

**FAST  
FLEXIBLE &  
COST-EFFECTIVE  
DEWATERING**



# CONTEXT & PRODUCT OVERVIEW

## DEWATERING AND CONTAINMENT SOLUTIONS

The production of sludge and its required dewatering for re-use or disposal represents a significant capital and operating cost to a wide range of industries. Industrial and mining operations typically generate large volumes of sludge that require environmentally friendly containment and disposal. Furthermore, large quantities of wastewater and sewage sludge is produced globally.

In addition to the dewatering of slurries produced through continuous production processes, many industries are faced with silted-up dams that require dredging along with the dewatering and containment of the dredged material.

Conventionally dewatering is achieved through mechanical means, using dewatering equipment such as a filter press,

horizontal belt filter or centrifuge. Where mechanical means are not used, sludge can be disposed of in a containment dam, spoil area or evaporation dam, all of which require large footprints.

**ZebraTube®**'s geotextile dewatering and containment solutions provide a fast, flexible, efficient and cost-effective alternative to conventional dewatering methods. Our dewatering bags offer high volume dewatering capacity whilst utilising a small footprint.

### ABOUT ZEBRATUBE®

**ZebraTube®** has its origins in the manufacturing of engineered geotextile dewatering bags for some of the deepest mines in the world. We have more than two decades of experience in retaining solids and percolating liquids through our woven geotextile bags.

**ZebraTube®** dewatering bags are manufactured from a uniquely developed woven geotextile. A dedicated production team takes the utmost care in manufacturing our market-leading dewatering and sediment separating bags.

**ZebraTube®** dewatering bags are ideal for large, medium and smaller dewatering and sludge removal projects.

### LOCALLY MANUFACTURED

**ZebraTube®** products are proudly designed and manufactured in South Africa. Our geotextiles are produced and woven locally by experienced weavers and thereafter converted to dewatering bags. Our complete control over the manufacturing process allows for design flexibility and speed of delivery. We cater for both large and small projects and our ease of deployment means **ZebraTube®** is ideal for emergency dewatering projects.

### HIGH QUALITY

Each roll of geotextile goes through a comprehensive set of tests at our factory to ensure absolute quality and traceability. Extruded strands are tested before weaving for tensile strength and, once woven, each roll of geotextile is tested for tensile strength and permeability. Seam strength is tested regularly, allowing complete traceability and quality control, from geotextile to final product.



### TECHNICAL EXPERTISE AND WORLD-CLASS SERVICE

**ZebraTube®**'s in-house technical team offers engineering support for customised bag sizing and design based on each specific application. We offer guidance during the planning and operational phases of your project and will assist with the optimisation of dewatering efficiency from the start-up phase and throughout the project's life-cycle.

### TESTWORK AND PILOTING

**ZebraTube®**'s testwork and piloting facilities allow us to test various geotextiles for your dewatering needs to ensure optimum dewatering and filtration efficiency specific to your application.

Our mobile test unit allows us to bring the **ZebraTube®** concept to your site, proving under real time conditions our dewatering capabilities.



# PROCESS FLOW

## THE ZEBRATUBE® DEWATERING PROCESS

### Large tubular dewatering bags

The ZebraTube® dewatering process is fully scalable and easily customised based on the relative size of your sludge handling requirements.

Larger projects typically utilise our tubular bags, which we offer in sizes ranging from 5 m circumference x 5 m length up to and exceeding 35 m circumference x 90 m length.

#### Feeding the tubes

Sediment is either dredged from a dam or pumped from a continuous process and fed to ZebraTube®'s dewatering bags.

#### Addition of flocculant

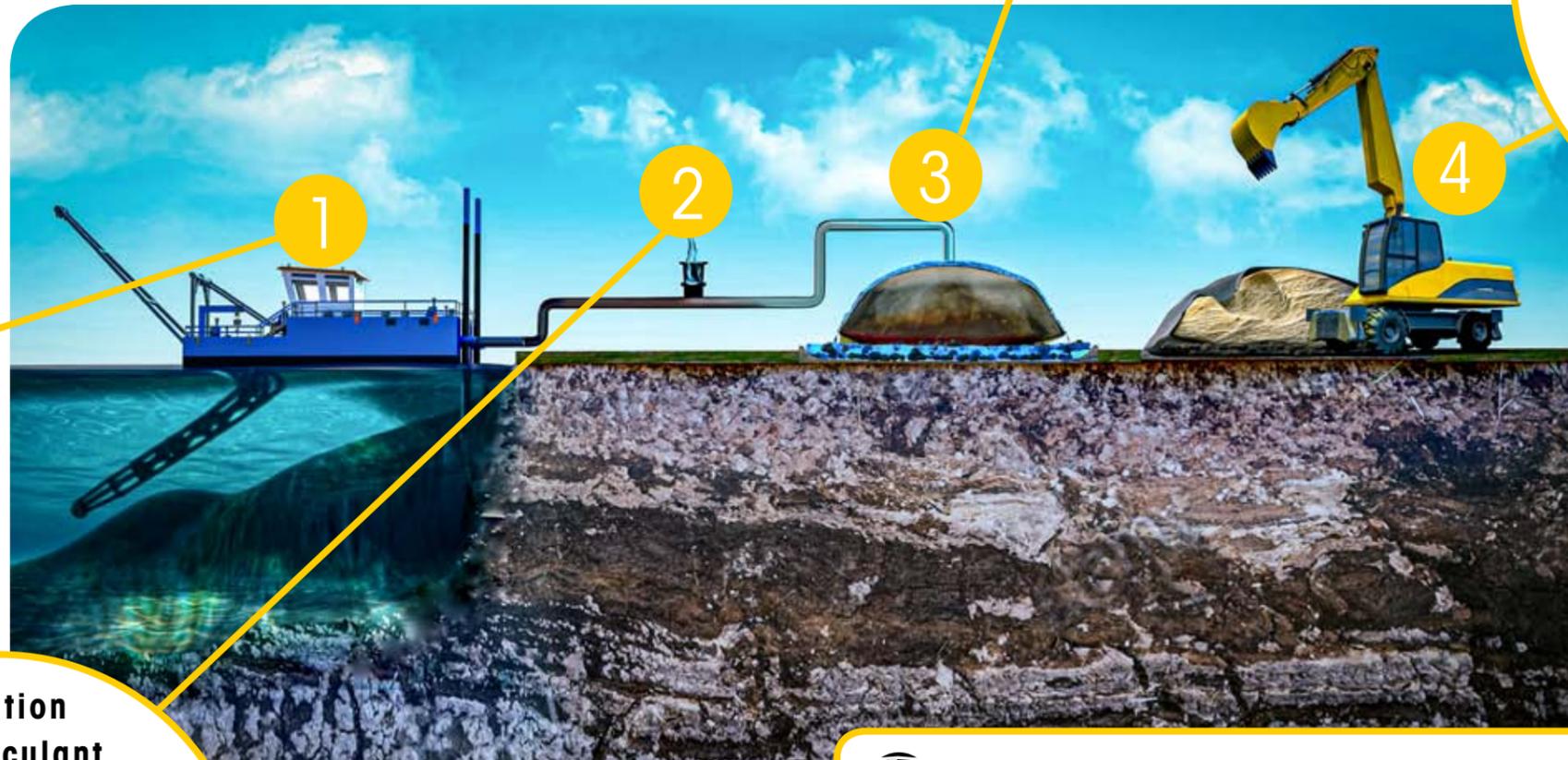
In some cases the slurry has to be conditioned through the addition of a flocculating agent. Particles agglomerate, allowing for retention of fines and increased dewatering efficiency.

#### Settling & Dewatering

The particles settle inside the tube allowing the formation of a filter cake on the surface of the geotextile. The filter cake enhances filtration efficiency, allowing clear filtrate to percolate through the geotextile. Filtrate can be captured and re-used

#### Removal of dry material

The solids dewater and consolidate inside the tube, allowing for the water content inside the tube to decrease. Once the tube is filled and allowed to drain completely, the contained material is dry enough to be handled with an excavator for easy disposal or re-use.



Through our ZebraFloc® brand we offer the following value-adding products and services:

- A wide range of powder, emulsion and liquid solution flocculants and coagulants.
- Flocculant screening testwork in conjunction with our geotextiles to ensure optimum dewatering efficiency
- Rental and supply of flocculant dosing equipment
- Expert advice and on-site assistance from our technical team, ensuring flocculant dosing is optimised and accurately controlled.

# PROCESS FLOW

## THE ZEBRATUBE® DEWATERING PROCESS

### Small-scale square dewatering bags

Small-scale projects typically utilise our unique and easily handled square dewatering bags.



#### Feeding of the bags

Slurry is fed to the bag either by pumping the material or via gravity drainage.

#### Addition of flocculant

In some cases the slurry has to be conditioned through the addition of a flocculating agent. Particles agglomerate allowing for retention of fines and increased dewatering efficiency.

#### Settling and Dewatering

Solid particles settle inside the bag allowing the formation of a filter cake on the surface of the geotextile. The filter cake enhances filtration efficiency, allowing clear filtrate to percolate through the geotextile. Filtrate can be captured and re-used.

#### Removal of dry material

Our unique small-scale square bags come with forklift handles, allowing for easy removal and transport of the dewatered material within the bag.

#### ZEBRA FLOC

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- Rental and supply of flocculant dosing equipment
- Expert advice and on-site assistance from our technical team, ensuring flocculant dosing is optimised and accurately controlled.



# ADVANTAGES OF USING ZEBRATUBE® DEWATERING BAGS

ZebraTube® geotextile dewatering bags offer the following benefits in comparison with conventional dewatering equipment:

- Rapid dewatering of large sludge volumes within a short period.
- The ability to easily scale the dewatering process in line with production requirements.
- Minimal skilled labour required, with low labour requirements overall.
- Simple auxiliary equipment required, with minimal maintenance requirements and low energy usage.
- The stackability of tubes enable efficient usage of the laydown area, reducing the overall footprint required.
- Permanent containment of the dewatered material is possible, whilst removal and disposal of dewatered material is easy and cost-effective.
- Filtrate can be captured, allowing for containment, recycling and re-use.

# APPLICATIONS

ZebraTube® geotextile dewatering bags can be used for the dewatering and containment of a wide range of slurries in various industries and applications.

## MINING

**38%**  
Moisture  
after 4 weeks

### Dry Tailings Storage of Gold Tailings

- Gold tailings dewatered without the need for flocculant.
- Dewatered to 38% moisture after 2 weeks of standing time.
- Eliminates the risk of tailings dam failure.
- Stackability reduces tailings storage footprint.

**11%**  
Moisture  
after 1 week

### Magnetite Recovery at a Coal Processing Plant

- High SG of magnetite allows for efficient settling within the tube, which means no flocculant is required.
- Moisture content of 11% after 1 week of standing time.

## WATER AND WASTEWATER

## COASTAL PROTECTION & MARINE CONSTRUCTION

### Berm Establishment at Coastal Diamond Mine

- Utilisation of a scour apron together with anchor tubes prevents loss of foundation underneath berm-tubes when filling. It also prevents undercutting of the foundation due to wave and current scour once established.
- A non-woven protection layer adds additional UV and abrasion protection.

## PULP AND PAPER

## POWER GENERATION

### Poultry Processing Sludge Dewatering

- Dewatering of waste sludge enables conformance to landfill legislation and cost-effective disposal of waste.
- A combination of ZebraFloc® flocculant and coagulant enables effective dewatering and retention of solids within the ZebraTube® dewatering bag.

## FOOD AND BEVERAGE



## CONTACT US

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