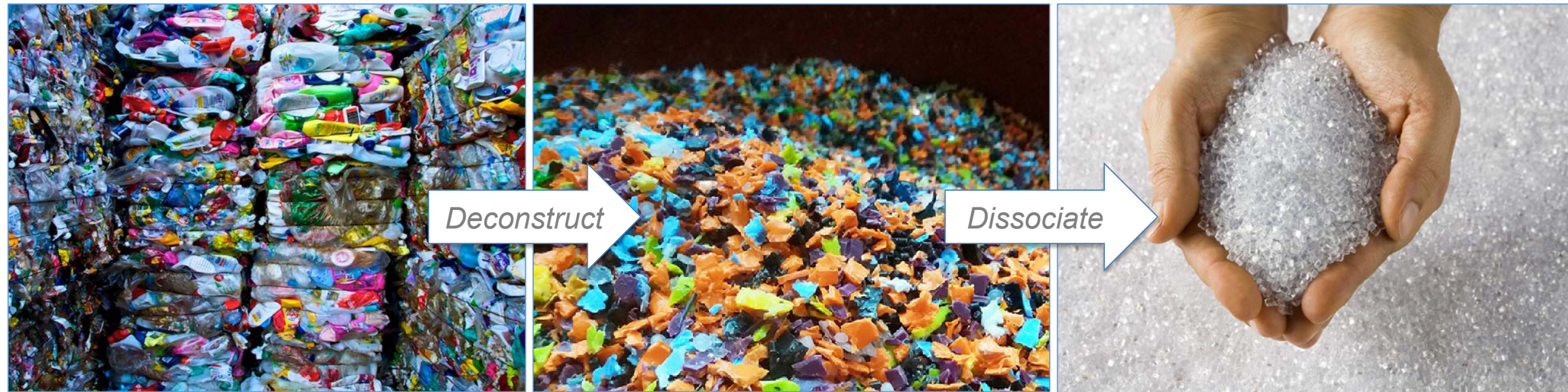


# The Dream



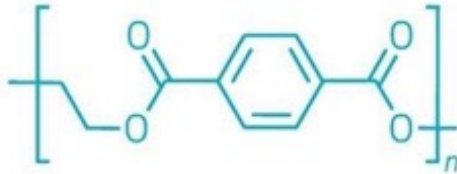
**Brett A. Helms**  
Lawrence Berkeley National Lab

# The Reality

Key:  Mass-produced |  Percentage recycled

## Poly(ethylene terephthalate)

4.5 billion kg | 19.5%



## Low-density polyethylene

7.4 billion kg | 5.3%



## High-density polyethylene

5.5 billion kg | 10.3%



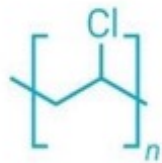
## Polypropylene

7.2 billion kg | 0.6%



## Poly(vinyl chloride)

0.9 billion kg | 0.0%



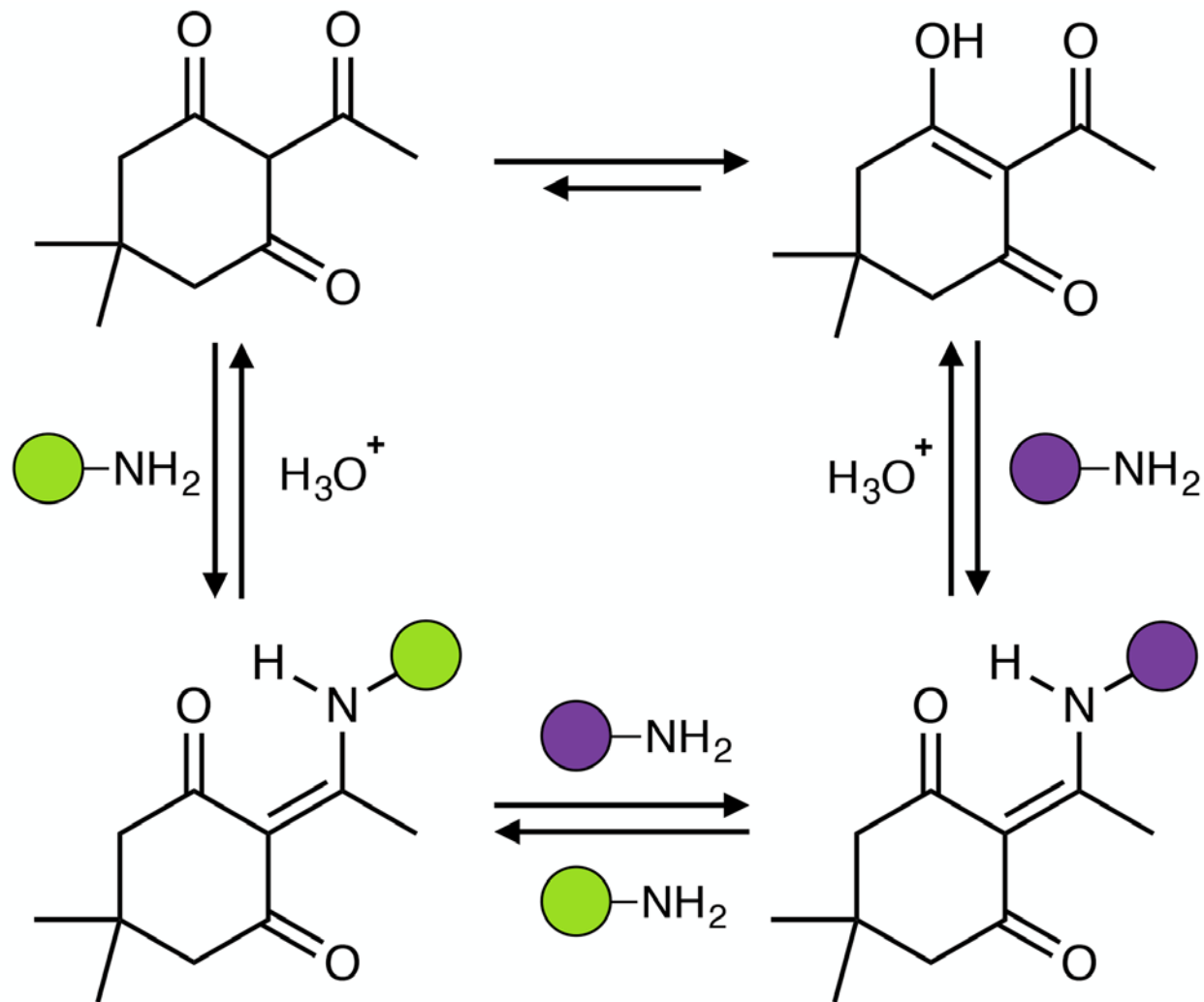
## Polystyrene

2.2 billion kg | 0.9%

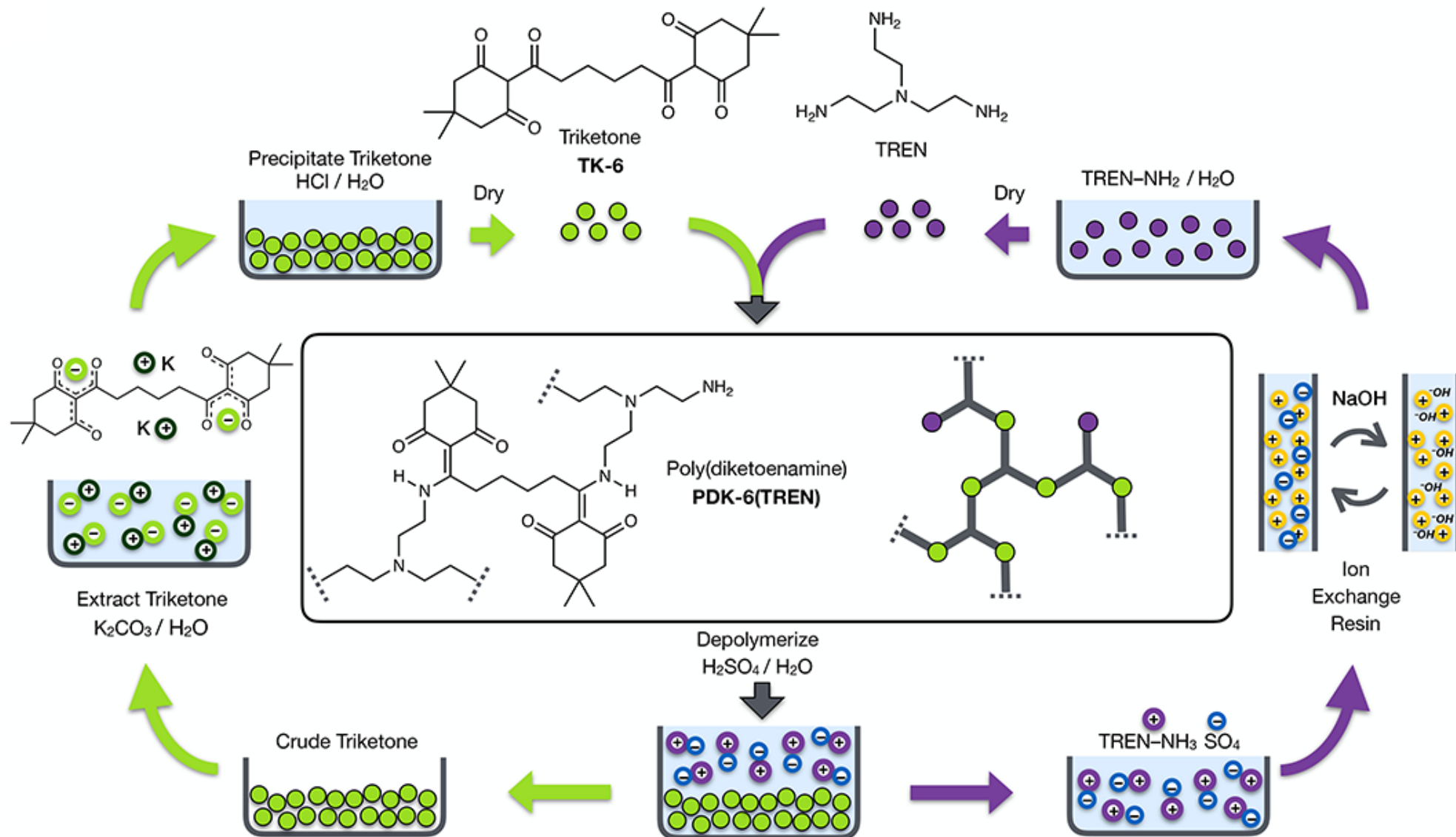


Source: Chemical & Engineering News, 2019

# The Discovery



# The Concept



# The Proof



Mixed plastic waste



Acid



Filter Solids



Base



PET, PA,  
PE, PP, PVC,  
& PC



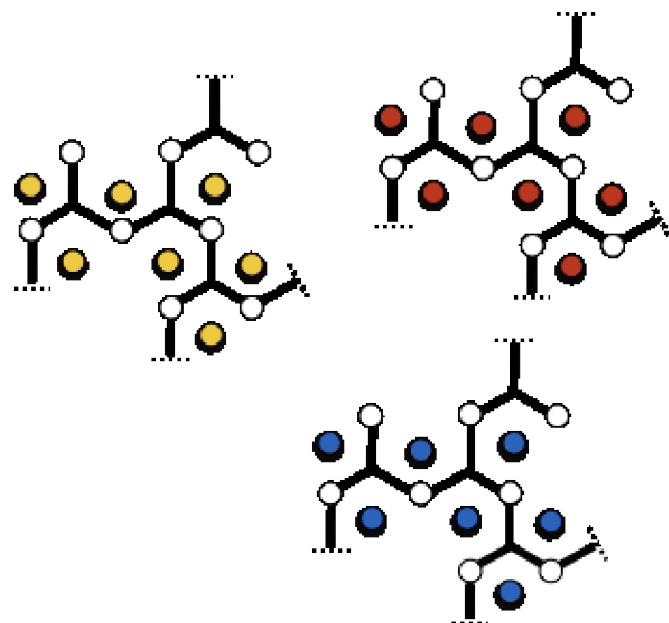
Filter



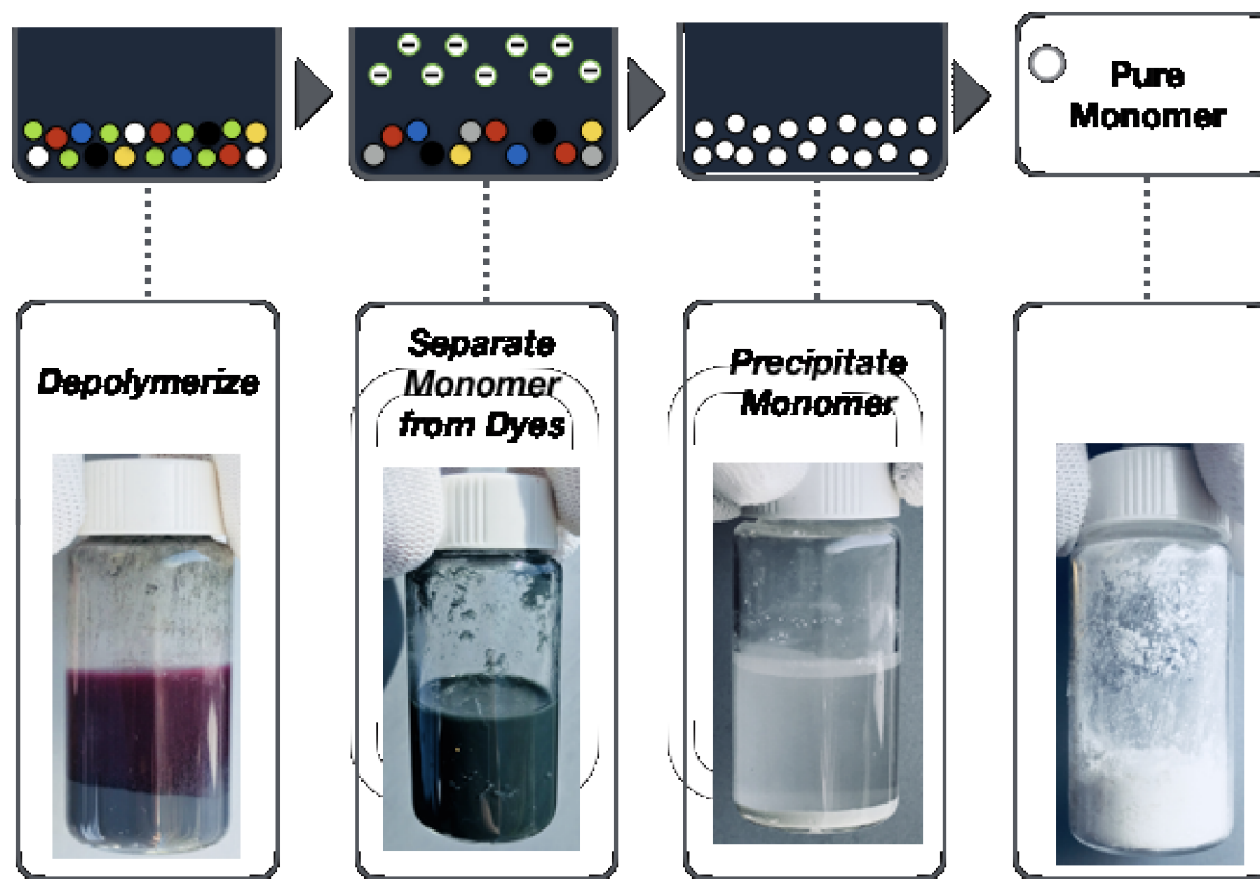
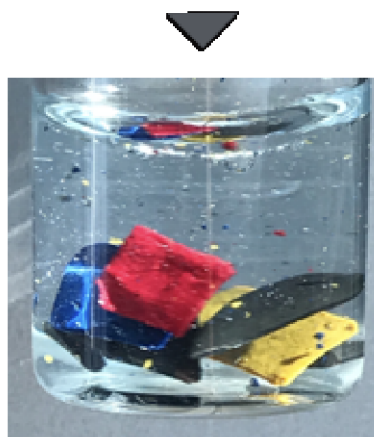
Precipitate  
Triketone from  
Acid

# The Versatility

Recycling and re-manufacturing  
where high aesthetic standards are essential.



Mixed Color Plastic



# The Future

