

Safety Data Sheet Soda Ash Dense Revision 4, Date 03 Aug 2017

1. IDENTIFICATION

Product Name Soda Ash Dense

Other Names Soda ash, dense; Sodium carbonate; Sodium carbonate, anhydrous; Washing soda

Uses Cleaning agents and additives; Dishwashing and laundry detergents; Photochemicals; Fillers; Laboratory chemicals;

pH-regulating/buffering agent in cosmetic products; Used in the manufacture of glass; Fuel gas desulphurisation;

Water treatment and paper/pulp industry.

Chemical Family No Data Available

Chemical Formula Na2CO3

Chemical Name Carbonic acid, disodium salt **Product Description** Inorganic (alkaline) salt.

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	+60-3-5614-2111

Emergency Contact Details

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

Sengalor, Malaysia

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) Not Scheduled

Globally Harmonised System



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

Chemicals (GHS)

Hazard Categories Serious Eye Damage/Irritation - Category 2A

Pictograms



Signal Word Warning

Hazard Statements H319 Causes serious eye irritation.

Precautionary Statements Prevention **P264** Wash skin thoroughly after handling.

P280 Wear eye protection/face protection.

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

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

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

National Transport Commission (Australia)

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

Dangerous Goods Classification NOT 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

Hazards

HSNO Classifications Health **6.1D** Substances that are acutely toxic - Harmful

6.1E Substances that are acutely toxic –May be harmful, Aspiration hazard

6.3A Substances that are irritating to the skin6.4A Substances that are irritating to the eye

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Sodium carbonate, anhydrous	Na2CO3	497-19-8	>=99.5 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed IF SWALLOWED: Rinse mouth, then drink plenty of water. Do not induce vomiting. Get medical advice/attention. If

vomiting occurs, give further water. Never give anything by mouth to an unconscious person.

Eye IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally

lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15

minutes. If eye irritation persists, get medical advice/attention.

Skin IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If skin

irritation occurs, get medical advice/attention.

Inhaled IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing until recovered. If

respiratory symptoms persist, get medical advice/attention.

Advice to Doctor

Medical Conditions Aggravated

by Exposure

Treat symptomatically.

No information available.

5. FIRE FIGHTING MEASURES

General Measures If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is

out.

Flammability Conditions Non-combustible; Material does not burn.

Extinguishing Media If material is involved in a fire, use extinguishing measures that are appropriate to local circumstances and the

surrounding environment.

Fire and Explosion Hazard Decomposes on heating, emitting toxic fumes.

Hazardous Products of

Combustion

Fire or heat may produce irritating, toxic and/or corrosive fumes, including Carbon oxides, Sodium oxides.

Special Fire Fighting

Instructions

Contain runoff from fire control or dilution water - Runoff may pollute waterways.

Personal Protective Equipment Wear self-contained breathing apparatus (SCBA) in combination with normal firefighting clothing (full fire kit).

Flash Point

No Data Available
Lower Explosion Limit

No Data Available
Upper Explosion Limit

No Data Available
Auto Ignition Temperature

No Data Available
Hazchem Code

No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure Ensure adequate ventilation. Do not touch or walk through spilled material - Slippery when spilt. Avoid dust formation.

Avoid breathing dust and contact with eyes, skin and clothing.

Clean Up Procedures Collect material (sweep or vacuum up) and place it in suitable, properly labelled containers for recovery/recycling or

disposal (see SECTION 13).

Containment Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas.

Decontamination Clean up residual material by washing area with water. Do not flush into surface water or sanitary sewer system.

Prevent any mixture with an acid into the sewer/drain (gas formations).

Environmental Precautionary

Measures

Prevent entry into drains and waterways. Local authorities should be advised if significant spillages cannot be

contained.

Evacuation Criteria Spill or leak area should be isolated immediately. Keep unauthorised personnel away.

Personal Precautionary

Measures

Use personal protective equipment as required (see SECTION 8).

7. HANDLING AND STORAGE

Handling Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure

adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8). Avoid extreme heat and contact with incompatible materials (see SECTION 10).

Storage Storage Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed when not in use.

Protect from moisture/humidity. Avoid extreme heat. Keep away from foodstuffs and incompatible materials (see

SECTION 10).

Container Keep in properly labelled original container or suitable packaging material, i.e. Polyethylene, woven plastic material +

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General No value assigned for this specific material by Safe Work Australia. For dusts from solid substances without specific

occupational exposure standards:

- Safe Work Australia Exposure Standard (Nuisance dusts): 8 hr TWA = 10 mg/m3, measured as inhalable dust).

- New Zealand WES (Particulates not otherwise classified): TWA = 10 mg/m3; TWA = 3 mg/m3 (respirable).

Exposure Limits

No Data Available

Biological Limits

No information available.

Engineering Measures Provide appropriate exhaust ventilation at places where dust is formed. Apply technical measures to comply with the

occupational exposure limits.

Personal Protection Equipment - Respiratory protection: Wear respiratory protection in case of inadequate ventilation or an inhalation risk exists.

Recommended: Dust mask/particulate respirator (refer to AS/NZS 1715 & 1716).

- Eye/face protection: Wear appropriate eye protection to prevent eye contact. Recommended: Chemical safety goggles.

- Hand protection: Handle with gloves. Recommended: Impervious gloves, e.g. neoprene, natural rubber.

- Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Long-sleeved protective clothing; Overalls or dust-impervious protective suit; Apron (rubber or plastic); Safety shoes or boots (rubber or plastic).

Special Hazards Precaustions No information available.

Work Hygienic Practices Do not eat, drink or smoke when using this product. Wash hands before breaks and at the end of workday. Take off

contaminated clothing and wash before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical StateSolidAppearanceGranularOdourOdourlessColourWhite

pH 11.3 (10 g/L aqueous solution)Vapour Pressure Negligible (@ No Data Available)

Relative Vapour DensityNo Data Available **Boiling Point**No Data Available

Freezing Point No Data Available Soluble in water Solubility **Specific Gravity** 2.53 (Water = 1)Flash Point No Data Available **Auto Ignition Temp** No Data Available **Evaporation Rate** No Data Available **Bulk Density** No Data Available **Corrosion Rate** No Data Available

Decomposition Temperature >=400 °C

DensityNo Data AvailableSpecific HeatNo Data AvailableMolecular WeightNo Data AvailableNet Propellant WeightNo Data AvailableOctanol Water CoefficientNo Data AvailableParticle SizeNo Data AvailablePartition CoefficientNo Data Available

Saturated Vapour Concentration No Data Available **Vapour Temperature** No Data Available Viscosity No Data Available Volatile Percent No Data Available **VOC Volume** No Data Available

Additional Characteristics No information available. **Potential for Dust Explosion** No information available. Fast or Intensely Burning No information available. Characteristics

Flame Propagation or Burning **Rate of Solid Materials**

No information available.

Non-Flammables That Could Contribute Unusual Hazards to a

No information available.

Properties That May Initiate or Contribute to Fire Intensity

Non-combustible; Material does not burn.

Reactions That Release Gases or Vapours

Fire/thermal decomposition may produce irritating, toxic and/or corrosive fumes, including Carbon dioxide.

Release of Invisible Flammable

Vapours and Gases

No information available.

10. STABILITY AND REACTIVITY

General Information This product is unlikely to react under normal storage conditions. Mixing of acid and sodium carbonate solutions

could cause carbon dioxide evolution.

Chemical Stability Product is stable under normal conditions or use, storage and temperature. **Conditions to Avoid** Avoid dust formation. Avoid extreme heat. Protect from moisture/humidity.

Materials to Avoid Incompatible/reactive with aluminium, fluorine, acids, sulfuric acid, magnesium, iron, zinc, phosphorus pentoxide.

Hazardous Decomposition

Products

Fire/thermal decomposition may produce irritating, toxic and/or corrosive fumes, including Carbon dioxide.

Hazardous Polymerisation The product will not undergo polymerisation reactions.

11. TOXICOLOGICAL INFORMATION

General Information - Acute toxicity: Low acute toxicity following oral, dermal and inhalation exposure. In case of ingestion, may cause

severe irritation, nausea, abdominal pain, vomiting, diarrhoea.

- Skin corrosion/irritation: Prolonged contact may cause skin irritation.

- Eye damage/irritation: Causes serious eye irritation; may cause redness, lachrymation, swelling.

- Respiratory/skin sensitisation: Not a skin sensitiser.

- Germ cell mutagenicity: Not considered to be genotoxic.

- Carcinogenicity: Not considered carcinogenic.

- Reproductive toxicity: Does not show specific reproductive or developmental toxicity.

- STOT (single exposure): In case of inhalation at high concentrations, may cause cough, nose, throat and lung

- STOT (repeated exposure): Carbonate ions are neutralised under physiological conditions to form bicarbonate ions and/or carbon dioxide, which are major products of all human metabolic activities; therefore, systemic toxicity is not expected. Risk of sore throat, nose bleeds in case of repeated or prolonged inhalation exposure.

- Aspiration toxicity: No information available.

Acute

Ingestion Acute toxicity (Oral):

- LD50, Rats: >2,000 mg/kg bw.

Other Acute toxicity (Dermal):

- LD50, Rat: >2,000 mg/kg bw.

Carcinogen Category None

12. ECOLOGICAL INFORMATION

Ecotoxicity Aquatic toxicity:

- LC50, Freshwater fish (Lepomis macrochirus): 300 mg/L (96 h).

- EC50, Freshwater invertebrates (Ceriodaphnia cf. dubia): 200 mg/L (48 h) [semi-static].

Persistence/Degradability Sodium carbonate is an inorganic substance. In the presence of water, it will fully dissociate to sodium and carbonate

ions which will disperse in the various media.

Mobility Solid sodium carbonate has a negligible vapour pressure and for this reason it will not be distributed to the

atmosphere. If sodium carbonate is emitted to water it will remain in the water phase. If the pH is decreased then carbonic acid (H2CO3 or CO2) can be formed. If the concentration of carbon dioxide in water is above the water solubility limit, the carbon dioxide will distribute to the atmosphere. If sodium carbonate is emitted to soil it can escape to the atmosphere as CO2, precipitate as a metal carbonate, form complexes or stay in solution.

Environmental Fate Prevent entry into drains and waterways.

Bioaccumulation Potential Does not bioaccumulate. The substance dissociates fully on introduction to water. Log Po/w is not applicable for an

inorganic compound which dissociates.

Environmental Impact No Data Available

13. DISPOSAL CONSIDERATIONS

General Information If recycling is not practicable, dispose of in a suitable incineration plant and in accordance with local/regional/national

regulations.

Special Precautions for Land Fill Cleaning and disposal of packaging: Where possible, recycling is preferred to disposal or incineration. Clean

container with water; Dispose of rinse water in accordance with local and national regulations.

14. TRANSPORT INFORMATION

Land Transport (Australia)

ADG Code

Proper Shipping Name

Class

No Data Available

Subsidiary Risk(s)

No Data Available

No Data Available

UN Number

No Data Available

UN NumberNo Data AvailableHazchemNo Data AvailablePack GroupNo Data AvailableSpecial ProvisionNo Data Available

Comments NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (Fiji)

ADG Code

Proper Shipping Name
Class
No Data Available
Subsidiary Risk(s)
No Data Available
No Data Available

UN Number No Data Available
Hazchem No Data Available
Pack Group No Data Available

Special Provision No Data Available

Comments NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (Malaysia)

ADR Code

Proper Shipping Name
Dense Soda Ash
Class
No Data Available
Subsidiary Risk(s)
No Data Available
No Data Available

UN Number No Data Available
Hazchem No Data Available
Pack Group No Data Available
Special Provision No Data Available

Comments NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (New Zealand)

NZS5433

Proper Shipping NameDense Soda AshClassNo Data AvailableSubsidiary Risk(s)No Data AvailableUN NumberNo Data AvailableHazchemNo Data Available

HazchemNo Data AvailablePack GroupNo Data AvailableSpecial ProvisionNo Data Available

Comments NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (Papua New Guinea)

ADG Code

Proper Shipping NameDense Sosa AshClassNo Data AvailableSubsidiary Risk(s)No Data AvailableUN NumberNo Data Available

UN NumberNo Data AvailableHazchemNo Data AvailablePack GroupNo Data AvailableSpecial ProvisionNo Data Available

Comments NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (United States of America)

US DOT

Proper Shipping Name

Class

No Data Available
Subsidiary Risk(s)

No Data Available
No Data Available

UN Number No Data Available
Hazchem No Data Available
Pack Group No Data Available
Special Provision No Data Available

Comments NON-DANGEROUS GOODS: Not regulated for LAND transport.

Sea Transport

IMDG Code

Proper Shipping Name

Class

No Data Available
Subsidiary Risk(s)

No Data Available
UN Number

No Data Available
Hazchem

No Data Available
Pack Group

No Data Available
Special Provision

No Data Available
No Data Available

Marine Pollutant No

Comments NON-DANGEROUS GOODS: Not regulated for SEA transport.

Air Transport

IATA DGR

Proper Shipping NameDense Soda AshClassNo Data AvailableSubsidiary Risk(s)No Data AvailableUN NumberNo Data AvailableHazchemNo Data AvailablePack GroupNo Data AvailableSpecial ProvisionNo Data Available

Comments NON-DANGEROUS GOODS: Not regulated for AIR transport.

National Transport Commission (Australia)

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

Dangerous Goods ClassificationNOT 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 ALKALINE SALTS, being the carbonate, silicate or phosphate salts of sodium or potassium alone or in any

combination, are listed in Schedule 5 of the SUSMP in (other) solid preparations, the pH of which in a 10 g/L

aqueous solution is more than 11.5.

Poisons Schedule (Aust) Not Scheduled

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code HSR003265

National/Regional Inventories

Australia (AICS) Listed

Canada (DSL) Listed

Canada (NDSL) Not Listed

China (IECSC) Listed

Europe (EINECS) 207-838-8

Europe (REACh) Listed

Japan (ENCS/METI) 1-164

Korea (KECI) KE-31380

Malaysia (EHS Register) Listed

New Zealand (NZIoC) Listed

Philippines (PICCS) Listed

Switzerland (Giftliste 1) Not Determined

Switzerland (Inventory of Notified

Substances)

Not Determined

Taiwan (NCSR) Listed

USA (TSCA) Listed

16. OTHER INFORMATION

Related Product Codes

SOCABR1000, SOCABR1100, SOCABR2000, SOCARB0005, SOCARB0215, SOCARB1000, SOCARB1001, SOCARB1002, SOCARB1003, SOCARB1004, SOCARB1005, SOCARB1006, SOCARB1007, SOCARB1008, SOCARB1009, SOCARB1010, SOCARB1011, SOCARB1012, SOCARB1013, SOCARB1014, SOCARB1015, SOCARB1016, SOCARB1017, SOCARB1018, SOCARB1019, SOCARB1100, SOCARB1101, SOCARB1102, SOCARB1103, SOCARB1104, SOCARB1105, SOCARB1106, SOCARB1107, SOCARB1108, SOCARB1109, SOCARB1110, SOCARB1112, SOCARB1113, SOCARB1140, SOCARB1150, SOCARB1160, SOCARB1200, SOCARB1201, SOCARB1202, SOCARB1240, SOCARB1300, SOCARB1500, SOCARB1501, SOCARB1502, SOCARB1600, SOCARB1650, SOCARB1700, SOCARB1807, SOCARB1808, SOCARB1809, SOCARB1810, SOCARB1811, SOCARB1812, SOCARB1813, SOCARB1814, SOCARB1815, SOCARB1816, SOCARB1817, SOCARB1818, SOCARB2000, SOCARB2500, SOCARB2501, SOCARB2502, SOCARB2503, SOCARB2504, SOCARB2505, SOCARB2515, SOCARB2525, SOCARB2530, SOCARB2600, SOCARB3000, SOCARB3010, SOCARB3020, SOCARB3030, SOCARB3040, SOCARB4000, SOCARB4600, SOCARB4700, SOCARB4701, SOCARB4800, SOCARB4900, SOCARB5000, SOCARB5001, SOCARB5010, SOCARB5100, SOCARB5110, SOCARB5200, SOCARB5201, SOCARB5300, SOCARB5400, SOCARB5401, SOCARB5402, SOCARB5500, SOCARB5501, SOCARB5510, SOCARB5600, SOCARB5601, SOCARB5602, SOCARB5605, SOCARB5606, SOCARB5608, SOCARB5610, SOCARB5700, SOCARB5800, SOCARB5900, SOCARB6000, SOCARB6001, SOCARB6100, SOCARB6200, SOCARB6500, SOCARB6501, SOCARB6600, SOCARB6601, SOCARB7000, SOCARB7001, SOCARB8000, SOCARB8001, SOCARB8002, SOCARB8100, SOCARB8101, SOCARB9000, SOCARB9200, SOCARB9500, SOCARB9600, SOCARB9990, SOCARF1000, SOCARF1001, SOCARF2500, SOCARF3000, SOCARF5000, SOCARF5001, SOCARF5002, SOCARF5100, SOCARF5200, SOCARF9900, SODCAB1000, SODCAB1001, SODCAB1002, SODCAB1003, SODCAB1004, SODCAB1005, SODCAB1006, SODCAB1100, SODCAB1101, SODCAB1102, SODCAB1103, SODCAB1104, SODCAB1105, SODCAB1106, SODCAB1107, SODCAB1140, SODCAB1200, SODCAB1210, SODCAB1240, SODCAB2600, SODCAB2601, SODCAB2700, SODCAB2800, SODCAB2900, SODCAB2901, SODCAB3000, SODCAB3100, SODCAB3101, SODCAB3200, SODCAB3300, SODCAB3400, SODCAB3500, SODCAB3501, SODCAB3503, SODCAB3600, SODCAB3700, SODCAB3800, SODCAB3900, SODCAB3901, SODCAB3902, SODCAB4000, SODCAB4100, SODCAB4200, SODCAB4300, SODCAB4400, SODCAB5500, SODCAB5800, SODCAB5801, SODCAB5900, SODCAB5910, SODCAB6000, SODCAB6001, SODCAB6010, SODCAB6015, SODCAB6100, SODCAB6500, SODCAB6501, SODCAB6600, SODCAB6601, SODCAB6605, SODCAB7000, SODCAB7500, SODCAB7600, SODCAB8000, SODCAB8800, SODCAB9000, SODCAB9500, SODCAB9600, SODCAL1000, SODCAR0500, SODCAR0501, SODCAR0502, SODCAR0503, SODCAR1000, SODCAR1001, SODCAR1002, SODCAR1003, SODCAR1004, SODCAR1005, SODCAR1006, SODCAR1007, SODCAR1008, SODCAR1009, SODCAR1100, SODCAR1101, SODCAR1200, SODCAR2000, SODCAR2001, SODCAR3000, SODCAR3001, SODCAR SODCAR3300, SODCAR3400, SODCAR3500, SODCAR4000, SODCAR5000, SODCAR5001, SODCAR5500, SODCAR6500, SODCAR7000, SODCAR7500, SODCAR9000, SODCAR9500

Revision

Revision Date 03 Aug 2017

< Less Than

Key/Legend

> Greater Than

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 MercuryinH2O 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

Oz Ounce

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