

Summary of Session 5

Production of Fuels from Waste

by

K. W. Young, session chairman
Union Carbide Corp.

Summary of Session and Research Needs

Five papers were presented covering the following topics: refuse derived fuel (RDF), densified RDF (d-RDF), pyrolysis of waste to gas, upgrading of pyrolysis products, and fuel user's perspective. Brief summaries of each paper are presented below in which several research needs are pointed out. These needs can be summarized in three basic areas representing the overall research requirement in this area:

- a) Comprehensive operating experience is needed with these technologies to determine the real performance and economics.
- b) Optimizations to improve performance should follow comprehensive operating experience.
- c) Thorough evaluations of the risk in the technologies should be performed to limit both suppliers' and users' liability.

The more specific research needs raised by the various speakers are indicated below:

RDF--Stuart H. Russell: The use of RDF was identified as being used either as a primary or a supplemental fuel. In primary fuel use, the question of process variation with mass-burn versus process-burn approaches was raised. In the use of RDF as a supplemental fuel, the question of suspension versus stoker firing was presented. In relation to this, the question of optimum particle size and fuel ratio was also posed. Several questions were also raised relating to equipment design, geometry, and construction materials.

d-RDF--Carlton C. Wiles: The questions relating to d-RDF centered on production and processing needs, product specification to fit existing hardware, and finally economics. In a related sense, the questions of storability and handling of d-RDF were pointed out. A final point was the trade off between cost versus value of the product.

PUROX System--Charles T. Moses: Plant design considerations such as integration versus redundancy and the economics of these approaches need to be identified. Equipment related questions begin with front-end problems relating to handling and storage of as-received and processed refuse. Improvements in gas cleaning technology are also desirable. Another area in which data is needed is operating experience using the intermediate Btu fuel gas in combustion equipment as well as in upgrading technologies.

Upgrading of Pyrolysis Products--Donald R. Walter: The three classes of products: solid, liquid, and gas should be examined in detail to determine their real value. Solid char product should be tested for suitability as activated carbon. Actual use of liquid product should be studied in operational equipment. Gas product should also be operationally tested in equipment such as: boilers, turbines, and fuel cells. The use of pyrolysis gas as a syn-gas should be examined as well.

User's Perspective--Leonard S. Wegman: The critical issue for the user is not just the judgment of whether something will work economically and technically; but the broader question of liability for technology both now and in the future. This results in extreme requirements for performance causing a significant increase in cost which raises an economic problem. To help answer these questions comprehensive pollution measurement data needs to be collected as well as operating experience with new technologies and their products.

List of Speakers for Session 5

K. W. Young, session chairman
Union Carbide Corp.

S. H. Russell
Henningson, Durham, and Richardson

C. C. Wiles
MERL EPA

C. T. Moses
Union Carbide Corp.

Donald R. Walter
ERDA

Leonard S. Wegman
Leonard S. Wegman Co.