

MATERIALS ENABLING BIOFUELS AND PRODUCTS National Laboratory and Industry Partnering in Critical Areas



Department of Energy National Laboratories provide a unique contribution to industry, tying fundamental to applied research along the entire biofuels/bioproducts value chain. Working with industry we are developing new materials for biofuels and bioproducts.



Selective example Cooperative Research Agreements:

 UOP/Honeywell 	 LanzaTech 	٠	DuPont /Danisc
•Dow	 Imperium 	٠	Novozymes
 Albemarle 	 Virent 	٠	Johnson Matthe
 Grace Davison 	 Amyris 	٠	Veimeer



Materials are validated through thousands of hours of operation in continuous reactors. Integrated process can be demonstrated.

Biotechnology and Biocatalyst



Argonne

Office of Science

Courtesy ANL/IACT

Materials Development

Courtesy

NREL/PNNL



Tuning the support changes the

product selectivity.

Courtesy ANL and PNNI

Los Alamos



Separations National laboratories are developing low-cost separations materials, such as resin wafers and high-flux inorganic membranes, for dewatering and purification.

are providing details

catalysts over time.

on changes to

Materials of Construction Unique facilities are being used to understand corrosivity and materials of construction for bio-based processes.

In the example shown materials are tested in the presence of pyrolysis oils. Similar studies are being performed with sugar-based processes.

Pacific Northwest

≇Оак Ridge

Solids Handling and Logistics





Energy Efficiency & Renewable Energy