

WV-0214 #14

HANDBOOK
of
INDUSTRIAL
TOXICOLOGY

by

E. R. PLUNKETT, M.D.
*Industrial Health Services
Barberton, Ohio*



CHEMICAL PUBLISHING COMPANY, INC.
New York
1966

UCC 022483

© 1966

CHEMICAL PUBLISHING COMPANY, INC.

TO NED AND
WHOSE GENEROSITY
MADE ALL THE

Printed in the United States of America

ppm of air

l nervous system
d cells by reduction in glutathione
s and nephritis
kidneys

May be delayed up to two days)
· Garlic odor of breath · Numb-
ling of hands and feet · Nausea,
al cramping · Abdominal tender-
· Weakness · Bronzing of skin
(ng) · Pulmonary edema · Jaun-
egaly · Hematuria, hemoglobin-
and oliguria · Anemia and leuko-
blood calcium · Increased blood
ck · Delirium and coma
levation of T-waves in all leads
or more with normal conduction

ve 0.2 mg/liter

g body weight (but not to exceed
dose) every 4 hours the first day;
econd day; then 3 times daily for
week

mulation in patients with reduced

blood and packed red blood cells

pporative

urs is usually complete

rline respirator

ARSINE

Periodic examinations of urine should not exceed 0.5–1.0
mg arsenic/liter of urine

Preclude from exposure those individuals with diseases of
blood, liver, kidney, and central nervous system

ASBESTOS

Synonyms:

Amianthus · Amphibole · Chrysotile · Earth Flax · Impure
Magnesium-calcium Silicate · Mountain Cork · Serpen-
tine · Stone Flax · Many mineralogical names

Description: Flax-like fibers; fireproof

Occupational Exposure:

Clutch facings and brake linings
Roofing and insulating materials
Asbestos cloth products, valve packings, gaskets, pipe cover-
ing
Auto undercoatings

Threshold Limit Value: 5 million particles/cu ft of air

Toxicity:

ARSORPTION: Inhalation

PATHOLOGY:

Asbestos warts, from fibers that penetrate epidermis
Pulmonary interstitial fibrosis via mechanical action
of long fibers (20–50 microns) in terminal bron-
chioles

Grade I: Asbestos bodies in alveoli

Grade II: Asbestos bodies · Thickening of alveolar
walls · Perivascular fibrosis

Grade III: Coarse honey-combing of lungs · Scar-
ring in upper portions · Thickening of
Pleura · Adhesions

Benign asbestos pleurisy may occur without other
significant pulmonary disease

SIGNS AND SYMPTOMS:

Anorexia · Cough · Dyspnea · Loss of weight · Pallor ·
Weakness · Cyanosis · Clubbed fingers · Decreased
vital capacity

ASBESTOS

38

DIAGNOSTIC TESTS:

Asbestos bodies in sputum

X-ray changes after 10 years or more of exposure:

Stage I: Increased density at both bases with an occasional superimposed granular pattern

Apices clear

Stage II: Decrease in clarity of cardiac silhouette
Densities extend to the periphery of middle and lower thirds of both lung fields
—"ground glass appearance"

Accentuation of hilar markings

Stage III: Shadowing of middle and lower thirds of both lung fields
Cardiac shadow obscured—"shaggy heart"

TREATMENT:

Symptomatic and supportive

DISABILITY:

Disease ceases to progress on cessation of exposure
Question of cancer not yet answered

Preventive Measures:

Adequate ventilation · Wet methods · Mechanical filter respirator

Physical examinations of exposed personnel annually, including vital capacity measurements and chest x-rays

Preclude from exposure:

Persons with pulmonary disease

Persons under 40 when diagnosis of asbestosis is definite

Persons in whom disease is progressing, regardless of age

ASPHALT

Synonyms:

Asphaltum · Bitumen · Earth Pitch · Mineral Pitch · Petroleum Pitch

Description: Brownish-black solid

Occupational Exposure:

Insulating · Paving · Roofing · Waterproofing · Paints and varnishes · Wood impregnation

39

Threshold Limit Value: None

Toxicity:

Absorption: None

Pathology: Local irritation

Signs and Symptoms:

Acne-like lesions and

Tar melanosis: yellow skin

Irritation of eyes and

Diagnostic Tests: None

Treatment:

Remove by scraping, o

Symptomatic and sup

Disability: No permanen

Preventive Measures:

Loose clothing, closed at n

Protective goggles

Personal cleanliness

Synonyms:

Pyoktaninum laureum · Py-
aminophenyl) methylene
zophenonimide

Description: Yellow flakes or p

Occupational Exposure:

Antiseptics · Dyes

Threshold Limit Value: None

Toxicity:

Absorption: Inhalation

Pathology:

Sensitizer · Tumors in

Signs and Symptoms:

Dermatitis and burns ·
ing · Yellow vision