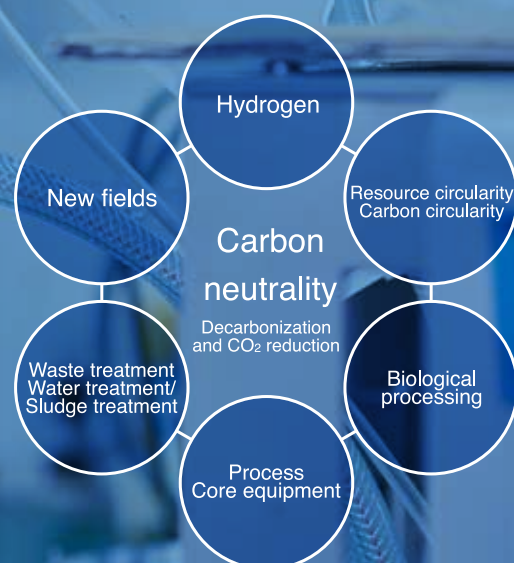


# Technology Development

People live comfortably and the rich natural environment is protected.

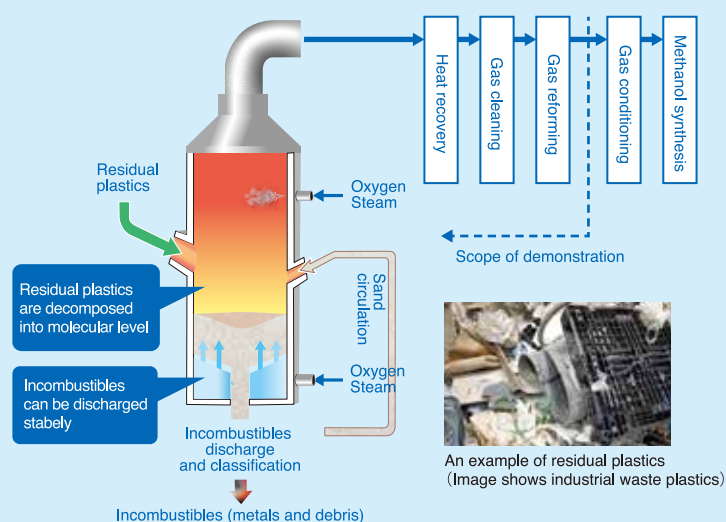
Aiming for such future, we are developing unique new products and services using our cutting-edge technologies. Furthermore, to meet more complex needs, we carry out joint research programs with customers, experiments in full-scale plants and pilot plants, etc. We enjoy many fruitful results through these activities.



## TOPICS 01

The Japanese first demonstration project for waste plastics gasification to methanol is currently underway.

Residual waste plastics containing diverse impurities and materials are difficult to recycle so that they have been generally incinerated with or without thermal recovery, or placed in landfills. To achieve a sustainable circular and carbon neutral economy, chemical recycling of residual plastics is one of the solutions. The demonstration project for residual waste plastics gasification using a fluidized bed gasifier, which is one of our core technologies, is underway. One of the objectives of this project is to demonstrate the generation of syngas suitable for methanol synthesis.



An example of residual plastics  
(Image shows industrial waste plastics)

## TOPICS 02

Launched “ACT(Accerelated Carbonation Technology)” that makes APCr(Air Pollution Control residue) react with and immobilize CO<sub>2</sub> in exhaust gas.

The carbonation technology for APCr has been adopted in the Fukui City Waste Treatment Facility Development and O&M Project.

Technology for reducing CO<sub>2</sub> emissions through carbon capture and utilization/storage (CCUS) is attracting attention aiming at carbon neutrality by 2050. We are focused on the carbonation reaction, which involves the absorption and immobilization of CO<sub>2</sub> by fly ashes, and more specifically the property wherein heavy metals are adsorbed into the fly ashes and become insoluble. Through this, we have developed the accelerated carbonation technology (hereinafter abbreviated as ACT) that allows the fly ashes generated in municipal waste incineration facilities to react with and immobilize CO<sub>2</sub> generated in those same facilities. The ACT has been adopted in a commercial project in favor of full-scale demonstration tests which proved (1) to accelerate CO<sub>2</sub> utilization and (2) to reduce the consumption of chemicals for heavy metal stabilization, and construction of a plant is underway. We are working on deploying this technology to diverse waste feedstocks which can be carbonized by utilizing the demonstration plant.



The demonstration plant enables full scale trials using diverse samples provided from clients.

(\*)O.C.O Technology Ltd.