

June 2022

## WES review glossary

TERM	MEANING
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1-NP	1-Nitropropane.
1,1,2-TCE	1,1,2-Trichloroethane.
2-DAE	2-Diethylaminoethanol.
2-HMSI	2-Hydroxy-N-methylsuccinimide.
2,4-D	2,4-Dichlorophenoxyacetic acid.
5-HNMP	5-Hydroxy-N-methyl-2-pyrrolidone.
Α	
A1 Confirmed Human Carcinogen	The agent is carcinogenic to humans based on the weight of evidence from epidemiology studies. An ACGIH® term.
A2 Suspected Human Carcinogen	Human data are accepted as adequate in quality but are conflicting or insufficient to classify the agent as A1, OR, the agent is carcinogenic in experimental animals at dose(s), by route(s) of exposure, at site(s), of histologic types, or by mechanism(s) considered relevant to worker exposure. An ACGIH <sup>®</sup> term.
A3 Confirmed Animal Carcinogen with Unknown Relevance to Humans	The agent is carcinogenic in experimental animals at relatively high dose, by route(s) of administration, at site(s), of histological type(s), or by mechanism(s) that may not be relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence does not suggest that the agent is likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure. An ACGIH <sup>®</sup> term.
A4 Not Classifiable as a Human Carcinogen	Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of lack of data. <i>In vitro</i> or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories. An ACGIH <sup>®</sup> term.
A5 Not Suspected as a Human Carcinogen	The agent is not suspected to be a human carcinogen on the basis of properly conducted epidemiological studies in humans. These studies have sufficiently long follow-up, reliable exposure histories, sufficiently high dose, and adequate statistical power to conclude that exposure to the agent does not convey a significant cancer risk to humans, <b>or</b> , the evidence suggesting a lack of carcinogenicity in experimental animals is supported by mechanistic data. An ACGIH <sup>®</sup> term.
ACGIH®	The American Conference of Governmental Industrial Hygienists (ACGIH <sup>®</sup> ) is a member-based organisation, established in 1938, that advances occupational and environmental health. Examples of this include their annual edition of the TLVs <sup>®</sup> and BEIs <sup>®</sup> book and work practice guides. Store at: <u>https://portal.acgih.org/s/store#</u>
AHR	Airway hyper-reactivity.
AIHA	American Industrial Hygiene Association.

TERM	MEANING
AIOH	Australian Institute of Occupational Hygienists Inc.
AI	Aluminium.
ALARP	As low as reasonably practicable.
AUC	Area under the curve.
В	
BAT	Biologische Arbeitsstoff-Toleranzwerte [Biological Tolerance Value], a DFG term.
BE	2-Butoxyethanol.
BEI	Biological Exposure Index - a WorkSafe term.
BEI <sup>®</sup>	Biological Exposure Index - an ACGIH <sup>®</sup> term.
BMDL05	Bench-mark dose, 95% lower confidence limit.

4	P	
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b.w. or bw

Body weight.

CaO	Calcium oxide.
Ca(OH) <sub>2</sub>	Calcium hydroxide.
Carcinogen category 1	DFG MAK designation: Substances that cause cancer in man and can be assumed to contribute to cancer risk. Epidemiological studies provide adequate evidence of a positive correlation between the exposure of humans and the occurrence of cancer. Limited epidemiological data can be substantiated by evidence that the substance causes cancer by a mode of action that is relevant to man. ( <b>Note</b> : category definitions are periodically revised.)
Carcinogen category 2	DFG MAK designation: Substances that are considered to be carcinogenic for man because sufficient data from long-term animal studies or limited evidence from animal studies substantiated by evidence from epidemiological studies indicate that they can contribute to cancer risk. Limited data from animal studies can be supported by evidence that the substance causes cancer by a mode of action that is relevant to man and by results of in vitro tests and short-term animal studies. ( <b>Note</b> : category definitions are periodically revised.)
Carcinogen category 3	DFG MAK designation: Substances that cause concern that they could be carcinogenic for man but cannot be assessed conclusively because of lack of data. <i>In vitro</i> tests or animal studies have yielded evidence of carcinogenicity that is not sufficient for classification of the sub-stance in one of the other categories. The classification in Category 3 is provisional. Further studies are required before a final decision can be made. A MAK value can be established provided no genotoxic effects have been detected. ( <b>Note</b> : category definitions are periodically revised.)
Carcinogen category 3A	DFG MAK designation: Substances that cause cancer in humans or animals or that are considered to be carcinogenic for humans for which the criteria for classification in Category 4 or 5 are in principle fulfilled. However, the database for these substances is insufficient for the establishment of a MAK or BAT value. ( <b>Note</b> : category definitions are periodically revised.)
Carcinogen category 3B	DFG MAK designation: Substances for which <i>in vitro</i> or animal studies have yielded evidence of carcinogenic effects that is not sufficient for classification of the substance in one of the other categories. Further studies are required before a final decision can be made. A MAK or BAT value can be established provided no genotoxic effects have been detected. ( <b>Note</b> : category definitions are periodically revised.)
Carcinogen category 4	DFG MAK designation: Substances that cause cancer in humans or animals or that are considered to be carcinogenic for humans and for which a MAK value can be derived. A nongenotoxic mode of action is of prime importance and genotoxic effects play no or at most a minor part provided the MAK and BAT values are observed. Under these conditions no contribution to human cancer risk is expected. The classification is supported especially by evidence that, for example, increases in cellular proliferation, inhibition of apoptosis or disturbances in cellular differentiation are important in the mode of action. The classification and the MAK and BAT values take into consideration the manifold mechanisms contributing to carcinogenesis and their characteristic dose-time-response relationships.)( <b>Note</b> : category definitions are periodically revised.)

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Carcinogen category 5	DFG MAK designation: Substances that cause cancer in humans or animals or that are considered to be carcinogenic for humans and for which a MAK value can be derived. A genotoxic mode of action is of prime importance but is considered to contribute only very slightly to human cancer risk, provided the MAK and BAT values are observed.
	The classification and the MAK and BAT values are supported by information on the mode of action, dose-dependence and toxicokinetic data. ( <b>Note</b> : category definitions are periodically revised.)
CAS	Chemical Abstracts Service.
CASN or CAS No.	Chemical Abstracts Service Number.
Ceiling or Ceiling Limit Value	Ceiling Limit Value - absolute exposure limit that should not be exceeded at any time.
CFC-11	Fluorotrichloromethane (Trichlorofluoromethane; CASN: 75-69-4).
CFC-112a	1,1,1,2-Tetrachloro-2,2-difluoroethane.
CFC-113	1,1,2-Trichloro-1,2,2-trifluoroethane.
Cl <sub>2</sub>	Chlorine.
CN-	Cyanide ion.
CNS	Central nervous system.
со	Carbon monoxide.
Cr(VI)	Chromium 6 or hexavalent chromium.
CYP2E1	Cytochrome P450 family 2; subfamily E; member 1.
CYP2F	Cytochrome P450 family 2; subfamily F.
D	
DBTC	Di- <i>n</i> -butyltin dichloride.
DCA	Dichloroacetic acid.
DCPD	Dicyclopentadiene.
DEAE	2-Diethylaminoethanol.
DECOS	Dutch Expert Committee on Occupational Standards a Committee [DECOS] of the <i>Health Council of th Netherlands</i> . The latter was established in 1902 as an independent scientific advisory body with a remit

DBTC	Di- <i>n</i> -butyltin dichloride.
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DCPD	Dicyclopentadiene.
DEAE	2-Diethylaminoethanol.
DECOS	Dutch Expert Committee on Occupational Standards a Committee [DECOS] of the <i>Health Council of the Netherlands</i> . The latter was established in 1902 as an independent scientific advisory body with a remit: "to advise the government and Parliament on the current level of knowledge with respect to public health issues and health (services) research" (Section 22, Health Act).
DEHP	Di(2-ethylhexyl)phthalate.
DGUV-IFA	Deutschen Gesetzlichen Unfallversicherung ([German Social Accident Insurance] - Institut für Arbeitsschutz [Institute for Occupational Safety and Health].
DFG	Deutsche Forschungsgemeinschaft (German Research Foundation), the Permanent Senate Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area, Federal Republic of Germany. The science-based MAK values are recommended to the German Minister of Labour and Social Affairs for possible adoption under the German Hazardous Substances Ordinance.
DMAC	Dimethylacetamide.
DMTC	Dimethyltin dichloride.
DNA	Deoxyribonucleic acid.
DNEL	Derived No Effect Level.
DPGME	Dipropylene glycol methyl ether.

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dsen	A substance that can 'sensitise' the skin, inducing a state of hypersensitivity to it, so that on subsequent exposures, an allergic reaction can occur (which would not develop in non-sensitised individuals). It is uncommon to become sensitised to a compound after just a single reaction to it. A WorkSafe term.
DSEN	A notation indicating the substance is a dermal sensitiser. DSEN is used in place of SEN when specific evidence of sensitisation by the dermal route is confirmed by human or animal data. An ACGIH® term.
E	
EBK	Ethyl butyl ketone
ECHA	The European Chemicals Agency (an agency of the European Union).
EGDN	Ethylene glycol dinitrate
EPA	The New Zealand Environmental Protection Authority.
Evidence suggesting lack of carcinogenicity (animals)	Adequate studies in at least two species show that the agent is not carcinogenic; Conclusion is limited to the species, tumour sites, age at exposure, and conditions and level of exposure studied. An IARC term.
Evidence suggesting lack of carcinogenicity (humans)	Several adequate studies covering the full range of exposure levels are mutually consistent in not showing a positive association at any observed level of exposure; Conclusion is limited to cancer sites and conditions studied. An IARC term.
F	
F	Chemical symbol for fluoride.
F0	Parents to first filial generation, F1.
F <sub>2</sub>	Chemical symbol for fluorine.
FC-22	Chlorodifluoromethane.
FCAT	Freund's complete adjuvant test.
Fume	Fumes are very small airborne solid particulates with diameters generally less than 1µm. They may be formed by both thermal mechanisms (for examples condensation of volatilised solids, or incomplete combustion) and chemical processes (for example, vapour phase reactions). Agglomeration of fume particles may occur, resulting in the formation of much larger particles.
G	
GESTIS	Gefahrstoffinformationssystem.
GHS	Globally Harmonized System of Classification and Labelling of Chemicals.
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GHS	Globally Harmonized System of Classification and Labelling of Chemicals.
Group 1	IARC designation: The agent is carcinogenic to humans.
Group 2A	IARC designation: The agent is probably carcinogenic to humans.
Group 2B	IARC designation: The agent is possibly carcinogenic to humans.
Group 3	IARC designation: The agent is not classifiable as to its carcinogenicity to humans.
Group 4	IARC designation: The agent is probably not carcinogenic to humans.
GSD	Geometric Standard Deviation describes how spread out are a set of numbers whose preferred average is the geometric mean. In this context, the spread of particle sizes.
GSTT1-1	Glutathione S-transferase (GST) theta 1.

TERM	MEANING
н	
"Н"	DFG MAK designation: <i>danger of percutaneous absorption</i> . Equivalent to the <i>skin notation</i> in the WorkSafe WES special guide.
HBROEL or HBR-OEL	Health-based recommended exposure limit. European Union term; a DECOS term.
HCN	Chemical symbol for hydrogen cyanide.
HSNO	Hazardous Substances and New Organisms Act 1996, New Zealand.
IARC	International Agency for Research on Cancer - an agency of the World Health Organisation.
IDLH	Immediately Dangerous to Life or Health concentration. IDLH values are established by NIOSH to (1) to ensure that the worker can escape from a given contaminated environment in the event of failure of the respiratory protection equipment, and (2) to indicate a maximum level above which only a highly reliable breathing apparatus, providing maximum worker protection, is permitted.
ID <sup>(SK)</sup>	A critical review has determined that the quantity and quality of the available data are insufficient to accurately assess the hazards of skin exposure to assign any of the skin notations. A NIOSH notation.
IFA	Institut für Arbeitsschutz der Deutschen Gestzlichen Unfallversicherung [Institute for Occupational Safety and Health of the German Social Accident Insurance].
<i>Inadequate evidence</i> (animal)	Studies permit no conclusion about carcinogenic effect. An IARC term.
Inadequate evidence (human)	Studies permit no conclusion about causal association. An IARC term.
Inhalable fraction	Inhalable particulate fraction is that fraction of dust that can be breathed into the nose or mouth. Particulate size: mostly < 100µm, 50% cut point. For sampling purposes the inhalable dust is to be collected according to the method set out in AS 3640-2009: Workplace Atmospheres – Method for Sampling and Gravimetric Determination of Inhalable Dust (Standards Australia, 2009). ( <i>cf.</i> Respirable fraction) (Also referred to as: inhalable aerosol; inhalable particulate matter)
Inhalable Fraction and Vapour (ifv or IFV)	The Inhalable Fraction and Vapour (ifv) notation is used when a material exerts sufficient vapour pressure such that it may be present in both particle and vapour phases, with each contributing to a significant portion of exposure.
K	
Known to be Human Carcinogen	There is sufficient evidence of carcinogenicity from studies in humans, which indicates a causal relationship between exposure to the agent, substance, or mixture, and human cancer. A US NTP term.
L	
LC <sub>50</sub>	Lethal concentration for 50% of the test population.
LD <sub>50</sub>	Lethal Dose for 50% of the test population.
LH	Luteinising (luteinizing) hormone.
<i>Limited evidence</i> (animal)	Data suggest a carcinogenic effect but: for example, single study, benign tumours only, promoting activity only. An IARC term.
<i>Limited evidence</i> (human)	Causal interpretation is credible; Chance, bias, or confounding could not be ruled out. An IARC term.
LLNA	Local lymph node assay.
LOAEC	Lowest Observed Adverse Effect Concentration.
LOAEL	Lowest Observed Adverse Effect Level.
LOEL	Lowest Observed Effect Level.

TERM	MEANING
Μ	
МАК	Maximale Arbeitsplatz-Konzentration, (maximum workplace concentration) is defined as the maximum concentration of a chemical substance (as gas, vapour or particulate matter) in the workplace air which generally does not have known adverse effects on the health of the employee nor cause unreasonable annoyance (for example, by a nauseous odour) even when the person is repeatedly exposed during long periods, usually for 8 hours daily but assuming on average a 40-hour working week. Values set by the DFG.
МСА	Monochloroacetic acid.
MetHb	Methaemoglobin.
МІАК	Methyl isoamyl ketone
МІВС	Methyl isobutyl carbinol.
МІВК	Methyl isobutyl ketone (Hexone).
MMAD	Mass Median Aerodynamic Diameter (MMAD) is the diameter at which 50% of the particles by mass are larger and 50% smaller.
ммтс	Methyltrichlorotin.
Momentary value	A workplace air concentration which should not be exceeded at any time (equivalent to a WES-Ceiling). A DFG term.

## Ν

NAEC	No adverse effect concentration
NAEL	No adverse effect level.
NaOH	Sodium hydroxide.
NIOSH	The National Institute for Occupational Safety and Health is the United States federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness.
NMA	<i>n</i> -Methyl aniline; <i>n</i> -Methylaniline.
NO <sub>2</sub>	Nitrogen dioxide.
NOAEC	No Observed Adverse Effect Concentration.
NOAEL	No Observed Adverse Effect Level.
NOEL	No Observed Effect Level
NTP	National Toxicology Program, US Department of Health and Human Services.

Ο

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OEL	Occupational Exposure Limit (equivalent to a WES).
Organic ligand	An organic molecule (or ion) that binds with a central (metal) atom to form a coordination complex.
OSHA	Occupational Safety and Health Administration.
Oto	Ototoxin notation.
Ototoxin	Substances that can cause hearing loss either in conjunction with noise exposure, or without concurrent noise exposure.

## Ρ

P-450	Cytochrome P-450.
PBZ	Personal breathing zone.
Peak limitation Category 1 or I	Substances for which local irritant effects determine the MAK value, also respiratory allergens; Excursion factor = 1 [default]; Duration 15 minutes, average value; Number per shift = 4; Interval = 1 hour. A DFG term.

TERM	MEANING
Peak limitation Category 2 or II	Substances with systemic effects; Excursion factor = 2 [default]; Duration 15 minutes, average value; Number per shift = 4; Interval = 1 hour. A DFG term.
PEL	Permissible Exposure Limit - the maximum amount or concentration of a chemical that a worker may be exposed to under OSHA regulations.
PGDN	Propylene glycol dinitrate
ppm	Parts of vapour or gas per million parts of air.
Pregnancy Risk Group B	According to currently available information damage to the embryo or foetus cannot be excluded after exposure to concentrations at the level of the MAK and BAT values. A DFG term.
Pregnancy Risk Group C	Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed. A DFG term.
Pregnancy Risk Group D	Either there are no data for an assessment of damage to the embryo or foetus or the currently available data are not sufficient for classification in one of the groups A - C. A DFG term.
PubChem	A searchable open chemistry database administered by the National Institutes of Health (NIH). https://pubchem.ncbi.nlm.nih.gov

Quantitative structure-activity relationship.

Q

QSAR or (Q)SAR

R	
R 112a	1,1,1,2-Tetrachloro-2,2-difluoroethane.
RADS	Reactive Airways Dysfunction Syndrome.
RD0	Dose producing a 0% response.
RD50	Dose producing a 50% response.
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals. An EU program and regulation.
Reasonably anticipated to be a human carcinogen	There is limited evidence of carcinogenicity from studies in humans, which indicates that causal interpretation is credible, but that alternative explanations, such as chance, bias, or confounding factors, could not adequately be excluded, <b>or</b> there is sufficient evidence of carcinogenicity from studies in experimental animals, which indicates there is an increased incidence of malignant and/or a combination of malignant and benign tumors (1) in multiple species or at multiple tissue sites, or (2) by multiple routes of exposure, or (3) to an unusual degree with regard to incidence, site, or type of tumor or age at onset, <b>or</b> there is less than sufficient evidence of carcinogenicity in humans or laboratory animals; however, the agent, substance, or mixture belongs to a well-defined, structurally related class of substances whose members are listed in a previous Report on Carcinogens as either known to be a human carcinogen or reasonably anticipated to be a human carcinogen, or there is convincing relevant information that the agent acts through mechanisms indicating it would likely cause cancer in humans. A US NTP term.
Respirable fraction	Respirable particulate fraction is that fraction of inhaled airborne particles that can penetrate beyond the terminal bronchioles into the gas-exchange region of the lungs (alveoli). Particulate size: mostly < 4µm, 50% cut point. For sampling purposes the respirable dust samples are to be collected according to the method set out in the Standards Australia publication AS 2985-2009: Workplace Atmospheres - Method for Sampling and Gravimetric Determination of Respirable Dust (Standards Australia, 2009). ( <i>cf.</i> Inhalable fraction) (Also referred to as: respirable aerosol; respirable particulate matter)
RoC or ROC	Report on Carcinogens, produced by the US National Toxicology Program.
rsen	A substance that can 'sensitise' the respiratory system, inducing a state of hypersensitivity to it, so that on subsequent exposures, an allergic reaction can occur (which would not develop in non-sensitised individuals). It is uncommon to become sensitised to a compound after just a single reaction to it. A WorkSafe term.
RSEN	A notation indicating the substance is a respiratory sensitiser. RSEN is used in place of SEN when specific evidence of sensitisation by the inhalation route is confirmed by human or animal data. An ACGIH <sup>®</sup> term.

TERM	MEANING
S	
"S"	Sensitising. A DFG MAK notation.
"Sa"	Sensitising to airways. A DFG MAK notation.
SafeWork	Safe Work Australia, an Australian government statutory body established in 2008 to develop national policy relating to work health and safety (WHS) and workers' compensation. <a href="http://www.safeworkaustralia.gov.au">www.safeworkaustralia.gov.au</a>
SCOEL	The Scientific Committee on Occupational Exposure Limits is a committee of the European Commission, established in 1995 to advise on occupational health limits for chemicals in the workplace within the framework of Directive 98/24/EC, the chemical agents directive, and Directive 90/394/EEC, the carcinogens at work directive.
SEG	The Scientific Expert Group on Occupational Exposure Limits [SEG] was a committee of the European Commission, established in 1995 to advise on occupational health limits for chemicals in the workplace within the framework of Directive 98/24/EC, the chemical agents directive, and Directive 90/394/EEC, the carcinogens at work directive. The Scientific Committee on Occupational Exposure Limits [SCOEL] has replaced SEG.
sen	A substance that can 'sensitise' the skin or respiratory system, inducing a state of hypersensitivity to it, so that on subsequent exposures, an allergic reaction can occur (which would not develop in non-sensitised individuals). It is uncommon to become sensitised to a compound after just a single reaction to it. A WorkSafe term.
SEN	A notation indicating the substance is a sensitiser. DSEN and RSEN are used in place of SEN when specific evidence of sensitisation by the dermal or respiratory route, respectively, is confirmed by human or animal data. An ACGIH® term.
"Sh"	DFG MAK designation: danger of sensitisation of the skin.
skin	Skin absorption – applicable to a substance that is capable of being significantly absorbed into the body through contact with the skin. A WorkSafe term.
Skin	A notation indicating the potential for significant contribution to the overall exposure, by the cutaneous route, including mucous membranes and the eyes, by contact with vapours, liquids and solids. An ACGIH® term.
SK: SYS	Skin notation indicating the potential for systemic toxicity following exposure of the skin. A NIOSH term.
SK: SYS-DIR(COR)	Skin notation indicating the potential for acute toxicity and direct corrosive effects following exposure of the skin. A NIOSH term.
SK: SYS-DIR(COR)-SEN	Skin notation indicating the potential for acute toxicity, direct corrosive effects and immune-mediated reactions following exposure of the skin. A NIOSH term.
Sn	Chemical symbol for tin.
STEL	Short-Term Exposure Limit. The STEL is a limit value above which exposure should not occur and usually relates to a 15-minute reference period.
STEL (WES-STEL)	The 15-minute time weighted average exposure standard. Applies to any 15-minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Exposures at concentrations between the WES-TWA and the WES-STEL should be less than 15 minutes, should occur no more than four times per day, and there should be at least 60 minutes between successive exposures in this range. A WorkSafe term.
Sufficient evidence (animals)	Causal relationship has been established through either: - multiple positive results (2 species, studies, sexes of GLP) - single unusual result (incidence, site/type, age, multi-site). An IARC term.
Sufficient evidence (humans)	Causal relationship has been established; Chance, bias, and confounding could be rulled out with reasonable confidence. An IARC term.

TERM	MEANING
т	
ТВТО	Tri-n-butyltin oxide.
ТСА	Trichloroacetic acid.
ТСР	Tricresyl phosphate.
TEA	Triethylamine.
TLV®	Threshold Limit Value (see TLV-C, TLV-STEL and TLV-TWA below). An ACGIH® term.
TLV-Ceiling or TLV-C	Threshold Limit Value – Ceiling: the concentration that should not be exceeded during any part of the working exposure. If instantaneous measurements are not available, sampling should be conducted for the minimum period of time sufficient to detect exposures at or above the ceiling value. An ACGIH <sup>®</sup> term.
TLV-STEL	Threshold Limit Value – Short-Term Exposure Limit: a 15-minute TWA exposure that should not be exceeded at any time during a workday, even if the 8-hour TWA is within the TLV-TWA. An ACGIH® term
TLV-TWA	Threshold Limit Value – Time-Weighted Average: the TWA concentration for a conventional 8-hour workday and a 40-hour workweek, to which it is believed that nearly all workers may be repeatedly exposed to, day after day, for a working lifetime without adverse effect. An ACGIH <sup>®</sup> term.
ТМА	Trimethylamine.
TMT(IOMA)	Trimethyltin isooctylmercaptoacetate.
ТОСР	Triorthocresyl phosphate.
TWA	Time-weighted average exposure.
TWA <sub>8hr</sub>	8-Hour time-weighted average exposure.
V	
VDC	Vinylidene chloride (1,1-dichloroethylene).
W	
WEEL	Workplace Environmental Exposure Level - an American Industrial Hygiene Association OEL.
WES	Workplace Exposure Standard - WESs are values that refer to the airborne concentration of substances at which it is believed that nearly all workers can be repeatedly exposed to, day after day, without coming to harm. The values are normally calculated on work schedules of five shifts of eight hours duration over a 40-hour week. A WorkSafe term.
WES-Ceiling	A concentration that should not be exceeded at any time during any part of the working day. A WorkSafe term.
WES-STEL	The 15-minute time-weighted average exposure standard. Applies to any 15-minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Exposures at concentrations between the WES-TWA and the WES-STEL should be less than 15 minutes should occur no more than four times per day, and there should be at least 60 minutes between successive exposures in this range. A WorkSafe term.
WES-TWA	The average airborne concentration of a substance calculated over an eight-hour working day. A WorkSafe term.

TERM	MEANING
Units	
Units	
d/w	Days per week.
h/d	Hours per day.
Centi-	
cm/hr	Centimetre per hour.
Deci-	
dL	Decilitre, or one-tenth of a litre.
Gram-	
g	Gram.
g/cm³	Grams of substance per cubic centimetre of matrix.
g/kg bw or g/kg b.w.	Grams of substance per kilogram body weight.
Kilo	
kPa	Kilopascal.
M	
Mole	The mole is the unit of measurement for amount of substance in the International System of Units. It is defined as exactly 6.02214076×10 <sup>23</sup> particles.
Micro	
ha	Microgram or one millionth of a gram.
µg∕L or µg∕l	Microgram or one millionth of a gram per litre.
µg∕m³ or µg.m⁻³	Micrograms of substance per cubic metre of air.
μm	Micrometre or micron.
Milli	
mg	Milligram or one thousandth of a gram.
mg/kg	Milligram of substance per kilogram.
mg/kg b.w. or mg/ kg bw	Milligram of substance per kilogram body weight.
mg/kg bw/day or mg/ kg b.w./day or mg/kg/ day or mg/kg bw/d	Milligram of substance per kilogram body weight per day (exposure rate).
mg/L or mg/l	Milligram of substance per litre.
mg/m <sup>3</sup> or mg.m <sup>-3</sup>	Milligrams of substance per cubic metre (of air).
mL or ml	Millilitre or one thousandth of a litre.
mL/m <sup>3</sup> or ml/m <sup>3</sup>	Millilitres of substance per cubic metre (of air).
Nano	
ng	Nanogram [10 <sup>-9</sup> gram].
Pico	
pg	Picogram (10 <sup>-12</sup> gram).