

T E N T A T I V E
HYGIENE AND SANITATION STANDARDS
RULES AND REGULATIONS
prescribing

MAXIMUM ALLOWABLE CONCENTRATION LIMITS
of
HARMFUL VAPORS, GASES, FUMES, MISTS, DUSTS
and
RADIANT ENERGY
for
Places of Employment

Hygiene and Sanitation Section
Bureau of Engineering
DIVISION OF ENGINEERING AND SAFETY

Director:

C. George Krueger, Deputy Commissioner of Labor

Trenton 8, N.J.
November 15, 1945

and radiant energy apply to all places of employment and shall not be exceeded.

1.2 The purpose of these rules and regulations is to prescribe the permissible concentration limits of vapors, gases, fumes, mists, dusts, and radiant energy in the atmosphere of places of employment for guidance in establishing control procedures for the protection of the health of workers.

2 - Definitions

2.1 Approved - approved by the Commissioner of Labor or any of his authorized representatives.

2.2 Dusts - solid particles generated by handling, crushing, grinding, rapid impact, detonation or decrepitation of organic or inorganic materials such as rock, ore, metal, coal, wood, grain.

2.3 Fumes - solid particles generated by condensation from the gaseous state generally after volatilization from metals and often accompanied by a chemical reaction such as oxidation.

2.4 Gases - normally formless fluids which occupy the space of enclosure and which can be changed to the liquid or solid state only by the combined effect of increased pressure and decreased temperature.

2.5 Harmful - any mechanical or toxic action which in any way injures any part of the body or reduces the normal function of any part of the body in efficiency due to the effect of vapors, gases, fumes, mists, dusts, radiant energy or environmental condition, arising from any industrial operation or process.

2.6 Mists - suspended liquid droplets generated by condensation from the gaseous state or by breaking up a liquid into a dispersed state, such as by splashing, foaming or atomizing.

2.7 Vapors - the gaseous form of substances which are normally in the solid or liquid state and which can be changed to these states either by increasing the pressure or by decreasing the temperature.

3 - Maximum Permissible Concentration Limits

3.1 The maximum allowable concentration limits of vapors, gases, fumes, mists, dusts, or radiant energy for an exposure not to exceed eight hours daily shall be as shown in the following table:

GASES - parts per million (by volume) at 25° C. and 760 mm pressure - p.p.m.

<u>SUBSTANCE</u>	<u>P.P.M.</u>
Ammonia	100
Carbon Monoxide	100
Chlorine	1
Formaldehyde	10
Hydrogen Cyanide	20
Hydrogen Fluoride	3
Hydrogen Sulphide	20
Nitrogen Dioxide	10
Phosgene	1
Sulphur Dioxide	10

<u>SUBSTANCE</u>	<u>P.P.M.</u>	<u>SUBSTANCE</u>	<u>P.P.M.</u>
Acrolein	1	Ethylene Dichloride	100
Acrylonitrile	20	Hydrogen Chloride	10
Amyl Acetate	400	Methyl Alcohol (Methanol)	200
Aniline	5	Monochlorobenzene	75
Benzene	100	Nitrobenzene	5
Butyl Acetate	400	Phenyl Ethylene (Styrene)	10
Butyl Alcohol	200	Tetrachloroethane	10
Carbon Disulfide	20	Tetrachloroethylene	200
Dichlorobenzene	75	Trichloroethylene	200
Diethylaniline	5	Turpentine	200
Ethyl Ether	400	Xylene	200
		Toluene	200

FUMES, DUSTS OR MISTS - milligrams per cubic meter at 25° C. and 760 mm pressure
mg. per cu. m.

<u>SUBSTANCE</u>	<u>MG. PER CU.M.</u>	<u>SUBSTANCE</u>	<u>MG. PER CU.M.</u>
Arsenic	0.15	Lead	0.15
Arsenic Trioxide	0.15	Manganese	6.00
Cadmium	0.10	Mercury	0.10
Chromic Acid, chromates	0.10	Pentachloronaphthalene	0.50
Chlorodiphenyl	1.00	Trichloronaphthalene	5.00
		Zinc Oxides	15.00

UST - millions of particles per cubic feet at 25° C. and 760 mm pressure - M.P.P.C.

<u>SUBSTANCE</u>	<u>M.P.P.C.F.</u>
Asbestos	5
Mica	15
Pottery	10
Silicon dioxide-free silica over 40%	5
Silicon dioxide-free silica 20% to 40%	10
Silicon dioxide-free silica 10% to 20%	15
Talc	15
Garnet	15

RADIANT ENERGY - roentgens per day - r.p.d.

<u>RADIATION</u>	<u>R.P.D.</u>
X-Ray	0.1
Radium	0.1

Sampling, Testing and Analysis

4.1 Sampling, testing and analysis of air to determine concentrations of vapors, gases, fumes, mists, dusts, or radiant energy shall be performed by technically qualified and competent persons only.

4.2 Sampling, testing and analytical procedures shall be in accordance with approved applicable and reliable methods.

4.3 The collection of the sample or testing of air shall be made in such a way that the atmospheric conditions at the location of sampling or testing shall not be appreciably changed.

4.4 Except for radiation surveys, samples of air shall be taken at the breathing level, close to the mouth or nose of the worker with special attention to location near the source of the contaminant and in the path of air currents carrying it toward the worker if such conditions exist.

4.5 Samples shall be taken in sufficient number to reveal differences in concentration of the contaminant during the working period.

4.6 Samples of air shall be taken wherever there is a known or suspected source of, or exposure to any harmful vapor, gas, fume, mist or dust.

4.7 Radiation surveys shall be made wherever there is a known or suspected source of, or exposure to harmful radiant energy.

5 - Harmful Exposure

5.1 Any process, material or condition that either is known to be harmful or in which concentrations of harmful substances exceed the values specified in these rules and regulations shall neither be used nor permitted to be used in any place of employment unless reasonably effective devices, means or methods shall be provided to prevent the contraction of any illness or disease incident to the work or process.