

MINING

Project Fact Sheet



NOVEL DEWATERING AIDS FOR MINERAL AND COAL FINES

BENEFITS

- Decreases energy use for dewatering by improving efficiency
- Minimizes the loss of fine coal
- Facilitates the recovery of valuables from tailings impoundments

APPLICATION

These novel dewatering aids should meet industry's need to remove surface moisture from particulate materials in an efficient manner, which will help minimize waste generation in the mining industry.

NOVEL DEWATERING AIDS COULD ELIMINATE THE USE OF THERMAL DRYERS

The minerals and coal industries are using various mechanical methods such as vacuum filtration and centrifugation to remove water from concentrates. However, mechanical dewatering is inefficient when particle sizes are small. An alternative would be to use thermal driers, however they are energy intensive, costly, and can create environmental problems. Novel chemical additives can improve the efficiency of the conventional mechanical dewatering methods, particularly those using vacuum filters.

The novel dewatering aids are designed to increase the rate at which water is removed during mechanical dewatering and to reduce the moisture of the final product. Preliminary work showed that the use of reagents can reduce the cake moistures to approximately 50% lower levels than can be achieved without using reagents. Some of the reagents have been tested successfully in pilot-scale. Various other reagents will be tested to further improve the efficiency and minimize the reagent costs. If successful, the use of novel dewatering aids can obviate the need to use thermal dryers to dewater mineral and coal concentrates, and help mining companies produce valuable materials with greater efficiencies.

DISC FILTER



Pilot-scale disc filter used for dewatering tests.



Project Description

Objective: To develop novel chemicals used in conjunction with conventional mechanical dewatering equipment so that water can be removed more efficiently. The use of the reagents will not only allow mining companies to recover the fines that are currently being discarded, but also help them recover valuables from waste impoundments.

Progress and Milestones

This project includes the following activities:

- Conduct dewatering experiments using various candidate chemicals.
- Develop optimum reagent blends for coal and mineral samples.
- Test the reagents on a variety of coal and mineral samples.

Commercialization Plan

Minerals and Coal Technologies, Inc. has acquired exclusive licenses for the dewatering technologies. If successful, they will be marketed directly by Minerals and Coal Technologies, Inc. and/or licensed to a chemical company serving the mineral and coal industries. Several potential users of the technologies are working closely with Minerals and Coal Technologies, Inc.



PROJECT PARTNERS

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