Mahumbane Consulting

Water Treatment Technical Data Sheet Library and Safety Data Sheet Format

This document is a structured resource pack for Mahumbane Consulting's website and technical handbook. It brings together ready-to-use **Technical Data Sheets (TDS)** for core water and wastewater treatment chemicals, together with a practical **Safety Data Sheet (SDS)** format and sample completed SDS content for key products.

Recommended website use

- Publish each TDS as an individual downloadable product sheet.
- Use the SDS format as the standard structure for supplier-specific safety documents.
- Review every sheet against the exact supplied grade, concentration, packaging, and transport classification before release.
- Pair this library with application guides for cooling towers, boilers, clarification, and disinfection.

Contents

Important release note: this library is designed as a professional starting point. Values such as product concentration, grade, UN number, and transport class must be matched to the exact product supplied.

Part A - Technical Data Sheets

The following TDS pages are structured for direct use in Mahumbane product literature. Each sheet summarizes the product role, common applications, key handling considerations, and standard purchasing information.

Sodium Hypochlorite Solution

Field	Details
Product type	Disinfectant / Oxidizing Agent
Chemical name	Sodium Hypochlorite
Formula	NaOCl
CAS number	7681-52-9
UN number	UN1791

Description

A chlorine-based liquid oxidizer used for water disinfection, microbial control, odour control, and general sanitation across municipal and industrial systems.

Typical applications

- Potable water disinfection
- Wastewater disinfection
- Cooling tower biological control
- Odour control
- General sanitation

Typical properties

Property	Value
Appearance	Clear to yellow-green liquid
Available chlorine	Commonly 10-15%
pH	Typically 11-13
Solubility	Completely miscible in water
Odour	Chlorine-like

Recommended dosage range

Dose according to chlorine demand, retention time, and target free chlorine residual. Confirm by plant testing.

Handling and storage

Store cool, shaded, and ventilated. Keep away from acids, ammonia, reducing agents, and organic contamination. Use HDPE, PVC, or FRP compatible equipment.

PPE requirements

Chemical-resistant gloves, goggles or face shield, protective clothing, and respiratory protection where vapours may accumulate.

Packaging

25 L, 210 L drum, 1000 L IBC, or bulk tanker supply.

Important notes

Do not mix with acids. Toxic chlorine gas may be released.

Calcium Hypochlorite

Field	Details
Product type	Disinfectant / Oxidizer
Chemical name	Calcium Hypochlorite
Formula	Ca(OCl)2
CAS number	7778-54-3
UN number	UN1748

Description

A solid chlorinating compound used where stable solid disinfectant supply is preferred for municipal, industrial, and emergency treatment applications.

Typical applications

- Drinking water disinfection
- Emergency water treatment
- Swimming pool chlorination
- Wastewater disinfection

Typical properties

Property	Value
Appearance	White to off-white granules, powder, or tablets
Available chlorine	Often 65-70%
Odour	Chlorine-like
Solubility	Partially soluble in water

Recommended dosage range

Apply according to required free chlorine residual and raw water quality.

Handling and storage

Store in a cool, dry area in tightly closed containers. Keep away from organic material, acids, oils, and reducing agents.

PPE requirements

Gloves, goggles, protective clothing, and dust mask or respirator if dust is generated.

Packaging

5 kg and 25 kg pails or drums.

Important notes

Strong oxidizer. Keep away from combustibles.

Chlorine Gas

Field	Details
Product type	Disinfectant / Oxidizer
Chemical name	Chlorine
Formula	Cl2
CAS number	7782-50-5
UN number	UN1017

Description

A highly effective gaseous disinfectant used in large municipal and industrial systems requiring controlled chlorination.

Typical applications

- Potable water treatment
- Wastewater disinfection
- Biological slime control
- Oxidation of contaminants

Typical properties

Property	Value
Appearance	Greenish-yellow gas
Odour	Pungent chlorine odour
Solubility	Moderately soluble in water
Corrosivity	Corrosive in moist conditions

Recommended dosage range

Establish feed rate from system demand, contact time, and residual target. Use approved gas dosing equipment only.

Handling and storage

Store secured cylinders upright in a cool, dry, well-ventilated area with leak detection and emergency response controls.

PPE requirements

Chemical goggles, face shield, gloves, and chlorine-rated respiratory protection or SCBA for emergencies.

Packaging

Cylinders and ton containers.

Important notes

Highly toxic gas. Only trained personnel should handle it.

Ferric Chloride Solution

Field	Details
Product type	Coagulant
Chemical name	Ferric Chloride
Formula	FeCl3
CAS number	7705-08-0
UN number	UN2582

Description

An acidic iron salt coagulant used to destabilize suspended matter, improve clarification, reduce phosphorus, and condition sludge.

Typical applications

- Wastewater clarification
- Industrial effluent treatment
- Phosphate removal
- Sludge dewatering
- Sewer odour control

Typical properties

Property	Value
Appearance	Dark brown liquid
Nature	Strongly acidic
Solubility	Completely soluble in water
Equipment impact	Corrosive to many metals

Recommended dosage range

Optimize by jar testing or site trials to match solids load, alkalinity, and phosphorus reduction target.

Handling and storage

Use acid-resistant tanks and lines such as PVC, HDPE, rubber-lined steel, or FRP. Avoid mild steel and aluminium.

PPE requirements

Acid-resistant gloves, goggles, face shield, apron or chemical suit, and rubber boots.

Packaging

25 L, 200 L, 1000 L IBC, or bulk supply.

Important notes

Corrosive and staining. Good housekeeping is essential.

Ferric Sulphate

Field	Details
Product type	Coagulant
Chemical name	Ferric Sulphate
Formula	Fe2(SO4)3
CAS number	10028-22-5
UN number	Verify supplied grade

Description

An iron-based coagulant used for clarification, colour reduction, and phosphorus removal in water and wastewater systems.

Typical applications

- Clarification
- Phosphorus removal
- Sludge conditioning

Typical properties

Property	Value
Appearance	Brown or yellow liquid / solid depending on grade
Nature	Acidic solution
Solubility	Soluble in water

Recommended dosage range

Establish by testing against plant pH, alkalinity, and treatment target.

Handling and storage

Store in compatible acid-resistant containers. Protect transfer areas from corrosion.

PPE requirements

Gloves, goggles, face shield, protective clothing.

Packaging

Drums, IBCs, bulk, or bags depending on grade.

Important notes

Use actual supplied specification for transport classification.

Aluminium Sulphate

Field	Details
Product type	Coagulant
Chemical name	Aluminium Sulphate
Formula	Al2(SO4)3
CAS number	10043-01-3
UN number	Verify supplied grade

Description

A conventional coagulant widely used for turbidity reduction and clarification in potable and industrial water treatment.

Typical applications

- Potable water clarification
- Wastewater treatment
- Paper and pulp processes
- Sludge conditioning

Typical properties

Property	Value
Appearance	White to grey solid or clear to pale liquid
Solubility	Soluble in water
Solution character	Acidic in solution

Recommended dosage range

Determine by jar testing; performance depends on raw water pH and alkalinity.

Handling and storage

Store dry if solid. Protect liquid product from contamination and use compatible equipment.

PPE requirements

Gloves, goggles, protective clothing, and dust protection for powder grades.

Packaging

25 kg bags, drums, or bulk liquid.

Important notes

Alkalinity demand should be considered when dosing.

Polyaluminium Chloride

Field	Details
Product type	Coagulant
Chemical name	Polyaluminium Chloride
Formula	Variable polymeric aluminium salt
CAS number	1327-41-9
UN number	Verify supplied grade

Description

A pre-hydrolyzed aluminium coagulant that often achieves good clarification over a wider pH range with lower sludge generation than alum.

Typical applications

- Potable water treatment
- Industrial wastewater treatment
- Turbidity and colour reduction
- Pretreatment before filtration

Typical properties

Property	Value
Appearance	Yellow liquid or powder
Solubility	Soluble in water
Operating range	Effective over a broad pH range

Recommended dosage range

Confirm with jar testing and plant trials.

Handling and storage

Store in compatible plastic or lined tanks; protect powder from moisture.

PPE requirements

Gloves, goggles, protective clothing.

Packaging

Bags, drums, IBCs.

Important notes

Useful where reduced sludge and robust performance are required.

Polyacrylamide Flocculant

Field	Details
Product type	Flocculant
Chemical name	Polyacrylamide
Formula	(C3H5NO)n
CAS number	9003-05-8
UN number	Usually not regulated

Description

A high molecular weight polymer supplied as anionic, cationic, or nonionic grades to agglomerate suspended particles and improve settling and dewatering.

Typical applications

- Wastewater clarification
- Sludge thickening
- Sludge dewatering
- Mineral processing
- Raw water clarification

Typical properties

Property	Value
Appearance	White granular powder or emulsion
Solubility	Water soluble after make-up
Special hazard	Severe slip hazard when wet

Recommended dosage range

Select grade and dose through bench testing. Make-up concentration and aging time affect performance.

Handling and storage

Keep dry and sealed. Protect from moisture. Clean spills immediately to prevent slips.

PPE requirements

Gloves, goggles, dust mask when handling powder, protective clothing.

Packaging

25 kg bags or drums for emulsion products.

Important notes

Correct polymer choice is critical to treatment performance.

Caustic Soda

Field	Details
Product type	Alkali / pH Adjuster
Chemical name	Sodium Hydroxide
Formula	NaOH
CAS number	1310-73-2
UN number	UN1824 solid / UN1823 liquid

Description

A strong alkali used to increase pH, neutralize acidic streams, support alkalinity, and assist with industrial cleaning applications.

Typical applications

- pH increase
- Neutralization of acidic streams
- CIP cleaning
- Regeneration systems

Typical properties

Property	Value
Appearance	White flakes / pearls or clear liquid
Character	Strongly alkaline
Solubility	Highly soluble in water
Dilution behaviour	Heat generated when diluted

Recommended dosage range

Determine from acidity, alkalinity, and treatment target.

Handling and storage

Store in corrosion-resistant containers. Keep tightly closed. Add product to water carefully during dilution.

PPE requirements

Alkali-resistant gloves, goggles, face shield, protective clothing, and boots.

Packaging

25 kg bags, drums, IBCs, or bulk.

Important notes

Never add water rapidly into concentrated caustic.

Lime

Field	Details
Product type	Alkali / Neutralizing Agent
Chemical name	Calcium Oxide or Calcium Hydroxide
Formula	CaO / Ca(OH)2
CAS number	1305-78-8 / 1305-62-0
UN number	Verify supplied grade

Description

A versatile alkaline reagent used for pH adjustment, softening, metal precipitation, sludge stabilization, and neutralization.

Typical applications

- Neutralization
- Metal precipitation
- Sludge treatment
- Water softening

Typical properties

Property	Value
Appearance	White powder
Character	Alkaline
Water reaction	Reacts with water

Recommended dosage range

Determine according to pH target and treatment chemistry.

Handling and storage

Store dry and protect from moisture ingress. Control dust during handling.

PPE requirements

Gloves, goggles, dust mask, protective clothing.

Packaging

25 kg bags, bulk bags, or bulk tanker for powder systems.

Important notes

Dust may irritate the eyes and respiratory tract.

Hydrochloric Acid

Field	Details
Product type	Acid / pH Reducer
Chemical name	Hydrochloric Acid
Formula	HCl
CAS number	7647-01-0
UN number	UN1789

Description

A strong mineral acid used for pH reduction, descaling, resin regeneration, and industrial cleaning.

Typical applications

- pH reduction
- Resin regeneration
- Descaling
- Industrial cleaning

Typical properties

Property	Value
Appearance	Clear to slightly yellow liquid
Odour	Strong acidic odour
Character	Corrosive

Recommended dosage range

Determine from alkalinity and pH reduction requirement.

Handling and storage

Store in acid-resistant materials with ventilation. Keep away from alkalis, oxidizers, and reactive metals.

PPE requirements

Acid-resistant gloves, goggles, face shield, chemical suit or apron.

Packaging

Drums, IBCs, or bulk.

Important notes

Reacts with metals to release hydrogen gas.

Sulphuric Acid

Field	Details
Product type	Acid / pH Reducer
Chemical name	Sulphuric Acid
Formula	H2SO4
CAS number	7664-93-9
UN number	UN1830

Description

A strong acid used for pH control, ion exchange regeneration, and industrial process treatment.

Typical applications

- pH control
- Ion exchange regeneration
- Industrial cleaning
- Process adjustment

Typical properties

Property	Value
Appearance	Clear oily liquid
Character	Strong acid
Dilution behaviour	Highly exothermic with water

Recommended dosage range

Establish according to plant requirement and alkalinity.

Handling and storage

Store in approved acid systems. Always add acid to water during dilution.

PPE requirements

Acid-resistant gloves, goggles, face shield, chemical-resistant suit.

Packaging

Drums, IBCs, or bulk tanker.

Important notes

Severe burns possible. Strong heat is generated on dilution.

Sodium Bisulphite

Field	Details
Product type	Reducing Agent / Dechlorination Chemical
Chemical name	Sodium Bisulphite
Formula	NaHSO3
CAS number	7631-90-5
UN number	Verify concentration and transport status

Description

A reducing agent used to remove residual chlorine and other oxidants from treated water and process streams.

Typical applications

- Dechlorination
- Reducing residual oxidants
- Oxygen scavenging in selected applications

Typical properties

Property	Value
Appearance	Clear liquid or powder depending on grade
Odour	Sulphurous odour
Character	Reducing agent

Recommended dosage range

Set according to oxidant residual and target final concentration.

Handling and storage

Protect from air oxidation. Store in a cool area and keep sealed.

PPE requirements

Gloves, goggles, protective clothing.

Packaging

Drums, IBCs, or bags.

Important notes

May release sulphur dioxide under acidic conditions.

Sodium Metabisulphite

Field	Details
Product type	Reducing Agent
Chemical name	Sodium Metabisulphite
Formula	Na2S2O5
CAS number	7681-57-4
UN number	Verify supplied grade

Description

A solid reducing agent commonly used for dechlorination and membrane pretreatment where oxidants must be removed.

Typical applications

- Dechlorination
- Membrane pretreatment
- Reducing residual oxidants

Typical properties

Property	Value
Appearance	White crystalline powder
Odour	Sulphurous odour
Solubility	Soluble in water

Recommended dosage range

Apply according to residual oxidant concentration and process target.

Handling and storage

Keep dry and sealed. Avoid acid contamination.

PPE requirements

Gloves, goggles, dust mask.

Packaging

25 kg bags.

Important notes

May liberate sulphur dioxide in acidic conditions.

Hydrogen Peroxide

Field	Details
Product type	Oxidizer
Chemical name	Hydrogen Peroxide
Formula	H2O2
CAS number	7722-84-1
UN number	Depends on concentration

Description

An oxidizing agent used for odour control, sulphide oxidation, and specialized treatment processes.

Typical applications

- Oxidation of sulphides
- Odour control
- Advanced oxidation systems
- Industrial effluent treatment

Typical properties

Property	Value
Appearance	Clear liquid
Character	Oxidizing agent
Behaviour	Decomposes in contact with contaminants or catalysts

Recommended dosage range

Set by oxidation demand and treatment objective.

Handling and storage

Store in vented approved containers. Protect from contamination, heat, metals, and organics.

PPE requirements

Gloves, goggles or face shield, protective clothing.

Packaging

Drums or IBCs.

Important notes

Concentrated grades are hazardous strong oxidizers.

Activated Carbon

Field	Details
Product type	Adsorbent
Chemical name	Activated Carbon
Formula	-
CAS number	7440-44-0
UN number	Usually not regulated; verify grade

Description

A high surface area adsorbent used to remove organics, colour, odours, and residual disinfectants.

Typical applications

- Taste and odour control
- Organics removal
- Colour reduction
- Polishing treatment

Typical properties

Property	Value
Appearance	Black granules or powder
Special property	High surface area
Solubility	Insoluble in water

Recommended dosage range

Dose and contact time depend on contaminant load and process configuration.

Handling and storage

Keep dry and avoid dust generation. Store away from strong oxidizers.

PPE requirements

Gloves, dust mask, goggles.

Packaging

25 kg bags or bulk bags.

Important notes

Wet spent carbon may deplete oxygen in confined spaces.

Sodium Aluminate

Field	Details
Product type	Coagulant Aid / Alkali
Chemical name	Sodium Aluminate
Formula	NaAlO2
CAS number	1302-42-7
UN number	Verify supplied grade

Description

An alkaline aluminium reagent used as a coagulant aid, alkalinity source, and phosphorus removal aid.

Typical applications

- Coagulation aid
- Phosphorus removal
- Clarification

Typical properties

Property	Value
Appearance	White solid or liquid
Character	Strongly alkaline

Recommended dosage range

Determine through testing against water chemistry and clarification objective.

Handling and storage

Store in alkali-resistant containers.

PPE requirements

Gloves, goggles, face shield, protective clothing.

Packaging

Bags, drums, or bulk.

Important notes

Use actual supplied spec for concentrations and shipping data.

Antiscalant

Field	Details
Product type	Scale Inhibitor
Chemical name	Proprietary blend
Formula	Mixture
CAS number	Mixture
UN number	Product specific

Description

A proprietary scale inhibitor used to suppress precipitation of calcium, magnesium, silica, and related salts in membrane and recirculating systems.

Typical applications

- RO pretreatment
- Boiler feedwater systems
- Cooling water systems

Typical properties

Property	Value
Appearance	Clear liquid
Solubility	Water soluble

Recommended dosage range

Use according to system recovery, water chemistry, and supplier-approved dosage model.

Handling and storage

Keep sealed and protect from freezing or extreme heat.

PPE requirements

Gloves and goggles.

Packaging

Drums, IBCs, or bulk.

Important notes

Use a membrane-compatible grade where relevant.

Corrosion Inhibitor

Field	Details
Product type	Corrosion Control Chemical
Chemical name	Proprietary blend
Formula	Mixture
CAS number	Mixture
UN number	Product specific

Description

A treatment blend used to protect metal surfaces in cooling towers, closed loops, and recirculating industrial systems.

Typical applications

- Cooling towers
- Closed chilled water loops
- Industrial recirculating systems

Typical properties

Property	Value
Appearance	Typically liquid blend
Program basis	Composition depends on treatment program

Recommended dosage range

Program-specific. Confirm by monitoring corrosion rates and water chemistry.

Handling and storage

Store in sealed containers and prevent contamination.

PPE requirements

Gloves and goggles as minimum protection.

Packaging

Drums, IBCs, or bulk.

Important notes

System metallurgy determines the preferred program.

Non-Oxidizing Biocide

Field	Details
Product type	Microbiocide
Chemical name	Proprietary blend
Formula	Mixture
CAS number	Mixture
UN number	Product specific

Description

A microbiocide used to control bacteria, algae, and biofilm in cooling towers and process water loops.

Typical applications

- Cooling towers
- Process water loops
- Slime control

Typical properties

Property	Value
Appearance	Usually clear to pale liquid
Program basis	Application depends on biological load and retention time

Recommended dosage range

Apply shock or continuous dose according to microbial monitoring and system design.

Handling and storage

Store tightly closed in a cool, ventilated area away from incompatible chemicals.

PPE requirements

Gloves, goggles, and protective clothing as directed by the product SDS.

Packaging

Drums, IBCs, or bulk.

Important notes

Alternate biocides may be used to control resistance and biofilm.

Part B - Universal Safety Data Sheet Format

Use the structure below for each Mahumbane product SDS. The language must be completed with the exact supplied product concentration, ingredient disclosure, GHS classification, transport details, and emergency contact information.

SDS section	What must be completed
1. Identification	Product name, recommended use, supplier details, emergency contact number
2. Hazard identification	GHS classification, signal word, hazard statements, precautionary statements
3. Composition / information on ingredients	Chemical identity, CAS number, concentration, mixture disclosure
4. First aid measures	Inhalation, skin, eye, and ingestion response; key symptoms
5. Fire fighting measures	Suitable extinguishing media, special hazards, protective equipment
6. Accidental release measures	Personal precautions, environmental precautions, cleanup method
7. Handling and storage	Safe handling practices, storage conditions, incompatible materials
8. Exposure controls / personal protection	Exposure limits, engineering controls, PPE
9. Physical and chemical properties	Appearance, odour, pH, solubility, density, other relevant properties
10. Stability and reactivity	Reactivity, stability, hazardous reactions, incompatible materials
11. Toxicological information	Likely routes of exposure and acute/chronic effects
12. Ecological information	Aquatic toxicity, persistence, degradability, mobility
13. Disposal considerations	Waste handling and container disposal guidance
14. Transport information	UN number, proper shipping name, class, packing group
15. Regulatory information	Applicable legislation and chemical control references
16. Other information	Issue date, revision date, disclaimer, preparer notes

Mahumbane release recommendation

For legal and customer-facing use, each SDS should be reviewed against the actual manufacturer specification, transport classification, and South African handling requirements before issue.

Part C - Completed Sample SDS Content

These sample pages show how Mahumbane can present completed SDS content for frequently supplied products. They are suitable as editable working drafts and should be finalized against actual supplied product data.

Sodium Hypochlorite Solution

Section	Content
1. Identification	Recommended use: Water disinfection and oxidation. Supplier: Mahumbane Consulting (Pty) Ltd.
2. Hazard identification	Corrosive, oxidizing, and hazardous to aquatic life. Causes severe skin burns and eye damage. Contact with
3. Composition / information on ingredients	Sodium hypochlorite in aqueous solution, typically 10-15% available chlorine.
4. First aid measures	Inhalation: move to fresh air. Skin: wash with plenty of water. Eyes: rinse for at least 15 minutes and obtain u
5. Fire fighting measures	Not flammable, but may intensify surrounding fire as an oxidizer. Use media suitable for the surrounding fire.
6. Accidental release measures	Wear PPE, ventilate area, contain spill, and prevent concentrated release to drains or watercourses.
7. Handling and storage	Store cool and out of direct sunlight. Keep away from acids, ammonia, reducing agents, and organics.
8. Exposure controls / personal protection	Use goggles, face shield, gloves, apron, and suitable ventilation. Respiratory protection may be needed wher
9. Physical and chemical properties	Yellow-green liquid with chlorine odour and alkaline pH.
10. Stability and reactivity	Decomposes with heat, light, and contamination. Reacts with acids to release chlorine gas.
11. Toxicological information	Corrosive to skin, eyes, and mucous membranes.
12. Ecological information	Very toxic to aquatic organisms.
13. Disposal considerations	Dispose of product and contaminated containers according to local regulations. Do not discharge concentrate
14. Transport information	UN1791 - Hypochlorite solution - Class 8 - Packing Group III.
15. Regulatory information	Subject to applicable chemical safety and transport regulations.
16. Other information	Issue actual supplier revision date before publication.

Ferric Chloride Solution

Section	Content
1. Identification	Recommended use: Coagulation and phosphate removal.
2. Hazard identification	Corrosive. Causes severe skin burns and eye damage. May be corrosive to metals.
3. Composition / information on ingredients	Ferric chloride in aqueous solution.
4. First aid measures	Fresh air for inhalation. Flush skin and eyes with plenty of water. Seek medical attention.
5. Fire fighting measures	Non-flammable. Use extinguishing media suitable for the surrounding fire.
6. Accidental release measures	Contain spill, absorb with inert material, and prevent discharge to drains.
7. Handling and storage	Store in corrosion-resistant containers. Keep away from bases and reactive metals.
8. Exposure controls / personal protection	Use acid-resistant gloves, goggles, face shield, apron, and boots.
9. Physical and chemical properties	Dark brown acidic liquid.
10. Stability and reactivity	Stable under normal conditions. Reacts with alkalis and some metals.

11. Toxicological information	Corrosive to tissue. Harmful if swallowed.
12. Ecological information	Avoid uncontrolled release.
13. Disposal considerations	Dispose of according to regulations.
14. Transport information	UN2582 - Ferric chloride solution - Class 8 - Packing Group III.
15. Regulatory information	Subject to applicable chemical safety and transport regulations.
16. Other information	Complete with actual product concentration before issue.

Caustic Soda / Sodium Hydroxide

Section	Content
1. Identification	Recommended use: pH adjustment and neutralization.
2. Hazard identification	Corrosive. Causes severe skin burns and eye damage.
3. Composition / information on ingredients	Sodium hydroxide solid or solution.
4. First aid measures	Flush immediately with plenty of water. Seek urgent medical attention for eye exposure.
5. Fire fighting measures	Non-flammable.
6. Accidental release measures	Contain spill. Avoid contact. Neutralize only if trained and authorized.
7. Handling and storage	Store dry and tightly closed. Keep away from acids and reactive metals.
8. Exposure controls / personal protection	Use gloves, face shield, goggles, apron, and boots.
9. Physical and chemical properties	White solid or clear liquid. Strong alkali.
10. Stability and reactivity	Reacts with acids. Heat is generated on dilution.
11. Toxicological information	Severely corrosive to skin and eyes.
12. Ecological information	May significantly alter water pH if released.
13. Disposal considerations	Dispose according to local regulations.
14. Transport information	UN1823 liquid / UN1824 solid - Class 8.
15. Regulatory information	Subject to applicable chemical safety and transport regulations.
16. Other information	Confirm actual concentration and packaging before release.

Hydrochloric Acid

Section	Content
1. Identification	Recommended use: pH reduction and cleaning.
2. Hazard identification	Corrosive. Causes severe burns and eye damage. May cause respiratory irritation. Corrosive to metals.
3. Composition / information on ingredients	Hydrogen chloride in water.
4. First aid measures	Fresh air. Flush skin and eyes immediately with water for at least 15 minutes. Seek urgent medical attention.
5. Fire fighting measures	Non-flammable. Use extinguishing media suitable for surrounding materials.
6. Accidental release measures	Ventilate, contain, and prevent entry to drains. Use trained personnel only.

7. Handling and storage	Store in acid-resistant containers with ventilation. Keep away from alkalis, oxidizers, cyanides, and metals.
8. Exposure controls / personal protection	Acid-resistant gloves, goggles, face shield, protective clothing.
9. Physical and chemical properties	Clear to slightly yellow acidic liquid with sharp odour.
10. Stability and reactivity	Reacts with alkalis and many metals; hydrogen gas may be generated.
11. Toxicological information	Corrosive to skin, eyes, and respiratory tissue.
12. Ecological information	Avoid uncontrolled release.
13. Disposal considerations	Dispose according to regulations.
14. Transport information	UN1789 - Hydrochloric acid - Class 8.
15. Regulatory information	Subject to applicable chemical safety and transport regulations.
16. Other information	Confirm concentration before issue.

Sulphuric Acid

Section	Content
1. Identification	Recommended use: pH control and regeneration.
2. Hazard identification	Corrosive. Causes severe burns and eye damage.
3. Composition / information on ingredients	Sulphuric acid in water or concentrated form.
4. First aid measures	Flush skin and eyes immediately with water and seek urgent medical attention.
5. Fire fighting measures	Non-flammable. Use media suitable for the surrounding fire.
6. Accidental release measures	Contain spill and keep away from water addition unless trained response procedures are in place.
7. Handling and storage	Store in approved acid systems. Always add acid to water during dilution.
8. Exposure controls / personal protection	Acid-resistant gloves, goggles, face shield, and chemical-resistant suit.
9. Physical and chemical properties	Clear oily acidic liquid.
10. Stability and reactivity	Strongly exothermic with water and reactive with many materials.
11. Toxicological information	Severely corrosive to tissue.
12. Ecological information	Avoid release to the environment.
13. Disposal considerations	Dispose according to regulations.
14. Transport information	UN1830 - Sulphuric acid - Class 8.
15. Regulatory information	Subject to applicable chemical safety and transport regulations.
16. Other information	Confirm actual concentration and packaging before issue.

Polyacrylamide Flocculant

Section	Content
1. Identification	Recommended use: Flocculation and solids separation.
2. Hazard identification	Usually not highly hazardous, but dust may irritate eyes and lungs. Spills create severe slip hazard.

3. Composition / information on ingredients	Polyacrylamide polymer supplied as powder or emulsion.
4. First aid measures	Flush eyes with water. Wash skin. Move to fresh air if dust is inhaled.
5. Fire fighting measures	Use extinguishing media suitable for surrounding materials.
6. Accidental release measures	Avoid raising dust. Clean spills immediately because wet polymer is extremely slippery.
7. Handling and storage	Keep dry. Avoid dust generation. Seal containers after use.
8. Exposure controls / personal protection	Use gloves, goggles, and dust mask where needed.
9. Physical and chemical properties	White powder or emulsion; slippery when wet.
10. Stability and reactivity	Stable under normal storage conditions.
11. Toxicological information	May irritate eyes, skin, or respiratory tract under dusty conditions.
12. Ecological information	Avoid large uncontrolled releases.
13. Disposal considerations	Dispose according to local regulations.
14. Transport information	Usually not regulated for transport.
15. Regulatory information	Subject to applicable workplace handling requirements.
16. Other information	Confirm specific grade and ionic type before release.

Appendix - Fast Website Resource Structure

Website folder	Recommended contents
Technical Data Sheets	One PDF per product with the TDS format used in Part A
Safety Data Sheets	One product-specific SDS per chemical using the 16-section format
Application Guides	Cooling tower treatment, boiler treatment, clarification, disinfection, chemical storage
PPE Guides	Chemical handling PPE matrix, eye protection, gloves, respiratory protection
Compliance / disclaimers	Document control, revision date, temporary generic disclaimer, request-for-latest-copy note

Prepared for Mahumbane Consulting website development and technical resource planning.