

# **ARSENIC, METALS, FIBRES, AND DUSTS**

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**A REVIEW OF HUMAN CARCINOGENS**

This publication represents the views and expert  
opinions of an IARC Working Group on the  
Evaluation of Carcinogenic Risks to Humans,  
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ON THE EVALUATION  
OF CARCINOGENIC RISKS  
TO HUMANS**

# LIST OF ABBREVIATIONS

8-h TWA	Eight-hour TWA
8-OH-dG	8-hydroxydeoxyguanine
AAS	atomic absorption spectrometry
ACGIH	American Conference of Governmental Industrial Hygienists
AG-AAS	Arsine generation atomic absorption spectrometry
AS3MT	arsenic +3 oxidation state methyltransferase
ASA Register	Finnish Register of Workers Exposed to Carcinogens
As-GSH	arsenic-glutathione
BALF	bronchoalveolar lavage fluid
CARET	Beta-Carotene and Retinol Efficacy Trial
CAREX	CARcinogen EXposure
CAS	Chemical Abstracts Service
CBD	chronic beryllium disease
DMAs	dimethylated arsenic species
DMAV	dimethylarsinic acid
DMBA	7,12-dimethylbenz[ <i>a</i> ]anthracene
DMMTAV	Dimethylthioarsinic acid
DQ12	uncoated quartz
DSMA, or cacodylic acid	disodium methanearsonate
DWA	Daily weighted average
EBV	Epstein-Barr virus
ECVAM	Centre for the Validation of Alternative Methods
EDAX	energy dispersive analysis of X-rays
ET-AAS	electrothermal atomic absorption spectroscopy
F344	Fisher 344
FBs	Ferruginous bodies
Fpg	formamidopyrimidine-DNA-glycosylase
G6PD	glucose 6-phosphate dehydrogenase
GAPDH	glyceraldehyde 3-phosphate dehydrogenase
GC-ECD	gas chromatography-electron capture detection
GF-AAS	graphite furnace atomic absorption spectrometry
GSD	geometric standard deviation
GSH	glutathione
HOBr	hypobromous acid
HOCl	hypochlorous acid
<i>hOGGI</i>	human 8-oxoguanine-DNA-glycosylase
HPV	human papillomavirus

ICP-AES	inductively coupled plasma atomic emission spectroscopy
ICP-MS	inductively coupled plasma mass spectrometry
IMA	International Mineralogical Association
IMIS	Integrated Management Information System
ITAC	intestinal-type sinonasal adenocarcinoma
JEM	job–exposure matrix
LEV	local exhaust ventilation
MBDs	methyl-CpG binding domains
MDF	medium-density fibreboard
MGMT	O6-methylguanine-DNA methyltransferase
MIG/MAG-method	Metal Inert Gas-Metal Active Gas
MLHT	malignant lymphomas of the histiocytic type
MMAD	mass median aerodynamic diameter
MMAs	Monomethylated arsenic species
MMAV	monomethylarsonic acid
MnTBAP	manganese(III)meso-tetrakis(4-benzoic acid)porphyrin
MSHA	Mine Safety and Health Administration
MSMA	monosodium methanearsonate
NDEA	N-nitrosodiethylamine
NHANES III	Third National Health and Nutrition Examination Survey
Ni-Cd	nickel–cadmium
NIOSH	National Institute of Occupational Safety and Health
NOES	National Occupation Exposure Survey
NTP	National Toxicology Program
OEL	occupational exposure limit
OR	odds ratio
OSHA	Occupational Safety and Health Administration
PAHs	polyaromatic hydrocarbons
PARP	poly ADP-ribose polymerase
PCP	pentachlorophenol
PD-1	programmed death-1
PMNs	polymorphonuclear leukocytes
PMR	proportionate mortality ratio
RCF-1	refractory ceramic fibres
REL	recommended exposure limit
RLE-6TN	type II lung epithelial cells
RR	relative risk
SHE	Syrian hamster embryo
SiO <sub>4</sub>	silicate tetrahedron
SIR	standardized incidence ratio
SMR	Standard Mortality Ratio
SV40	simian virus 40
TEM	transmission electron microscopy
TPA	12-O-tetradecanoyl phorbol-13-acetate
TWA	Time-weighted average
UV	ultraviolet
UVR	ultraviolet radiation
XPA	xeroderma pigmentosum group A
XRCC1	X-ray complementing group 1 gene
Zn	zinc