PMI

A Progress Fuels Company

May 22, 2006

By Email

Staff Working Group
Regional Greenhouse Gas Initiative

Re: Comments on Draft Model Rule

Dear Sir or Madam:

Progress Materials, Inc. (PMI) is one of the first companies to commercialize a fly ash solution technology. When coal is burned in a power plant, it leaves behind ash – some of which is carried upward by the hot combustion gases of the furnace (fly ash). The highest volumes and highest value uses for this fly ash is as a partial replacement for Portland Cement. However, regulations requiring fossil fuel fired power plants to reduce nitrogen oxides, sulphur dioxide and mercury, have made the fly ash less desirable and, in certain instances, unusable in concrete.

PMI's patented technology, Carbon Burn Out (CBO™) allows for the fly ash to avoid landfill disposal and be re-usable as a beneficial product while achieving reduced emissions at the power plant. Under international regulations, re-use of fly ash that allows for reductions in the use of Portland cement have been certified as Clean Development Mechanisms (CDM). The links below detail a CDM project relating to fly-ash that is a useful precedent:

http://cdm.unfccc.int/UserManagement/FileStorage/WWEH2S0UKXNI1UT6LEIKD4EIGF8IXD

Also linked is an approved consolidated methodology:

http://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_AM_O12ON9QKVK1DP12IUWKPG1SHVVH7MT

PMI offers the following comments regarding the draft model rule implementing the Regional Greenhouse Gas Initiative (RGGI).

Broaden the List of Eligible CO_2 Emissions Offset Projects

In the draft rule that would implement the RGGI, Subpart XX-10 contains the language regarding the eligibility and documentation requirements for obtaining credit for CO_2 emissions offset projects. Section XX-10.3(a) of this subpart defines the types of projects for which the regulatory agency may award CO_2 emissions offset allowances. We believe that this list is too narrow. PMI has developed a process as mentioned above known as Carbon Burn-Out (CBO™)

that converts a waste material, which would otherwise be disposed of in landfills, into a substitute for Portland cement for use by the ready-mix concrete industry. By replacing some of the Portland cement used by the ready-mix concrete industry, each ton of product from a CBO™ unit avoids one ton of CO_2 emissions from Portland cement manufacturing.

The CBO™ Process is a proprietary, patented, environmentally beneficial technology, whose primary function is the production of low-carbon fly ash material suitable for commercial use as a substitute for Portland cement in concrete. The CBO™ Process was designed in response to a market need for higher quality ash that could be reused as a valuable product substitute. As air emissions from fossil fuel-fired power plants have decreased over the years due to the installation of air pollution control devices and fuel switching -- including but not limited to low-NO_X burners and Selective Catalytic Reduction (SCR) -- the resulting ash stream from these plants has become less desirable and/or unusable as a partial replacement for Portland cement. This phenomenon is primarily due to increasing carbon concentrations in the fly ash. Re-use of fly ash is becoming more problematic as additional contaminants like ammonia are being introduced and new upstream processes such as carbon injection are being applied for mercury control. Fly ash that is high in carbon typically cannot be reused in Portland cement and must, instead, be landfilled.

Fly ash has long been used as a substitute for Portland cement, which is a key ingredient in concrete. In addition to being lower in cost than Portland cement, fly ash improves the quality of the concrete, both in terms of increased durability and decreased permeability. Fly ash can replace between 15 and 35 percent of the Portland cement used in making concrete (or even higher percentages, depending on the use of the concrete). The CBO™ Process produces a consistent high quality fly ash for replacement of Portland cement. By creating CBO™ product ash from a waste material, each CBO™ plant provides a product that allows Portland cement to be partially replaced by downstream users, which provides for significant CO_2 emission reductions. These reductions come from the displacement of the CO_2 emissions that would otherwise have resulted from the production of Portland cement at a cement kiln.

Progress Materials, Inc. developed the CBO™ Process to turn the unusable ash into a commercially useful material. Although not specifically developed for the purpose of addressing other environmental issues, the technology produces the following environmental benefits:

- Promotes voluntary green house gas reductions;
- Reduces mercury emissions due to:
    - reduction in coal usage and the concomitant mercury emission reductions as a result of increased efficiency;
    - removing regulatory disincentives for installing add-on mercury air pollution control technologies such as activated carbon injection systems, and
- Avoids a significant solid waste problem through:
    - more efficient, beneficial reuse of fly ash in general; and
    - specifically, avoiding significantly greater fly ash disposal in the future, which would otherwise be caused by the increasing contamination of ash with ammonia which is becoming ever more common as SCR and Selective Non-Catalytic Reduction (SNCR) are being placed on more fossil units.

The CBO™ Process oxidizes the high-carbon ash in a fluidized bed combustor (FBC). The CBO™ Process does not require any auxiliary fuel to operate, with the limited exception of a minimal amount of start up fuel to initiate the combustion process. The start-up fuel can be No. 2 fuel oil, natural gas or propane (start up fuel sources can vary depending upon availability and environmental permitting restrictions, if any).

As mentioned above, the CBO™ Process produces a consistent high quality fly ash for replacement of Portland cement. By creating CBO™ product ash from a waste material which is used routinely as a substitute for Portland cement in concrete, the CBO™ plant provides significant CO_2 emission reductions. This comes from the displacement of the CO_2 emissions that would otherwise have resulted from the production of Portland cement at a cement kiln.

Production of Portland cement results in considerable CO_2 emissions. The net CO_2 savings from using fly ash is approximately one ton of CO_2 emissions saved (i.e. not generated) for every ton of fly ash substituted in the concrete[1]. Based on the one-to-one correlation between tons of fly ash used as a replacement for Portland cement and tons of CO_2 emissions saved, a typical CBO™ plant and assuming an average feed ash loss on ignition (LOI) of 10 percent, the use of the fly ash in place of Portland cement produces an emissions reduction of 302,000 tons of CO_2 emissions per year. [2] In light of these facts, we ardently believe these CO_2 reductions are valuable and recognizable in that they represent reduction in greenhouse gas emissions. As we stated above, the international community has recognized these as verifiable credits under its CDM methodology process.

The RGGI process should be structured so that appropriate incentives and rewards are provided for innovative developments that lead to improved process efficiencies and overall lower emissions. PMI urges RGGI to expand the list of eligible emissions offset projects to include fly ash re-use which allows for the partial replacement of Portland Cement. This would allow CBO process users to obtain credit for converting a waste stream product into a beneficial raw material that directly results in less fuel use, and less Portland cement production, and concomitant lower CO_2 emissions. In this manner, the greater efficiency and reduced emissions created by this innovative process are rewarded at the appropriate point in the overall process.

PMI appreciates the opportunity to provide comments on this important regulatory proposal. If you have any questions, please do not hesitate to call me at (919) 546-4619.

Sincerely,

Lisa Cooper /sm

Lisa I. Cooper
Vice President

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[1] See http://www.epa.gov/epaoswer/non-hw/recycle/jtr/comm/cfa.htm

[2] Because the CBO™ Process reduces the carbon content in the fly ash by a reburn process in a fluidized bed, it does produce some CO_2 emissions from that carbon combustion. This production of CO_2 emissions from the CBO is compensated for by the reduction in CO_2 emissions from the coal usage that is displaced at the electric generating units.