

POLICY PERSPECTIVES FOR CO-PROCESSING



**National Seminar on Co-processing
16 October 2014
Hotel ITC Grand Chola, Chennai**

**Dr. Lakshmi Raghupathy
Former Director (Retd.) Ministry of Environment & Forests
Consultant, Environment & Waste Management**



Waste co-processing in Cement Plant

Agenda

- Scenarios
- Waste Management Hierarchy
- Waste to Energy
- Types of wastes for co-processing
- AFR as integral part of Best Solution
- Amendments to Existing Regulations
- Guidelines

Global Scenario

- Most of the countries have guidelines to comply with the requirements for co-processing of waste in cement plants.
- UNEP Basel Convention guidelines are followed by many nations Party to the Convention
- India the HW(MH&T) Rules, 2008, MSW (M&H) Rules have both provided for the co-processing of waste as supplementary fuel. Clarity is required along with the compliance conditions.
- Well known and practiced world over
- Industry driven
- Economic proposition



National Scenario

- In India activities began 1995 slow progress!!!!
- First trials 2004 (10 years >80 trials)
- Waste incineration to waste utilization
- Effective enforcement is same is required
- Monitoring mechanism needs to be evolved
- Conservation of natural resources
supplementation/substitution
- Solution for waste disposal problems



Requirements to channelize Wastes for AFR

- Organize the channelization
- Transportation & storage
- Regulatory framework
- Approvals/authorizations (statutory!!!)
- Emissions monitoring
- Records maintenance
- Audit systems
- Awareness
- Public disclosures

Types of Waste for co-processing (Assorted wastes)

Waste materials to be used as alternative fuels :

- Used tires,
- Meat and bone meal, animal fat,
- Plastics,
- Packaging waste,
- Waste wood, impregnated saw dust
- Paper, cardboard,
- Sludge (paper fiber, sewage)
- Agricultural and organic waste,
- Shale, oil shales,
- Coal slurries, distillation residues,
- Fine/ anodes /chemical cokes,
- Waste oils, oiled water,
- Spent solvents.

Types of Waste not suitable as AFR



- Nuclear waste,
- Asbestos-containing waste,
- Wastes containing heavy metals including mercury, lead or cadmium
- Electronic scrap
- Explosives,
- Wood treated with copper, chrome, arsenic etc.
- Mineral acids, Infectious medical waste,
- Chemical or biological weapons destined for destruction,
- Entire batteries,
- Unknown or non-specified waste.

Best Available Technology

■ General techniques

- **Optimisation** of the clinker burning process is usually done to reduce the heat consumption, to improve the clinker quality and to increase the lifetime of the equipment.
- Reduction of emissions, such as NO_x, SO₂ and dust, are secondary effects of this.
- Careful selection and control of substances entering the kiln can reduce emissions.

■ Specific techniques

- Control NO_x emissions
- Control SO₂ emissions
- Control dust emissions
- Control other emissions to air



Best Available Solutions (use of BAT)

- Consumption of raw materials
 - Optimal consumption of raw materials.
- Use of energy
 - To optimise the input of energy.
 - Supplement input of energy with waste is one of the major source
- Process selection
 - The selected process will affect the releases of all pollutants, and will also have a significant effect on the energy use.



Waste regulations

- Hazardous Wastes (MH&T) Rules 2008; [1989, 2000 & 2003]
- Plastic Wastes (M&H) Rules 2011 [1999]
- Municipal Solid Wastes (M&H) Rules 2000 [under process for amendment 2014]



Amendments to HWR, 2008

New Definitions to be added:

(zg) "Co-processing" means the use of suitable waste materials in manufacturing processes for the purpose of energy and/or resource recovery and resultant reduction in the use of conventional fuels and/or raw materials through substitution

(zh) "Pre-processing" means preparation of a wide variety of waste materials into a homogeneous stream of defined size and chemical composition.

Regulatory Requirements Amendments to HWR

11. Utilization of hazardous wastes:

The utilization of Hazardous Wastes as supplementary resource or for energy recovery, or after processing shall be carried out by the units only after obtaining approval from the State Pollution Control Board or Pollution Control Committee.

- Under Rule 11 of Hazardous wastes (M,H & TM) Rules, 2008 Central pollution Control Board has been empowered to grant approval for utilization of hazardous wastes as a supplementary resource or for energy recovery, or after processing and obtaining such approval before hand is mandatory



Amendments to MSW &HWR

It is proposed to modify this clause and justify the need for the same

The CPCB "Guidelines on Co-processing in Cement/Power/Steel Industry published in 2010 also needs to be amended to give procedure for Rule 11

The new MSW includes the waste to energy including co-processing

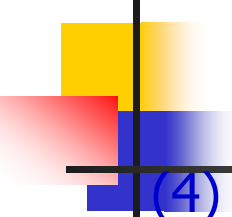
Amendments to MSW

Waste To Energy

- (1) Any waste having high calorific value of ≥ 1000 Kcal or more shall be utilized for generating energy shall not be disposed of on landfills.
- (2) High calorific value waste shall either be directly utilized for energy production or by preparing Refuse Derived Fuel (RDF) for energy production
- (3) High calorific wastes shall be used for co-processing in cement plants or for power generation in independently installed waste to energy power plants.
- (4) An operator of a facility shall submit a proposal on the setting up of 'Waste to Energy' plant to the State Pollution Control Board or Committee for consideration.



Amendments to MSW

- 
- (4) The State Pollution Control Board or Committee, on examination of the proposal on case-to-case basis to grant permission and shall prescribe such' standards for maintenance of ambient air quality around such facilities.
 - (5) The operation and emission standards and other specifications shall be in consonance with the operation and emission standards prescribed for co-processing, incineration and for disposal of treated leachates and ash.
 - (6) The State Pollution Control Board or Pollution Control Committee shall examine the proposal submitted by an operator and if it includes the technology other than mentioned in these rules shall be approved by the State Pollution Control Board or Committee. However, if the State Pollution Control Board or Committee so desire, may forward to Central Pollution Control Board for technical advice.



THANK YOU



Dr Lakshmi Raghupathy

9818967335

lakshmi.raghupathy23@gmail.com