



Ultra-Poly Presentation to the Solid Waste Advisory Committee

June 6, 2014

I'd like to provide an overview of my agenda for today

Our Objectives

- Introduction to Ultra-Poly
- How We Got Involved
- Geomembrane Facts
- Key Learning's
- Looking Ahead
- Appendices
 - Who I am

Ultra-Poly was founded in 1974 with only one production line and has since grown to be one of the largest plastics recyclers in the country

Background:

- Ultra-Poly produces recycled plastic resin made by grinding, extruding, and pelletizing plastic scrap and supplies manufacturers making a wide variety of goods
- Ultra-Poly is a technological leader in recycling, specializing in supplying custom resins made by compounding plastic scraps with different physical characteristics
- More recently, the Company has focused on developing innovative separation processes in order to reclaim scrap streams that were previously un-recyclable, such as nylon carpet, food containers, and toothpaste tubes

Facilities:

Over 250,000 square feet of manufacturing space in three plants house:

- 10 extrusion lines with a combined 170 million pounds of annual capacity
- About 160 employees
- 3 grinding and elutriation lines,
- 1 post-consumer bottle processing line, and
- 1 wash/dry line
- Two onsite labs
- Ten 200,000 lb. and four 50,000 lb. blending silos



Most geomembrane is made from high density polyethylene (HDPE), a commodity resin with multiple applications

- Ultra-Poly sells millions of pounds of HDPE resin annually and has historically been large volume purchaser of post-industrial geomembrane
- Ultra-Poly's existing customers make a wide range of products using recycled HDPE resin



- By 2010, samples of post-use geomembrane began flowing in and we started realizing the size of the waste stream
- Developing a process for recovering post-use geomembrane would essentially “unlock” millions of pounds of raw material

Our existing customer base and knowledge of resin markets gave us confidence in the demand for geomembrane repro

There are several applications for Geomembrane in Natural Gas Drilling

Pad Liners



- Laid down in radius around well
- Provide anti-slip surface for workers and protects soil under the work area from equipment leads and spills
- Berms around the perimeter are created using foam, railroad ties, or pipe, to contain potential contamination

Other Geomembrane Applications

Secondary Containment



Above Ground Impoundment

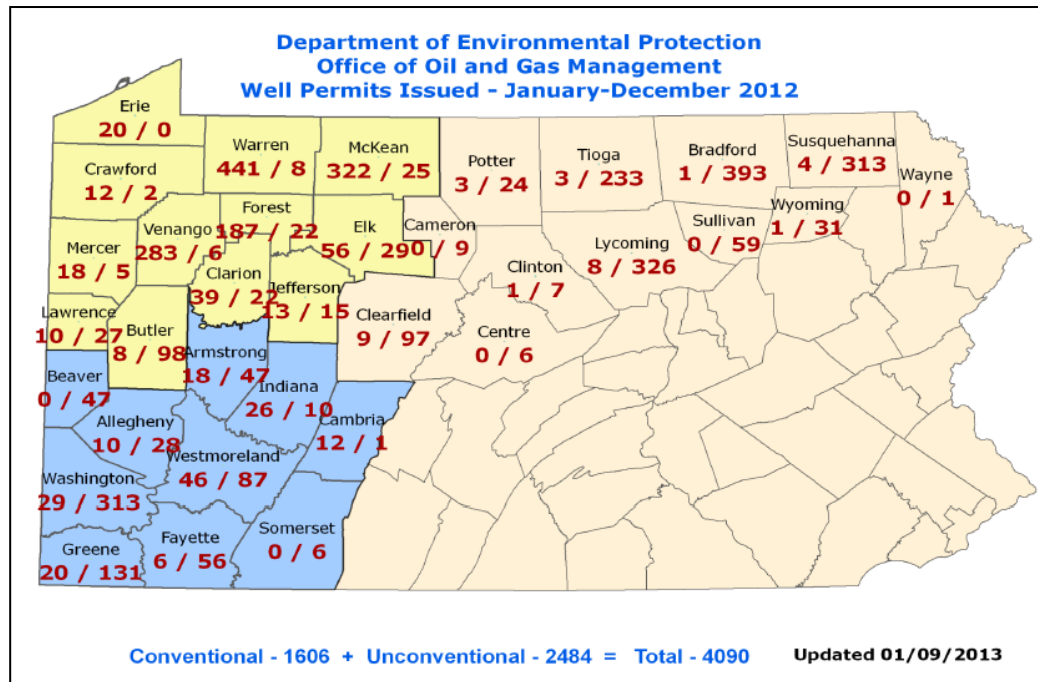


Floating Covers



Large amounts of Geomembrane liner are being used (and landfilled) by companies drilling for natural gas in Pennsylvania's Marcellus Shale region

DEP statistics suggest hundreds of millions of pounds of Geomembrane liner was laid down at PA gas drilling, sites since 2010



- Over 4,000 natural gas wells were permitted in 2012 alone
- Drillers use about 20,000 lbs. of geomembrane to cover a site
- Wells go through multiple stages (drilling & fracking) and material is often laid down and landfilled after each phase
- By extension, up to 160 million lbs. of geomembrane will be laid down in the state, based on 2012 permits alone

All of this geomembrane will ultimately be picked up and trucked somewhere, and the concentration of activity makes collection logistics feasible

In 2011, the Pennsylvania Recycling Markets Center (“RMC”) and Ultra-Poly began collaborating to address obstacles to large scale geomembrane recycling

1. Ultra-Poly did not have the resources for the collection effort
 - The RMC connected Ultra-Poly with Wellspring Environmental, who owned equipment such as excavators, trucks, and walking floors, necessary for pulling membrane off of sites and transporting it. Wellspring also had key contacts at drill sites
 - Ultra-Poly formed a partnership with Wellspring shortly after and the two companies have continued to work closely since



Pennsylvania
Recycling Markets Center



2. The RMC also helped us negotiate the regulatory landscape
3. The last hurdle: how can we efficiently process the material on a large scale?
 - Material is extremely difficult to shred
 - The material is wet and dirty
 - This makes it abrasive on equipment and expensive to transport

Building on our expertise in plastic reclamation we developed a process to convert waste geomembrane into a commercially saleable product

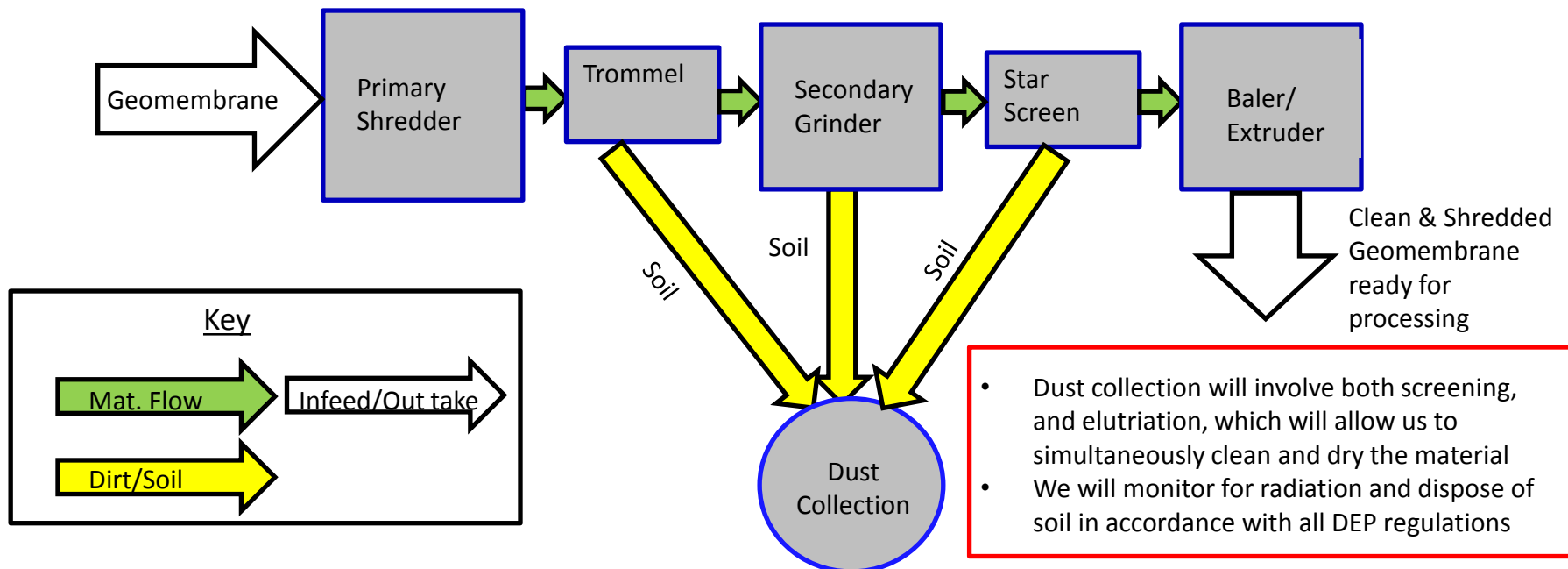
Existing Expertise

1. Film reduction and extrusion
2. Post consumer materials
3. Separation
4. Design, Engineering, and Building

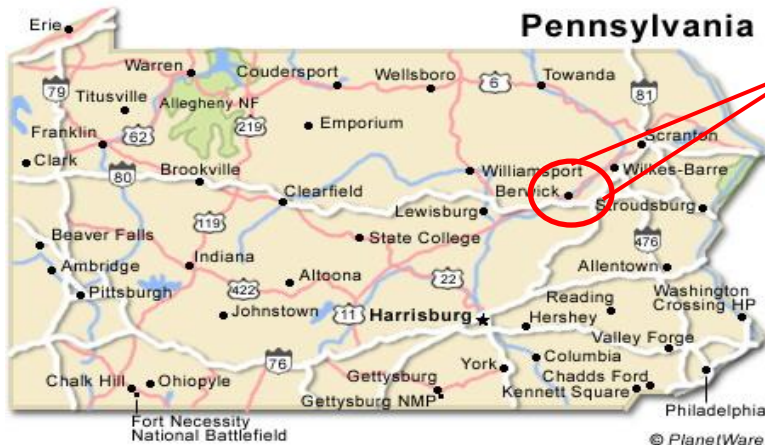


Taking aspects of processes from other parts of our business, we developed a dry process that is robust and commercially viable

Process Overview



Over the course of 2012, Ultra-Poly installed a facility dedicated to reprocessing geomembrane in Berwick Pennsylvania



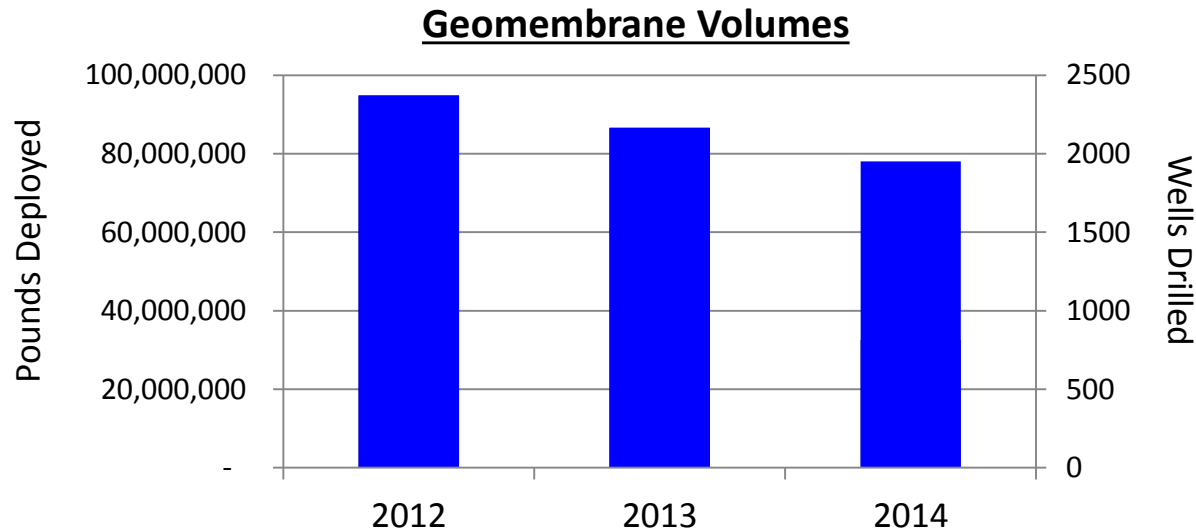
We chose this area for two reasons:

1. Close proximity to our current location will make installation faster and management significantly easier
2. Locating production close to the source of geomembrane cuts freight costs

Local Impacts

<u>Environmental</u>	<u>Economic</u>
<ul style="list-style-type: none"> • Diverted over 7 million pounds from the landfill since July 2012 • Developed viable markets for large volumes of recycled resin, reducing demand for virgin plastic 	<ul style="list-style-type: none"> • Created 25 immediate jobs with long term plans to employ 45 • Invested \$ 5 million in plant and equipment to date • Repurposed manufacturing space • Contribute millions to the tax base

How big is this stream?



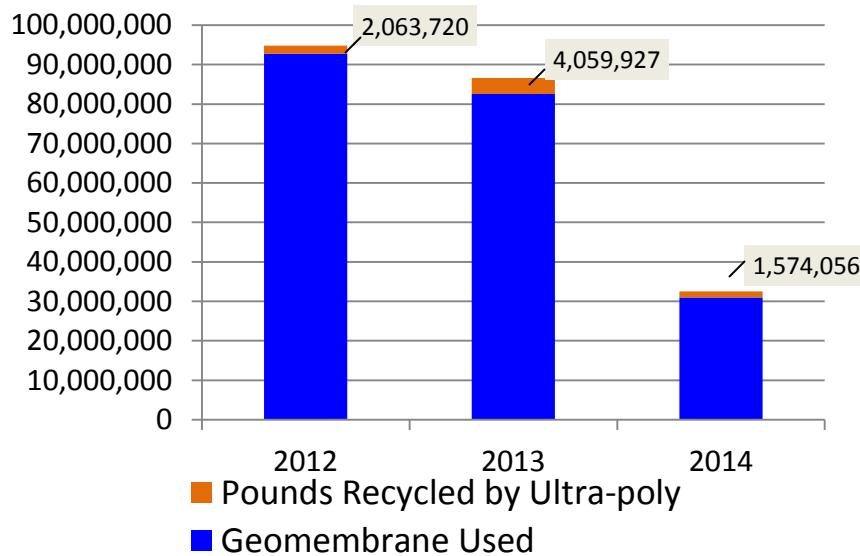
To put this in perspective:

- In 2012 the state of Pennsylvania collected 111,018,600 lbs (55,509 tons) of all plastics for recycling
- This includes PET, HDPE, PVC, LDPE, PS, PP, drum plastic
- This compares to 94,000,000 lbs of geomembrane deployed in 2012

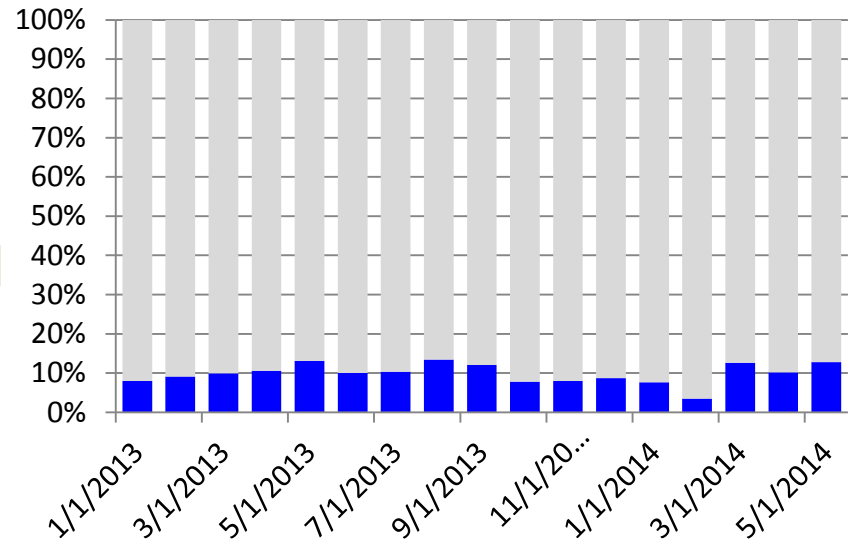
Importantly, the vast majority of geomembrane is all one material, HDPE, which does simplify certain aspects of recycling

Over the last 3 years Ultra-Poly has only recycled a small portion of the geomembrane deployed; however, there are huge amounts of excess capacity

Geomembrane Recycling in Berwick



Berwick Capacity Utilization



	<u>2012</u>	<u>2013</u>	<u>2014</u>
Wells Drilled during Berwick's operation	2,370	2,166	813
Total Geomembrane Deployed (lbs)	94,802,370	86,642,166	32,520,813
Total Geomembrane Deployed (tons)	47,401	43,321	16,260.41
Pounds Recycled	2,063,720	4,059,927	1,574,056
% Recovered	2%	5%	5%

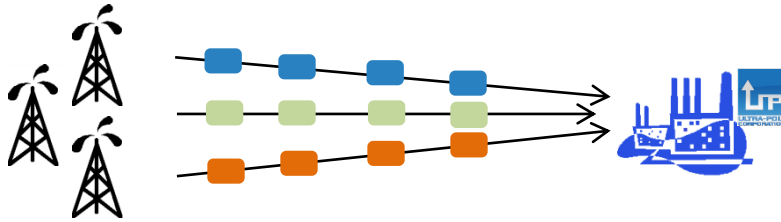
There are several categories of geomembrane each presenting its own set of challenges

Category	Repelletize	Transport	Value
HDPE Sheet (various Gauges)	↗	↗	↑
HDPE cross hatch with LDPE coating	↗	↗	→
Non-woven PP (felt)	↓	↓	↘
Felt / Sheet compsites (NewPig®)	→	→	↘
HDPE liner with PP Scrim	↗	↗	→
Reinforced liners (HDPE with PET ribbing)	↓	↓	↓

- Materials run differently, so controlling mixture is beneficial to us
- There is business risk associated with market trends- the market may adopt a non-recyclable material
- Our leverage: pricing schedule and tipping fees
- Operational Challenges
 - Space
 - Majority of our supply currently comes in mixed

There are three types of reverse logistics systems developing, all with their own advantages and disadvantages

Direct From Site



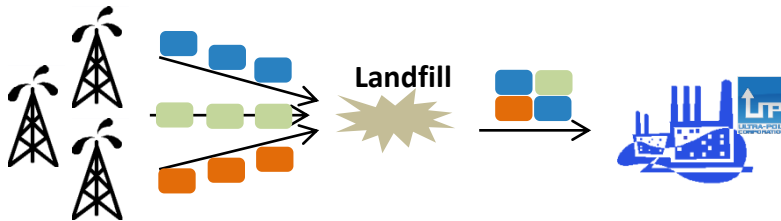
Advantages:

- Third party subsidizes some cost
- Loads are homogeneous

Disadvantages:

- Small payloads

From Landfill



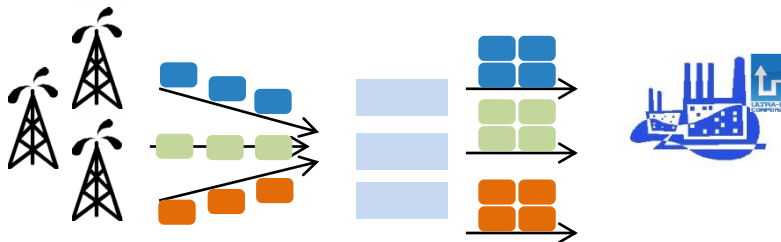
Advantages:

- Heavy payloads

Disadvantages:

- Mixed loads
- High levels of contamination
- We subsidized 100% of trucking

Auxiliary Staging Location



Advantages:

- Heavy payloads
- Generate homogenous loads

Disadvantages:

- Regulatory restrictions of transfer stations

We have learned a great deal about how key stakeholders view the effort to recycle geomembrane

Stakeholders	Key Concerns	Benefits of Ultra-Poly Recycling
DEP	<ul style="list-style-type: none"> • High visibility of natural gas drilling and fracking • Stockpiles. Material needs to flow • Radiation • History and precedents 	<ul style="list-style-type: none"> • Reduces landfill consumption • Protects the environment
Energy Companies	<ul style="list-style-type: none"> • Chain of custody • RCRA liability 	<ul style="list-style-type: none"> • Environmental liability ends when we receive the material, which is not the case when they are landfilling
Landfills	<ul style="list-style-type: none"> • Permit Modification Process • Extra labor associated with handling material on working face 	<ul style="list-style-type: none"> • Ultra-Poly pays for material picked up, after the landfill has received its tipping fee • Reduces landfill consumption • Geomembrane takes up 7 times the amount of volume per ton as traditional MSW • Geomembrane is also impervious, meaning it traps landfill gas • Creates unstable layers in the landfill

We have learned a lot through this entire process...

Other Key Learning's

Cost Structure

- Processing costs are much higher due to the abrasive nature of the material and wear on the equipment
- More energy is required
- Capital costs are higher due to the complexity and scale
- Hidden costs:
 - Yield loss
 - Disposal fees

Ecosystems at the well

- Tough to navigate
- Who is the customer and who is the supplier? What is the hierarchy of decision makers and contractors?
- Who decides what geosynthetic to use?
- Who decides how to remove and where to put the used geomembrane?

We have learned a lot through this entire process... (cont.)

Other Key Learning's

Logistics

- Prepping remotely (i.e. bailing or rolling on site) is inefficient because mobile equipment is expensive to mobilize and operate
- Bailing or rolling destroys value because that process needs to be subsidized by someone and it doesn't add value
- Maximized payloads are key to reduce freight costs

Competition

- We know others are in the market to buy geomembrane, but unfortunately most are brokers who don't know what to do with it- we get sampled the material almost daily
- Some are attempting to process the material, both in PA and other parts of the country
- However, they view the material as low hanging fruit, underestimate the challenge to process it, leading to market distortions in which people pay too much for the material
- That leads to mountains of material being stockpiled while solutions are contemplated

We have made great strides in the design of the cleaning process, and successfully created outlets for the material – the hard part- now what?

- ✓ Recognize source/need to recycle Geomembrane
- ✓ Develop process to clean and add value to geomembrane on a large scale
- ✓ Develop markets and outlets for cleaned geomembrane repro
- ✓ Install berm manufacturing capacity in Berwick

Next

- We are optimizing the process, reducing residual ash content, and improving quality
- Gain control of the supply chain
- Contemplating expansion, shipping costs are the determining factor
 - Western PA
 - Ohio & West Virginia
 - Texas & the Southeast
- The ultimate goal: save 100% of geomembrane from the landfill

Appendix 1: Who I am



David La Fiura, Vice President,
Ultra-Poly Corporation



- David has over 10 years of experience in the plastic recycling industry, all with Ultra-Poly Corporation. He is experienced with process design, materials engineering, operations management, project management, and plastics markets.
- Most recently, David has focused on managing major capital investment projects for Ultra-Poly, including the Company's new geomembrane recycling facility in Berwick, PA. David has overseen every aspect of the project, including engineering, design, equipment purchasing, capital financing, installation, market development, and start up. David also runs Ultra-Poly's ground breaking electricity generation project in which Ultra-Poly will power its Portland facility by gasifying unrecyclable plastics and fueling a 1.75 megawatt generator. Combined, these projects will divert 30 million pounds of material from the landfill annually and create over 50 jobs.
- Before rejoining Ultra-Poly in 2011, Mr. La Fiura spent two years at Zolfo Cooper, a New York-based turnaround and restructuring firm. While there, David worked on an operational turnaround at a manufacturing company in Melbourne, Australia, and learned complex accounting and integrated financial modeling.
- Prior to that, David led the Production Department at Ultra-Poly's main plant in Portland, PA. Managing four supervisors and over 65 people, David successfully guided the plant through historic expansion, including a transition from a 5-day to a 7-day production schedule. David achieved a 25% increase in average daily production between November 2004 and August 2006 and a 40% increase in average monthly output over the same period. In 2004, David also managed the start up of Ultra-Poly's Bloomsburg facility.
- David holds an MBA from Harvard University and graduated Cum Laude with a Bachelor's Degree in Economics from Bates College in Lewiston, Maine.

