THIS IS WHAT BETTER LOOKS LIKE

Custom Solutions for Diverse Markets

MINING
FERTILIZER
PHOSPHATE
ASPHALT

INDUSTRIAL AMMONIUM NITRATE
OIL & GAS

ArrMaz is a leading provider of chemical process aids and additives to the above industries.
ArrMaz is a global leader in the production of specialty chemicals for the mining, fertilizer, phosphate, industrial ammonium nitrate, asphalt, and oil and gas industries. Since 1967, ArrMaz has manufactured chemical process aids and additives formulated to optimize process performance, enhance product quality and improve profitability for our customers. With headquarters in Mulberry, Florida and multiple locations across North and South America, Europe, Asia, Africa and the Middle East, ArrMaz serves customers in more than 70 countries across the globe.

**INNOVATING CHEMICAL SOLUTIONS FOR INDUSTRIES WORLDWIDE**

**Mining**
ArrMaz helps mining companies maximize the potential of our finite natural resources by responsibly and sustainably optimizing the recovery and purity of minerals.

**Fertilizer**
ArrMaz works with fertilizer manufacturers to produce better quality fertilizer more efficiently.

**Phosphate From Mine to Market**
ArrMaz helps the global phosphate industry increase phosphate grade and recovery from limited deposits, and produce the highest quality fertilizers to meet global food demands.

**Industrial Ammonium Nitrate**
ArrMaz enables industrial ammonium nitrate producers to improve prill integrity, porosity control and anti-caking for better performance in underground and surface applications.

**Road Science**
ArrMaz provides asphalt producers, asphalt emulsion producers and paving companies with innovative, cost-effective solutions and systems to build stronger, longer-lasting and safer roads.

**Oil & Gas**
ArrMaz works with oil and gas companies to reduce silica dust generation in hydraulic fracturing operations.
Our mission is to help our customers succeed. We strive to innovate chemical solutions to optimize your operations and your products. With our people, processes and partnerships, we can do more than any other company to help you realize your goals.

**PEOPLE, PROCESSES, PARTNERSHIPS**

**People**
The in-depth, industry-specific expertise of our growing team of research scientists, engineers and technical experts remains unrivaled.

**Partnerships**
We work in partnership with our customers, applying our expert chemistry and in-depth process knowledge to ensure a successful outcome for every project.

**Processes**
Our processes, from behavior-based safety management to quality control, ensure our customers realize a consistent, high level of performance.
OUR HISTORY OF GROWTH

1967
Custom Chemicals founded to provide defoamers for phosphoric acid production

1970
ArrMaz founded to provide process aids to the phosphate fertilizer market

1978-79
ArrMaz pioneered the development of coating agents for phosphate fertilizers
Custom Chemicals supplied first surfactant-enhanced collectors

1980
ArrMaz opened Vanceboro, North Carolina plant

1990
ArrMaz acquired Sherex defoamer and amine flotation reagent business
ArrMaz opened Convent, Louisiana plant

1991
ArrMaz acquired Tomah’s asphalt additive product line

1992
ArrMaz opened Soda Springs, Idaho manufacturing plant

1995
Custom Chemicals acquired Nottingham Chemical’s phosphate reagent business

1995-96
ArrMaz acquired Sherex defoamer and amine flotation reagent business

1999
ArrMaz and Custom Chemicals merged

2000
Formed ArrMaz do Brasil joint venture in Rio de Janeiro, Brazil

2002
ArrMaz opened SuperPave Laboratory, achieved American Association of State Highway Transportation Officials (AASHTO) Accreditation

2003
Opened ArrMaz Chemicals Yunnan joint venture in Kunming, China

2004
Acquired GALORYL® product line from Nufarm

2007
Acquired 100% ownership of ArrMaz do Brasil

2008
Formed ArrMaz Gulf Chemicals joint venture in the Kingdom of Saudi Arabia

2011
Acquired Road Science, LLC

2014
Acquired 100% ownership of ArrMaz Chemicals Yunnan, China

2015
Launched oil and gas business unit

2016
Opened Al Jalamid, Saudi Arabia plant
Opened Uberlandia, Brazil plant
Formed ArrMaz Morocco
Started construction of Morocco plant
THIS IS WHAT BETTER STEWARDSHIP LOOKS LIKE.
ArrMaz is committed to environmental sustainability, product stewardship, and protecting the health and safety of our employees, contractors, customers and the global communities in which we operate. Achieving excellence in health, safety and environmental matters is a company-wide responsibility. Accordingly, ArrMaz:

- Systematically integrates environmental sustainability, product stewardship, health and safety into our strategies, business decisions, plans and operations
- Strives to provide a workplace free of occupational injuries/illnesses and environmental impacts through an emphasis on prevention of potential hazards
- Complies with applicable environmental, safety and health procedures, laws and regulations
- Holds management and all employees accountable for environmental, health and safety performance
- Trains employees to perform their jobs in a safe and environmentally responsible manner
- Participates in a behavior-based safety program and promotes teamwork by encouraging all employees to be actively involved in the prevention of incidents
- Practices a continuous improvement manufacturing philosophy driven by a Right the First Time quality culture to ensure that both external and internal customer requirements are met or exceeded
- Systematically audits behaviors, work processes, management systems and equipment to ensure compliance
- Improves the communities in which we operate worldwide
- Ensures that our Sustainability Policy is communicated to all employees and stakeholders, and that all employees are aware of their responsibilities
THIS IS WHAT BETTER GRADE & RECOVERY LOOKS LIKE
ArrMaz is the global market leader in process chemicals for the phosphate mining and industrial minerals sectors worldwide. We develop custom reagent schemes and flowsheet designs for customer-specific ores to optimize grade and recovery. We perform comprehensive mineral flotation and reagent testing to ensure a successful outcome for every project.

Our application expertise and state-of-the-art flotation laboratories around the world enable us to develop the best product for each mineral type, design the optimal application system, monitor product performance and adjust formulations as needed over time.

Many of the world’s leading mineral producers trust ArrMaz’s proven solutions to optimize their process performance and product quality. Involving ArrMaz technical experts early on to develop your custom beneficiation flowsheet and reagent design can help turn your resource into reality. Send us your mineral and let us help you discover your ore’s maximum potential.
THIS IS WHAT BETTER FERTILIZER SOLUTIONS LOOK LIKE
ArrMaz is the global market leader in process aids and coatings for the fertilizer industry. We work closely with our customers to select the best product for each application. As the preferred supplier to many of the world’s largest fertilizer producers, we treat more than 40 million tons of fertilizer each year.

We will conduct laboratory and onsite testing, recommend customized fertilizer additives and coatings, and implement a tailored application system to meet your unique needs. Whether you’re looking for improved product quality or increased process efficiency, our technical experts will recommend the right product for your application.

FERTILIZERS WE IMPROVE

- Ammonium Nitrate
- Ammonium Sulfate
- Biosolids
- Monoammonium / Diammonium Phosphate
- Triple Super Phosphate / Single Super Phosphate
- Nitrogen, Phosphorus and Potassium / NPK Blends
- Micronutrients
- Potash
- Sulfur
- Urea
- And more...

FERTILIZER CHEMICAL TECHNOLOGIES

- Dust Control Coatings
- Anti-Caking Coatings
- Coloring Agents
- Defoamers
- Micronutrient Binders
- Granulation Aids
- Corrosion Inhibitors
- Filtration Aids
- Clarification Aids
- Flocculants
- Antiscalants
The Mine
- Slurry Pumping Aids
- Defoamers
- Flocculants & Coagulants

Phosphoric Acid Plant
- Defoamers
- Filtration Aids
- Clarification Aids

Granulation Plant
- Defoamers
- Granulation Aids
- Dust Control & Anti-Caking Coatings
- Coloring Agents

Fertilizer Blenders
- Dust Control & Anti-Caking Coatings
- Micronutrient Blending

Fertilizer Storage
- Dust Control & Anti-Caking Coatings

Beneficiation Plant
- Anionic & Cationic Collectors
- Frothers
- pH Modifiers
- Flocculants

Transportation
- Dust Control & Anti-Caking Coatings

Float Oils
- Foam Controllers
- Depressants
- De-Watering Aids
Efficient phosphate production requires a complex sequence of interconnected processing operations—each stage of the process affects the next. For example, inefficiencies in mining can adversely affect phosphoric acid production and ultimately impact fertilizer quality. In order to optimize the entire phosphate value chain, it is critical to have a partner that can look at the big picture with you.

ArrMaz is the world’s foremost specialty chemical technology and service provider to the phosphate industry. We work closely with our phosphate partners to ensure that their operations are running as efficiently as possible from mine to market. ArrMaz is with you at each stage of the process from mining and beneficiation, through phosphoric acid and fertilizer production, to fertilizer distribution. We will work with you to deliver the right specialty chemicals to produce better quality fertilizers more efficiently.

## FROM MINE TO MARKET

### PHOSPHORIC ACID MANUFACTURING

#### Acidulation / Reaction
- Defoamers to control foam, avoid visible emissions, increase reactor circulation and optimize the sulfuric acid-rock reaction

#### Filtration
- Filtration aids to increase plant production rates and raw material recoveries

#### Concentration / Evaporation
- Clarification aids to increase phosphoric acid settling rates and accelerate the removal of impurities
- Defoamers to reduce product losses in the evaporation process

### FERTILIZER PRODUCTION

#### Granulation
- Defoamers to increase circulation in the exhaust gas scrubbing system, helping to ensure environmental compliance
- Granulation aids and coloring agents to improve fertilizer quality and appearance
- Coating agents to reduce product losses, improve product handling and ensure environmental compliance

#### Blending
- Binders for macronutrient and micronutrient fertilizer blends

#### Storage
- Additives and coatings to lower dust generation and caking for ease of handling and storage

#### Transportation
- Additives and coating agents to minimize dust and caking during transportation and final delivery to end customers
THIS IS WHAT BETTER PAVING LOOKS LIKE
ArrMaz’s Road Science division is a technology leader in the asphalt industry worldwide. Our innovative offerings span the entire value chain; from formulating and producing key chemical components for asphalt refineries, terminals, emulsion plants and hot mix asphalt (HMA) plants, to providing field engineering support of pavement applications. We develop innovative solutions for the asphalt paving industry in our world-class American Association of State Highway Transportation Officials (AASHTO) accredited laboratory with a focus on four key product areas:

**Chemical Technology** – Asphalt additives and emulsifiers

**Pavement Preservation & Maintenance Technology** – Bonded pavements, micro-surfacing and chip seal

**Asphalt Pavement Recycling Technology** – Hot and cold recycling solutions

**Binder Technology** – Strain tolerant pavement layers and crack relief interlayers
As a global market leader in additives and coatings for the industrial ammonium nitrate industry, ArrMaz has developed a comprehensive portfolio of products engineered specifically for this market to improve process efficiency, and enhance overall product quality and performance.

Our products provide significantly improved prill integrity, porosity control and anti-caking for industrial grade low density ammonium nitrate (LDAN) used as a solid oxidizer for explosive compositions such as ammonium nitrate/fuel oil (ANFO).

**INDUSTRIAL AMMONIUM NITRATE**

**LDAN TECHNOLOGIES**

- Porosity Control Agents
- Anti-Caking Coatings

**BENEFITS**

- Free-flowing prill for improved performance in underground or surface applications
- Reduced moisture and better thermocycle stability
- Improved uptake of liquid fuel oil
- Uniform fuel absorption to enhance reactivity
- Ideal detonation behavior and superior field performance
- Minimized caking tendencies
- Reduced attrition during handling and storage
Employee exposure to silica dust during hydraulic fracturing operations is a continuing concern for the oil and gas industry. Recognizing the need for a better solution to the problem, ArrMaz collaborated with industry experts and applied our more than 50 years of coating technology expertise to develop an effective chemical technology solution for silica dust control. Our patented, next-generation silica dust control coating technology is a proven solution, which, when applied to frac sand, results in significant reductions in respirable silica dust.

Our team of engineers and technical experts will customize an application system to address your specific needs while ensuring a high quality, low dust frac sand for hydraulic fracturing operations.

**OIL & GAS TECHNOLOGY**

- Proppant Coating Technology for Respirable Silica Dust Control in Hydraulic Fracturing Operations

**BENEFITS**

- Up to 99% silica dust reduction built into the sand
- Significantly improved safety and site conditions
- Stable, long-lasting dust control
- Continuous protection from the sand mine to the well head
- Smaller footprint than mechanical systems
- Frac fluid compatible with no negative impact on fracturing operations or well productivity
- Non-toxic, biodegradable and biorenewable
- Reduced sand attrition during transport

_SandTec®_
THE ARRMAZ ADVANTAGE

Your Needs, Our Mission
Simply put, we are driven to ensure our customers succeed.

Unparalleled Expertise
ArrMaz has served the specialty chemical needs of our customers for more than 50 years, providing chemical processing aids and additives engineered to optimize process performance and improve product quality. With our growing team of research scientists, engineers and technical experts our in-depth technical expertise and world-class specialized laboratories remain unrivaled in the industry.

Custom Formulations
We don’t sell “off-the-shelf” chemical products – we custom formulate our specialty chemical solutions to your specific application and system requirements.

Continuous Performance Optimization
Our work doesn’t end after the sale. We continually monitor product performance and conduct onsite analysis to identify and implement process performance optimization opportunities and adjust our product formulas to meet your ongoing needs.

Unrivaled End-to-End Support
From initial assessment, to engineering design, equipment installation, chemical selection and application, employee training and technical support when you need it, our engineering and technical experts are with you every step of the way.

We Are Where You Are
ArrMaz serves customers in more than 70 countries from 7 offices and 9 manufacturing plants worldwide. We are strategically located close to our customers to ensure security of supply, and facilitate cost-effective delivery, ongoing technical support, real-time product performance monitoring and immediate formulation optimization when you need it.

Better Quality, Better Profits
By optimizing your process performance with ArrMaz specialty chemical solutions, you will produce and sell more, better quality products to your customers, and realize better value in the marketplace.
GLOBAL PRESENCE, LOCAL SUPPORT

Contact ArrMaz today for your specialty chemical needs.

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