

## The Industrial Resources Council (IRC)

Partners in Sustainable Materials Management



www.industrialresourcescouncil.org

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### Who is the IRC?

- A collaborative partnership working to develop markets for industrial materials (including byproducts)
- Comprised of six non-profit industry associations
  - American Coal Ash Association (ACAA)
  - American Foundry Society (AFS-FIRST)
  - Construction & Demolition Recycling Association (CDRA)
  - National Council for Air & Stream Improvement (NCASI)
  - National Slag Association (NSA)
  - Rubber Manufacturers Association (RMA)

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### Establishment of the IRC

The organizations (eventual IRC members)

- Attended same conferences and meetings
- Discussed similar issues with regulators
- Saw opportunity to leverage resources
- Decided in 2005 to form a working alliance

*IRC formation was encouraged by USEPA and FHWA*

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### Goals of the IRC

Goals relative to IRC materials

- Create awareness & increase understanding
- Share technical & environmental information
- Develop guides and standards
- *Increase responsible beneficial use*

Tools:

Website – Publications – Presentations – Conferences – Webinars – Partnerships

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### The IRC Industrial Materials

- Coal Combustion: Coal ash and FGD material
- C&D Materials: Concrete, asphalt, wallboard, shingles, wood
- Foundry Industry: Foundry sands and slags
- Iron & Steel Industry: Blast furnace slag and steel furnace slag
- Tire Use: Scrap tires (tire derived materials)
- Pulp & Paper Industry: WWTP residuals, boiler ash, other

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### Markets for Industrial Materials

Two major markets, broadly defined

- Construction
- Agriculture / Soils

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### Industrial Materials in Agriculture

Examples

- FDG gypsum or drywall gypsum as a soil amendment
- Wood residues or tire chips as landscaping mulch
- Wood ash or steel slag as a liming agent
- Paper mill WWTP residuals as an organic soil amendment
- Foundry sand in manufactured soils or potting mix

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### The IRC Materials-Applications Matrix

- The Industrial Materials Matrix matches materials with possible applications
- The Matrix exists in both a PDF/paper version and as an online (E-Matrix) version
- The E-Matrix links to FAQs on individual material-application combinations
- The Matrix (both versions) needs to be updated and expanded

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### The Materials Matrix – PDF Version

APPLICATIONS	MATERIALS					
	Coal Lignite/By- Products	By- Products	Process Sludge	Residual Tires	Recycled Construction Materials	Other Industrial Materials
<b>General Concrete</b>						
Aggregate/Fill	✓	✓	✓	✓	✓	
Concrete Aggregate	✓	✓				
Gravel	✓	✓				
<b>General Cement</b>						
Replacement for PC	✓					
Emulsions	✓	✓				
Coarse Aggregate	✓	✓	✓			
<b>Specialty</b>						
Subbase	✓	✓	✓	✓	✓	
<b>Highways and Roads</b>						
Subbase	✓	✓	✓	✓	✓	
Aggregate	✓	✓	✓	✓	✓	
Gravel	✓	✓	✓	✓	✓	
<b>Specialty</b>						
Subbase	✓	✓	✓	✓	✓	
Aggregate	✓	✓	✓	✓	✓	
Gravel	✓	✓	✓	✓	✓	
<b>Other</b>						
Concrete Base	✓	✓	✓	✓	✓	
Aggregate	✓	✓	✓	✓	✓	
Gravel	✓	✓	✓	✓	✓	
<b>Construction</b>						
Aggregate	✓	✓	✓	✓	✓	
Gravel	✓	✓	✓	✓	✓	
Concrete	✓	✓	✓	✓	✓	
Aggregate	✓	✓	✓	✓	✓	
Gravel	✓	✓	✓	✓	✓	

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### The Materials Matrix – Online Version

Material	Application	Structural Fill	Embankments	General Base/Subbase	Concrete Base/Subbase	Gravel	Hot Mix Asphalt	Flowable Fill	Portland Cement Manufacturing	Soil Stabilization	Building Products	Agricultural Land Application	Manufactured Soils	Soils-Based Applications, Other	Landfill Cover/Construction	Brownfield Remediation	Mine Reclamation	Other
Fly Ash																		
FED Organic																		
Bottom Ash																		
Foundry Sands																		
Iron Foundry Slag																		
Steel Foundry Slag																		
Slag Cement																		
Steel Process Slag																		
Reclaimed Concrete Aggregate																		
Scrap Wood																		
Drywall																		
Asphalt shingles																		
Tire Derived Fuel																		
Tire Derived Aggregate																		
Ground Rubber																		
Wastewater Treatment Residuals																		
Construction Residuals																		
Boiler Ash																		

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- ### USDA Bibliography on The Use of Industrial Byproducts in Agriculture December 2009
- Resulted from discussions between the IRC and USDA-ARS
  - Prepared by the National Agriculture Library with review and comment by the IRC, ARS, and USEPA
  - Compiled abstracts to 1,355 recent (1998 - early 2009) scientific articles on byproducts represented by the IRC
  - Availability:  
[www.nal.usda.gov/wqic/Bibliographies/industrial-byproducts.html](http://www.nal.usda.gov/wqic/Bibliographies/industrial-byproducts.html)  
or  
[naldc.nal.usda.gov/naldc/download.xhtml?id=49143&content=PDF](http://naldc.nal.usda.gov/naldc/download.xhtml?id=49143&content=PDF)
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- ### Future Activities on Agricultural Beneficial Use
- Annual or biennial meetings bringing together regulators, practitioners, and researchers
  - Preferably each held at a land-grant university
  - 2014 IRC Sustainable Soils Forum at NCSU, Sept. 18
  - When and where in 2015 and beyond? IRC has had discussions with The Ohio State
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## Contact Information

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