



# Coal combustion products



Coal combustion products (CCPs) are created in the electricity generating process at coal-fueled power plants. CCPs produced by We Energies and Wisconsin Public Service (WPS) have gained an international reputation for quality, performance, value and environmental benefits.

We Energies and WPS produce three types of CCPs:

- 1 Fly ash
- 2 Bottom ash
- 3 FGD gypsum

## 1 Fly ash

### Description

Fly ash is fine, glassy powder collected from power plant flue gas and comes in two classes: Class C and Class F. We produce both materials and consistently meet ASTM C 618 quality-control standards. Fly ash particles are spherically shaped and have an average diameter of approximately 10 microns.

### Uses

Contractors and suppliers use our fly ash for:

- Concrete (cement replacement)
- Grouts and mortars
- Structural fills
- Controlled low-strength material (flowable fill)
- Asphalt pavement
- Full-depth reclamation of old pavement
- Roller-compacted concrete
- Soil stabilization

### Benefits

- Improved workability and reduced heat of hydration
- Increased strength, durability, and acid and sulfate resistance
- Reduced cost, water demand, segregation and bleeding of fresh concrete
- Reduced permeability, corrosion and alkali-aggregate reactions of hardened concrete

### Available products

#### Class C fly ash

- *Chemical:* High lime content; cementitious
- *Distribution:* By tanker truck or rail from southeastern Wisconsin (Oak Creek) and central Wisconsin (Weston)

#### Class F fly ash

- *Chemical:* Low lime content; pozzolanic
- *Distribution:* Availability is subject to change

### Notable projects

- Milwaukee Art Museum
- Lambeau Field, Green Bay
- Miller Park, Milwaukee
- Fiserv Forum, Milwaukee
- Marquette and Zoo interchanges, Milwaukee
- More than 50% of all concrete placed in Wisconsin uses Class C fly ash



The Quadracci Pavilion at the Milwaukee Art Museum was constructed using We Energies fly ash.

## 2 Bottom ash

### Description

Bottom ash is a coarse to fine-grain, sand-like material collected from the bottom of coal-fueled boilers. Bottom ash has a unit weight around 90 lbs/ft<sup>3</sup> and compacts like sand. Bottom ash is distributed from power plants located in Wausau and Oak Creek, Wisconsin.

### Uses

Contractors and suppliers use bottom ash for:

- Structural fills
- Backfill
- Road base and sub-base
- Drainage media
- Aggregate for concrete, asphalt and masonry
- Abrasives/traction

### Benefits

- Increased economy
- Low-density fill
- Easy to compact
- Reduces the need for mined sand and gravel and conserves natural resources



I-94 reconstruction with bottom ash sub-base

## 3 FGD gypsum



### Description

Flue gas desulfurization (FGD) gypsum is produced from forced oxidation wet scrubber emissions control technology. We Energies FGD gypsum is a high-purity calcium sulfate dihydrate (CaSO<sub>4</sub>•2H<sub>2</sub>O) and has a free moisture content of approximately 8%. FGD gypsum is produced and distributed from power plants located in Oak Creek, Wisconsin.

### Uses

- Raw ingredient for products such as wallboard and plaster
- Cement manufacturing and concrete production
- Agricultural soil amendment and source of plant nutrients, calcium and sulfur

### Benefits

- Replaces mined gypsum with local source
- Conserves natural resources and offsets greenhouse gas emissions associated with transportation and mining
- Controls time of set in concrete
- Improves soil structure, producing healthier plants and increasing crop yield

Gypsum wallboard made with We Energies FGD gypsum

## For more information, distribution and sales

### Fly ash

LafargeHolcim  
800-323-5949

### Bottom ash

We Energies / WPS  
414-221-4274

### FGD gypsum

Agricultural use:  
Gypsoil  
866-497-7645

Other uses:  
We Energies / WPS  
414-221-4274