
 - (c) _____
 - (d) _____

7. automatic guard

8. (a) to make certain the machines used by his employees are properly guarded
(b) to make certain his employees use the guards which are provided

9. True

10. 20

11. False - Gas cylinders should not be handled with slings or electromagnets. A special lifting cradle securing the cylinders should be used.

12. 30

13. True - Although the Act requires the employee to obey the law it does not provide for citations to be issued to employees. The basis for this is that the employer has prime responsibility for employee discipline.

7. Most of the areas in a refinery or chemical plant which might reasonably be expected to have an explosive atmosphere if there was an equipment failure would be classified: Class I, Division II, Group D. ☐ T ☐ F
8. Electrical equipment, battery powered instruments, electric tools purchased for use in Unclassified Areas should not be used in _____ or _____ areas without a hot work permit or modification of the equipment or special approval by the safety department.
9. Electrical equipment purchased for a Class I, Division I, Group D atmosphere can be safely used in a Class I, Division II, Group B atmosphere. ☐ T ☐ F
10. Low voltage, battery powered instruments, tools or communication equipment do not have sufficient energy to "set off" a fire or explosion. ☐ T ☐ F
11. Intrinsically safe on the label of a piece of electrical equipment means in simple terms _____

12. The surface temperature of lighting fixtures, hot plates, electronic tubes would not be of concern inside a building if there was no way for liquid hydrocarbon to spray on the surface. ☐ T ☐ F
13. Mercury vapor light fixtures can be interchanged for incandescent light fixtures because a mercury vapor light will operate cooler than an incandescent light of the same wattage. ☐ T ☐ F
14. Since explosion proof housings are designed with a 4 to 1 safety factor up to 25% of the cover bolts or 25% of the effective thread area can be left out or disengaged with no real loss of effectiveness. ☐ T ☐ F

ANSWERS TO EXERCISE NO. 4

ELECTRICAL VIOLATIONS

SEGMENT 3B

1. True
2. (Order not important) (a) Hazardous areas (b) grounding of electrical equipment (c) flexible cords and cables
(d) general items
3. True
4. Class I (c) Hydrocarbon vapors and gases
Class II (a) Combustible dusts of coal, coke, metals, etc.
Class III(d) lint or flyings from cloth
5. Division I - Division II areas would normally have an explosive atmosphere only if there were an equipment failure.
6. either unclassified or general purpose. The newer term being used is unclassified.

19. It may be necessary to get engineering assistance for shoring design when excavating in previously backfilled areas, where unusual ground water conditions exist or adjacent to existing foundations. ____T ____F
20. The basis for the scaffold standard is that it is important to provide the employee with a good surface to work from. If the work can't be reached from the ground or some other solid surface, a sturdy ladder or good scaffold should be provided. Name six of the eight factors pointed out in this segment which are required for a good scaffold.
- a. _____
 - b. _____
 - c. _____
 - d. _____
 - e. _____
 - f. _____
21. The horses for a light duty scaffold (25#/Sq. Ft.) should be no more than _____ feet apart. For a medium scaffold (50#/sq. ft.) they should be no farther than _____ feet apart.

END OF WORKBOOK EXERCISE NO. 3. DO NOT CONTINUE UNTIL INSTRUCTED TO DO SO.

19. True - or any time where unusual conditions exist.

20. (Order not important)

- a. good footing
- b. sound scaffolding materials
- c. solidly decked working platform
- d. decking boards must overlap their supports 6" - 18".
- e. uprights shall be plumb
- f. uprights shall be securely braced
- g. guardrail, and toeboard required when work platform is above 10'. A midrail may be required.
- h. Ladder or equivalent safe access must be provided.

21. eight five

9. Where exits are hidden from view, exit signs with _____ should be used to indicate the way to the exit.
10. Doors to closets, equipment rooms or any door which could be mistaken for an exit should be labeled in what manner?
_____.
11. Fire extinguishers should be _____ and conspicuous. They should be inspected monthly as a minimum to see that they are _____, have not been _____ or _____.
12. Fire extinguishers should be thoroughly inspected at least _____.
At the time of this inspection a durable tag shall be attached showing the date of servicing and the name or initials of the individual doing the servicing.
13. OSHA requires that permanent aisles shall be clearly marked with yellow and black lines. ____ T ____ F
14. Above grade floors in warehouses should have _____ signs posted.
15. Because of the magnitude of flammable materials handled in refineries and chemical plants, OSHA has excluded checking the handling of flammables from their inspection of these facilities. ____ T ____ F
16. Shoring or sloping of trenches and excavations will normally be required if the excavation is _____ or more feet deep.
17. A ladder or equivalent safe access is required if the trench or excavation is _____ feet or more deep. This should be no more than _____ feet from the people working in the excavation.
18. Excavated material or other materials like piping, boards, etc., should be placed no closer than _____ feet from the edge of the excavation if people will be working within the excavation.

9. arrows
10. by telling what it is or what it isn't
11. accessible in place discharged or damaged
12. annually
13. False - Permanent aisles should be marked but the manner of marking
is left to the employer.
14. load limit
15. False - There are numerous OSHA rules covering the handling and
storage of flammables. Small quantities shall be kept in
covered containers. Consult your plant regulations or the
Federal Register for details.
16. five
17. four twenty-five
18. two

EXERCISE NO. 3
WORKPLACE VIOLATIONS
SEGMENT 3A

1. The OSHA, Exxon and You supervisory training module was developed to give you all the OSHA regulations which apply to the refinery and chemical plant operations. ____ True ____ False
2. OSHA Compliance Officers concentrate on violations of standards involving poor housekeeping, open-sided floors, and stairway handrails because:
 - a. ____ T ____ F Violations of these standards lead to falls which can seriously injure employees.
 - b. ____ T ____ F These violations are easy to spot.
 - c. ____ T ____ F The President made these areas target areas in his speech announcing the new law.
3. Good housekeeping is an important part of both Process and Mechanical's job if a safe workplace is to be maintained. ____ T ____ F
4. Fixed ladders which are over 20' in height do not require the entrance to be protected if the ladder is equipped with a cage. ____ T ____ F
5. Temporary floor openings should be protected by either a _____ or _____.
6. Open-sided floors, platforms and runways require standard handrails if they are _____ feet or more above grade or other working surface.
7. _____ are required for stairs with 4 or more risers.
8. Exit signs must be readily visible, with letters at least 6 inches high, of a color _____ from its background and be lighted either _____ or _____.

8. Statements b, e and g are incorrect and should be circled.

b. The Compliance Officer reviews the violations and the proposed penalties with his Area Director. The Area Director decides if a citation is to be issued and the amount of the fine.

e. Even though a violation is classed as serious or imminent danger the employer has a legal right to contest it. He may take the position that he has not violated the law, or he may contest the penalty, or the time allowed to eliminate the violation or any combination of these.

g. Citations will be issued for violations found regardless of whether or not the employer agrees to correct the deficiencies. Agreement to correct the problems, however, would most likely indicate the the employer's good faith and would most likely result in reduced penalties.

7. Under imminent danger conditions an OSHA Compliance Officer will do the following:

True False

- a. ☐ ☐ Notify the employer of the conditions and attempt to convince him to move his employees until the problem is corrected.
- b. ☐ ☐ Order the employer to shut down the operation and remove his employees until the danger is eliminated.
- c. ☐ ☐ Notify the employees of the changes and order them to clear the above site until the danger is eliminated.
- d. ☐ ☐ Notify his Area Director of the condition and if the Area Director agrees, the Area Director will request the U.S. District Court having jurisdiction to issue a restraining order shutting down the equipment or condition which created the problem.

7. True False

a ✓ _____

b _____ ✓

The Compliance Officer does not have this authority.

c _____ ✓

He must notify the employees but he is not permitted to order an operation to be shut down.

d ✓ _____

The final decision whether or not to shut down an operation rests with the court.

5. The OSHA Compliance Officer is normally accompanied on his inspection by a representative of the employer and a representative of the employees. If there is no union representative the Compliance Officer must talk with a sufficient number of employees about safety and health matters to evaluate the employer's interest in the safety area and the effectiveness of his program.

True _____. False_____.

6. Violations are classed as to seriousness as de minimis, non-serious, serious and imminent danger. Fill in the blanks below using these terms.

- a. A _____ violation is one where conditions are such that it can reasonably be expected that death or serious physical harm is likely to occur.
- b. A _____ violation is one which could have an effect on the employee's safety or health but would not cause death or serious physical harm.
- c. A _____ violation is one which would have no immediate or direct relationship on an employee's safety or health.
- d. A _____ violation exists if there is a substantial probability that death or serious physical harm can result from it.

5. True

6.

a. serious

b. non-serious

c. de minimis

d. imminent danger

9. Normally the skin acts as a barrier to protect your internal organs from harmful substances; however, some materials such as tetraethyl lead and phenol can pass directly through the skin and be absorbed into the body. ____ T ____ F
10. Because of the low quantities of "free" lead and mercury in the atmosphere, employees working with these materials should not be concerned with ingestion or swallowing them by eating, drinking or smoking. ____ T ____ F
11. The possibility of _____ materials in the atmosphere must be considered when selecting a location for employees to eat or prepare food.
12. Only when an employee is 40 years old or older is a loud but long duration noise likely to cause permanent hearing damage. ____ T ____ F
13. The results of exposure to the ten troublemakers covered by the segment are:
- | | |
|-----------|-----------|
| (a) _____ | (d) _____ |
| (b) _____ | (e) _____ |
| (c) _____ | (f) _____ |
14. Of the list of peculiarities associated with industrial diseases (slow to develop, latent or dormant, similar symptoms, plain hard to recognize, irreversible) the most significant is that industrial diseases are irreversible. ____ T ____ F
15. As a supervisor you should do everything you can to _____ employees from getting occupational diseases in the first place.

9. True
10. False - Although any single exposure may be slight, these materials have a cumulative effect, therefore good sanitation practice should be followed.
11. toxic/harmful/poisonous/etc
(any of the above)
12. False - Loss of hearing can occur at any age
13. (a) discomfort (d) disability
(b) inefficiency (e) premature aging
(c) sickness (f) death
14. True
15. prevent

16. The following is a list of steps you can take to minimize the chance of having the 10 troublemakers from "getting to" your employees:

- (a) Study your safety standards.
- (b) Read labels on materials your employees use.
- (c) Be watchful for unusual dust or vapor clouds.
- (d) Be alert for strong odors.
- (e) Be aware of things in the atmosphere which burn the eyes or throat, or irritate the skin.
- (f) Keep all your senses alert for changes in normal conditions.
- (g) Inform your employees of hazardous materials or conditions so they can protect themselves.

____ T ____ F

17. The Occupational Safety and Health Act makes it the employers responsibility to inform his employees of toxic materials or hazardous conditions in the employee's work area. The supervisor has a responsibility to see that this is done. ____ T ____ F

END OF WORKBOOK EXERCISE NO. 6. DO NOT CONTINUE UNTIL INSTRUCTED TO DO SO.

16. True

17. True

EXERCISE NO. 7
SPECIFIC HEALTH HAZARDS
SEGMENT 4B

1. List the "Big Ten Bad Actors" plus any additional ones your instructor told you about which are unique to your plant.

(a) _____	(f) _____
(b) _____	(g) _____
(c) _____	(h) _____
(d) _____	(i) _____
(e) _____	(j) _____

Others _____

2. Asbestos dust generated from items such as insulation, transite, marinite board, just to name a few, can cause asbestosis (permanent scarring of the lungs) and is thought to cause mesothelioma (a type of cancer of the lining of the chest wall). ____ T ____ F
3. The current threshold limit value (TLV) for asbestos fibers is 2 fibers longer than 5 microns for every cubic centimeter of air. ____ T ____ F
4. A good rule of thumb is that if you can see dust particles in the air from asbestos bearing materials you most likely are exceeding the TLV and protective equipment should be worn until an exact determination of the asbestos fiber level can be made. ____ T ____ F
5. Lead poisoning can occur when employees are exposed to lead fumes or lead dust unless proper ventilation is provided, protective equipment such as respirators are worn, and employees wash their hands and face with soap and water before smoking or eating. ____ T ____ F

ANSWERS TO EXERCISE NO. 7

SPECIFIC HEALTH HAZARDS

SEGMENT 4B

1. (a) asbestos (f) phenol
(b) cadmium (g) hydrogen sulfide (H_2S)
(c) lead (h) chlorine
(d) benzene (i) carbon monoxide
(e) sulfuric acid (j) noise

Others: As given by instructor for
your plant

2. True

3. False - The present TLV for asbestos is 5 fibers per cubic centimeters of air. However, this will be decreased to 2 fibers per cubic centimeter by July 1, 1976.

4. True - See your Plant Safety manual for the specific requirements for asbestos in your plant

5. True

6. The typical symptoms of lead poisoning are gastro-intestinal disorders, anemia, weakness and even _____.
7. Fumes and dusts are always visible if the lead concentration is high enough to cause a problem. ____ T ____ F
8. Cadmium is frequently used as a coating for such things as bolts, nuts, washers, etc., and is easily distinguished from zinc coated materials because of the shiny finish of cadmium parts. ____ T ____ F
9. When cadmium welding and brazing rods are used or cadmium plated bolts and nuts are "cut" with a burning torch, the vapors given off are toxic enough to kill you in a short period of time unless proper precautions are taken. ____ T ____ F
10. Cadmium fumes have a strong acidic odor and tend to burn your eyes when the concentration is high enough to harm you. ____ T ____ F
11. A simple test for cadmium plated materials is to gently heat a spot the size of a nickel with a burning torch. On cadmium plated materials the spot will form a _____ film while cooling while zinc coated materials will turn a _____ color. Limit the test to a few seconds to prevent over-exposure to cadmium fumes.
12. Proper ventilation and respirators shall be worn where cadmium bearing materials are heated above 610°F - cadmium's boiling point. ____ T ____ F
13. Benzene has a _____ odor but if you can smell it, the concentration usually is too high to be safe without protective equipment.
14. Exposure to excessive levels of benzene can affect the bone marrow resulting in anemia or absence of certain types of blood cells. The condition is irreversible. ____ T ____ F
15. There are many in the industrial medical field who believe that excessive benzene exposure (leads/does not lead) to leukemia.

6. brain damage - brain damage would be
a symptom of prolonged exposure
7. False
8. False - Although many of the cadmium plated items you see in a
hardware store do have a bright shiny finish, industrial
cadmium plated items can be a dull finish like zinc.
9. True
10. False - A bad thing about cadmium fume poisoning is that you may not
realize you are being exposed to toxic materials until it's
too late.
11. gold-yellow
smoky-grey
12. True
13. sweet pleasant
14. True
15. leads

16. Everyone knows that being sprayed or splashed with sulfuric acid can cause extremely painful chemical burns or loss of eyesight. Chronic exposure to sulfuric acid mist above the accepted working level can cause continuous irritation of the throat, sinuses and eyes as well as a chronic cough. ____ T ____ F
17. Phenol has a sweet, heavy odor. ____ T ____ F
18. Phenol is highly toxic by way of ingestion, by inhaling and by _____ through the skin.
19. Another name for phenol is _____ acid.
20. The worst thing about phenol is the severe skin burns or eye damage which can be done if an employee is sprayed. ____ T ____ F
21. Wearing proper eye, face, and body protective equipment is essential when working around equipment which contains phenol. ____ T ____ F
22. If an employee is sprayed with phenol he should _____

23. Only process streams which have a high percentage of phenol are a safety problem. ____ T ____ F
24. Concentrated phenol can have an anesthetic effect on the skin so that it can cause deep burns without the employee realizing the severity of the burn. ____ T ____ F
25. A practical tip to remember about phenol is that if your eyes, nose or skin become irritated by its vapors you are probably in a concentration which is too high for safety without protective equipment.
____ T ____ F

16. True
17. True
18. absorption
19. carbolic
20. False - Although it is true that phenol can cause severe chemical burns or loss of eyesight its worst feature is that it can cause collapse and death.
21. True
22. immediately drench himself under a safety shower or other water source while removing all his phenol soaked clothing including his shoes. He should receive immediate medical attention. Be certain the attending doctor knows that the employee has had a phenol exposure.
23. False - The length of exposure and amount of body surface covered are more important than the concentration of phenol.
24. True - The initial contact will be felt but due to the anesthetic effect the employee may not realize damage to the body will continue until the phenol is washed off.
25. True

26. Many employees do not realize that a phenol accident can cause death unless proper steps are taken immediately. ____ T ____ F
27. Another common term used for hydrogen sulfide gas is ____.
28. Hydrogen sulfide has a characteristic odor of _____ at very low concentrations. (1/10 part per million)
29. The ability to smell hydrogen sulfide's characteristic odor is lost at levels above 100 PPM. This can easily mislead an employee into thinking he is out of danger when actually the concentration could be increasing. ____ T ____ F
30. _____ is a greenish, yellow gas with a pungent suffocating odor. It can cause severe damage to the lungs and eyes at concentrations as low as a few hundred parts per million.
31. For the gas mentioned in statement No. 30, a good rule of thumb is: if you can smell it, or if your eyes and nose are irritated by it, you most likely are approaching an unsafe concentration of the gas. ____ T ____ F
32. _____ is a colorless, odorless gas formed from the incomplete combustion of carbonaceous materials such as hydrocarbons, wood, and coal.
33. Symptoms of poisoning from the above mentioned gas (#32) are headache, nausea, drowsiness and eventual loss of consciousness. ____ T ____ F
34. Extremely loud noises or a high noise level over an extended period of time can result in permanent _____.
35. Early symptoms of exposure to excessive noise levels are _____ or _____.
36. A good rule of thumb to follow is that if because of background noise you have to talk above your normal level to be heard by someone at arms length you are probably exposed to a noise level above 90 decibels.

26. True - This is where you as a supervisor can play an important part by informing the employee of the dangers of phenol and other toxic materials he may encounter.
27. H₂S
28. rotten eggs
29. True - After the sense of smell is deadened other symptoms of excessive H₂S exposure most likely will occur. These are: headache, dizziness, excitement, nausea, dryness and sensation of pain in the nose and throat and chest, and coughing.
30. chlorine (cl₂)
31. True
32. Carbon monoxide (CO)
33. True - death can occur if an employee is not quickly removed from the carbon monoxide atmosphere and breathing restored.
34. hearing loss / damage
35. temporary hearing loss or ringing in the ears
36. True

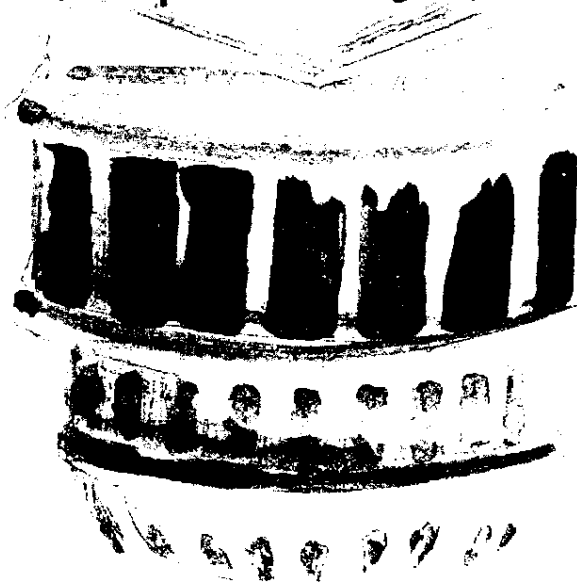
37. Ear protection should be worn or time of exposure should be limited to the periods specified by OSHA where noise level exceeds 90 decibels (commonly referred to as 90dBA). ____ T ____ F
38. A large compressor in a refinery or chemical plant can have a noise level in the 120dBA range unless it has had acoustical treatment. ____ T ____ F
39. If the industrial hygienist in your plant tells you that the noise level of a large pump has increased from 100dBA to 110dBA because of higher feed rates you know that the noise problem is only slightly worse - about 10%. ____ T ____ F
40. After you have posted signs warning of high noise areas and supplied your employees with hearing protective devices such as ear plugs or ear muffs you have done all that is necessary to comply with OSHA. ____ T ____ F
41. An important part of your job as an Exxon supervisor is to be alert for industrial safety and health problems, know what to do about them, set a good example for your employees and _____

END OF WORKBOOK EXERCISE NO. 7.

37. True - Exxon requires that hearing protection be worn when noise levels exceed 90 dBA. It is up to the supervisor to enforce this rule unless your plant has adopted a different basis. Your instructor will tell you of the rule which applies to your plant.
38. True
39. False - An increase of from 100 to 110 dBA means the sound power has actually been increased to 10 times the original level or 1000%.
40. False - As a supervisor you must see that employees use the hearing protection devices they are given. In addition OSHA does not permit the use of ear protective devices as a long range solution to a noise problem. OSHA requires engineering changes to reduce the noise level or administrative controls so that the employees' exposure on the basis of noise level and period of exposure remains at or below the limits they have set.
41. inform your employees of the safety and health problems that exist and the steps they must take to protect themselves.

END OF WORKBOOK EXERCISES.

Occupational Safety & Health Act
of 1970



What O.S.H.A. Is
and How It Works

SECTION K

Intent of Congress

TO ASSURE, AS FAR AS POSSIBLE, EVERY WORKING MAN AND WOMAN IN THE NATION, SAFE AND HEALTHFUL WORKING CONDITIONS, AND TO PRESERVE OUR HUMAN RESOURCES.

Employer's Duties

TO FURNISH EACH OF HIS EMPLOYEES WORKING CONDITIONS THAT ARE FREE FROM RECOGNIZED SAFETY AND HEALTH HAZARDS.

TO COMPLY WITH SAFETY AND HEALTH STANDARDS PROMULGATED UNDER THE ACT.

Employee's Duties

TO COMPLY WITH SAFETY AND HEALTH STANDARDS, AS WELL AS ANY OTHER RULES AND REGULATIONS CONNECTED WITH OSHA, THAT HE MIGHT BE SUBJECT TO.



Department of Labor

Department
of Health,
Education
and Welfare

STATE
SAFETY & HEALTH LAWS?

COMPLIANCE, SAFETY
AND HEALTH OFFICER

HIS OFFICIAL TITLE



O.S.H.A.'s Notice **MUST** Be Posted!

