



DRAINTUBE®



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Copper Mines, BC Tailings Dam drainage

CONTEXT

The damage that can occur if the phreatic surface in a homogeneous embankment dam moves so far downstream as to intercept the downstream slope is well known. Drainage blankets or systems placed under the toes help to limit the downstream progress of the phreatic surface. Internal drainage is of vital importance to the reliability and safety of tailings dams throughout their whole life including the operational period which commences when tailings are first deposited behind the starter dam (ICOLD 97 – bulletin 97)

ISSUES

Since the recent past, drainage blankets were commonly made of gravel layers wrapped in geotextiles. These material present the double advantage of being non sensitive to compression and, if the geotextiles are properly designed, their lifetime can be very long. One major current problem is that drainage gravel is not that easy anymore to be found and it can be heavily costly to get a good enough quality material. Finally, quarrying gravel from more and more distant pits has an important impact on the environment which is significantly reduced using manufactured drainage geocomposites.

RETAINED DESIGN

Multi-Linear Drainage Geocomposites are not sensitive to creep, as described in ASTM D7931, even under high loads. Those products are therefore well adapted for mining applications against Dams drainage issues. DRAINTUBE 300P FT4 D25 has been used for pore pressure release at the base of tailings dams or as finger drains. It exhibits the following properties:

- Non-woven needle-punched geotextile layers with 25 mm (1 in.) diameter mini-pipes regularly spaced on 250 mm (10 in.) centers running the entire length of the product
- Long term transmissivity under high loads of $4 \times 10^{-3} \text{ m}^2/\text{s}$ ($i=0.1$, confined in soil)

DRAINTUBE is installed directly on the cycloned sand, in the slope of the dam in strips, or on its subbase in full area. All the rolls are connected using couplers to maintain the flow constant through that connections. The product is then backfilled with the tailings.

ADVANTAGES

- Reduction of 99% of the expected truck traffic on site compared to gravel installation
- Reduction of the environmental footprint (more than 60% reduction of the GHG)
- Fast installation to keep short deadlines
- Very good Health & Safety records for the installation crew on site
- Consistent quality controls – 100% conformity



Installation of DRAINTUBE 300P FT4 D25 as finger drain into the cycloned sand of a tailings dam.



DRAINTUBE 300P FT4 D25 is used in strips into the cycloned sand dam for pore pressure release and stability increase.



DRAINTUBE 300P FT4 D25 is installed at the base of the Dam to intercept water and control internal erosion.

PROJECT SUMMARY

Products	DRAINTUBE 300P FT4 D25		
Quantity	Depending on the application	Design	1950-2020
Application	Pore pressure release in Tailings Dams (at the base or as finger drains)	Installation	Awarded General Contractor
Owner	Copper Mines in BC	Years	2017-2019



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AFITEX-TEXEL GEOSYNTHETICS ADDED VALUE

The expertise of the AFITEX-TEXEL team provided the designers with all the necessary information and technical support to choose the most suitable solution based on the project's parameters.

« What AFITEX-TEXEL has to offer »

AFITEX-TEXEL will be pleased to assist you in the evaluation and design of your next projects, because our approach has always been and always will be the same: the right product, in the right place, well installed with rigorous quality control.

In case you need technical support? Feel free to refer to the AFITEX-TEXEL team. Expert services will be provided free of charge:

- Technical Assistance
- Assistance during Design
- Technical Training
- Technical Documentation
- Calculation Tools
- Specification & Tender documents
- Installation Guidelines



Gibraltar Mines, BC – 2019



YOU NEED MORE INFO?

Never hesitate to contact one of our specialists in order to know more about the benefits you can get from your projects

1-800-463-0088

Available documentation

- Technical data sheets
- Installation guidelines
- Standards & Studies
- List of projects
- Design Software

www.afitextexel.com

Important notice - The information contained in this document is provided for promotional purposes only. Thus, not all the characteristics of the project have been mentioned. No guarantee is offered by AFITEX-TEXEL or its partners with regard to the information contained in this document.

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