

# "3R" zero emission carbon refinery technology application map 2021 for flexible reductive thermal processing in any range up to <850°C material core temperature.

High temperature reductive thermal processing  
<850°Celsius material core temperature processed  
Pyrolysis - Autothermal Carbonization

Activated Carbon  
Virgin & Regeneration-  
ADSORBENTS

ABC-BioPhosphate  
Animal Bone Char  
BIOPHOSHATE

High C content  
Plant BioChar  
BIOCHAR

Special adsorbents and surface modified substances. Biofertilisers. Green energy.



Key Enabling Technology

Torrefaction  
Torrified Biomass  
BIO-ENERGY

Browncoal processing  
RECOVERED  
ANTHRACITE

Pyrolysis oil refinery  
Renewable energy  
GREEN ELECTRICITY

Converting Trash into Cash.  
Converting unexploited  
biomass into \$ values.

Low temperature reductive thermal processing  
<450°Celsius material core temperature processed  
Torrefaction - Thermal Desorption

... and many other application  
areas, incl. petroleum jelly,  
coatings, preservative...