

# "3R" zero emission carbon refinery technology application map 2020

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.**

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

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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

