AQUA-SAC®

Flood Defence Ltd

AQUA-SAC® S.O.S BAG

A PATENTED PRODUCT PATENT NUMBER GB2438613

TECHNICAL DATA SHEET

AET FLOOD DEFENCE LTD

"Asset protection through first re-

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 3 -5 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 a protective wrapper, and may be stored for 5 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.

The ***AQUA-SAC®*** *S.O.S. Bags* should only be inflated in fresh water. The bag can be used in tidal waters for flood protection but can not be inflated with seawater.

AQUA– SAC® S.O.S. Bag Specifications

Dimensions of dry bag (length X width) 60 cm X 37 cm

Weight, after inflation in fresh water 13 kg

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

Environmental Considerations

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

Over 60% of the dry weight of the *S.O.S. Bag* comprises jute and cotton. These natural fibres are 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.

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

AET FLOOD DEFENCE LIMITED

COMPANY NUMBER 8648305 Tel: +44 (0)114 289 9094 www:aetflooddefence.com

AQUA-SAC®

Flood Defence Ltd

AQUA-SAC® S.O.S BAG

A PATENTED PRODUCT PATENT NUMBER GB2438613

TECHNICAL DATA SHEET

AET FLOOD DEFENCE LTD

"Asset protection through first response"

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.

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.

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.

Seepage - the outer surface of the bags can be slippery when wet, and the ground under an inflated bag will sometimes be slippery. To limit the damage, lay a few *S.O.S. Bags* flat on the floor around the inside of doorways and other openings to avoid the surface becoming wet.

Bag removal and Clean up after flood:

Once the bags have been removed from site it is essential to power jet to remove any residue that may be left behind before walking on the wet surface.

Emergency Overview

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.

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.

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