

Hello, from Uzelac Industries!



Uzelac Industries is a dynamic design-build manufacturing company based in Greendale, Wisconsin, founded by Mike Uzelac in 2003. We have been the innovator of direct-fired rotary systems and dryer design for decades with systems in operation worldwide.

We were formed after Industrial MetalFab Specialties (formerly Poja Heating and Sheet Metal) combined with Duske Drying Systems (formerly Duske Engineering Co.)—two small, family-owned businesses that shared our values. The combination was a natural fit, furthering our position as an industry leader in the manufacturing sector.

Uzelac Industries has an uncompromising commitment to Integrity, Customer Satisfaction and Innovation. Combined, these values provide our customers with the tools to help make them successful.

Uzelac Industries workforce is comprised primarily of journeymen fabricators with over 40 years of experience in Custom Fabrications and Low Quantity Complex Fabrications.

We have specialists in Turnkey Equipment Fabrication and have extensive experience in Stainless Steel, Aluminum and HR/CR Fabrication and Welding.

All of our work is performed while meeting agreed-upon lead times and quality specifications.

“THE HEART OF OUR BUSINESS IS OUR PEOPLE”

- Mike Uzelac, President/CEO

Biomass



Although many substances such as agricultural crops and waste materials can be burned for fuel, the most common biomass used for fuel is wood and wood processing wastes.

Uzelac dryers dry wood chips, sawdust, and wood shavings to be used in the timber industry for such things as OSB, particleboard and wood pellets. In some installations, some of the dried wood from the Uzelac rotary dryer is brought back to a solid fuel burner and burned to heat the rotary dryer to dry additional wood waste, eliminating the need for a natural gas line for the rotary dryer.

In 2016 Uzelac added employees from the former M-E-C and opened a location in Neodesha Kansas to add to their wood drying expertise.

Examples of Biomass we've dried in the past include:

- Clary sage brush
- Algae
- Wood chips
- Wood waste
- Bakery waste
- Fruit and vegetable waste
- Paper waste
- Hemp
- Sugar Cane Bagasse
- Rice hulls
- Kelp

Majestic Valley Pellets

Project Location:

Alamosa, CO

Project Completion Date:

February 2020

System Size:

SPD-6000BB

Finished Product:

Wood Chips

Majestic Valley Pellet reached out to Uzelac Industries to help modify their current wood chip drying system to increase its output.

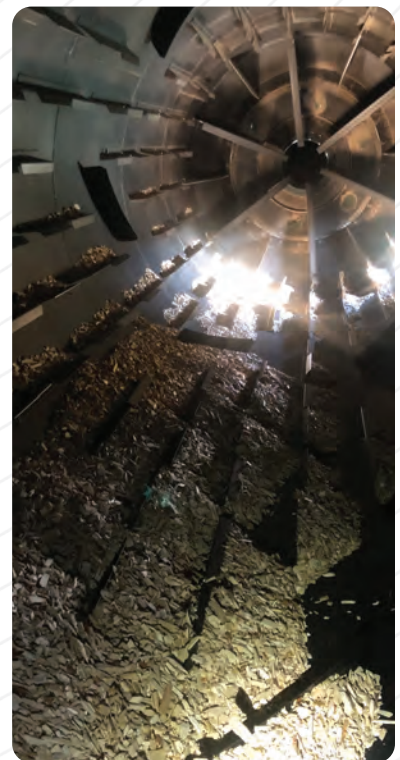
The existing system was a fluidized bed dryer getting heat from a solid fuel burner.

Uzelac was able to modify the system by replacing the fluidized bed dryer with a rotary drying drum. This more than tripled the final product output for Majestic Valley. Uzelac was able to reuse the existing biomass burner and dust cyclone providing Majestic Valley a cost-competitive way to increase their production.

The drying system is drying wood chips down from 45% moisture content to 10% moisture content to allow for pelletizing.

“Uzelac was able to understand my needs and provide a custom solution that was cost effective”

- Jeff Fringer, President Majestic Valley Pellets



Biosolids



Biosolids are nutrient-rich organic materials produced when sludge from either industrial or municipal wastewater treatment facilities are properly treated and processed. After treatment and processing, these residuals can be recycled and applied as fertilizer to improve and maintain productive soils and stimulate plant growth.

In some wastewater treatment applications such as DAF (Dissolved Air Flotation), anarobic digestion, and traditional municipal wastewater, a Uzelac dryer is used for the final drying of the sludge or digestate. The dewatered solids are conveyed to the Uzelac dryer's inlet, where the drying process begins with a heated airflow coming in contact with the sludge. The airflow carries the product from the dryer into a collection system, where the air and dried product are separated. The product is then conveyed to the storage area. Where desired, other operations such as screening and sorting may take place as well.

Drying biosolids in this way help ensure that useful materials are recycled on land and harmful materials are not released to bodies of water.

Examples of Biosolids dried by Uzelac:

- Digestate
- Municipal Biosolids
- DAF solids
- Various manures
- Industrial sludge

Ecoremedy



Project Location:

Morrisville, Pennsylvania

Project Completion Date:

March of 2019

System Size:

SPD-4000

Finished Product:

Biosolids

INDUSTRIAL-SCALE BIOSOLIDS GASIFICATION SERVING THE HOST MUNICIPALITY AND THE GREATER PHILADELPHIA REGION

Within twelve months, Ecoremedy® engineered, financed, permitted, and constructed the facility under an innovative BOOM (Build/Own/Operate/Manage) model.

The Morrisville Municipal Authority provided a quarter-acre parcel adjacent to the dewatering building and a biosolids supply contract for a fixed-fee per ton to Ecoremedy.

Beginning in 2020, the project will process all biosolids generated on-site. An additional 21,000 wet tons per year of capacity is available as a regional merchant facility.

The activated biochar is under development as an alternative powdered activated carbon for filtration and adsorption applications.

*“Uzelac was responsive and easy to work with.
They really stood behind their product.”*

- Dave Mooney President and CEO, Ecoremedy LLC.



Gasification



Gasification is a chemical reaction caused by heating material in an oxygen-starved environment, resulting in incomplete combustion that drives off carbon-rich gases. These gasses are then combusted in a thermal oxidizer with the addition of air. Gasification is often confused with incineration, although they are totally different processes. Incineration is the actual combustion or burning of solid fuels, which takes place at higher temperatures, combusts the material completely, and does not produce a carbon-rich biochar.

Uzelac Dryers are a key part to a gasification system. The Uzelac dryer dries the raw product (such as poultry, cattle or hog manure, sludge, or biosolids). It is then fed into the gasifier to be converted into biochar and energy, which in turn provides heat for the dryer. The char is an odorless, solid, carbon-rich material that is frequently used for soil amendment, animal bedding, animal feed ingredients, or water and soil filtration.

Gasification provides an array of benefits. These include:

- The ability to turn by-products and out-of-spec materials into revenue streams
- Reducing or eliminating costs now associated with non-product material disposal
- Formulating various grades of Biochar from a variety of fuel sources, with those from animal manures having especially high value
- Greater potential for sale of by-products in more stable form
- Significant reduction of mass of original material decreases transportation costs
- Control over energy production
- Freedom from escalating energy prices and foreign control
- Destruction of odors as part of the gasification process
- Meeting regulatory requirements with an alternative solution
- Halting the release of non-beneficial nutrients to waterways as a result of runoff from farm fields and storage piles

Earth Care LLC

Project Location:

Krasnobor, Tula Russia
Roskar, Pervomayskoye Russia

Project Completion Date:

August 2018

System Size:

TPD-10000BB

Finished Product:

Biochar

Earthcare's primary goals are to improve the environment by eliminating byproducts from industrial and agricultural applications, create alternative disposal options, and provide benefits from fuels that what would otherwise be a cost for the customer. There are very few actual waste products in the world; the key is recognizing their potential. Earthcare takes by products of minimal value and create revenue streams that benefit their customers and the environment.

The products coming out of Earthcare's technology are energy and Ecochar. The energy is in the form of hot air and can be used in a variety of applications (steam, building heat, power, etc.). Ecochar, the solid product, is a combination of carbon and mineral ash from the feed material. This valuable byproduct can be used in many applications - soil amendments, soil/water remediation, and animal bedding, just to list a few. Earthcare has developed a formulated fertilizer (Vital Force) utilizing all natural products, including Ecochar as a primary component in the blend.

Uzelac Industries Drying System consists of, a Uzelac Industries triple pass drum, 10'-9 1/4" diameter X 30' long, with the heat source for the dryer being supplied from hot gasses from the gasifier. The system is designed to process 13.5 tons per hour of chicken litter and manure at 50% moisture content and dry them to 10% moisture content.

The system is primarily stainless steel construction.

"The Uzelac dryer was ideal for drying the raw product prior to entering our gasifier. The team at Uzelac was easy to work with, and have extensive knowledge on drying a wide variety of substances."

- Mike McGolden, Earthcare LLC



Hemp



Hemp drying is typically used to protect a harvested crop from spoiling prior to CBD extraction. While some farmers will hang dry portions of their crops, the space and labor requirements to accomplish this make this impractical for substantial amounts.

The Uzelac dryer system is custom engineered for the application after determining requirements from conversations with the customer. The infeed and drum are sized based on the desired TPH (tonnage per hour) and time estimated the dryer will be running. This drying process allows CBD extraction to be done over a longer amount of time, increasing yield. We have reduced moisture content from 80% in to 8% out for previous hemp customers.



KF Hemp

Project Location:

Regina, Saskatchewan

Project Completion Date:

April 2019

System Size:

SPD-12000BB

Finished Product:

Hemp

Building a Legacy of Pioneering New Industries.

Kambeitz Farms has emerged as a North American leader in agricultural production and innovation. It has grown to a 60,000 acre source of the world's finest grains, oilseeds, pulses and hemp . Growing, feeding, protecting and nurturing crops is in their DNA.

Uzelac Industries Drying System consists of a 30MM Btu/hr Burner supplied by Maxon, a Uzelac Industries Furnace, a Uzelac Industries single pass drum, 10'-9 1/2" diameter X 48' long, with a 250 HP Fan. Systems Controls designed and provided by Uzelac Industries are Allen Bradley Panel View PLC controls. The system is designed to process 10 ton per hour of hemp at 80% moisture content and dry them to 8% moisture content. The system is primarily stainless steel construction.

"The team at Uzelac Industries has been true professionals throughout the entire project. They were exceptional with their equipment and process knowledge during my procurement and evaluation stage. Mike Hobbs and Ken Koeslin had the great ability to simplify and articulate technical processes much better than their competitors which is ultimately why we selected Uzelac for our project. We were the first project for them with a hemp specific application and they had the foresight to modify the layout and capabilities of the equipment that they custom designed for our application, specifically with the conveyance challenges that we faced. They were able to adapt to some unique requests without hesitation and with strong confidence in changes because of their rich experience in the drying industry. The installation instructions were very comprehensive and easy to execute both mechanically and with the controls and electrical service. The Uzelac team was also very insightful regarding many of the support equipment for optimizing our drying process such as monitors, moisture balances, etc. The Uzelac team specifically, John Trzesniewski and JR Weber have been supportive and very accessible throughout the build out of the system through commissioning and continue to be as we've successfully and on schedule entered production operations. It became evident that Uzelac selects the best vendors and partners for the controls, burners and other hardware which has allow us to locally adapt and modify our process order to best fit our unique and changing process requirements. I would personally highly recommend using Uzelac Industries has a drying equipment vendor and partner, their true passion for the equipment and the drying industry has made them a leader in the industry and a true pleasure to work with."

- Kris Heshka, Vice President of Operation, KF Hemp



Rendering



Millions of tons of animal by-products are produced in the U.S. each year in the agricultural and animal industries. The rendering process allows for the recycling of animal harvesting wastes that would otherwise be disposed of in landfills.

Rendering transforms waste by-products from the animal industry into stable, valuable and safe-to-use materials such as bone meal, blood meal, and feather meal, which can be used as organic fertilizer for plants or as a nutritional supplement for animals.

Businesses such as JBS, Cargill, and Tyson use Uzelac Industries rotary dryers in the rendering process to remove moisture from the raw material and help produce these end products. Carrying on the tradition of the Duske Dryer, Uzelac Industries is the leading provider of rotary dryers to the rendering industry in the U.S.

For rendering Uzelac has dried:

- Cattle blood
- Pork blood
- Cattle meat and bone meal
- Fish meal
- Feather meal
- Egg shell
- Paunch manure

JBS USA, LLC

**Project Location:**

Grand Island, Nebraska

Project Completion Date:

May 2012

System Size:

TPD-3500BB

Finished Product:

Dried Cattle Blood
(Animal Feed Supplement)

JBS® USA is a leading processor of beef and pork in the U.S. and a leading processor of beef in Canada. They are also a majority shareholder of Pilgrim's Pride Corporation, the second largest poultry company in the U.S., with operations in the U.S. and Mexico. JBS USA represents the North American arm of JBS® S.A., the world's leading animal protein processor with more than 240,000 team members worldwide, more than 300 production units and export customers in more than 150 countries. The company also enjoys a strategic relationship with JBS Australia, the largest processor of beef and lamb and one of the largest livestock feeders in Australia.

This Uzelac Industries Drying System consists of a 10mm BTU Burner supplied by Maxon, a Uzelac Industries Furnace, a Uzelac Industries Triple Pass drum, 7'8" diameter X 23' long, with the Uzelac Industries exclusive BB (Big Belly) feature, expanding the outer cylinder, adding capacity in a smaller footprint. The system utilizes a 60 HP Greenheck fan. The product out feed consists of an Uzelac Industries product collector and high efficiency dust cyclone. Uzelac Industries also designed and provided a raw blood coagulator. Systems Controls designed and provided by Uzelac Industries are Allen Bradley Panel View PLC controls. The system is designed to process 10 Tons per hour of raw blood at 84% moisture content and dry it to 10% moisture content. The system is primarily stainless steel construction and shipped pre-assembled and pre-wired on a painted hot rolled steel structural frame.



Rotary Dryer Diagram

