

Summary of Session 3

Waste Separation and Processing

by

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During this session, four papers were presented dealing with aspects of MSW separation and preprocessing which could influence the economics and technology for the preparation of RDF. Many questions came up with each paper and it was evident that all present were not in agreement as to the answers. As was expected, most questions dealt with the papers on separation of raw refuse since these were most directly related to the preparation of RDF.

Many areas for potential research were pinpointed by both the speakers and the audience. A list of the more prominent research needs, together with a matrix of the needs with types of research is attached.

Research Needs

- * (1) What would happen to existing markets if large quantities of recovered metals, glass, and combustibles became available? Market research needed by unbiased party.
- (2) Economical recovery of nonferrous metals from incinerator residues needs to be demonstrated.
- (3) Better means are needed for separating magnetic fraction from either residues or raw refuse or, alternatively, to remove the other components from the magnetic fraction.
- (4) Means are needed for detecting and removing explosive components of refuse prior to their introduction to the separation system.
- (5) Better sampling and analysis methods are needed for both the feed material and products from MSW separation systems.
- (6) Low-energy and multi-stage shredding should be demonstrated.

- (7) Materials research for shredders and basic research on shredder operation both needed.
- (8) Air classifier research needed-basic through applied including modeling.
- (9) Method needed for detecting and separating copper-bearing scrap.
- (10) Method for separating scrap cans from heavy scrap would up-grade can scrap.
- (11) Method of separating colored glass from clear glass would up-grade glass fraction.
- (12) More uses for contaminated glass are needed.
- (13) Combustion of RDF in different types of boilers must be tested and evaluated.
- *(14) Siting of separation plants is a serious socio-political problem.
- (15) Basic and applied research needed on conveying and storing RDF, specifically materials, geometry, and dynamics of flow in ducts.
- (16) Unburned material in bottom ash from suspension-fired boilers still a problem.
- *(17) Study should be made to determine effects of "bottle bill" legislation and of source separation on economics of separation of MSW
- (18) Effects of air classifiers in existing systems should be characterized.
- (19) Dust control including baghouse use should be studied.
- (20) A means of removing grit from RDF is needed.
- *(21) Better ways of dealing with municipalities is needed.

*Items 1, 14, 17, and 21 are not truly "research" needs but are problems for which solutions are needed.

Research Needs in Waste Separation
and Preprocessing

Problem Areas	Basic Research	Bench Scale Operations	Pilot Plant Studies	Full-scale Demonstrations
Economic recovery of nonferrous metals from incinerator residue				✓
Improvements needed in magnetic separators to obtain cleaner products from incinerator residue and raw refuse	✓			✓
Means for detecting & removing explosives from refuse	✓			✓
Better sampling & analysis methods for feed material & products of MSW plants	✓			
Low energy and multi-stage shredding				✓
Shredder materials and operation research	✓			✓
Air classifier research	✓	✓	✓	✓
Methods for separating cans from magnetic fraction			✓	✓
Color-sorting glass			✓	✓
Establish markets for contaminated glass		✓		
Testing & evaluating RDF in different types of boilers				✓
Conveying and storing RDF and raw refuse itself	✓			✓
Existing full-scale air classifiers should be characterized				✓
Dust control & baghouse use				✓
Means of removing grit from RDF			✓	✓