



FLY ASH: ITS ORIGIN, APPLICATIONS AND THE ENVIRONMENT

What is coal Fly Ash?

Across Canada, thermal generating utilities produce upwards of 5,100,000 tonnes of coal Fly Ash annually.

A light, airborne particulate that results from the combustion of pulverized coal, Fly Ash accounts for 70 to 85 percent of all coal ash produced. At present, only 20% of this material is recycled in Canada for use in various applications while the remainder is landfilled. By contrast, 88% of Fly Ash produced in Europe is recycled. (1999 ECOBA stats)

- Sales of coal ash generate revenue for electric utilities
- Use of Fly Ash enhances cement producers' range of products and applications
- Expands range of building materials available

Fly Ash Classification

Currently, Canadian regulations and the U.S. Environmental Protection Agency classify coal Fly Ash as nonhazardous. Discussions underway may reclassify Fly Ash as a recyclable material.

As more industries accept Fly Ash as a viable product and resource, coal burning utilities and cement producers will find new markets for the Fly Ash produced in the production of electricity. CIRCA, is one of a number of organizations that advocates the use of Fly Ash as a sound business practice and an excellent example of sustainable development.

CIRCA is affiliated and collaborates with organizations in North America and globally which support the use of Fly Ash and advocate its viability as a mineral resource:

- ACAA (American Coal Ash Association); collaborates with the US EPA
- ECOBA (European Association for the Use of Byproducts from Coal-Fired Power Stations); focuses on implications of the Basel Convention. Under BASEL, classification of ash as "hazardous" or "nonhazardous" is still at issue.
- WWCCPC (World Wide Coal Combustion Product Council)
- Coal Association of Canada
- Cement Association of Canada; advocates and educates on the use of supplementary cementing material (SCMs) in concrete

CIRCA also demonstrates to government agencies and regulators the advantages to reducing or eliminating barriers to the recycling and reuse of coal combustion products (CCPs). Through active liaisons with national and international groups CIRCA monitors the activities of regulatory bodies and lobbies where appropriate to realize an increased and responsible use of ash.

Continued...

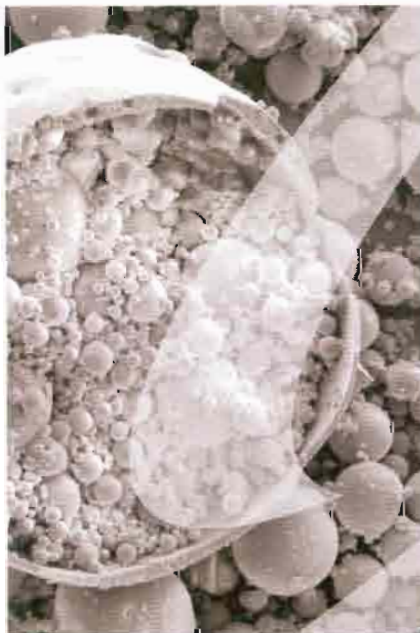


Photo courtesy of Natural Resources Canada



Disclaimer

Neither the members of the Association of Canadian Industries Recycling Coal Ash (CIRCA), nor any other person acting on their behalf makes any warranty, express or implied, or assumes any legal responsibility for the accuracy of any information, product or process described, or accept liability for the use, or damages resulting from the use, thereof. Neither do they represent that their use would not infringe upon, privately owned rights.

Furthermore, the members of CIRCA (nor any individual, express or implied, including the warranties of merchantability and fitness for a particular purpose, whether arising by law, custom, in contract, with respect to any of the information contained in this document) in no event shall the members of CIRCA be liable for incidental or consequential damages, because of any or any information contained in this document.

Fly Ash Applications

Fortunately, Fly Ash has physical and chemical properties that make it useful for construction and industrial materials. Today, the primary uses of Fly Ash in Canada are in:

- Cement manufacturing
- Hydraulic mine backfill (cement replacement)
- Liquid waste stabilization
- Flowable fill (use for backfill, excavation, subbase, road base, etc..)
- Concrete
- Mineral filler

Reuse and recycle - The benefits

Appropriate production and handling of Fly Ash complements the environmental objectives of utilities and cement manufacturers. This presents an opportunity for collaboration between the utility and cement industries to "green" their respective operations and reduce costs. And as the value, allocation and trading of CO2 emission credits evolve over the next several years, the recycling and responsible use of Fly Ash will contribute substantially to the environmental sustainability of industry operations.

The environmental and economic benefits of recycling Fly Ash are numerous:

- Fly Ash utilization generates Greenhouse Gas Credits
- It reduces the need for disposal in landfills, significantly reducing the cost and environmental impact of landfill operations



FLY ASH: ITS ORIGIN, APPLICATIONS AND THE ENVIRONMENT

CIRCA is itself lobbying specific Canadian groups that play an important role in determining the inclusion of Fly Ash in industry and government standards.

aimed at proliferating the use of ash as a supplementary cementing material (SCM) in concrete and demonstrating the advantages of this technology:

- CCME (Council of Canadian Ministers of the Environment) makes recommendations to CEPA (Canadian Environmental Protection Agency) on air quality issues, toxic substances and import/export regulations, where TDGR (Transportation of Dangerous Goods) is an important aspect of relevant regulation regarding permitting and reporting requirements and associated costs. The CCME is now reviewing the classification of ash and is considering the decoupling of "waste" and "recyclables".
- PWGSC (Public Works and Government Services Canada) has incorporated in its National Master Specification guidelines for including Fly Ash in concrete as a replacement for Portland Cement.

- Advisory Committee on Promotion of SCMs in Canada to Natural Resource Canada's National Action Plan on Climate Change (Ottawa, ON)
- EcoSmart Concrete Emissions Trading Pilot Project (Vancouver, BC)
- CANMET Industry Research Consortium on Alkali-Aggregate Reaction in Concrete (Ottawa, ON)

CIRCA

www.circainfo.ca

For more information,

contact: Anne Weir

Executive Director

email: aweir@circainfo.ca

CIRCA members actively contribute to Technical Committees of North American standards setting bodies (CSA and ASTM) which determine how extensively Fly Ash will be used. CIRCA members also participate in initiatives underway across Canada



Photo courtesy of Natural Resources Canada



Disclaimer

Neither the members of the CIRCA, nor any other person acting on their behalf makes any warranty, express or implied, or assumes any legal responsibility for the accuracy of any information, product or process disclosed, or accept liability for the use, or damages resulting from the use, thereof. Neither do they represent that their use would not infringe upon privately owned rights.

Furthermore, the members of CIRCA hereby disclaim any and all warranties, express or implied, including the warranties of merchantability and fitness for a particular purpose, whether arising by law, custom, or contract, with respect to any of the information contained in this document. In no event shall the members of CIRCA be liable for incidental or consequential damages because of use of any information contained in this document.