Use of Bituminous Geomembranes (BGM) for Waterproofing Large Canals

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Bertrand Breul

In his capacity as the Global Technical Director for Axter Coletanche Inc., Bertrand Breul brings 20 years of Engineering experience with over 13 years in the Geosynthetic industry. He has been instrumental in the development of standards and certifications for Coletanche worldwide.

Overseeing training, research and development and quality control has given Bertrand a unique perspective on how the market perceives and reacts to Coletanche not only in North America but within all regions in which Axter conducts business.

Bertrand was the Managing Director for Canada based in Montreal, QC for over a decade. In this role he was responsible for all technical and sales/marketing functions for Axter Coletanche Inc. This experience affords clients in North America a broad range of industry and market related expertise.
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Key advantages of Bituminous Geomembranes (BGM) for Waterproofing Canals

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1. Very low manning coefficient (0.012)

Concrete solutions tend to crack in time because:
- Changes of temperature
- Low tensile strength → Very sensible to the quality of the support

BGM is thermically stable and is not affected by changes of temperature.

It’s good flexibility (60% elongation) permits to adapt to the different ground settlements.

2. Excellent Puncture Resistance
3. Ability to remain exposed

High UV and weather resistance

Installation in a wide range of weather

Low thermal expansion coefficient which permits the installation at any daytime and climate

High surface mass and good flexibility providing a permanent contact with the soil and a perfect adaptation to the soil settlements
4. Easy installation

Weldability to a wide range of materials

Concrete

Steel

Rock

5. Easy maintenance

Standard repairs
(Just welding a patch on top)
No need of external companies

Underwater repairs
(Dense of 1.2 kg/L)
No need of emptying the canal
6. Safer non-slip surfaces

People and animals could walk on the BGM surface without slipping

References on Irrigation Canals
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Nagpur Canal (India)

Canal before and after renovation work

Before

After

Nagpur Canal (India)

Damaged parts of old concrete compacted to reprofile the canal

Nagpur Canal (India)

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Connections to singular points

Naches Selah Irrigation district (USA)

Relining of the irrigation district
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Naches Selah Irrigation district (USA)

Before

After

References on Shipping Canals
References on Canals for Hydropower generation

Sankt Dionysen Canal (Austria)

To help people and animals to go out

To fight against hydraulic intumescence
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