

AQUA-SAC™ S.O.S. Bag

Technical Data Sheet

May 2006

Description

The **AQUA-SAC™ S.O.S. Bag** is a sturdy jute sack containing a superabsorbent polymer (SAP), which is retained inside a finely-woven inner bag. After soaking in water for 5 – 8 minutes, the **S.O.S. Bag** self-inflates to over 30 times its original size.

After inflation, the **AQUA-SAC™ S.O.S. Bag** can be used in the construction of flood defences such as dams. Before use, please refer to *User Guidelines*.

Specifications and Typical Properties are stated below.

AQUA-SAC™ S.O.S. Bags are supplied in bundles of 25 in a protective wrapper, and may be stored for 3 years under dry conditions.

Applications

AQUA-SAC™ S.O.S. Bags are used for flood control in a similar way to traditional sandbags.

Inflated **S.O.S. Bags** contain water absorbed in SAP. Compared to traditional sandbags, they are lighter and easier to handle.

A number of **S.O.S. Bags** can be used to form a dam to divert a flow of water, as shown in the photograph (right), or to build a flood defence barrier in combination with plastic sheeting.

Full information on the use of **AQUA-SAC™ S.O.S. Bags** is given in the *User Guidelines*.

The **AQUA-SAC™ S.O.S. Bag** is intended for use in fresh water, to control flooding from non-tidal rivers, rainwater, etc. It is not suitable for use in salt water.

Environmental Considerations

The **AQUA-SAC™ S.O.S. Bag** contains three components: a jute sack, a cotton/polyester inner bag, and a superabsorbent polymer (SAP). None of these components is considered toxic to the environment.



S.O.S. Bag Specifications

Minimum

Dimensions of dry bag (length X width)	60 cm X 37 cm
Weight, after inflation in fresh water	13 kg

S.O.S. Bag Properties

Typical

Weight of dry bag, as supplied	0.4 kg
Dimensions, after inflation (length X width)	54 cm X 31 cm
Height, after inflation	10.5 cm

Over 60% of the dry weight of the **S.O.S. Bag** comprises jute and cotton. These natural fibres are easily biodegradable. The content of polyester fibre is less than 5% by weight. Polyester fibre is widely used in clothing, and is not easily biodegradable.

SAP (cross-linked sodium polyacrylate) comprises about 33% of the dry weight of the **S.O.S. Bag**. This material is similar to that used in baby nappies and adult incontinence pads; it is also added to soils and composts to improve moisture retention.

Ecotoxicity - SAP is non-toxic to aquatic or terrestrial organisms at predicted exposure levels.

Environmental Fate – SAP is relatively inert in aerobic and anaerobic conditions, with practically no degradation. It is effectively immobile in landfills and soil systems, with over 90% retention; the mobile fraction shows some biodegradability.

SAP is easy to eliminate in water-treatment plants due to its insolubility. Therefore, incidental down-the-drain disposal of small quantities of SAP will not affect the performance of wastewater treatment systems.

Elimination (persistence and degradability) information is available on request.

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AQUA-SAC™

Disposal

SAP is a non-hazardous waste suitable for disposal in an approved solid waste landfill or incineration plant, in accordance with local regulations.

Therefore, unused (dry) and used (wet) *S.O.S. Bags* can be sent to landfill or incineration.

Another possibility for disposal of limited numbers of *AQUA-SAC™ S.O.S. Bags* is so-called *greening*, whereby bags are buried under a tree during planting to provide a water reservoir.

If greening is impractical, bags may be cut open to remove the SAP, which can be dug into soil to improve moisture retention.

Health and Safety

The components of this product are not considered hazardous, as no particular hazards are known.

AQUA-SAC™ S.O.S. Bags contain sodium polyacrylate, a superabsorbent polymer (SAP), the same absorbent material used in disposable nappies. SAP is considered to present only a slight risk to health. More specifically, it is considered safe except for a potential dust hazard, and a potential slipping hazard when wet.

SAP presents a minimal risk of fire and reactivity, similar to that of the jute sack. **As a result, an MSDS is not required.**

Emergency Overview

Sodium polyacrylate is a white, granular, odourless polymer that yields a gel-like material with the addition of water. It is insoluble in water and causes extremely slippery conditions when wet.

Sodium polyacrylate (SAP) is chemically stable under normal and anticipated storage and handling conditions.

Under normal circumstances, users of *AQUA-SAC™ S.O.S. Bags* should not come into contact with SAP. However, SAP may leak or spill from a broken *S.O.S. Bag*, or it may be released from the bag as a result of tampering.

SAP **dust** may escape from the inner bag due to rough handling of large numbers of *S.O.S. Bags*, during unpacking and stacking.

Although SAP is not regulated as a hazardous material, the respirable **dust** is a potential respiratory tract irritant.

The European Disposables and Non-Wovens Association (EDANA) recommends a workplace limit of 0.05 mg/m³ for respirable **dust** of SAP (particle size under 10 microns) based on the NOEL (No Observed Effect Level) of a 2 year inhalation study.

Potential Health Effects

Eyes - SAP **dust** may cause burning, drying, itching, etc. resulting in reddening of the eyes.

First Aid – If SAP **dust** is formed, wear protective goggles. If SAP dust gets in the eyes, immediately flush with plenty of water. Remove any particles remaining under the eyelids. Get medical attention if irritation persists.

Skin - Exposure to SAP **dust**, may aggravate existing skin conditions due to drying effect.

First Aid - Remove SAP **dust** from skin using soap and water. Take off contaminated clothing.

Ingestion - Tests have shown that SAP is non-toxic if ingested.

First Aid - As in any instance of non-food consumption, seek medical attention immediately if there are any ill effects.

Inhalation - Inhaling SAP **dust** may cause respiratory tract and lung irritation and may aggravate existing respiratory conditions. If SAP dust exceeds the 0.05 mg/m³ limit, wear an appropriate respirator, and ensure sufficient workplace ventilation.

First Aid - If inhaled, move to source of fresh air. Seek medical attention if symptoms persist.

General Fire Hazards

No recognised fire hazards are associated with the *AQUA-SAC™ S.O.S. Bag* or SAP.

Hazardous Combustion Products - None known

Extinguishing Media - Dry chemical, foam, carbon dioxide, and water fog. **Extremely slippery conditions are created if SAP is spilled out of the bags and comes in contact with water.**

Fire Fighting Instructions - Firefighters should wear full protective clothing including self-contained breathing apparatus.

Spillage of SAP

If SAP leaks or spills from a *S.O.S. Bag*, sweep and shovel, or vacuum granules into a waste container. (See *Disposal* above.)

Avoid inhaling **dust** during clean up: see *Inhalation* above.

Any small residual amount of SAP may be flushed with water into the drain for normal biological wastewater treatment.

Important Notice to Customers and Users

While the information contained herein is presented in good faith and believed to be accurate, it is provided for your guidance only.

Because many factors may affect application and use, we recommend that you make tests to determine the

suitability of the products described for your particular purpose prior to use.

Warranties relating to *AQUA-SAC™ S.O.S. Bags* are as set out in Analox Environmental Technology Limited terms and conditions of sale.

Further, you expressly understand

and agree that the information furnished by Analox Environmental Technology Limited hereunder is given gratis, and Analox Environmental Technology Limited assumes no obligation or liability for the information given or results obtained, all such being given and accepted at your risk.
