

Enabling a sustainable processing industry through novel technology solutions.

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Sustainability of fossil fuel supply over the long term, energy security, and impact of fossil fuel consumption on the environment are leading to widespread acceptance of sustainable processing i.e. the manufacture of products with attention to the ‘Triple Bottom Line’: social, economic and environmental. While the processing industries have always had a strong attention to safety and environment, they are now turning to their R&D departments and to technology suppliers to deliver a next generation of technologies that will be sustainable in the more strictly regulated future.

Novel solutions have been developed to convert our raw fossil fuel resources into valuable products, with specific focus on carbon efficiency. In addition, technologies are being brought to market to monetize smaller resource pools at the local level, stimulating local economies and unlocking previously inaccessible areas. Co-processing of renewable resources to produce fuels and chemicals is emerging, while new players are bringing totally new products to market from renewable resources. Finally, cost effective CO₂ capture from flue gas is receiving considerable attention.

The paper will briefly introduce the concept of sustainability and the ‘Triple Bottom Line’, to then lead into a number of examples of next generation technologies that will shape the portfolio of the future. The paper will end by highlighting a number of the ‘grand challenges’ that are still out there to be solved.