Why do we use plastics?

• Lightweight, versatile, durable
• Prevents food waste, reduces food spoilage
• Low cost
• Wide range of applications
Low recovery rate driving concerns about plastics packaging and waste
The Plastics Economy Today

3% of Energy

Plastic Production

Fabrication

Use

Post-Use Collection

Mechanical Recycling

Energy Recovery

Consumer Reuse

Landfill
U.S. Resin Manufacturer Sustainability Goals

✓ 2040 Goal
  • 100% of plastics packaging is reused, recycled or recovered

✓ 2030 Interim Goal
  • 100% of plastics packaging is recyclable/recoverable

✓ Best Practice Goal
  • 100% of Division’s U.S. manufacturing sites participate in Operation Clean Sweep Blue by 2020, with all North American sites by 2022
Seven Initiatives to Achieve Commitments

1) Define, Inventory, and Target
2) Design Packaging to Enable Recovery
3) Create Circular Business Models
4) Invest in Access and Infrastructure
5) Invest in New Disruptive Technology
6) Educate Consumers and Change Behavior
7) Expand Stakeholder Partnerships
Plastics in a Circular Economy

3% of Energy
The Buzz Around Chemical Recycling

GreenBiz
The 5 things you need to know about chemical recycling

Solving the recycled plastics puzzle
Rob Kaplan
Thursday, September 21, 2017 - 1:35am

Chemical recycling could be the answer to our single-use plastic problem
What is Chemical Recycling?

Leveraging chemistry to convert post-use plastics into valuable next generation products which extend the life of the plastic

Outputs:
- Virgin Like Plastics
- Specialty Chemicals
- Basic building blocks (monomers)
- Chemical feedstocks (e.g. naphtha)
- Fuels

These products are then used as alternative to fossil based products
Complementary to Mechanical Recycling

VISION FOR A CIRCULAR ECONOMY

Specialty Chemicals → Plastic Production → Product Creation → Consumer Use & Reuse → Post-Use Collection

Mechanical Recycling

Chemical Recycling

Plastics – #1 to #7
1) Define, Inventory, and Target

2) Invent New Circular Business Models

3) Increase Access and Infrastructure

Types of Chemical Recycling

1) Define, Inventory, and Target
2) Invent New Circular Business Models
3) Increase Access and Infrastructure

40 Facilities Already in Operation

More Engagement Needed

250 partners and investors are already engaged with technology providers

- Brands
- Private Capital Providers
- Petrochemical & Plastics Industry
- Gov’t & NGOs
The Environmental Benefits Are Significant

By converting post-use plastics into ultra-low-sulfur diesel, we reduce:²,³

-58% WATER CONSUMPTION
-96% TRADITIONAL ENERGY USE

³ When compared to traditional manufacturing processes.
Debunking Emissions Myths

How chemical recycling prevents dioxin formation

- Material is heated in a closed, oxygen-deprived environment
  - i.e. Not combustion

- No atmospheric oxygen or halogens

- Products spend virtually no time at the dioxin formation temperature
Economic Benefits

- $120B addressable market in North America
  - Technology owners can profitably transform post-use plastics

- Moderately developed markets in the U.S.
  - Alabama, Florida, Georgia, Louisiana, Texas => high-potential market for pyrolysis
Recent Announcements (N.A.)

Agilyx, Delta Refinery Subsidiary Sign Deal to Convert Waste Plastics into Jet Fuel

BP deal will help RES Polyflow open first commercial plastics-to-fuel plant

Brightmark Energy Closes $260M in Financing for Plastics-to-fuel Plant

Renewlogy Converting Landfill-Bound Plastics to Fuel

ReVital Polymers, Pyrowave and INEOS Styrolution partner to launch polystyrene recycling consortium

Regenyx Process Recycles 'Throw Away' Polystyrene

GreenMantra and INEOS collaborate on chemical recycling

Eastman announces second chemical recycling technology
Recent Announcements (Global)

SABIC And Customers Launch Certified Circular Polymers From Mixed Plastic Waste
Polystyvert, Total partner to recycle post-consumer polystyrene

Shell to Invest in Rotterdam Green Methanol Plant
BASF hits milestone with 'chemically-recycled' prototypes

Plastics company LyondellBasell has announced plans to drive chemical recycling of plastic materials forward.

Unilever Joins Partnership to Turn PET Waste into Virgin Grade Materia

Tupperware to debut products made from Sabic's certified circular polymers

Dow, Fuenix Ecogy Group partner on plastics recycling project
Advocating on behalf of technologies that convert post-use plastics to monomers, chemical feedstocks, transportation fuels and other valuable products of advanced plastics recycling and recovery technologies.
Removing Barriers to Chemical Recycling

- Legislation enacted (8)
- Legislative activity (4)
- Regulation in progress (2)
Texas part of national push for laws promoting fledgling chemical recycling industry

ACC pushes chemical recycling legislation

State lawmakers give chemical recycling a boost
1) Define, Inventory, and Target
2) Invent New Circular Business Models
3) Increase Access and Infrastructure

Stay Connected

@ChemRecycling

Chemical Recycling Alliance
Craig Cookson
Senior Director, Recycling and Recovery
ACC Plastics Division
craig_cookson@americanchemistry.com
(202) 249-6622