CEMIS Solutions - Advanced Cover Structures for Mine Tailings

CEMIS - the Centre for Measurement and Information Systems is a contract-based joint centre of the Universities of Oulu and Jyväskylä, Kajaani University of Applied Sciences, VTT Technical Research Centre of Finland and CSC - IT Centre for Science. CEMIS specialises in research and training in the field of measurement and information systems.

Our focus is to develop measurement and IT solutions for cleantech sector and for sports, wellbeing and healthcare, and to support the development of new international business based on our innovations and expertise with our partner companies. In cleantech, we have a strong expertise in on-line measurements for process industry, especially for bioeconomy and mining sector and in environmental monitoring. In sports, wellbeing and healthcare we work with the latest sensor technology and game and simulation solutions including virtual and augmented reality.

CEMIS offering for mining companies and organizations:

- Custom made solutions for tailings pond problems in mining sites.
- Advanced hardpan cover liner (AHCL) is a new structure model for the environmental protection purposes of the mining industry.
- Other new solutions upcoming for using recycled materials in infrastructural and environmental construction.

Advantages and benefits of AHCL:

- The advanced hardpan cover liner (AHCL) is a better option for a cover structure in a tailings pond than a moraine cover or simple ash/slag cover or stabilization solutions, making it a superior alternative.
- AHCL is a cost-effective and durable option especially in countries and sites, where sites are remote and labour is cheap. The hardpan layer solidifies faster in warm climate conditions.
- AHCL double structure gives better protection against erosion.
- In addition, the double structure gives a more secure protection regarding hydraulic and oxygen conductivity than simple cover structures.
- The AHCL has been tested in laboratory and on site in Pyhäselmi mine in Finland.
Mining and traffic infrastructures require new environmentally friendly, durable materials and structural solutions combined with energy efficient processing methods. Considerable unexploited opportunity exists in the recycling and reuses of industrial side flows, for example in mine landfill, protection and cover structures.

CEMIS aim is to improve material efficiency and to decrease waste by increasing the quality of processed waste. Our research and development has created a number of innovative solutions in the field.

CEMIS helps mining companies through improving their processes, efficiency and safety through innovative measurement, material and information systems for various needs. Our advantage is in the possibility to create novel solutions by combining the expertise of the various research units of CEMIS. In cleantech, we have a strong expertise in on-line measurements for process industry, especially for bioeconomy and mining sector and in environmental monitoring.

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