MUH 104

Occupatıonal Health And Safety II

HACETTEPE ÜNİVERSİTESİ
Uzaktan Eğitim Uygulama ve Araştırma Merkezi

Chemical, Physical Risk Factors

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Class C Occupational Health and Safety Specialist

What Will We Learn?

A-Chemical Risk Factors

1.Chemical Substance

2.Factors determining the hazards of dangerous chemicals and chemicals

3.Ways of entry of chemicals to the body

4.Chemical Risk Measures

- a) Measures to be taken at source
- b) Measures to be taken in the environment
- c) Personal precautions (measures for the people in the environment)

5.Storage of chemical materials

6.Hazard symbol and signs

7.Material safety data sheet

What Will We Learn?

B-Physical Risk Factors

1.Noise

Fighting (battling) with noise in the business

a)Technical measures

b)Medical measures

c)Legal Measures

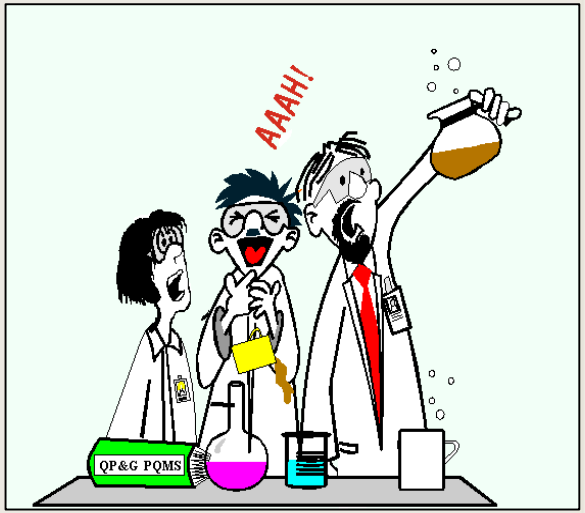
2.Vibration

A-Chemical Risk Factors

Chemical Substance

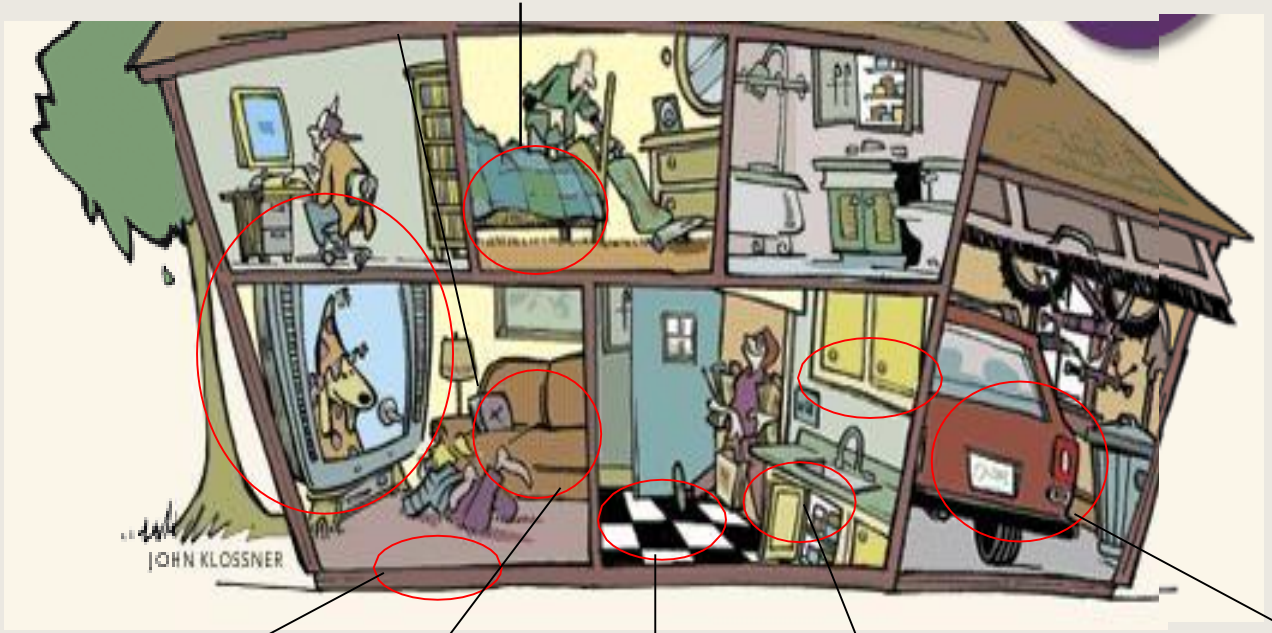
They are all kinds of elements, compounds or mixtures that exist in the natural state, used or produced (including wastes) in any process, regardless of whether they are produced in person and whether they are placed on the market.

(Regulation on Health and Safety Measures in Working with Chemical Substances Article 4)

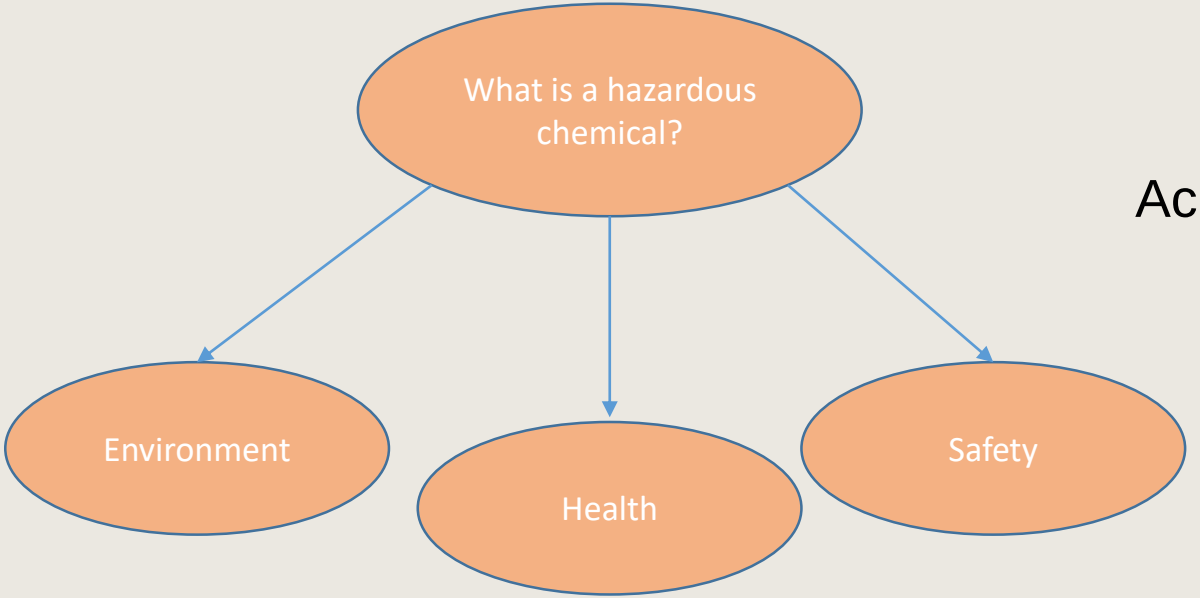


A-Chemical Risk Factors

Ordinary House
Chemical House



Hazardous Chemicals And Factors That Determine Them



Acute and chronic harm or damage

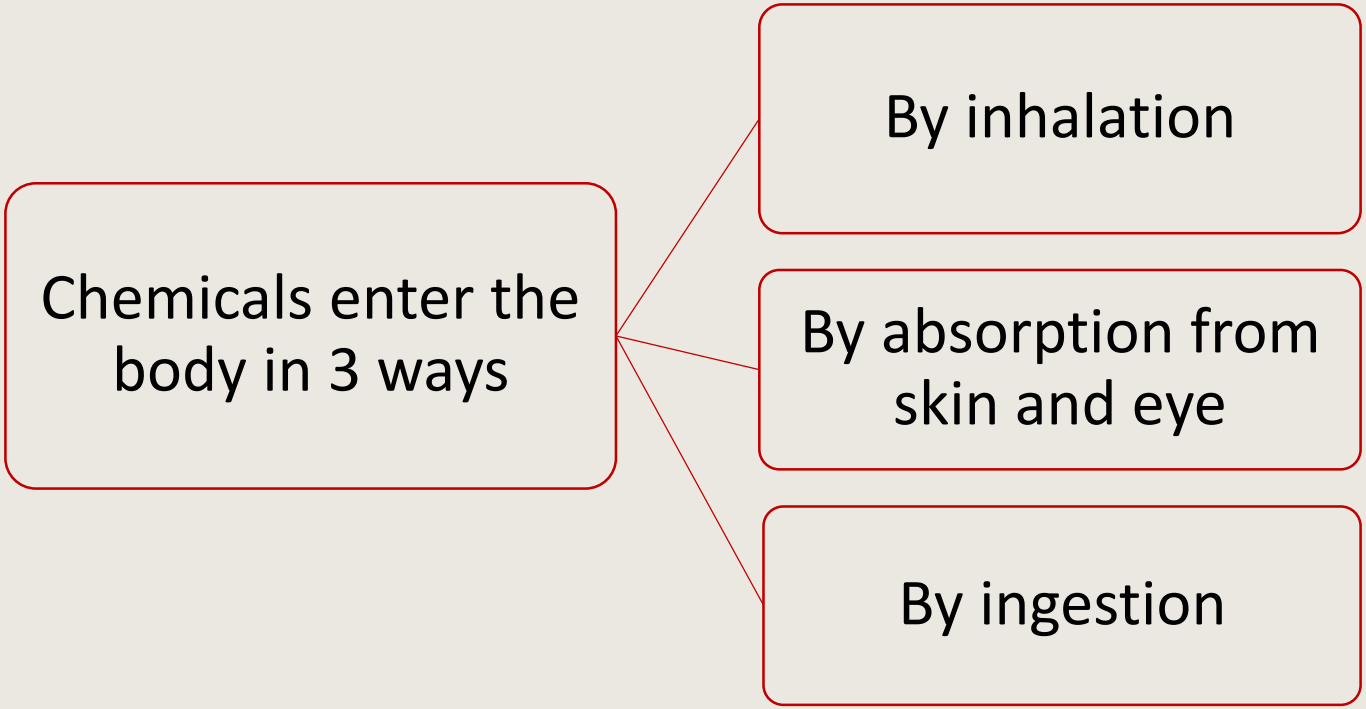
Factors That Determine The Extent Of Chemical Hazards

1. Physical and chemical properties
2. Form and duration of exposure
3. Characteristics of the exposed person
4. Environmental properties (physical environment)

Toxic

Toxic

Ways Of Entry Of Chemicals To The Body



Chemical Risk Measures

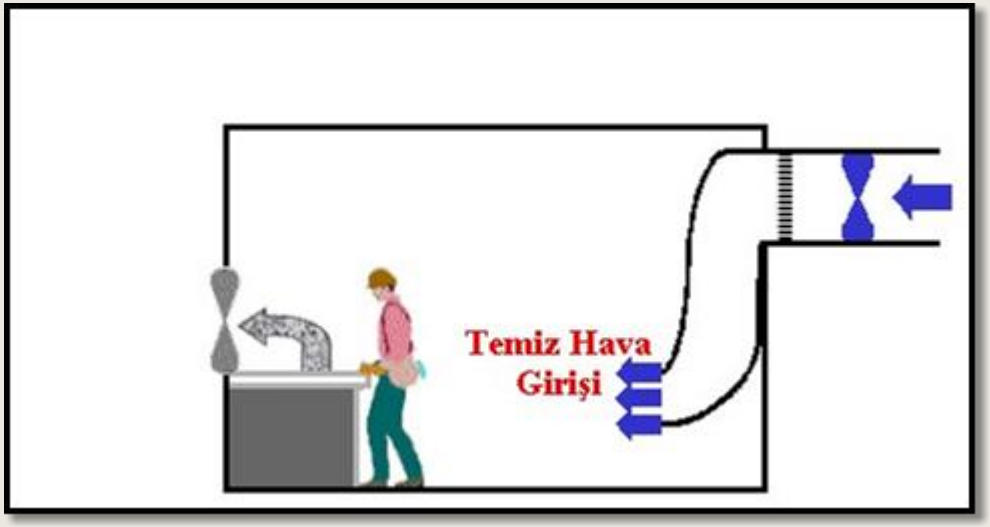
- At the source
- In the environment
- Personal

Measures To Be Taken At The Source

- Changing/replacing the substance used
- Changing the process
- Moving the process into closed system
- Limitation of the process in terms of location and duration
- Application of the local aspiration/ventilation system
- Continuous environment measurements
- Periodic maintenance

Measures To Be Taken In The Envoronment (Airway)

- Workplace layout and order
- General aspiration
- Dilution aspiration (providing fresh air)



Personal Measures

Personal protectors such as goggles, masks, gloves, hard hats are the tools to be applied last but they must be used when necessary.

These tools are only useful if they are used with the awareness of how much and how long they protect against chemical hazards.

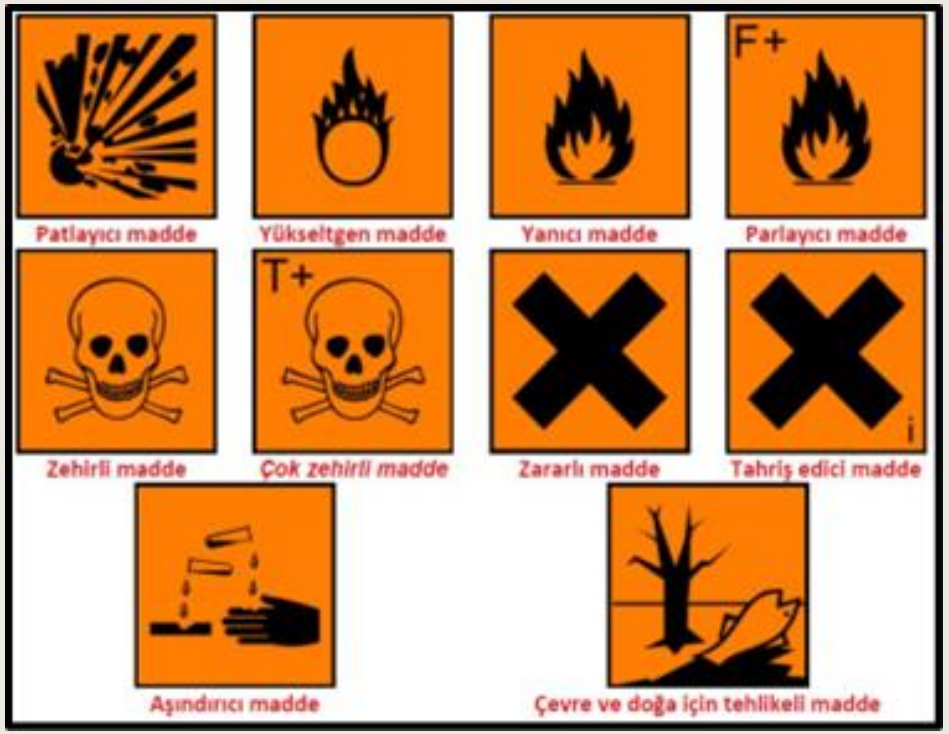
Storage Of Chemical Substances

- Attention should be paid to the signs in storage,
- Precautions should be taken to prevent material from falling off the storage racks,
- Measures should be taken against spills,
- Interacting chemicals should not be put side by side.

Storage Of Chemical Substances

- Materials such as barrels, drums, etc. should be stored in a way that does not cause pollution.
- Eye showers and material safety data sheets should be available in the usage areas.
- Absorbent materials suitable for spillages should be available.
- Containers must be labelled.

Chemical Hazard Symbols



Subtstances That Should Not Be Stored Together

	+	-	-	-	-	+
	-	+	-	-	-	-
	-	-	+	-	-	+
	-	-	-	+	-	-
	-	-	-	-	+	O
	+	-	+	-	O	+

Radioactive

+ : BERABER DEPOLANABİLİR

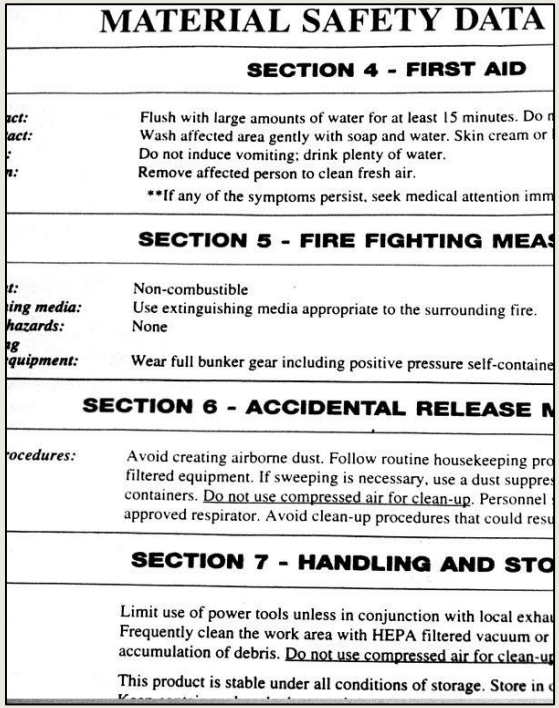
- : BERABER DEPOLANAMAZ

O : ÖZEL ÖNLEMLER ALINARAK BERABER DEPOLANABİLİR

Material Safety Data Sheet (MSDS)

A document that contains detailed information about the properties of hazardous substances/ mixtures and safety measures to be taken in order to protect human health and the environment from the negative effects of hazardous substances/mixtures according to the hazard characteristics in the workplaces.

Material Safety Data Sheet (MSDS)



MATERIAL SAFETY DATA

SECTION 4 - FIRST AID

ıct: Flush with large amounts of water for at least 15 minutes. Do n
ıct: Wash affected area gently with soap and water. Skin cream or
: Do not induce vomiting; drink plenty of water.
n: Remove affected person to clean fresh air.
**If any of the symptoms persist, seek medical attention imm

SECTION 5 - FIRE FIGHTING MEAS

t: Non-combustible
ing media: Use extinguishing media appropriate to the surrounding fire.
hazards: None
g
quipment: Wear full bunker gear including positive pressure self-containe

SECTION 6 - ACCIDENTAL RELEASE M

rocedures: Avoid creating airborne dust. Follow routine housekeeping pro
filtered equipment. If sweeping is necessary, use a dust suppres
containers. Do not use compressed air for clean-up. Personnel
approved respirator. Avoid clean-up procedures that could resu

SECTION 7 - HANDLING AND STO

Limit use of power tools unless in conjunction with local exhau
Frequently clean the work area with HEPA filtered vacuum or
accumulation of debris. Do not use compressed air for clean-up

This product is stable under all conditions of storage. Store in

MSDS is a legal requirement.

It should be prepared on the basis of **Regulation on Safety Data Sheets Regarding Harmful Substances and Mixtures.**

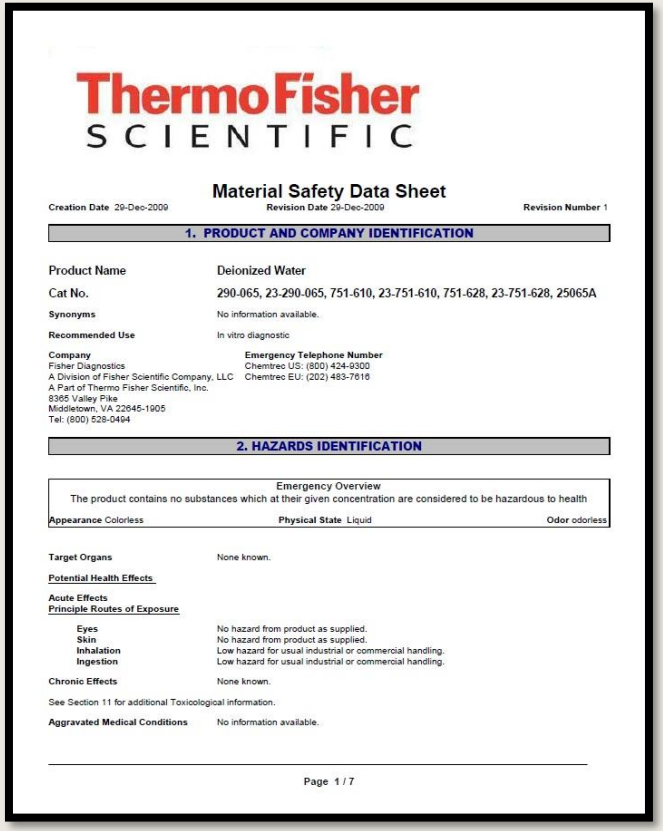
Information To Be Included in The MSDS

a) Identity of the substance/mixture and manufacturer/distributor,
b) Hazard description of the substance
c) Information on composition/ingredients
d) First aid measures,
e) Fire fighting measures,
f) Measures against accidental spread, spill
g) Handling and storage
h) Exposure controls/personal protection

Information To Be Included in The MSDS

i) Physical and chemical properties,
j) Stability and reaction,
k) Toxicological information,
l) Ecological information,
m) Disposal information,
n) Transport information,
o) Legislation information,
p) Other information.

Information To Be Included in The MSDS



ThermoFisher SCIENTIFIC

Material Safety Data Sheet

Creation Date 29-Dec-2009 **Revision Date** 29-Dec-2009 **Revision Number** 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Deionized Water

Cat No. 290-065, 23-290-065, 751-610, 23-751-610, 751-628, 23-751-628, 25065A

Synonyms No information available.

Recommended Use In vitro diagnostic

Company
Fisher Diagnostics
A Division of Fisher Scientific Company, LLC
A Part of Thermo Fisher Scientific, Inc.
8365 Valley Pike
Middletown, VA 22645-1905
Tel: (800) 528-0494

Emergency Telephone Number
Chemtrec US: (800) 424-9300
Chemtrec EU: (202) 483-7616

2. HAZARDS IDENTIFICATION

Emergency Overview
The product contains no substances which at their given concentration are considered to be hazardous to health

Appearance Colorless **Physical State** Liquid **Odor** odorless

Target Organs None known.

Potential Health Effects

Acute Effects
Principle Routes of Exposure

Eyes No hazard from product as supplied.
Skin No hazard from product as supplied.
Inhalation Low hazard for usual industrial or commercial handling.
Ingestion Low hazard for usual industrial or commercial handling.

Chronic Effects None known.

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions No information available.

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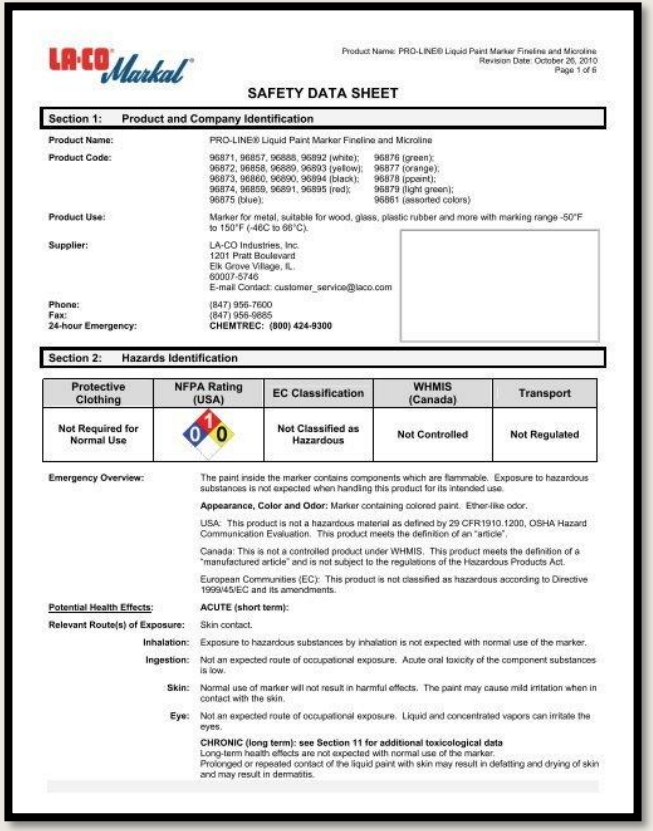


LA-CO Markal

Product Name: PRO-LINE® Liquid Paint Marker Fineline and Microline
Revision Date: October 26, 2010
Page 1 of 6

SAFETY DATA SHEET

Section 1: Product and Company Identification

Product Name: PRO-LINE® Liquid Paint Marker Fineline and Microline

Product Code: 96871, 96857, 96888, 96892 (white); 96876 (green); 96872, 96858, 96889, 96893 (yellow); 96877 (orange); 96873, 96860, 96890, 96894 (black); 96878 (ppaint); 96874, 96859, 96891, 96895 (red); 96879 (light green); 96875 (blue); 96881 (assorted colors)

Product Use: Marker for metal, suitable for wood, glass, plastic rubber and more with marking range -50°F to 150°F (-46C to 66°C).

Supplier: LA-CO Industries, Inc.
1201 Pratt Boulevard
Elk Grove Village, IL.
60007-5746
E-mail Contact: customer_service@laco.com

Phone: (847) 956-7600
Fax: (847) 956-9885
24-hour Emergency: **CHEMTREC: (800) 424-9300**

Section 2: Hazards Identification

Protective Clothing	NFPA Rating (USA)	EC Classification	WHMIS (Canada)	Transport
Not Required for Normal Use	0 1 0	Not Classified as Hazardous	Not Controlled	Not Regulated

Emergency Overview: The paint inside the marker contains components which are flammable. Exposure to hazardous substances is not expected when handling this product for its intended use.

Appearance, Color and Odor: Marker containing colored paint. Ether-like odor.

USA: This product is not a hazardous material as defined by 29 CFR1910.1200, OSHA Hazard Communication Evaluation. This product meets the definition of an "article".

Canada: This is not a controlled product under WHMIS. This product meets the definition of a "manufactured article" and is not subject to the regulations of the Hazardous Products Act.

European Communities (EC): This product is not classified as hazardous according to Directive 1999/45/EC and its amendments.

Potential Health Effects: **ACUTE (short term):**

Relevant Route(s) of Exposure: Skin contact.

Inhalation: Exposure to hazardous substances by inhalation is not expected with normal use of the marker.

Ingestion: Not an expected route of occupational exposure. Acute oral toxicity of the component substances is low.

Skin: Normal use of marker will not result in harmful effects. The paint may cause mild irritation when in contact with the skin.

Eye: Not an expected route of occupational exposure. Liquid and concentrated vapors can irritate the eyes.

CHRONIC (long term): see Section 11 for additional toxicological data
Long-term health effects are not expected with normal use of the marker.
Prolonged or repeated contact of the liquid paint with skin may result in defatting and drying of skin and may result in dermatitis.

Physical Risk Factors

Noise

- Noise is generally described as undesirable and often artificially generated disturbing sound.
- The term noise covers all sounds that may cause hearing loss, harmful to health or pose other risks.

Noise

Sound Level (Decibel)	Known Sound
0 dB	The lowest sound that the human ear can hear
30 dB	Whisper, silent speech
50 dB	Rainfall, quiet office, refrigerator, ventilation
60 dB	Dishwasher, sewing machine, normal speech.
70 dB	Heavy traffic, vacuum cleaner, hair dryer
80 dB	Alarm clock, subway, factory noise
90 dB	Shaving machine, truck traffic, lawn mower
100 dB	Snowmobile, garbage truck, stereo
110 dB	Rock concert, chainsaw
120 dB	Airplane take-off, night club
130 dB	Drill hammer
140 dB	Shotgun, air attack warning system
180 dB	Rocket launcher

Combating Noise in The Workplace

How to combat noise in the workplace?

We can implement the following measures:

1-Technical Measures
- a) Active Technical Measures
- b) Passive Technical Measures

2-Medical Measures
- a) Medical Examinations
- b) Noise Reduction Equipments

3-Legal Measures
- a) Working time control in risky jobs in terms of noise

Technical Measures

a)Active Technical Measures:

These are; using the most suitable material in the manufacturing of machines for minimization of vibration, selecting and programming low-noise processes, and conducting regular and constant maintenance.

Technical Measures

b) Passive Technical Measures:

These are; measures such as covering the source of the noise with soundproof walls, construction of the walls and floors of the workplace using soundproof materials and materials that do not reflect sound; and placing high noise processes in the edge (away) areas of the workplace.

Medical Measures

Medical measures are divided into two areas as; medical examinations and the advice of usage of equipment that eases the noise intensity in the most appropriate way.

When talking about medical examinations, first of all, audiometry should come to mind.

Audiometry is done with a tool called audiometer and is applied separately for two ears each time. In this examination, hearing acuities of both ears at different frequencies are determined.

Legal Measures

The third measure against noise is legal measures.

The working time of the employees has been determined with the Regulation on the Protection of Employees from Noise-Related Risks.

According to this regulation:

The weekly noise exposure level will not exceed the 87 dB exposure limit value.

The weekly noise exposure level is an average level and determined by the time average of the measurements taken from a 8 hours, 5 days working time in a week.

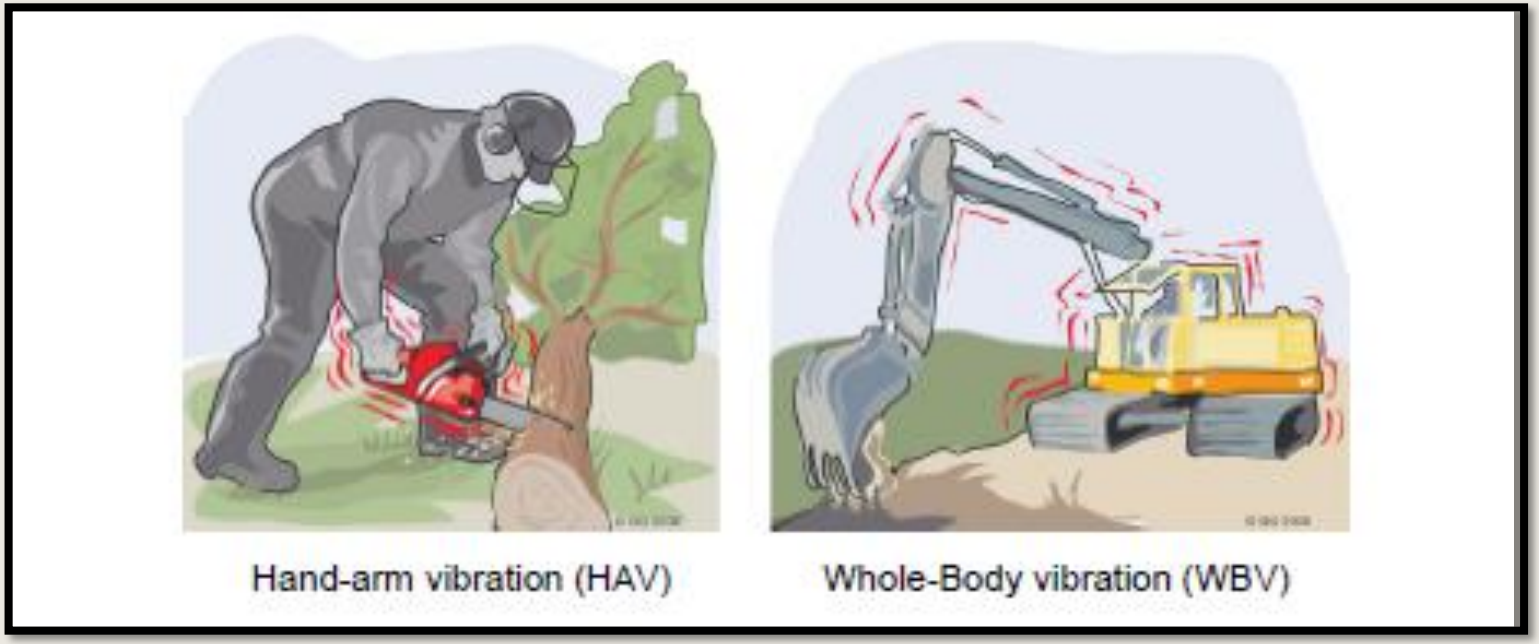
It is forbidden to work more than 7.5 hours a day in environments with noise levels higher than 85 dB.

Vibration

Vibration is defined as mechanical oscillation around a balance point.

Vibration is usually an unwanted movement because it wastes energy and creates unwanted sound and noise.

Vibration



https://www.who.int/occupational_health/pwh_guidance_no.10_teaching_materials.pdf

Vibration

When we touch a vibrating object, the energy of the vibrating object is transferred to our body.

The higher this energy is and the longer the person is exposed, the higher the health effects of vibration will be.

The energy of the vibrating object enters the body through the body part that is contact with the vibrating object.

The more bent the elbow joint is, that is, the closer our arm is to our body, the tendency for the effects of vibration to transfer from our hand to the upper arm through the elbow increases.

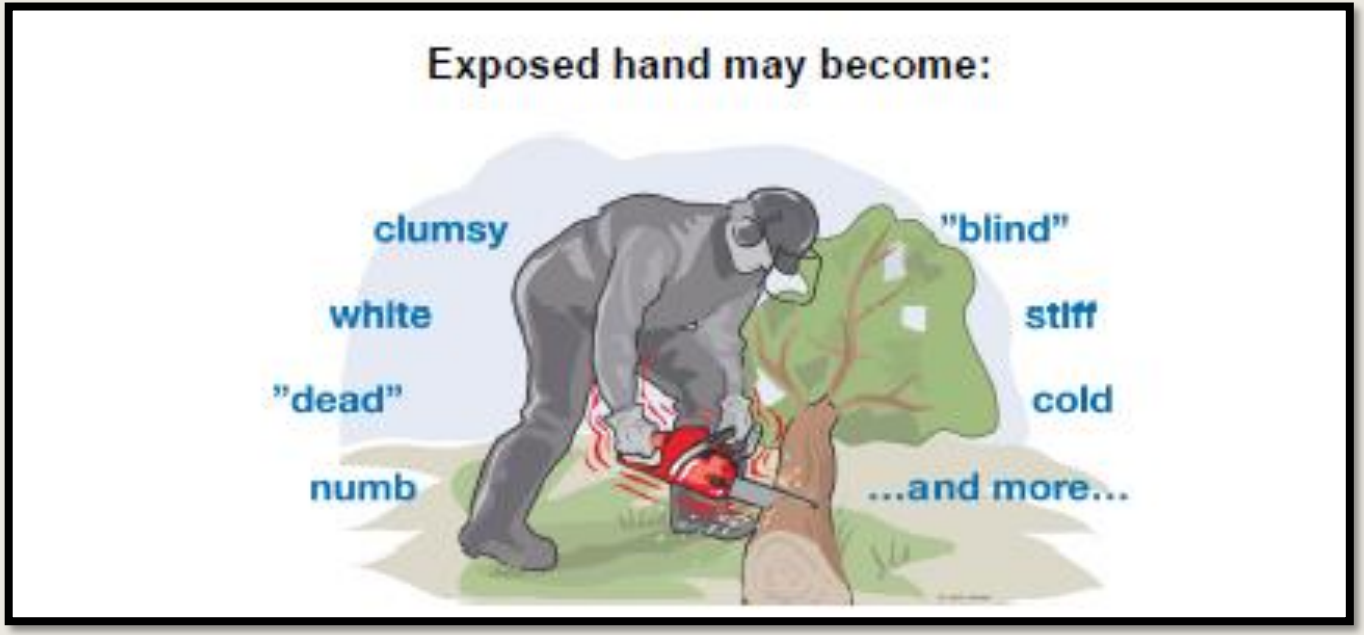
Therefore, when working with a vibrating tool, the elbow joint should be straight (should not be bent) as much as possible.

Vibration

Also, the more we grasp a vibratory tool, for example the handle of a chainsaw, or the handle of the blade that we rub on the stone motor to grind, the larger the effect of vibration will be on the body. In other words, hand-arm vibration exposure increases.

Vibration white finger, also known as hand-arm vibration syndrome or dead finger, is a secondary form of Raynaud's syndrome, an industrial injury triggered by continuous use of vibrating hand-held machinery. The fingers turn to white with pain and coldness.

Vibration


Exposed hand may become:
clumsy
white
"dead"
numb
"blind"
stiff
cold
...and more...

Thank You

C Sınıfı İş Güvenliği Uzmanı Biyolog Özgü Ş. Uğurlu

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