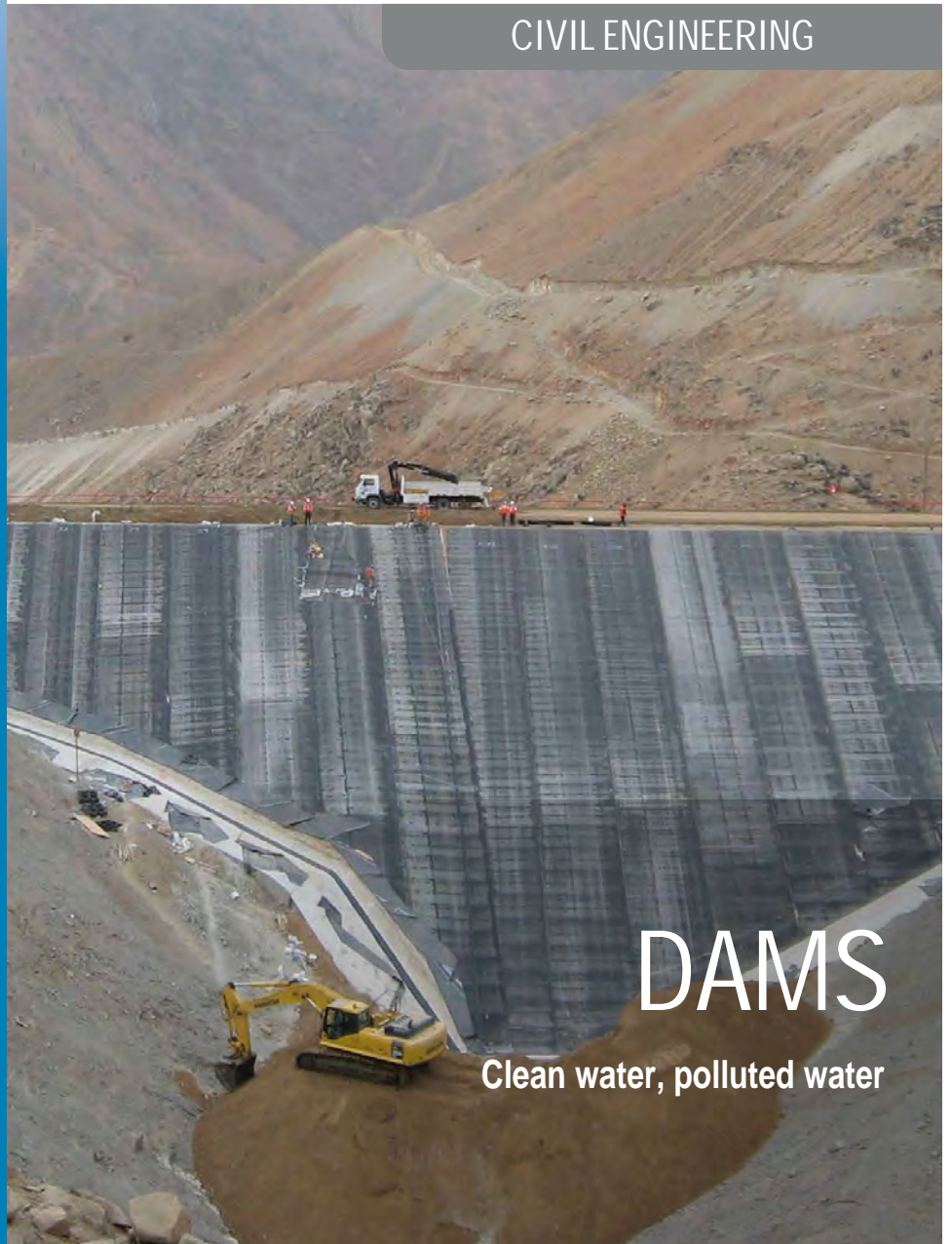


COLETANCHE®

CIVIL ENGINEERING



DAMS

Clean water, polluted water

COLETANCHE®

Bituminous geomembrane for dams

For nearly 40 years, COLETANCHE® bituminous geomembranes have been used in the construction of concrete and earth dams, from low to very great heights (>15 meters in high). COLETANCHE® completely waterproofs these structures. It has been certified by the French Committee for Large Dams (CFGB) for several large dams in France and by the International Commission on Large Dams (ICOLD) for large dams internationally (see back for references*).

Reliable and long-lasting waterproofing

The Ospedale Dam in Corsica (France) proves the **exceptionally long-lasting** performance of hydraulic structures protected by COLETANCHE®. Since 1978, COLETANCHE® ensures the waterproofing of this structure. This was the first time that a bituminous geomembrane was used to waterproof a dam classified as a "Large Dam."

The **reliability of the joint welds** can be justified by ultrasound inspections. The company possesses the material, technology, and expertise required to make full use of this inspection technique.

Exceptional resistance in harsh weather conditions (UV, heat, rain, extreme cold):

The elastomeric bitumen used in the fabrication of COLETANCHE® permits the geomembrane to remain exposed and uncovered for years with no change to its mechanical and waterproofing performance.



▲ Built in 1978, and thoroughly examined by the French Ministry of Agriculture after 30 years: no change was detected in the initial mechanical resistance and waterproofing capacity.

High mechanical resistance

COLETANCHE® : unexposed, directly covered with excavated aggregate



Earthquakes up to 8 in magnitude have not altered the watertightness of the Cerro Lindo dam near Chíncha, Peru.



Puncture and tear propagation resistance

COLETANCHE® is internally reinforced and can be:

- Installed directly on natural, compacted, high grain size supports without the need for a protective geotextile (consult our Technical Department).
- Directly covered with a high grain size cover material

The installation of the single geosynthetic membrane COLETANCHE®, rather than three polymer geomembranes, saves time and money.

Earthquake resistance

The COLETANCHE® geomembrane protecting the Milpo Dam in the Chíncha region of Peru suffered no damage, following an earthquake magnitude 8.2 in 2007: this observation subsequently confirmed by tests conducted by LADWP in Los Angeles, California.



Easy installation and maintenance

Installing the Coletanche® geomembrane requires no sophisticated tools or materials and can be done by local companies.

- > Our engineer/trainers can go anywhere in the world to set up and train local installation teams.
- > Non-standard roll lengths can be manufactured to meet the individual specificities of each structure (contact us for more information).



- └ Installation in all weather conditions
COLETANCHE® is immune to thermal expansion. It remains in constant contact with the surface and the absence of wrinkles means that it can be installed and placed, whatever the time of day and season.



- └ Angle of friction ranging from 33 to 43°, which means that it can be installed on 2H:1V slopes.

- └ Resists wind uplift
With a mass per surface area between 3.8 and 5.5 kg/m², it can be installed even in strong winds (up to 50 km/hr). Intermediate anchors can be used in the event of very strong winds or if the work must be compartmentalized.

Potability
COLETANCHE® ES2 and ES3 geomembranes are NSF ANSI 61 certified by NSF International. This international standard applies to the health effects of devices, components, and materials that come into contact with drinking water.



- > Waterproofing under dam surfaces
- > Repairing waterproofing for asphalt or asphalt concrete

COLETANCHE®

by  AXTER

International waterproofing specialists for civil engineering applications

COLETANCHE® has been used by civil engineering professionals for over 40 years. Our R&D Department puts its extensive field expertise in hydraulic structures to work to develop "Dam" solutions that meet the specific requirements of each site

COLETANCHE® has many achievements in dam waterproofing, including:

- > 39,000 m² / 419,800 ft² / Three Nation Lake / South Porcupine, Canada
- > 6,500 m² / 69,965 ft² / diversion dam / Saday, Djibouti [2]
- > 56,250 m² / 605,500 ft² / Chuspiri* Dam / Las Bambas, Peru
- > 25,000 m² / 269,000 ft² / North Inlet, Lac de Gras / Canada
- > 24,000 m² / 260,000 ft² / Kupol tailings dam / Russia [1]
- > 25,000 m² / 269,000 ft² / La Galaube* / France [3]

**Sales and Technical Department
North America**
Tel. : +1 (514) 903-1912
Email: info@axtercoletanche.com

Sales Department - France
Tel. : +33(0)6 61 00 58 73
Email: ulrich@coletanche.com

**Sales and Export Department
International**
Tel. : +33(0)1 01 46 09 39 77
Email: jacinto@axter.eu

Technical Department - France
Tel. : +33(0)3 27 93 25 49
Email: bertrand.breul@axter.eu

documentation@axter.eu

www.coletanche.com



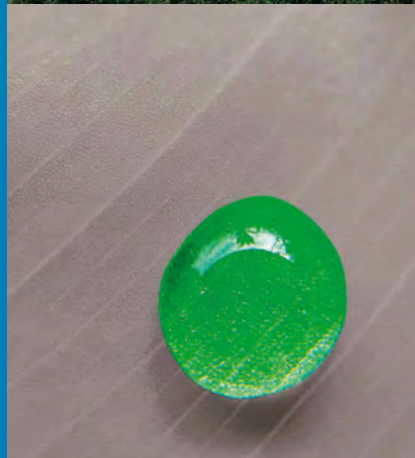
Installation in extreme weather conditions (-45°C)



Installation in extreme weather conditions (+40°C)



Upstream rockfill face of a dam with a 2H:1V slope



The information and photographs are non-contractual. – The manufacturer reserves the right to make any modifications or changes deemed necessary to improve its products without advance notice. – The information in this document cannot in any way whatsoever replace the requirements set out in the reference documents. The information is given as an example, is based on general situations, and does not take into consideration exceptional cases related to the site, weather conditions, etc. If you require additional information, you may contact our Technical Department at +33(0)3 27 93 25 49 or consult the technical documents available at www.coletanche.com.