

Living proof

Celebrating **50** years in Lining



The Mamusa project, a reservoir with a total capacity of over 150,000m³, required over 27,000m² of Indy Rubber.

With more than 110 years of experience in the manufacture of rubber products, Firestone Building Products is proudly celebrating its 50th anniversary in the lining business. In 1973, a Firestone geomembrane was installed for a pioneering irrigation reservoir: the Mamusa Project in Spain. Installed in a region that is now dotted with lined reservoirs, Firestone is proud that the original 50 year old butyl geomembrane is still performing as it did back then, testament to its product quality and durability. Since then, Firestone has developed ever more innovative lining systems and continues to be at

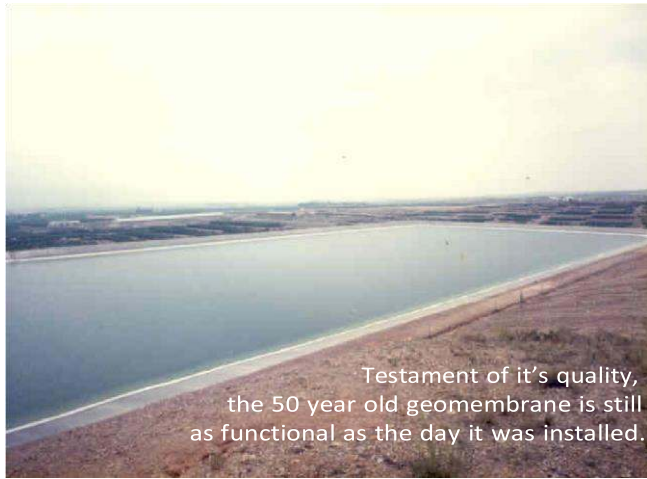
the forefront of the field today.

A feat of engineering

Located in the typically dry and arid Spanish region of Murcia, the area had a scarcity of rainfall and underground water, creating a need for a large-scale water storage facility. Traditionally, clay and concrete were used to make reservoirs and ponds watertight. However, these materials were not always effective, were difficult to transport and install and were prone to cracking. The high cost of concrete and masonry also meant that there was a need to reduce the overall storage cost per cubic metre of water. In response to the need for a more economical, uncomplicated and durable solution, Firestone introduced its revolutionary Indy Rubber Geomembrane.

The result was the Mamusa Project, one of the largest reservoirs in the area at that time, with a total capacity of over 150,000m³, and lined with over 27,000m² of Indy Rubber, a synthetic butyl rubber geomembrane produced by Firestone Hispania. The Indy Rubber had to be extremely resilient to the harsh effects of UV. Additionally, it had to be flexible and be able to adapt to irregularities of the soil while lying flat on the substrate.

With its outstanding technical features, the frequent use of Indy Rubber has facilitated the irrigation of the local area and allowed the region's farms and local businesses to thrive.



There is an impressive contrast between what the area was like before those reservoirs were constructed and how the area appears now, with rows of lemon, apricot and almond trees across the region, producing a powerful array of greenery defying the otherwise hostile, unsympathetic nature of the area.

The original butyl geomembrane pioneered by Firestone has been a runaway success and was the lining of choice throughout the 1970s and 1980s. Firestone endeavours to be at the forefront of technological innovation and has continued to focus on chemical science and research to further improve the quality of its synthetic rubber linings. In the early 80's, Firestone started producing EPDM (ethylene-propylene-dieneterpolymer) membranes. With increased oxidation resistance properties, EPDM heralded another new era in synthetic rubber geomembranes that are highly adaptable allowing them to be used in a range of applications such as irrigation reservoirs, artificial lakes, canals and landfill capping.

The EPDM revolution

Firestone's EPDM Geomembrane offers a wealth of features and benefits. Its chemical composition and the fact that it is vulcanised, means that it benefits from an unmatched resistance to UV, ozone, micro-organisms and extreme weather conditions. This exceptional durability makes it suitable for installation in many environments. Observations and studies show that under normal levels of environmental conditions and when properly installed, the Firestone EPDM Geomembrane should have an even longer lifespan than butyl membranes.

With its highly flexible and elastic nature, the Firestone EPDM Geomembrane can adapt to differential ground settlements and provides excellent puncture resistance, withstanding the mechanical stresses it may sustain during the installation process and operation.

Looking to the future

Firestone has a long heritage in the production of high-quality synthetic rubber products. The original lining, applied as part of the Mamusa project 50 years ago, is recognised as still functioning today as it did on the day of installation. Firestone has been leading the way in innovation and commercial development over the decades and will continue to grow its influence for many years to come.

Editor's note:

With a global distribution network, Firestone Building Products, a division of Bridgestone Corporation, is a world leader in the manufacture of building materials from pond and reservoir lining systems to roofing membranes and insulation. As a leading manufacturer of superior geomembrane solutions, Firestone has been a well-trusted supplier to contractors, owners and specifiers for years.

Turtle Productions note:

Pending an updated document from Firestone celebrating 50 years of this project, this document has been updated by us with Firestone's knowledge based on the fact it is now 2023, this document was written in 2013 and the project is 10 years older.

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