



STYRENE, STYRENE-7,8-OXIDE, AND QUINOLINE

VOLUME 121

This publication represents the views and expert opinions of an IARC Working Group on the Evaluation of Carcinogenic Risks to Humans, which met in Lyon, 20–27 March 2018

LYON, FRANCE - 2019

**IARC MONOGRAPHS
ON THE EVALUATION
OF CARCINOGENIC RISKS
TO HUMANS**

LIST OF ABBREVIATIONS

8-OHdG	8-hydroxy-2'-deoxyguanosine
8-oxodGuo	8-oxo-7,8-dihydro-2'-deoxyguanosine
ABS	acrylonitrile–butadiene–styrene
AC50	concentration for half-maximal activity
AhR	aryl hydrocarbon receptor
ALL	acute lymphoblastic/lymphocytic leukaemia
AML	acute myeloid leukaemia
AR	androgen receptor
BALF	bronchioloalveolar lavage fluid
BrdU	bromodeoxyuridine
BSO	buthionine sulfoximine
bw	body weight
CAS	Chemical Abstracts Service
CI	confidence interval
CLL	chronic lymphocytic leukaemia
CML	chronic myeloid leukaemia
CYP	cytochrome P450
DAD	diode array detection
DEG	differentially expressed gene
DMDTC	dimethyldithiocarbamate
DMSO	dimethylsulfoxide
EPA	United States Environmental Protection Agency
EPA	expandable polystyrene
ER	estrogen receptor
FCM	food-contact material
FD	fluorescence detector
FDA	United States Food and Drug Administration
FID	flame ionization detector
Fpg	formamido pyrimidine glycosylase
FT3	free triiodothyronine
FT4	free thyroxine
GC	gas chromatography
GC×GC	two-dimensional gas chromatography

GLP	good laboratory practice
GM	geometric mean
GSH	glutathione
GSSG	oxidized glutathione
GST	glutathione <i>S</i> -transferase
HL	Hodgkin lymphoma
HLA-G	human leukocyte antigen G
HPLC	high-performance liquid chromatography
HPRT	hypoxanthine-guanine phosphoribosyl transferase
HR	hazard ratio
IARC	International Agency for Research on Cancer
JEM	job-exposure matrix
LALN	lung-associated lymph node
LC	liquid chromatography
L-NAC	<i>L-N</i> -acetylcysteine
LOD	limit of detection
LOQ	limit of quantitation
LPO	lipid peroxidation
LPS	lipopolysaccharide
LSE	low styrene emission
M1	<i>N</i> -acetyl- <i>S</i> -(1-phenyl-2-hydroxyethyl)- <i>L</i> -cysteine
M2	<i>N</i> -acetyl- <i>S</i> -(2-phenyl-2-hydroxyethyl)- <i>L</i> -cysteine
MA	mandelic acid
MDA	malondialdehyde
MEF	murine embryonic fibroblast
MM	multiple myeloma
MN	micronucleus
MNCPEs	Minnesota Children's Pesticide Exposure Study
MS	mass spectrometry
MS/MS	tandem mass spectrometry
<i>N</i> 3 α A	3-(2-hydroxy-1-phenylethyl)adenine
<i>N</i> 3 β A	3-(2-hydroxy-2-phenylethyl)adenine
NAC	<i>N</i> -acetylcysteine
NHANES	United States National Health and Nutrition Examination Survey
NHL	non-Hodgkin lymphoma
NIOSH	United States National Institute for Occupational Safety and Health
NK	natural killer
NSA	non-Swiss albino
NVS	NovaScreen
OR	odds ratio
PAC	polycyclic aromatic compounds
PAH	polycyclic aromatic hydrocarbon
PFC	plaque-forming cell
PGA	phenylglyoxylic acid
PGE ₂	prostaglandin E ₂
PGF _{2α}	prostaglandin F _{2α}
PHEMA	phenylhydroxyethylmercapturic acid
PM _{2.5}	airborne particulate matter of diameter less than 2.5 μ m
ppb	parts per billion
ppm	parts per million

PS	polystyrene
PT	purge-and-trap
QC	quality control
ROS	reactive oxygen species
RR	relative risk
RSD	relative standard deviation
SAN	styrene-acrylonitrile
SBL	styrene-butadiene latex
SBR	styrene-butadiene rubber
sHLA-G	soluble human leukocyte antigen G
SIM	selected ion monitoring
SIR	standardized incidence ratio
SMR	standardized mortality ratio
SOD	superoxide dismutase
SPE	solid-phase extraction
Tox21	Toxicity Testing in the 21st Century
ToxCast	Toxicity Forecaster
TPA	12- <i>O</i> -tetradecanoylphorbol-13-acetate
TRH	thyrotrophin-releasing hormone
TSH	thyroid-stimulating hormone
TWA	time-weighted average
UPR	unsaturated polyester resins
UV	ultraviolet
VOC	volatile organic carbon

