

REV
81E

LHC III

INDUSTRIAL HYGIENE

JERRY STEWARD

NOVEMBER, 1984

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— *Journal of the American Medical Association*, 1994

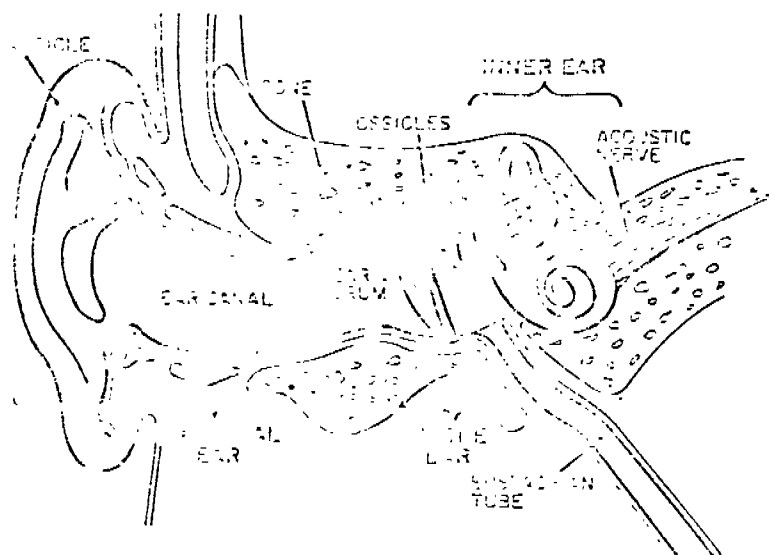
1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

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HEARING LOSS

CONDUCTIVE - HEARING LOSS DUE TO THE EXTERNAL OR MIDDLE EAR. USUALLY BY TRAUMA OR DISEASE.

SENSORY - EXCESSIVE NOISE RESULTS IN THE DEATH OF THE HAIR CELLS OF THE INNER EAR.

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11-05-84

... with excessive exposure to noise hearing loss ...
 ... the need for a standard that represents ...
 ... noise is evident. The present OSHA and the Dow ...
 standards are given in Table 2.

Table 2
 ONLY FOR NOISE

Time (h)	OSHA (dBA)	Dow (dBA)
16	85	80
8	90	85
6	92	87
4	95	90
3	97	92
2	100	95
1	105	100
0.5	110	105
0.25	115	110
0.125	---	115

(No exposure to noise greater than 115 dBA is allowed)

(Impact noise -- maximum allowed is 140 dBA.)

Table 3

Typical Sound Levels

Turbojet	$\frac{12}{155}$
Rifle	140
Large fan	110
Pneumatic Chipping	118
Back of drill bit	115
Power saw (at operator's ear)	97
Hand saw	
Drill bit (at 10 feet)	67
Garage disposal (at 3 feet)	80
Hand saw (at 10 feet)	80
Drill bit (at 50 feet)	67
Conversation (at 3 feet)	60
Quiet room	40
Very quiet room	30

12.10.10: NOISE

Prolonged and repeated exposure to levels exceeding 10 dB-A may cause severe damage to the nerves in the inner ear.

The initial effect is to reduce the ability to hear sounds in the high frequency range.

If unchecked, the hearing loss can extend to the frequencies in the normal speech range.

METHODS OF CONTROL

12.10.10 - 25 dB-A - TO PREVENT HEARING LOSS FOR EXPOSURES OF MORE THAN 8 HOURS PER DAY.

11-1-82

PROPYLENE GAS FOUND IN LPG.

NEEDS TO BE CONCENTRATED DURING PROPYLENE PURIFICATION.

PROPYLENE GAS FOUND TO BE FOUND ON FLIP VALVES.

LOW LEVEL RADIATION - PARTICLES DOES NOT PENETRATE SKIN.

DANGER - IRRADIATION HAZARD OF FLIP VALVES.

FLIP VALVES - PROPYLENE GAS FOUND IN FLIP VALVES
IN LPG.

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1.3 LINE

NOTE: COPIES OF THIS WILL BE LEFT TO, (CO 124)

THE III PROBLEM AREAS:

COPIES OF THE III PROBLEM

LAB TESTING OF SAMPLES

THE III PROBLEM AREAS OF COPIES TO LAB OF'S NEED TO KNOW
THE III PROBLEM AREAS.

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to: 1,3-butadiene
in: 1,3-butadiene
at: 25°C

Effects: Vapor may cause slight eye irritation at 2000-4000 ppm.

Notes: Direct contact with the liquid can cause frostbite. Skin contact with 1,3-butadiene may also result in dermatitis due to the inhibitors present in the liquid.

Information: Acute effects -- Exposures to concentrations of several thousand parts per million can irritate the respiratory tract.

Chronic effects -- May cause an increased incidence of tumors and liver injury. In laboratory tests, rats exposed to 1000 and 2000 ppm in a two-year inhalation study showed increased incidences of tumors.

Special effects -- The material was evaluated for fetal toxicity. It caused skeletal malformations in the offspring of rats exposed to 2000 ppm. No effects were observed at 1000 ppm.

ING: 50 ppm TWA, 200 ppm excursion

Source: ING Documentation

Author: B. E. Jenkins

Reviewed By: G. H. Flores, Environmental Health Services
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Revised Date: Revised 11/22/82

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1,3-BUTADIENE TOXICITY STUDY

A TOXICITY STUDY WAS CONDUCTED WHICH INVOLVED EXPOSING
PREGNANT RATS TO 1,3-BUTADIENE TO SEE IF IT COULD CAUSE
BIRTH DEFECTS. BUTADIENE LEVELS OF 0, 200, 1000 AND 8000 PPM
WERE USED AND THE RATS WERE EXPOSED FOR SIX HOURS PER DAY FOR
NINE DAYS DURING THE EARLY PART OF THE PREGNANCY. THIS IS WHEN
MANY ORGANS AND BODY PARTS ARE BEGINNING TO FORM AND THUS ARE
MOST SUSCEPTIBLE TO TOXIC EFFECTS FROM CHEMICAL EXPOSURE.

THE ONLY DEFINITE EFFECT OCCURRED AT THE HIGHEST EXPOSURE
LEVEL WHICH IS EIGHT TIMES THE CURRENT TLV. THE NEWBORN RATS
HAD A HIGH PERCENTAGE OF BIRTH DEFECTS AND ABNORMALITIES
OF THE SKELETAL SYSTEM. THERE WERE NO EFFECTS SEEN FROM
EXPOSURES AT EITHER 200 PPM OR 1000 PPM. EXPOSURE LEVELS TO
1,3-BUTADIENE IN THE WORK AREA OF THIS PLANT ARE AT ALL TIMES
WELL BELOW 1 PPM SO IT IS FELT THAT THERE IS NO NEED FOR
IMMEDIATE CONCERN.

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DICYCLOHEPTADIENE

IS UNDER CONSIDERATION FOR FURTHER REGULATION.

BASED ENTIRELY ON:

STUDIES

CS's

PLANS - RELATING TO OIL FIELD WORKER EXPOSURE LEVELS.

JIS/Lys

11/05/84

DO 105146
CONFIDENTIAL

Bill Leiford
Industrial Hygiene
:
db
4/27/82

DO 105147
CONFIDENTIAL

1. NAME: DICYCLOPENTADIENE

2. CAS NO.: 108-91-3

3. HAZARD: DIRECT CONTACT MAY CAUSE MODERATE PAIN AND TRANSIENT IRRITATION.

4. EXPOSURE: EXHALED AIR OR DUST. INGESTED OR Prolonged contact may cause reddening of the skin.

5. EFFECTS: Inhalation may cause irritation of the respiratory tract. Aspiration of liquid into the lungs may cause chemical pneumonia and pulmonary edema resulting in extensive lung damage.

6. TOXICITY: Inhalation may cause irritation of the respiratory tract. Ingestion may cause irritation of the gastrointestinal tract and mental confusion. Prolonged exposure may cause kidney, liver or lung damage.

7. TREATMENT: In case of inhalation, remove person to fresh air. In case of ingestion, do not induce vomiting. In case of skin contact, wash with water.

TLV FOR DICYCLOPENTADIENE IS 5 PPM.
TLV FOR CYCLOPENTADIENE IS 75 PPM.

8. REFERENCES: CHEMICAL ABSTRACTS, 1965; LOW TOXICITY REPORT; PATTY, VOLUME II.

AUTHOR: W. E. LEOPOLD

CHECKED BY: C. E. BALDWIN, INDUSTRIAL HYGIENE
J. F. BASSO, TOXICOLOGY
M. F. CURRIER, MEDICAL

DATE ISSUED: 5/5/80

5. *Conclusions*

Journal of Management Education 30(6)p.789-804

13: 100% OF THE TOTAL INVESTMENT
WAS IN THE FORM OF CASH.

RAY, JOHN EDGAR, BORN JANUARY 17, 1918, IN MOBILE, ALABAMA; FATHER, JAMES EARL RAY, JR., DECEASED; MOTHER, BESSIE RAY, DECEASED; ONE BROTHER, JAMES EARL RAY, JR., BORN 1945, IN MOBILE, ALABAMA; ONE SISTER, BESSIE RAY, BORN 1947, IN MOBILE, ALABAMA; ONE Nephew, JAMES EARL RAY, JR., BORN 1945, IN MOBILE, ALABAMA; ONE Niece, BESSIE RAY, BORN 1947, IN MOBILE, ALABAMA; ONE Grandson, JAMES EARL RAY, JR., BORN 1945, IN MOBILE, ALABAMA; ONE Granddaughter, BESSIE RAY, BORN 1947, IN MOBILE, ALABAMA.

EXPLANATION: OUTGASING OF SOLIDS FROM LIQUIDS TO GASES OR VAPORS
WILL OCCUR WHEN THE SOLID IS IN THE GASEOUS STATE.

LONG TERM EFFECTS: MAY CAUSE DAMAGE TO THE LIVER.

07. RE: WHEN HELD TO PROSECUTION, WILL WITH AVOID PLANS.
FOR THE OTHER SIDE OF THE CASE.

3. STATE - TO GOVERNMENT - 4 LETTERS TO WPS AND
189.

$$T = \frac{1}{2} \int_{\Sigma} \left(\frac{1}{2} \left(\frac{\partial \phi}{\partial t} \right)^2 + \frac{1}{2} \left(\frac{\partial \phi}{\partial r} \right)^2 + \frac{1}{2} \left(\frac{\partial \phi}{\partial \theta} \right)^2 + \frac{1}{2} \left(\frac{\partial \phi}{\partial \varphi} \right)^2 \right) dV; \quad (16)$$

3. P. E. 1044

DECLASSIFIED BY: 60352 PAF/STP/STP - R. D. NELSON
ON: 01-11-2011
AUTHORITY: E.O. 13526

DATE: 2/12/30

16

2.1

1. 100% of the time

2. 100% of the time, or a 9-hour time weighted average, with a ceiling of 15 minutes per 15-minute period during the 9-hour day.

3. 100% of the time, or a 9-hour time weighted average, with a ceiling of 15 minutes per 15-minute period during the 9-hour day, and personal protective clothing and equipment, gloves and shoes, safety harnessing, and other equipment as required.

4. 100% of the time, or a 9-hour time weighted average, with a ceiling of 15 minutes per 15-minute period during the 9-hour day, and personal protective clothing and equipment, gloves and shoes, safety harnessing, and other equipment as required.

5. 100% of the time, or a 9-hour time weighted average, with a ceiling of 15 minutes per 15-minute period during the 9-hour day, and personal protective clothing and equipment, gloves and shoes, safety harnessing, and other equipment as required.

6. 100% of the time, or a 9-hour time weighted average, with a ceiling of 15 minutes per 15-minute period during the 9-hour day, and personal protective clothing and equipment, gloves and shoes, safety harnessing, and other equipment as required.

7. 100% of the time, or a 9-hour time weighted average, with a ceiling of 15 minutes per 15-minute period during the 9-hour day, and personal protective clothing and equipment, gloves and shoes, safety harnessing, and other equipment as required.

8. 100% of the time, or a 9-hour time weighted average, with a ceiling of 15 minutes per 15-minute period during the 9-hour day, and personal protective clothing and equipment, gloves and shoes, safety harnessing, and other equipment as required.

9. 100% of the time, or a 9-hour time weighted average, with a ceiling of 15 minutes per 15-minute period during the 9-hour day, and personal protective clothing and equipment, gloves and shoes, safety harnessing, and other equipment as required.

10. 100% of the time, or a 9-hour time weighted average, with a ceiling of 15 minutes per 15-minute period during the 9-hour day, and personal protective clothing and equipment, gloves and shoes, safety harnessing, and other equipment as required.

11. 100% of the time, or a 9-hour time weighted average, with a ceiling of 15 minutes per 15-minute period during the 9-hour day, and personal protective clothing and equipment, gloves and shoes, safety harnessing, and other equipment as required.

12. 100% of the time, or a 9-hour time weighted average, with a ceiling of 15 minutes per 15-minute period during the 9-hour day, and personal protective clothing and equipment, gloves and shoes, safety harnessing, and other equipment as required.

The standard requires that employers notify each of their employees their exposure measurement and requires that the exposure measurement and medical surveillance records be kept for at least 40 years or duration of employment plus twenty years, whichever is longer.

THE FPGO PLAN

MAILED

ERASED FINGERPRINTS, LIPS, AND REMOVED COLOR OF
YOUR BODY FROM SPILLS AND SPLASHES.

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THIS DOCUMENT IS FOR THE USE OF THE
DEFENSE AND AERONAUTICS INDUSTRIES

EXPOSURE TO 100% OF THE AEROSOL, ORAL INGESTION OF
100% OF THE AEROSOL, OR INGESTION OF 100% OF THE AEROSOL.

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SPECIAL LIMITATIONS OR WARNINGS ARE REQUIRED. STANDARD
EXPOSURE GUIDELINES AND TRAINING WILL APPLY TO ALL
EXPOSURES.

EXPOSURE TO 100% OF THE AEROSOL (ORAL INGESTION)
EXPOSURE TO 100% OF THE AEROSOL (ORAL INGESTION)

REVISED: L. G. SILVERSTEIN/9-27-78

RESTRICTED: for use within The Dow Chemical Company only.

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1. The following information is being furnished to you for your information only. It is not to be distributed outside your organization.

Item	Quantity	Unit Price	Total Price	Tax	Net Price
1.000	1.00	1.00	1.00	0.00	1.00
2.000	2.00	2.00	4.00	0.00	4.00

2. The following information is being furnished to you for your information only. It is not to be distributed outside your organization.

Item	Quantity	Unit Price	Total Price	Tax	Net Price
3.000	3.00	3.00	9.00	0.00	9.00
4.000	4.00	4.00	16.00	0.00	16.00
5.000	5.00	5.00	25.00	0.00	25.00
6.000	6.00	6.00	36.00	0.00	36.00
7.000	7.00	7.00	49.00	0.00	49.00
8.000	8.00	8.00	64.00	0.00	64.00
9.000	9.00	9.00	81.00	0.00	81.00
10.000	10.00	10.00	100.00	0.00	100.00

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	1961	1962	1963	1964	1965	1966
1. Army Base	100.00	0.00	0.00	0.00	0.00	0.00
2. Army Base	100.00	0.00	0.00	0.00	0.00	0.00
3. Army Base	100.00	0.00	0.00	0.00	0.00	0.00
4. Army Base	100.00	0.00	0.00	0.00	0.00	0.00
5. Army Base	100.00	0.00	0.00	0.00	0.00	0.00
6. Army Base	100.00	0.00	0.00	0.00	0.00	0.00
7. Army Base	100.00	0.00	0.00	0.00	0.00	0.00
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1967

1. Army Base	100.00	0.00	0.00	0.00	0.00	0.00
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5. Army Base	100.00	0.00	0.00	0.00	0.00	0.00
6. Army Base	100.00	0.00	0.00	0.00	0.00	0.00
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1968

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2. Army Base	100.00	0.00	0.00	0.00	0.00	0.00
3. Army Base	100.00	0.00	0.00	0.00	0.00	0.00
4. Army Base	100.00	0.00	0.00	0.00	0.00	0.00
5. Army Base	100.00	0.00	0.00	0.00	0.00	0.00
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