Monument Chemical
Custom Manufacturing Overview
2023

Monument Chemical

OUR STORY

Monument was founded by The Heritage Group and the Grube Family, both of Indianapolis, with the objective of building long-term value through a growing presence in specialty chemicals.

Other companies that have related ownership:

- Calumet Refining
- Haltermann Solutions

2008	2010	2012	2012	2018	2021
Houston plant acquired Haltermann Solutions acquired	Antwerp plant acquired	Baytown plant acquired	Kentucky plant acquired	Bayport plant acquired	Port Arthur plant acquired

Monument has grown quickly, and will continue to grow, through a combination of product line additions, acquisitions, and investments in expanding our current assets. Through every change, we maintain a **constant focus on quality, our customer relationships, and doing the right thing**.

MONUMENT OVERVIEW

650
employees globally

>$350MM
in growth capital

>1.5 Billion lb
(680 kt) per year output globally

We manage a steady pipeline of **new products and chemistries**

Monument is the go-to, leading chemical industry partner for…

- Challenging distillations, high purity fractionations, large-scale esterification, hydrolysis, batch and continuous hydrogenation, and amination
- Flexible scale-ups of ethylene oxide and propylene oxide derivatives
- Cutting-edge solutions for new chemistry needs – while operating at industry-leading HSE performance record

OUR LOCATIONS

We operate in the heart of manufacturing hubs in the U.S. and Europe

Houston, Bayport, and Baytown, TX

Conveniently located on the Houston ship channel, our Texas facilities are close to our customers — and close to their customers.

Port Arthur, TX

Located on the Sabine River intercoastal waterway– just two miles from the Gulf of Mexico– an ideal location between manufacturing hubs in Texas and Louisiana.

Brandenburg, KY

Located just outside of Louisville, our Brandenburg facility offers one-day truck service to most U.S. customers.

Antwerp, Belgium

Located in the heart of the Rotterdam/Antwerp petrochemical center, our Antwerp facility is easily accessible to our customers and their customers.

CUSTOM MANUFACTURING FAST FACTS

CUSTOM MANUFACTURING

Largest distillation capacity of any custom manufacturer

Flexible, multipurpose assets

Dedicated lab and technical expertise at each Monument site

Support services available: Procurement, Logistics, and Waste disposition

Operational Excellence-focused

1 Build Team
Every project has a dedicated cross-functional team of chemists, production engineers, and quality, planning and logistics specialists.

2 Assessment
We ensure full understanding of your unique needs.

3 Qualification
We produce a sample for qualification and testing in your facility.

4 Proposal
We review (and adjust) all project details with you.

5 Deliver
We produce the first successful campaign!

6 Optimization
Continuous improvement is key, and we never stop optimizing our process to meet your evolving needs.

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HOUSTON, TX AREA CAPABILITIES

PRODUCTION SITES

HOUSTON

Large scale distillation and fixed bed reactions:

- Continuous and reactive distillation
- Hydrogenation
- Alkylation, hydrolysis, isomerization
- Esters, transesterification, ethers

BAYPORT

Specialty distillation, high pressure hydrogenation, amine chemistry:

- Continuous & batch distillation
- High pressure hydrogenation
- Reductive amination & cyanoethylation
- Alkylation, dehydration, esterification

BAYTOWN

Aromatics based chemistries:

- Distillation
- Alkylation, Friedel Crafts and isomerization

Modes of Delivery:

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FLEXIBLE DISTILLATION SOLUTIONS

- **Continuous and batch capabilities**
- Majority stainless steel (few carbon steel)
- 0.6 – 2.5 m diameter
- Steam or hot oil heated
  - Up to 550 °F / 290 °C
- Theoretical stages ranging from 25 – 100
- Rated for full vacuum to 100 psi / 7 bar

"We can supply the product you need – where and when you need it.

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REACTOR CAPABILITIES

- **Fixed bed and batch (batch, semi-batch, CSTR)**
- Hydrogenation – Up to 800 psi / 55 bar
- Continuous (trans)esterification, hydrolysis, isomerization & hydrogenation
- High pressure batch hydrogenation up to 800 psi / 55 bar
- Cyanoethylation and amination
- Alkylation & reductive alkylation
- Aldol reaction
- Aromatic refining
- Melt crystallization

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PORT ARTHUR, TX – OVERVIEW

PRODUCTION SITES

- **Unrivalled distillation capacity**
  - 650 MM lb annual capacity
  - Up to 60 theoretical stages
- Acquired in 2021; considerable capital invested
- Multipurpose reactors and isomerization beds
  - Esters, ethers, alkylation, hydrolysis, acetylation, dehydration, and more!
- **>100 tanks, 585,000 barrels of storage**

Modes of Delivery:

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BRANDENBURG, KY – OVERVIEW

PRODUCTION SITES

- **Largest, most flexible site for EO/PO chemistry in Midwest and Eastern US**
- Alkoxylates/surfactants, polyether polyols, glycols, amination and specialty chemicals
- On-site pilot plant (multiple reactors, glass-lined and stainless steel) and customer applications testing lab
- Auxiliary equipment including filtration, dryers, batch distillation, WFE and more!

Modes of Delivery:

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BRANDENBURG, KY CAPABILITIES

OUR CAPABILITIES

- **Polyols plant**
  - Stainless steel reactors ranging from 2,000 to 25,700 gallons (approx. cap: 155 million lbs.)
- **Polymer Polyol Production**
  - Styrene/acrylonitrile co-polymer dispersed in polyether polyol
- **Aminated Polyol Production**
  - Via reductive amination
  - Process capable of higher MW products

- **Glycols & Glycol Ethers**
  - EO / PO chemistries and distillation capabilities
  - Propylene Glycol Production (approx. cap: 55 million lbs.)
  - 3 Flexible Glycol Ether Trains
- **Custom Electronic Materials Manufacturing**
  - Glass lined and stainless-steel batch reactors
  - Centrifuge filtration
  - Ability to handle a wide range of chemistries including formaldehyde, phenol and xylene

SUMMARY OF KEY PROCESSES

	HOUSTON (U.S.)	BAYTOWN (U.S.)	BAYPORT (U.S.)	PORT ARTHUR (U.S.)	BRANDENBURG (U.S.)	ANTWERP (BE)
Aldol condensation	✓					✓
Alkylation	✓	✓	✓	✓		✓
Alkoxylation (EO and PO)					✓	
Amination			✓	✓	✓	
Cyanoethylation			✓			
Dehydration	✓			✓		✓
Distillation	✓	✓	✓	✓	✓	✓
Esterification	✓		✓	✓		✓
Etherification	✓			✓		✓
Hydrolysis	✓			✓		✓
Hydrogenation	✓		✓			
Isomerization	✓			✓		✓
Melt crystallization		✓				
Oligomerization	✓			✓		✓
Transesterification	✓			✓		✓
Free Radical Polymerization					✓	
Novolak Synthesis					✓	

OUR COMMITMENTS

Customers

Third-party quality certifications

Onsite and 24/7 Lab capabilities

First Pass Quality (FPQ) focus

World-class R&D for simulation science and rapid scale-up

Security of Supply Chain commitments/initiatives

Environment

Committed stewardship

100% compliance in all operating and environmentally-related permits and requirements

Community

Volunteerism / Philanthropy Programs focusing on STEM education

Safety

Top tier safety performance (OSHA rate and KPI's) across all 5 sites

RECOGNITION

SOCMA's ChemStewards® Program

SOCMA Awards for all US sites including the 2020 Gold Performance Improvement Award for Houston

2021 rating of Silver achieved by our Kallo site

2023 rating of Bronze achieved by our Bayport site

Make decisions and behave in ways that assure the long-term sustainability of our business

Visit Monument Chemical at Booth 515

LET'S CONTINUE THE CONVERSATION

We deliver the advantages of a large chemical company – with the personalized attention you expect from a specialty partner.

Houston Area

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