DKM
Water Solutions

COMPANY PROFILE

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INTRODUCTION

DKM was formed in year 2004 to provide local water providers with water purification products and training in order to meet quality requirements. With recent development in the water treatment industry we have seen the growing demand for on-site plant assistance concerning all aspects of the water purification process.

DKM has supplied products to entities such as WSSA, Improchem, Nkomazi Municipality, Uthungulu Municipality, Zululand Municipality, UMkhanyakude Municipality and several other municipalities throughout the years.
MISSION STATEMENT

Mission

DKM Water solutions is committed in providing its clients with the best water solutions in order to enable clients to meet their objectives of producing potable water within the budget, time and quality framework of their requirements.

Vision

To be a leading water solutions provider in South Africa
Dkm water solutions provide flocculants which are used to remove turbidity from water and disinfectants which kill harmful bacteria and thus preventing water born diseases.

**POLY ELECTROLYTES**

- Poly electrolytes for high turbidity
- Poly electrolytes for medium range turbidity
- Poly electrolytes for low turbidity
- Wide range poly electrolytes

**DISINFECTANTS**

- Sodium hypochlorite
- HTH
- HTH Tablets

**pH Correction**

- Brown Lime
- White Lime
**LIST OF PRODUCTS**

**SODIUM HYPOCHLORITE**

Sodium hypochlorite is a chemical compound with the formula NaClO. Sodium hypochlorite solution, commonly known as bleach, is frequently used as a disinfectant or a bleaching agent.

<table>
<thead>
<tr>
<th><strong>Trade name</strong></th>
<th>Sodium Hypochlorite</th>
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<tbody>
<tr>
<td><strong>Chemical Family</strong></td>
<td>Inorganic Hypochlorite</td>
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<tr>
<td><strong>Chemical name</strong></td>
<td>Formulated Chemical</td>
</tr>
<tr>
<td><strong>Product use</strong></td>
<td>Javel water, household bleach</td>
</tr>
<tr>
<td><strong>Colour</strong></td>
<td>Clear/Yellow</td>
</tr>
<tr>
<td><strong>Odour</strong></td>
<td>Intense Pungent Odour of Chlorine</td>
</tr>
<tr>
<td><strong>Appearance</strong></td>
<td>- Liquid Free from particles and sediment</td>
</tr>
</tbody>
</table>

For shock chlorination of wells or water systems, a 3% solution of household bleach is used. For larger systems, sodium hypochlorite is more practical because lower rates can be used. The alkalinity of the sodium hypochlorite solution also causes the precipitation of minerals such as calcium carbonate, so that the shock chlorination is often accompanied by a clogging effect. The precipitate also preserves bacteria, making this practice somewhat less effective.

Sodium hypochlorite has been used for the disinfection of drinking water. A concentration equivalent to about 1 liter of household bleach per 4000 liters of water is used. The exact amount required depends on the water chemistry, temperature, contact time, and presence or absence of sediment. In large-scale applications, residual chlorine is measured to titrate the proper dosing rate.
SUDFLOC 3870 is a highly charged liquid cationic polyelectrolyte. This product may be applied as a primary coagulant or coagulant aid in potable, industrial and wastewater treatment applications. This product conforms to the requirements of NSF/ANSI Standard 60 - Drinking Water Treatment Chemicals - Health Effects. Maximum Use: 143 mg/l

Flocculants, or flocculating agents (also known as flocking agents), are chemicals that promote flocculation by causing colloids and other suspended particles in liquids to aggregate, forming a floc. Flocculants are used in water treatment processes to improve the sedimentation or filterability of small particles. For example, a flocculant may be used in swimming pool or drinking water filtration to aid removal of microscopic particles which would otherwise cause the water to be turbid (cloudy) and which would be difficult or impossible to remove by filtration alone.

Flocculation and sedimentation are widely employed in the purification of drinking water as well as sewage treatment, stormwater treatment and treatment of other industrial wastewater streams.
**Product name:** Sudfloc 3890  
**Substance/Preparation:** Preparation

**SUDFLOC 3870** is a highly charged liquid cationic polyelectrolyte. This product may be applied as a primary coagulant or coagulant aid in potable, industrial and wastewater treatment applications. This product conforms to the requirements of NSF/ANSI Standard 60 - Drinking Water Treatment Chemicals - Health Effects. Maximum Use: 143 mg/l

**Flocculants**, or **flocculating agents** (also known as **flocking agents**), are chemicals that promote **flocculation** by causing **colloids** and other suspended particles in liquids to aggregate, forming a floc. Flocculants are used in water treatment processes to improve the sedimentation or filterability of small particles. For example, a flocculant may be used in **swimming pool** or **drinking water** filtration to aid removal of microscopic particles which would otherwise cause the water to be **turbid** (cloudy) and which would be difficult or impossible to remove by filtration alone.

Flocculation and sedimentation are widely employed in the **purification of drinking water** as well as **sewage treatment**, **stormwater treatment** and **treatment of other industrial wastewater streams**.
**Trade name:** Sodium Carbonate  
**Synonym name:** Soda Ash  
**Uses:** In chemicals industry, wood pulp and paper industry, glass, soap and detergents manufacturing industry.

The *manufacture of glass* is one of the most important uses of sodium carbonate. When it is combined with silica (SiO$_2$) and calcium carbonate (CaCO$_3$) and heated to very high temperatures, then cooled very rapidly, glass is produced. This type of glass is known as *soda lime glass*.

Sodium carbonate is also used as a relatively strong base in various settings. For example, sodium carbonate is used as a pH regulator to maintain stable alkaline conditions necessary for the action of the majority of *developing agents*. It is a common additive in municipal pools used to neutralize the acidic effects of chlorine and raise pH.[2] In *cooking*, it is sometimes used in place of sodium hydroxide for *lying*, especially with *German pretzels* and *lye rolls*. These dishes are treated with a solution of an alkaline substance in order to change the pH of the surface of the food and thus improve browning.

In *taxidermy*, sodium carbonate added to boiling water will remove flesh from the skull or bones of trophies to create the "European skull mount" or for educational display in biological and historical studies.

In domestic use, it is used as a *water softener* during laundry. It competes with the ions magnesium and calcium in *hard water* and prevents them from bonding with the detergent being used. Without using washing soda, additional detergent is needed to soak up the magnesium and calcium ions. Called *Washing Soda, Soda crystals* or *Sal Soda*,[3] in the detergent section of stores, it effectively removes oil, grease, and alcohol stains. Sodium carbonate is also used as a descaling agent in boilers such as found in coffee pots, espresso machines, etc.
**Product Name:** DKM Floc 555  
**Substance/Preparation:** Preparation  
**Component:** Aluminium Chloro-hydrate

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Flocculation and sedimentation are widely employed in the purification of drinking water as well as sewage treatment, stormwater treatment and treatment of other industrial wastewater streams.
**Product Name:** DKM Floc 888  
**Substance/Preparation:** Preparation  
**Component:** Aluminium

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Flocculation and sedimentation are widely employed in the **purification of drinking water** as well as **sewage treatment, stormwater treatment** and **treatment of other industrial wastewater streams**.
**Product Name:** Hydrated Lime  
**Synonyms:** Calcium Hydroxide

Calcium hydroxide, traditionally called slaked lime, is an inorganic compound with the chemical formula Ca(OH)$_2$. It is a colourless crystal or white powder and is obtained when calcium oxide (called lime or quicklime) is mixed, or "slaked" with water. It has many names including hydrated lime, builders lime, slack lime, cal, or pickling lime. It is of low toxicity and finds many applications.

One significant application of calcium hydroxide is as a flocculant, in water and sewage treatment. It forms a fluffy charged solid that aids in the removal of smaller particles from water, resulting in a clearer product. This application is enabled by the low cost and non-toxicity of calcium hydroxide. It is also used in fresh water treatment for raising the pH of the water so that the pipes won't corrode where the base water is acidic. The reason is that it's self regulating and does not raise the pH too much.

**NICHE USES**

Because it is produced on a large scale, is easily handled, and is cheap, myriad niche and even large scale applications have been described. A partial listing follows:

- An ingredient in whitewash, mortar, and plaster
- To fill the root canal for the first stage of endodontic therapy (it is then replaced by rubber).
- As an additive to sea water to reduce atmospheric CO$_2$ and mitigate the greenhouse effect$^{[4]}$.
- In the production of metals, lime is injected into the waste gas stream to neutralize acids, such as fluorides and chlorides prior to being released to atmosphere.
- An alkali used as a lye substitute in no-lye hair relaxers
- A chemical depilatory agent found in most hair removal creams (for example Nair)
- In Bordeaux mixture to neutralize the solution and form a long lasting fungicide
- In the petroleum refining industry for the manufacture of additives to oils (salicatic, sulphatic, fenatic)
- In the chemical industry for manufacture of calcium stearate
  - In the petrochemical industry for manufacturing solid oil of various marks
  - In the manufacture of brake pads
  - In manufacturing the trademarked compound "Polikar", an antifungal and antimicrobial preservative for vegetables in storage
- For preparation of dry mixes for painting and decorating
- In manufacturing mixes for pesticides
- In the manufacture of ebonite
- As a calcium/magnesium supplement (known as Kalkwasser) for the aquaculture of corals in reef aquaria.

**Food industry**

Because of its low toxicity and the mildness of its basic properties, it is widely used in the food industry and associated hobbies: Examples:

- The separation of sugar from sugar cane in the sugar industry
- For processing water for alcoholic beverages, soft drinks.
- Used in the processing of Norwegian lutefisk. Dried cod fish is soaked in a mixture of slaked lime and soda to produce a soft-fleshed fish fillet that is steamed or baked and served with potato lefse
- Home food preservation in the making of pickles.
- Clearing a brine of carbonates of calcium and magnesium in the manufacture of salt for food and pharmacopoeia
- In Chinese cuisine, for making century eggs
- Used to fortify fruit drinks such as Tropicana Calcium + Vitamin D orange juice.
- A calcium supplement in mineral fortified baby formulas
- A condiment used mainly in Bengali families, predominantly the men, when they take betel nuts, calcium hydroxide and a variety of other seeds wrapped in betel leaves. They call this "Paan"
- Use as alternative ingredient to baking soda (raising agent) in Papadam. (South Indian flatbread)
DKM Water Solutions provides the following services:

**Monthly service report generated on site which includes the following**

- Condition and setting of dosing equipment
- Chemical stock level
- General plant conditions
- Plant and plant personnel requirements

**Training is for both water treatment and waste water treatment works**

Water treatment works operators (Process controllers) are trained on:

**On the job Training**

The training is basically aimed at empowering process controllers with knowledge and to help them to achieve required standards of water or waste water purification, this helps the plant to comply with SANS 241 standards and General standards.

**Unit Standards Training**

The process controllers are trained to get national qualification recognized by ESETA (Energy Sector Education and Training Authority). DKM water solution does this through partnering with an experienced training service provider.

**Water Sampling**

The company performs sampling professionally, ensuring representivity and deliver to the appropriate laboratory within a required time frame.
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<th>CLIENTS</th>
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<tr>
<td><strong>WSSA</strong></td>
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<tr>
<td>Client</td>
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<td>Municipalities</td>
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<td>Date</td>
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<td><strong>EKZN Wildlife</strong></td>
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<td><strong>Ponta Mamoli Resorts</strong></td>
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<tr>
<td>Client</td>
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PROFESSIONAL MEMBERSHIP

DKM WATER SOLUTIONS IS A PROUD MEMBER OF ZULULAND CHAMBER OF COMMERCE
**Ownership**

DKM WATER SOLUTIONS IS WHOLLY BLACK OWNED

**Key Personnel**

<table>
<thead>
<tr>
<th>Name</th>
<th>Administration/Operation</th>
<th>Contact Details</th>
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<tbody>
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