

Durability of Butyl fabrics in the Tropics

Technical Article: TA20

The durability or lifespan of any item is always of interest to a prospective user. Obviously we understand that anyone who may be considering the use of a Flexigester will also be keen to know how long it will continue to be serviceable. It is never easy to answer such a simple question, as the manner in which it is used and the abuse that is given will always make a difference. However, this paper shows that Butyl fabrics have a long and respectable track record in tropical and subtropical climates. This paper illustrates that Butyl is suitable for use in Tropical and Sub-tropical climates.

Introduction

The first point to make is that Butyl is a very different material from other more popular plastics such as polypropylene and polyethylene. Butyl is a specific formulation of synthetic rubber and one which has been in use and largely unchanged for over 40 years. It is possible therefore to review early uses of Butyl in tropical and subtropical climates in order to demonstrate that they are resilient to the conditions and the degradation caused by sunlight and ultraviolet light.

Water storage tanks

One of the best examples of this track record can be found in the field of demountable water storage tanks. These products have been supplied by Butyl Products Ltd for many years. The lining of these tanks has been made from Butyl rubber, and in many instances they have been exposed and uncovered to the elements during their operational life. The photo below shows a water storage tank still in use 13 years after installation. As can be seen from the photo tank is still watertight and not showing any obvious degradation.

Water tanks, like these have been installed in many tropical and subtropical countries, over many years. Butyl liners for these water tanks are still the material of choice for emergency water tanks being supplied to the following clients today; IFRC, ICRC, UNICEF, OXFAM, IRC, UNHCR and many other Aid Agencies and NGO's.



Photograph information

Top: Butyl lined water tanks supplied to Oxfam approximately 30 years ago

Bottom: Butyl lined water tank supplied to a Bangladesh refugee camp. Photo taken 13 years after installation.

Reservoirs and Waste Treatment

Butyl as a material has also been widely used for the purposes of lining reservoirs and large lagoons. The attached photos illustrate the material being used in these applications, and they would clearly not be appropriate, if they were to be vulnerable to chemical or ultraviolet degradation.

The material datasheets are available for the Butyl material, and these data confirm the resilience of the material to physical damage, and the resistance of the material to chemical attack.



Photograph information

Top and middle right: Butyl lined sewage tank and water reservoir being built as part of aid activities

Bottom right: Irrigation pond liner being installed for sugar seedlings in 1967

Bottom left: Butyl lined tank being built in Saudi Arabia (Whessoe) 2007



Repair and Maintenance

Finally, given that the lifespan of the product is the key question, it should be noted that Butyl can be readily repaired in the event of puncture damage. It may be a little simplistic to say that it is as simple as repairing a bicycle puncture, but the similarities are genuine. Bicycle inner tubes are made of Butyl rubber, although there are some differences between the formulations.

To conclude, the Flexigester is not the same as some other bag or tube type digesters. The Butyl from which it is made is a resilient and robust material, and one which can be maintained with simple hand tools. Whilst any product has a limited life, Butyl products have been in use for periods well in excess of 10 years in tropical and subtropical climate.