

Safety Data Sheet Styrene Monomer Revision 2, Date 11 Nov 2014

1. IDENTIFICATION

Product Name Styrene Monomer

Other Names Benzene, Ethenyl; Ethenylbenzene; Phenyl ethylene; Vinylbenzene

Uses Ingredient of polymer, chemical intermediate.

Chemical Family No Data Available

Chemical Formula C8H8

Chemical Name Styrene Monomer **Product Description** No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust)

Globally Harmonised System

5

Adelaide

Brisbane

Perth

Sydney





Hazard Classification Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of

Chemicals (GHS)

Hazard Categories Flammable Liquids - Category 3

Acute Toxicity (Inhalation) - Category 4 Serious Eye Damage/Irritation - Category 2A

Skin Corrosion/Irritation - Category 2

Specific Target Organ Toxicity (Single Exposure) - Category 3 Specific Target Organ Toxicity (Repeated Exposure) - Category 1 Specific Target Organ Toxicity (Single Exposure) - Category 1

Germ Cell Mutagenicity - Category 2 Toxic To Reproduction - Category 1B Aspiration Hazard - Category 1

Pictograms







Signal Word Danger

Hazard Statements H226 Flammable liquid and vapour.

H304 May be fatal if swallowed and enters airways.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.H341 Suspected of causing genetic defects.

H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.H372 Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements Prevention P201 Obtain special instructions before use.

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition

sources. No smoking.

P240 Ground/bond container and receiving equipment.

P241 Use explosion-proof electrical/ventilating/lighting/equipment.

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash contacted areas thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position

comfortable for breathing.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact

lenses, if present and easy to do. Continue rinsing.

P307 + P311 IF exposed: Call a POISON CENTER or doctor/physician.

P321 Specific treatment (see First Aid Measures on Safety Data Sheet).

P331 Do NOT induce vomiting.

P332 + P313 If skin irritation occurs: Get medical advice/attention.

P337 + P313 If eye irritation persists: Get medical advice/attention.

P362 Take off contaminated clothing and wash before reuse.

P370 + P378 In case of fire: Use carbon dioxide (CO2), dry chemical, foam or water fog for

extinction.

Storage P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405

Disposal P501 Dispose of contents/container in accordance with local / regional / national /

international regulations.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification

Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods

by Road & Rail (ADG Code)

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications	Physical Hazards	3.1C	Flammable liquid - medium hazard	
	Health Hazards	6.1C	Substances that are acutely toxic- Toxic	
		6.1D	Substances that are acutely toxic - Harmful	
		6.3A	Substances that are irritating to the skin	
		6.4A	Substances that are irritating to the eye	
		6.6B	Substances that are suspected human mutagens	
		6.7B	Substances that are suspected human carcinogens	
		6.8B	Substances that are suspected human reproductive or developmental toxicants	
		6.9A	Substances that are toxic to human target organs or systems	
	Environmental Hazards	9.1A	Substances that are very ecotoxic in the aquatic environment	
		9.1B	Substances that are ecotoxic in the aquatic environment	
		9.1D	Substances that are slightly harmful to the aquatic environment or are otherwise designed for biocidal action	
		9.3B	Substances that are ecotoxic to terrestrial vertebrates	

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Styrene	No Data Available	100-42-5	>=99.6 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed If swallowed, give a glass of water. Do NOT induce vomiting. Lean victim forward to reduce the risk of aspiration.

Transport to doctor or hospital quickly. For further advice call Poisons Information Centre.

Immediately flush the eyes with large amount of clean water for at least 15 minutes. Eye

Promptly contact with a physician and obtain medical treatment.

Skin Wash skin thoroughly with soap and plenty of water for at least 15 minutes. Take off contaminated clothing and shoes. Wash contaminated clothing before reuse. Contact with a physician if skin problem occur.

If breathing is difficult, give oxygen or artificial respiration. Get some distance from exposed place.

If inhale the chemical, promptly contact with a physician and obtain medical treatment.

Advice to Doctor

Inhaled

Treat symtomatically based on judgement of doctor and individual reactions of patient.

Medical Conditions Aggravated by Exposure

Field studies of workers exposed to styrene by inhalation found symptoms of CNS depression (decreased coordination and concentration) and abnormal EEG patterns (electrical activity of the brain) in some workers. These effects were thought to be reversible.

Prolonged or repeated skin contact with the liquid may cause irritant dermititis (itching, drying, redness).

Styrene has been found to increase genetic damage in one type of blood cell (peripheral lymphocytes) in studies on workers exposed for several years, mostly at average concentrations above 50 ppm. Data is presently inadequate to

establish an exposure threshold or dose-response relationship for these effects.

The overall results of studies on over 50,000 workers in styrene industry over the period of nearly 50 years show no convincing evidence of link between styrene and cancer.

5. FIRE FIGHTING MEASURES

General Measures Flame-proof equipment is necessary in all areas where this chemical is being used. Nearby equipment must be

earthed.

Flammability Conditions Flammable liquid. Vapour or gas can be ignited and spread fire in an instant from far ignition point. As vapour is

heavier than air, it may travel long distance along the ground. Forming an explosive mixture of air and vapour over flash temperature. Avoid all ignition sources. Use only in well ventilated areas. flameproof equipment necessary in area where product is being used. Product transfer and storage equipment must be earthed. Consult ASI1940 for further information on the storage and handling of flammable liquids. Handle in accordance with State or Territory

regualtions for flammable liquids.

Extinguishing Media .Suitable extinguishing media: Water, Foam, Dry Powder, CO2.

Large fire: General Extinguishing powder

Fire and Explosion Hazard Combustible Material. Vapour might cause evaporative combustion. Container could be broken or burst.

Hazardous Products of Combustion

Flammable liquid. Polymerises with evolution of heat at elevated temperatures.

Unusual Fire and Explosion Hazards: Vapours are heavier than air and can accumulate in low areas; they may travel considerable distance to a source of ignition and flask back. The liquid normally contains and inhibitor to prevent polymerisation. At elevated temperatures, such as a fire conditions, polymerisation may take place. If polymerisation take place in a container, there is a possibility of violent rupture of the container. Styrene vapours are uninhibted and

may form polymers on vents and flame arresters of storage tanks, resulting in blockage of vents.

Hazardous Decompostion Products : Thermal decomposition products may be include carbon monoxide, carbon

dioxide and acrid fumes.

Autoignition Temperature: 490 deg C

Special Fire Fighting

Instructions

Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk. Do NOT allow fire fighting water to reach

waterways, drains or sewers. Store fire fighting water for treatment.

Personal Protective Equipment Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting

clothing (includes fire fighting helmet, coat, trousers, boots and gloves) or chemical splash suit.

Please note: Structural fire fighters uniform will provide limited protection.

Flash Point 31 °C Closed Cup

Lower Explosion Limit0.9 %Upper Explosion Limit6.8 %Auto Ignition Temperature $490 ^{\circ}\text{C}$ Hazchem Code3Y

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure Shut off all possible sources of ignition. Use clean, non-sparking tools and equipment. Avoid accidents, clean up

immediately. Increase ventilation. Avoid walking through spilled product as it may be slippery when spilt. Water spray may be used to cool and disperse vapours, protect personnel, and dilute spills to form non-flammable mixtures. Do NOT get water inside containers. A vapour suppressing foam may be used to reduce vapours. Water spray may

reduce vapour but may not prevent ignition in closed spaces.

Clean Up Procedures Minor spills -Absorb chemical with non flammables.

Major spills - Isolate the leaked place and avoid access.

If chemical is leaked more than standard amount, inform it to government.

Remove all ignition sources.

Containment Stop leak if safe to do so.

Environmental Precautionary

Measures

Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental

Protection Authority or your local Waste Management.

Evacuate zone: 0.8 Km (1/2 mile)

Evacuation Criteria

Personal Precautionary

Measures

Personnel involved in the clean up should wear full protective clothing as listed in section 8.

7. HANDLING AND STORAGE

Handling Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and

recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Do not inhale product vapours. Avoid prolonged or repeated exposure. Operations should be carried out in an efficient fume hood or equivalent system. Remove contaminated clothing and wash before reuse. Discard contaminated shoes. Keep away from combustible material. Empty containers pose a fire risk, evaporate residue under a fume hood. Chemicals should be

used only by those trained in handling potentially hazardous materials

Storage Store in a cool, dry, well-ventilated, fire-proof area. Keep containers tightly sealed when not in use. Inspect regularly

for deficiencies such as damage or leaks. Protect against physical damage. Ground and bond storage containers. Store away from incompatible materials as listed in section 10. Protect from direct sunlight, heat, static charges, and ignition. Store refrigerated at approximately 4'C. This product has a UN classification of 2055, Dangerous Goods Class 3 (flammable)according to the Australian Code for the Transport of Dangerous Goods By Road and Rail.

Container Container type/packaging must comply with all applicable local legislation. Store in original packaging as approved by

manufacturer

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General Styrene - TWA 8hr : 50 ppm - STEL 15 min : 100 ppm

Exposure Limits No Data Available

Biological Limits No information available on biological limit values for this product.

Engineering Measures A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local

exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Use an explosion proof exhaust ventilation system. Vapour heavier than air – prevent concentration in hollows and sumps. Do NOT enter confined spaces where vapour may

have collected.

Personal Protection Equipment RESPIRATOR: Wear a respirator with suitable Type 'A' filter for organic gases and vapours if engineering controls are

inadequate (AS1715/1716).

EYES: Chemical goggles to prevent splashing in the eyes (AS1336/1337).

HANDS: Elbow length impervious gloves (AS2161).

CLOTHING: Chemical-resistant coveralls, splash apron and safety footwear (AS3765/2210).

Work Hygienic Practices Emergency washing facilities must be available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State Liquid
Appearance Liquid

Odour Low concentration : Aromatic

High concentration : Stimulative odour

ColourColourless to yellowpHNo Data Available

Vapour Pressure 10 mm Hg torr (@ 30 °C)

Relative Vapour Density 3.6 **Boiling Point** $145 \, ^{\circ}\mathrm{C}$

Melting Point -31 **Freezing Point** -31 °C

Solubility 0.031 g/100ml 25°C

Specific Gravity 0.906

Flash Point 31 °C Closed Cup

490 °C **Auto Ignition Temp**

Evaporation Rate No Data Available **Bulk Density** No Data Available **Corrosion Rate** No Data Available **Decomposition Temperature** No Data Available **Density** No Data Available Specific Heat No Data Available **Molecular Weight** No Data Available **Net Propellant Weight** No Data Available

Octanol Water Coefficient 2.95

Particle Size No Data Available **Partition Coefficient** No Data Available Saturated Vapour Concentration No Data Available Vapour Temperature No Data Available Viscosity 0.698 cP (@ 25 °C) Volatile Percent No Data Available **VOC Volume** No Data Available **Additional Characteristics** No Data Available **Potential for Dust Explosion** Product is a liquid **Fast or Intensely Burning** No Data Available Characteristics

Flame Propagation or Burning

Rate of Solid Materials

No Data Available No Data Available

Non-Flammables That Could

Contribute Unusual Hazards to a

No Data Available

Properties That May Initiate or Contribute to Fire Intensity

Reactions That Release Gases

or Vapours

No Data Available

Release of Invisible Flammable

Vapours and Gases

No Data Available

10. STABILITY AND REACTIVITY

General Information Possibility of hazardous reactivity: Container might burst

Chemical Stability May be polymerized. Avoid contact with light, heat (over 65?), air and initiator.

Conditions to Avoid Avoid ignition sources.

Materials to Avoid Oxygen, Acids, Metallic salts, Flammables, Oxidizers, Metals, Peroxides

Hazardous Decomposition

Products

Pyrolyzed products & Carbon oxides

Hazardous Polymerisation May be polymerized.

11. TOXICOLOGICAL INFORMATION

General Information Acute Oral toxicity: LD50 2650 ?/? Rat

Skin Contact: LD50 > 5010 ?/? Rabbit Inhalation: LC50 11.7 ?/l 4 hr Rat Moderate skin irritant (Rabbit test) Moderate eye irritant (Rabbit test)

Germ cell mutagenicity: Chromosome aberration test, positive. Micro-nucleus test, positive.

Reproductive toxicity: Survival rate of new born white rats is decreased. While no toxicity is observed in mother animals body, decrease of serotonin in cerebrum of baby animals and some abnormality on behaviours are observed.

Specific target organ systemic toxicity-single exposure: Eyes/nose irritant and effect on central nervous system of people

Specific target organ systemic toxicity-repeated exposure: As a result of epidemiologic investigation, it stimulates eyes, skin, nose and throat.

Aspiration hazard: Hydrocarbon, Viscosity rate, 0.772 mm2/s (25 ?)

Eyelritant Contact with liquid resin may cause severe irritation resulting corneal damage (due to styrene). Exposure to 100 ppm

styrene vapour for 20 minutes caused mild irritation in some people. Irritation was more persistent at 400-500ppm

and became extreme at 1300 ppm.

Ingestion The material should be treated as possibly harmful by swallowing. Styrene may cause irritation of mouth and throat.

Animal toxicity ranges from practically non toxic to slightly toxic (rats) to moderately toxic (mice). Effects may be similat to those described for inhalation (central nervous system (CNS) depression).

Inhalation Styrene vapour can cause irritation to the nose and throat. Irritation of the nose occurred in people exposed briefly to

200ppm. People exposed to 350 ppm for 0.5 - 1 hour had reduced concentration and coordination skills. Increasing styrene concentration can cause headache, nausea, loss of appetite, vomiting, drowsiness, general weakness and

other symptoms of CNS depression. Extreme exposures may cause unconsciousness and death.

SkinIrritant Prolonged or repeated contact may cause moderate irritation, defatting and irritation dermatitis. A recent study

showed a low degree of absorption in nine volunteers whose right hands were in 10-30 minutes contact with liquid

styrene.

Carcinogen Category No Data Available

12. ECOLOGICAL INFORMATION

Ecotoxicity Fishes: LC50 4.02 ?/l 96 hr

Crustacean: LC50 12.1 ?/l 96 hr

Birds: EC50 78 ?/I 96 hr

Persistence/DegradabilityPersistence : log Kow 2.95
Biodegradable : 100 (%)

Develotes as a last Kerry 0.05

Mobility Persistence : log Kow 2.95

Environmental Fate Do NOT let product reach waterways, drains and sewers.

Bioaccumulation Potential No information available on bioaccumulation for this product.

Environmental Impact No Data Available

13. DISPOSAL CONSIDERATIONS

General InformationDispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/reconditioned at an approved facility.

Special Precautions for Land Fill Contact a specialist disposal company or the local waste regulator for advice. Incinerate at an approved site following all local regulations. This material may be suitable for approved landfill.

Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do NOT attempt to refill of clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE

INJURY OR DEATH

14. TRANSPORT INFORMATION

Land Transport (Australia)

ADG Code

Proper Shipping Name STYRENE MONOMER, STABILISED

Class 3 Flammable Liquids
Subsidiary Risk(s) No Data Available

EPG 19P Liquids - Flammable , Toxic And/Or Corrosive (Polymerises Violently)

 UN Number
 2055

 Hazchem
 3Y

 Pack Group
 III

Special Provision No Data Available

Land Transport (Malaysia)

ADR

Proper Shipping Name STYRENE MONOMER, STABILISED

Class 3 Flammable Liquids
Subsidiary Risk(s) No Data Available

EPG 19P Liquids - Flammable , Toxic And/Or Corrosive (Polymerises Violently)

 UN Number
 2055

 Hazchem
 3Y

 Pack Group
 III

Special Provision No Data Available

Land Transport (New Zealand)

NZS5433

Proper Shipping Name STYRENE MONOMER, STABILISED

Class 3 Flammable Liquids
Subsidiary Risk(s) No Data Available

EPG 19P Liquids - Flammable , Toxic And/Or Corrosive (Polymerises Violently)

 UN Number
 2055

 Hazchem
 3Y

 Pack Group
 III

Special Provision No Data Available

Land Transport (United States of America)

US DOT

Proper Shipping Name STYRENE MONOMER, STABILISED

Class 3 Flammable Liquids
Subsidiary Risk(s) No Data Available

ERG 131P Flammable Liquids - Toxic (Polymerizing)

 UN Number
 2055

 Hazchem
 3Y

 Pack Group
 III

Special Provision No Data Available

Sea Transport

IMDG Code

Proper Shipping Name STYRENE MONOMER, STABILISED

Class 3 Flammable Liquids
Subsidiary Risk(s) No Data Available

 UN Number
 2055

 Hazchem
 3Y

 Pack Group
 III

Special Provision No Data Available

EMS F-E, S-D **Marine Pollutant** No

Air Transport

IATA DGR

Proper Shipping Name STYRENE MONOMER, STABILISED

Class 3 Flammable Liquids
Subsidiary Risk(s) No Data Available

 UN Number
 2055

 Hazchem
 3Y

 Pack Group
 III

Special Provision No Data Available

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods

by Road & Rail (ADG Code)

15. REGULATORY INFORMATION

General Information No Data Available

Poisons Schedule (Aust) 5

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code HSR001221

National/Regional Inventories

Australia (AICS) Listed

Canada (DSL) Listed

Canada (NDSL) Not Determined

China (IECSC) Listed

Europe (EINECS) Listed

Europe (REACh)Not Determined

Japan (ENCS/METI) Listed

Korea (KECI) Listed

Malaysia (EHS Register) Not Determined

New Zealand (NZIoC) Listed

Philippines (PICCS) Listed

Switzerland (Giftliste 1) Not Determined

Switzerland (Inventory of Notified

Substances)

Not Determined

Taiwan (NCSR) Not Determined

USA (TSCA) Listed

16. OTHER INFORMATION

Related Product Codes STMONO1000, STMONO1001, STMONO1002, STMONO1003, STMONO1004, STMONO1005, STMONO1006,

STMONO1007, STMONO1008, STMONO1009, STMONO1010, STMONO1011, STMONO1012, STMONO1013, STMONO1014, STMONO2000, STMONO3000, STMONO5000, STMONO6000, STMONO6010, STMONO6050,

STMONO6100, STMONO7000, STMONO9000, STMONO9001

Revision

AICS Australian Inventory of Chemical Substances **atm** Atmosphere **CAS** Chemical Abstracts Service (Registry Number)

cm² Square Centimetres

CO2 Carbon Dioxide

COD Chemical Oxygen Demand **deg C (°C)** Degrees Celcius

EPA (New Zealand) Environmental Protection Authority of New Zealand

deg F (°F) Degrees Farenheit

g Grams

g/cm³ Grams per Cubic Centimetre

g/I Grams per Litre

HSNO Hazardous Substance and New Organism **IDLH** Immediately Dangerous to Life and Health **immiscible** Liquids are insoluable in each other.

inHg Inch of Mercury inH2O Inch of Water

K Kelvin **kg** Kilogram

kg/m³ Kilograms per Cubic Metre

Ib Pound

LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours. **LD50** LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.

Itr or L Litre

m³ Cubic Metre

mbar Millibar

mg Milligram

mg/24H Milligrams per 24 Hours mg/kg Milligrams per Kilogram mg/m³ Milligrams per Cubic Metre

Misc or Miscible Liquids form one homogeneous liquid phase regardless of the amount of either component

present.

mm Millimetre

mmH2O Millimetres of Water mPa.s Millipascals per Second

N/A Not Applicable
NIOSH National Institute for Occupational Safety and Health NOHSC National Occupational Heath and Safety Commission **OECD** Organisation for Economic Co-operation and Development

PEL Permissible Exposure Limit

Pa Pascal

ppb Parts per Billion

ppm Parts per Million ppm/2h Parts per Million per 2 Hours ppm/6h Parts per Million per 6 Hours psi Pounds per Square Inch

R Rankine

RCP Reciprocal Calculation Procedure STEL Short Term Exposure Limit

TLV Threshold Limit Value

tne Tonne

TWA Time Weighted Average ug/24H Micrograms per 24 Hours UN United Nations

wt Weight