

2018 CATALOG AQUAFIX

www.teamaquafix.com

BUILDING BETTER WASTEWATER BIOLOGY



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CONTACT US

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Hours: Monday — Friday 7:30 am — 4:00 pm CST
Email: info@teamaquafix.com
Order: www.teamaquafix.com or orders@teamaquafix.com
Para español, envíe un email a: international@teamaquafix.com

Proven Products

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GREASEBERGS

WHAT YOU SEE ON THE SURFACE
IS ONLY THE BEGINNING.

AS HARD AS CONCRETE

Avoid dangerous removal. Degrade your toughest greaseberg with GreaseZilla.



AVOID DOWNSTREAM BUILDUPS

A recent greaseberg discovered in London weighed in at 280,000 pounds. That's the equivalent of 25 full grown African Elephants!

MEET THE GREASEBERG'S WORST ENEMIES ON PAGES 12-15

2018 WEBINAR EVENTS



Free to attend · Lots to learn · Easy to join

CLIP & SAVE



AQUAFIX
SIGN UP
TODAY

[teamaquafix.com/
upcoming-webinars/](http://teamaquafix.com/upcoming-webinars/)

training@teamaquafix.com

JANUARY 24TH	RESTORING NITRIFICATION
FEBRUARY 28TH	GETTING RID OF LAGOON SLUDGE
MARCH 28TH	TOXICITY IN YOUR WASTEWATER PLANT
APRIL 25TH	OVERCOMING LOW FOOD AND LOW F:M
MAY 30TH	KEYS TO ANAEROBIC DIGESTER STABILITY
JUNE 28TH	CAUSES OF AND SOLUTIONS TO LAGOON ALGAE
JULY 25TH	ELIMINATING RED WORMS & MIDGE FLIES
SEPTEMBER 26TH	TURNING GREASE INTO HELPFUL FATTY ACIDS
DECEMBER 5TH	ELIMINATING FOAM CAUSING FILAMENTS



THE AQUAFIX TEAM



KEVIN RIPP DIRECTOR OF SCIENCE & INNOVATION

FROM MY BEGINNING IN A WASTEWATER PLANT... I learned how stressful a wastewater operator's job could be. It's difficult to manage what is going out the effluent when you have no control over what comes in the influent. After studying biological sciences in college I started to appreciate the powerful yet sensitive nature of wastewater biology. In 2000, I founded Aquafix with the goal of developing great biological technologies that go to work for the underappreciated people who work in the wastewater industry. Today we treat wastewater across the world using select bacterial cultures, biochemical catalysts, and powerful biosimulants. We want to be your first resource for questions related to your biology and wastewater issues.

Our 100% satisfaction guarantee means we will stick with you until your problem is solved.



JOHN DINNEEN TECHNICAL SERVICES MANAGER

John.D@teamaquafix.com

John enjoys solving challenges with wastewater operators and helping them see their wastewater biology in a new way. Working with operators across the country who run a wide array of treatment systems, he learns something new everyday. If you're curious about a product, give John a call.



PRODUCTION MANAGERS

Linda and Matt are the experts of everything in the world of production. They make sure your orders are made with the latest equipment, held up to the highest standards, and sent out to you as quickly as possible. Every case of product you receive has been given the stamp of approval by them.

(From left to right) Linda, Matt

OUR PLEDGE | Safer water and better lives through pioneering biosciences.



DEBORAH LEE MICROBIOLOGIST

Deborah Lee holds a Master's Degree in Microbiology and has always been interested in microscopic organisms. She joined Aquafix in 2009, heading up the Aquafix Laboratories. Deborah is an expert in all things regarding nitrification and is studying foaming filaments, nitrification, isolation of new bacterial strains, and is conducting laboratory testing.



DAN SMEATON CHEMIST

Dan Smeaton holds a Bachelor's Degree in Chemistry and learned much about wastewater from his father, who trained operators and taught courses in wastewater for around 30 years. After becoming part of the Aquafix team in 2014, Dan quickly built up an expertise in anaerobic digesters and also studies the effect of toxicity on wastewater treatment plants.



OFFICE TEAM

Whether it's taking your order, arranging the shipping, helping you with your invoice, or getting this catalog into your hands, our office team is here to bring everything Aquafix to you.

*(From left to right) First row: April, Anastasia
Second row: Emily, Cally. Third row: Derek, Kana*



THE AQUAFIX LABORATORIES
UNIVERSITY OF WISCONSIN RESEARCH PARK

OUR **NEWEST** TEAM MEMBERS



DAN PETERSON TECHNICAL SERVICES

Dan.P@teamaquafix.com

Dan has been working with Aquafix for 5 years, and has been in the wastewater industry since 1999. In that time he's become an expert in all things related to the collection system, especially grease control. He is now splitting time between South Carolina, and Chicago, and does a great job servicing customers in both areas.

JAMIE HACKBARTH LAB TECHNICIAN

888.757.9577

A science geek at heart, Jamie works in our lab helping customers with bulking foaming and nutrient deficiency issues. Jamie is also involved in Treatability Testing of more problematic wastewater streams. In this capacity she gathers data on the performance of Qwik-Zyme products on a wide range of industrial influents.

JONATHAN COOK TECHNICAL SERVICES

Jonathan.C@teamaquafix.com

Jon is the newest member of the Aquafix team, servicing Illinois. Upon starting, he quickly showed that he's not one to back down from a challenge. Bring Jon your toughest wastewater challenges, and there's a great chance he'll utilize all his resources to present you a solution that works.

GREG SCHWARTZ TECHNICAL SERVICES

Greg.S@teamaquafix.com

Greg seems to be determined to visit every wastewater plant in the states of Wisconsin and Minnesota. He goes the extra mile to show his customers that he is invested in their success, and is known for being able to think outside the box to find unconventional approaches to complex problems.

OUR **LATEST** INNOVATIONS

»»NEW

SMARTBOD



LEARN MORE: PAGES 24-25

»»NEW

VITASTIM REBUILD



LEARN MORE: PAGE 23

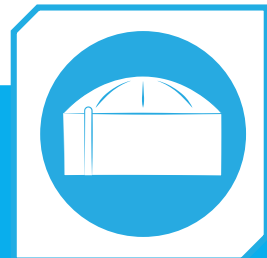
»»NEW

Boost **N** Lock



LEARN MORE: PAGE 31

ANAEROBIC FOOD SUPPLEMENT



LEARN MORE: PAGE 28

GREASEJETT GREASEZILLA



LEARN MORE: PAGES 12-15



WORLD'S SMALLEST WWTP

A MINI MARVEL OF WASTEWATER

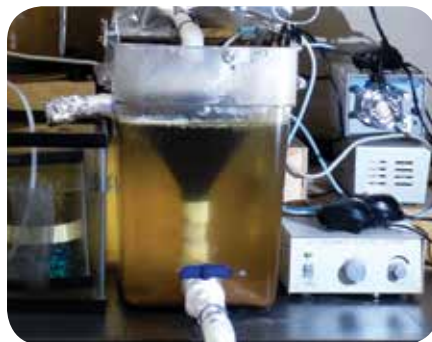
At 7.8 milliliters per minute the World's Smallest Wastewater Plant features all the bells and whistles of the traditional activated sludge plant that can be found in any industry or municipality. With D.O. control and variable rates of returns we can simulate any process and any problem. Let's say a plant gets dumped on with toxicity, or gets copious amounts of grease; we can simulate it in our plant, run a plethora of technical tests, and predict what will

happen: how it will affect sludge bulking, foaming, nitrification, and effluent.

With 7.8 ml per minute we can predict what will happen in a 780 gallon per minute plant before it even happens. It's our passion for wastewater that compels us to develop prototypes like the World's Smallest Wastewater Plant and develop technologies that improve operators' lives.



Aeration basin



Clarifier



Polishing pond



wastewater experts



How to Videos

“The Science Behind It”

Interesting Field Stories

Follow us online for our expert advice, on the go!



@teamaquafix



@Aquafixbugman

Post | Photo/Video

Tell us your craziest wastewater story...

Post

Photos



Videos



Team Aquafix



HELP!!!

Uh oh, that's a pretty bad Greaseberg! Check out pages 12-15 of this catalog to see how we can help!

GREASE



LIFT STATION GREASE

THE EASIEST SOLUTIONS

Aquafix technologies for fat, oil, and grease control are the result of constant research and development from our lab. Our microbiologists receive a steady supply of grease samples from collection systems all across the country each week. But we don't just rely on fatty acid analysis to test our products; our most valuable resource is the network of lift stations we trial new formulations on. More than 17 years of fine tuning and lab testing led to the powerful performers below.

*Say goodbye to
4 am alarms and
confined-space entries.*

» Read more about removing grease at www.teamaquafix.com/grease-control-in-wastewater/



*Look,
no netting!*



BUG ON A ROPE

A GREAT PRODUCT JUST GOT BETTER. We've just improved the bacterial formulation of this operator favorite. Now Bug On A Rope contains a strain of fast-release bacteria in the core of the brick. The same grease-eating bacterial power, enzymes, and biostimulants with quicker results!

9 lb Brick ----- \$160.00
Case of 4 Bricks ----- \$560.00



VITASTIM GREASE

VitaStim Grease is excellent for chewing up high levels of grease and fatty acids. It will control foaming, decrease sludge production, and reduce grease and filaments.

30 lb Pail ----- \$16.41/lb
Available in 1 lb or 1/2 lb packets.



BEFORE



AFTER

GreaseZilla chewed up all the excess grease buildup.



*Fast acting.
Removes old
hardened grease.*

GREASEZILLA

GreaseZilla is the latest technology that removes the hard, stuck on grease rings while lowering odors in various applications. This product is also effective in the winter months.

5 Gallon Case -----\$38.00/gal

55 Gallon Drum -----\$33.00/gal



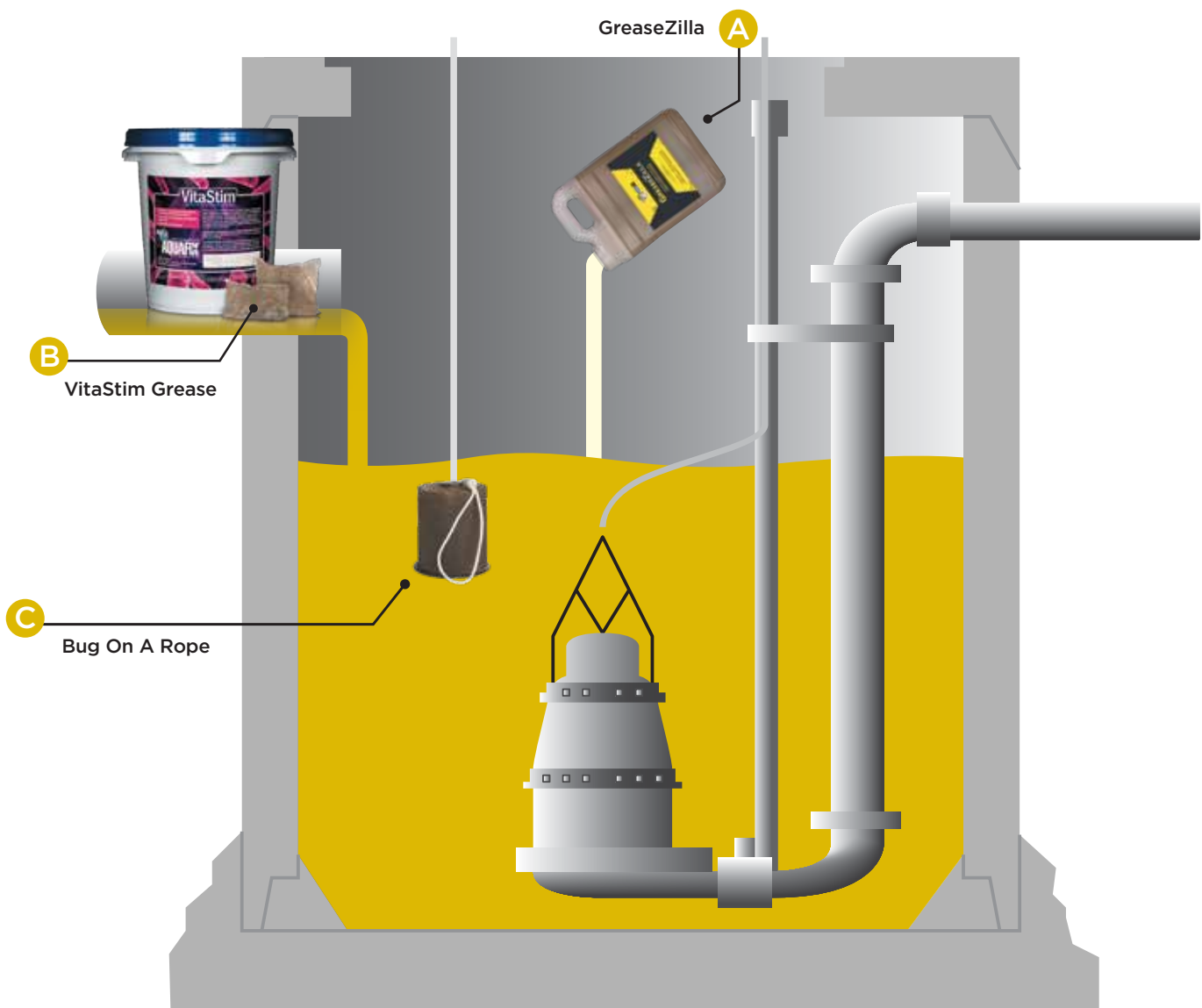
SUCCESS STORY

Dan has been working in wastewater plants for 35 years with "never a dull day" and has given himself the title of "Turd Herder." As with any wastewater operator, a good sense of humor is needed as well as a good head on your shoulders to solve the problems thrown at you every day. For Dan this means industrial and restaurant contributions that send him buckets of grease. In the lift stations he uses our GreaseZilla and VitaStim Grease. In the wastewater plant he uses the VitaStim Grease and our Qwik-Zyme L. With all his years of experience, he says our products and technical service are second to none.

LIFT STATION APPLICATION DIAGRAM

Aquafix produces three exceptional products to treat tough grease found in lift stations. All three are great options to clean and prevent grease accumulations, and you can choose what is easier for you. Read more on pages 12-13.

- A** GreaseZilla — Designed to be poured directly into the lift station to combat hard stuck on grease.
- B** VitaStim Grease — For best results, packets should be tossed in upstream to lift station to fight FOG in the water.
- C** Bug On A Rope — Lowered into the lift station near the incoming flow. And look, no netting!



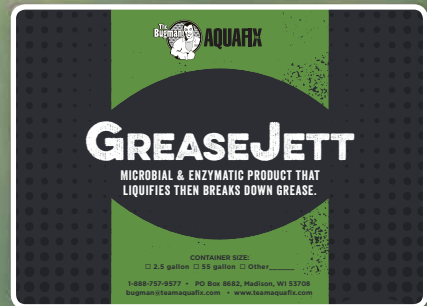


SEWER JETTING **MADE EASY**

SUPERCARGE YOUR JET TRUCK

Go beyond dislodging grease and begin treating it from the moment the jetter solution hits it. GreaseJett is added to the jetter truck tank and when sprayed, a balanced blend of enzymes help to better dislodge grease.

Just as importantly, the enzymes immediately begin degrading the dislodged grease, as well as working on any remaining deposits. You get a better jet performance, and residual benefits of enzymes that last long after the jetting event is over.



By Greg Goebel from Loveland CO, USA (Yvvac_1b Uploaded by High Contrast) [CC BY-SA 2.0 (<http://creativecommons.org/licenses/by-sa/2.0>)], via Wikimedia Commons



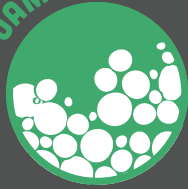
Also neutralizes odors!

GREASEJETT

Blended into GreaseJett is the synergy of several different enzymes that have the ability to liquify and then break up grease deposits and degrade accumulations down to their elemental form.

- 5 Gallon Case -----\$23.00/gal
- 55 Gallon Drum ----- \$19.50/gal





WIN THE FILAMENT WAR

DEFLATE AND ELIMINATE

Attack the source of the foam. Foaming filaments like *Nocardia* and *Microthrix parvicella* don't often go away on their own.

Fight the cause of the foam with our filament line, and learn more about how to exploit these filaments' weaknesses on pages 48-51.

Discover the source with Filament Origins testing pg 46



Microthrix parvicella

Read more about these filaments on pg 49.



Nocardia



Work better together



FOAM BUSTER

ONE OF A KIND. Foam Buster is a micronutrient blend that controls foaming by giving the naturally-occurring bacteria biostimulants to fully digest grease and fatty acids.

30 lb Pail ----- \$10.00/lb
Available in 1 lb packets.

50 lb Bag, bulk ----- \$6.50/lb

QWIK-ZYME L

WORKS FAST. Provides a fast way to breakdown grease and long chain fatty acids that can build up in wastewater plants and cause foaming. Use with Foam Buster to accelerate results. Works great in SBRs!

5 Gallon Case ----- \$36.50/gal

55 Gallon Drum ----- \$29.54/gal



Quantity discounts available for plants larger than 3 MGD.



BEFORE



AFTER

A member of the Fox Valley Operator's Association has an activated sludge plant in Northeastern IL and was having issues with *Microthrix parvicella*. They used Foam Buster and Qwik-Zyme L to clear it up in under a month.



DEFOAM 3000

STRONGER THAN EVER. DeFoam 3000 is an extremely effective defoamer specifically formulated to control foam in biological wastewater systems. A fast fix for emergencies. Call for pricing.



SUCCESS STORY

Travis was getting dumped on by a manufacturing plant that used a lot of surfactants (soap) in their process. Within minutes of the soap hitting his aeration basin, his aerators were under water causing a foaming mess and foamy effluent.

To combat the effects of soap, Travis turned to Foam Buster and Qwik-Zyme L. Through daily additions of Foam Buster and Qwik-Zyme L he was able to breakdown the long chain molecules and stop the foaming.

FILAMENT DOCTORS

Microanalysis & Filament Origins
\$425, pg 46

NOCARDIA: FOAM IS JUST THE BEGINNING

Deb: Did you get a chance to look at the Fairview samples today? It sounded like they were experiencing foaming in their aerobic system as well as some mild bulking issues.

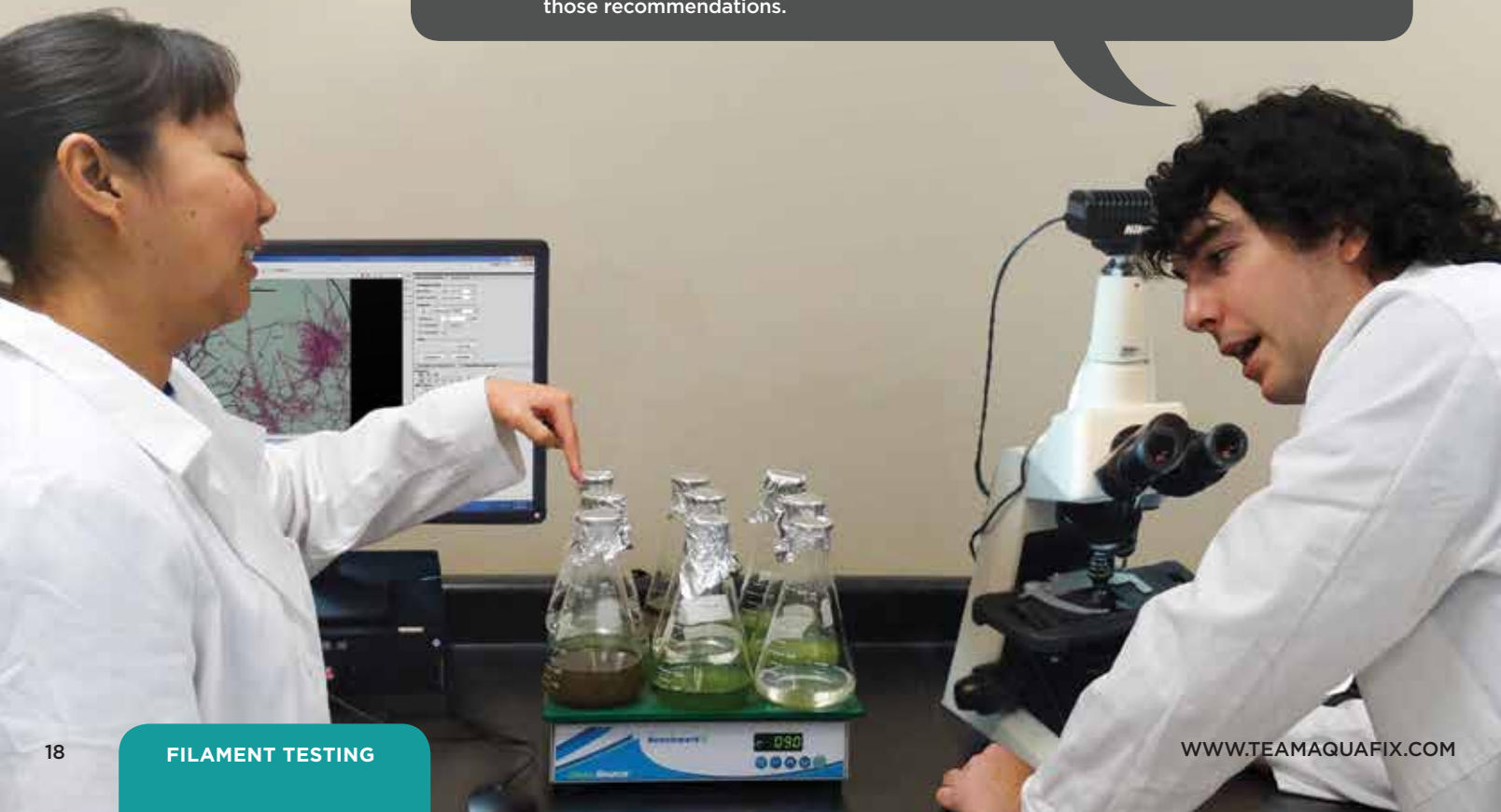
Dan: I just finished with the sample and noticed that their foam contained very high levels of Nocardioforms. Their mixed liquor also appeared to contain significant levels of Type 1851 which could be contributing to bulking.

Deb: That's interesting, Type 1851 is a low F:M filament, but their F:M ratio isn't very low. It looks like the Nocardioforms must be using up all the food.

Dan: Yeah, they can probably reduce levels of low F:M filaments by getting rid of the Nocardioforms. They should reduce sludge age by increasing their wasting.

Deb: That sounds good. Adding Qwik-Zyme L to their inflow, and Foam Buster to their aeration basin will help better digest grease, and boost the floc forming bacteria to get rid of Nocardioforms.

Dan: That will also help prevent foaming in their digester. I'll write up the report with those recommendations.



DON'T TOLERATE FOAM A DAY LONGER

Foam caused by large amounts of surfactants in the influent



Elimination and quick deflation of the foam



5 ft of foam in the aeration basin that spilled into the clarifier

QWIK-ZYME L & FOAM BUSTER (PG 16)

AMMONIA

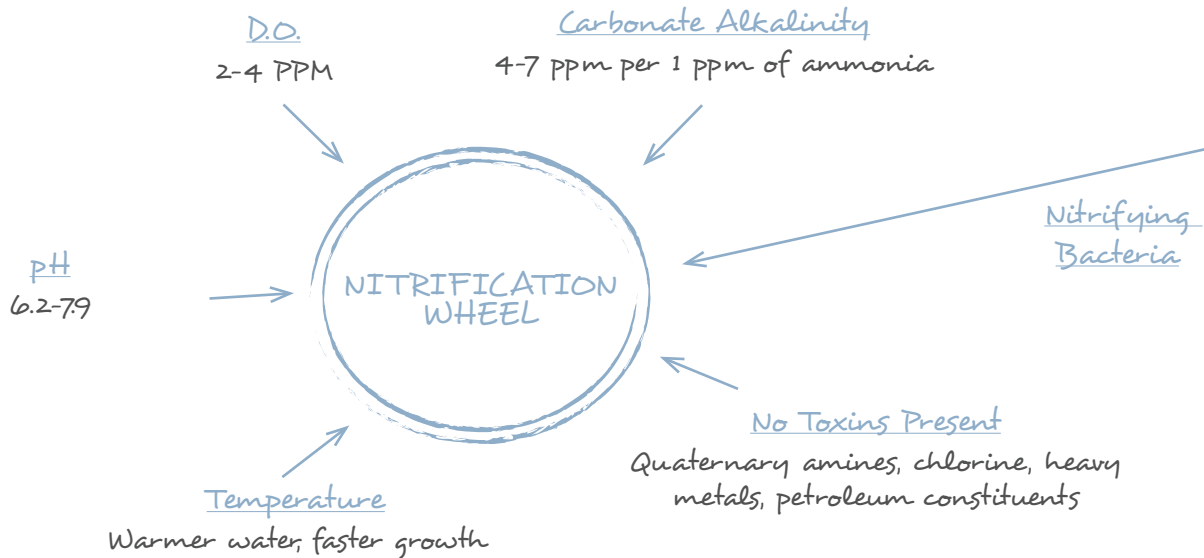
LOWER IT NOW

Our Dynamic Duo works two ways to lower ammonia quickly by seeding in important nitrifying bacteria. If left to nature, the slow growth rate of nitrifiers means operators will be stuck waiting.

Dynamic Duo is cultured to work in the real world where cold temperatures, toxicity, and plant design are out of your control. Dynamic Duo is the fastest way to get your plant nitrifying again.



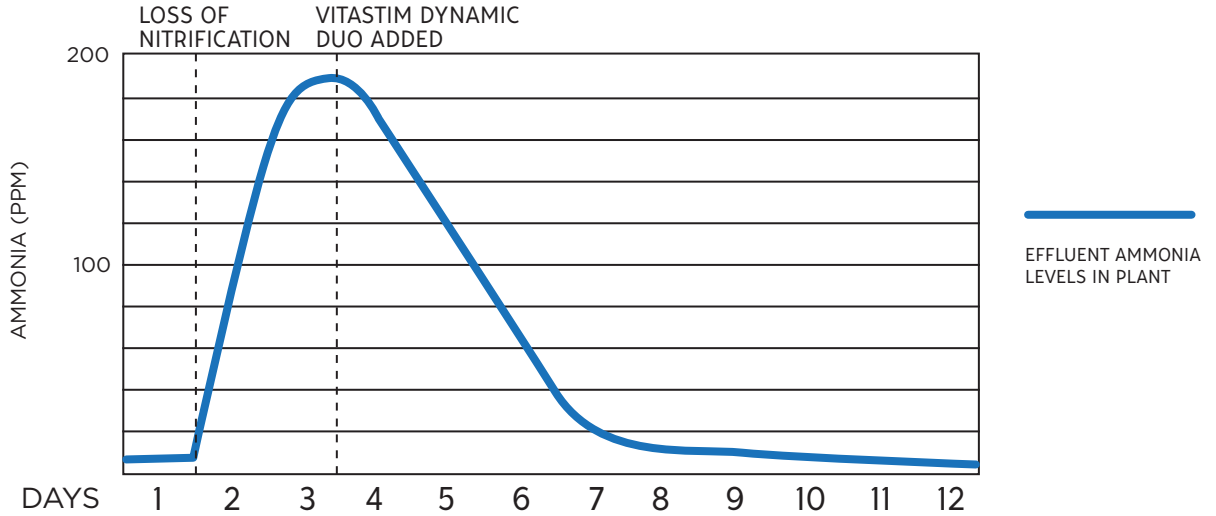
Browse our videos on ammonia and more at www.teamaquafix.com/videos



SUCCESS STORY

"We really like the ability this gives us to control ammonia. We've been very satisfied."

AMMONIA LEVELS IN A FOOD PROCESSING PLANT



A food processing facility in Minnesota lost nitrification in its aerobic tanks and the ammonia level shot up to 189 ppm. Four days after using the Dynamic Duo the effluent ammonia had lowered to 17.2 ppm and became non-detectable.

VITASTIM DYNAMIC DUO

STRONGER TOGETHER. This combination packs a powerful punch helpful to the growth and reproduction of nitrifying bacteria. This combo is made up of VitaStim Nitrifiers and VitaStim Ammonia Assimilators, which contain active bacteria including *Nitrosomonas*, *Nitrobacter*, *Nitrospira*, and heterotrophic nitrifiers at the highest concentration in the industry.

2 Quart Case ----- \$216.00/case
(1 of each)

4 Gallon Case ----- \$1,056.00/case
(2 of each)

» Quantity discounts available for plants larger than 3 MGD.



Go to our website to learn more about restoring nitrification:
www.teamaquafix.com/ammonia-removal-restoring-nitrification/

RED WORMS

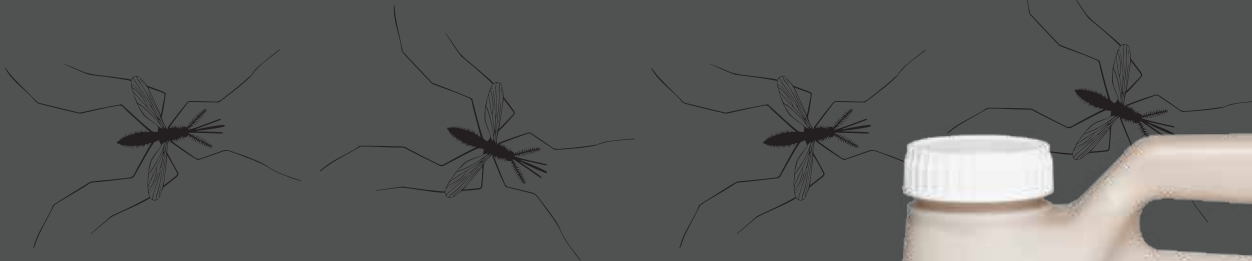


MIDGE FLIES & RED WORMS

KILL THEM DEAD

Red worms and the midge flies they hatch into are not just a nuisance, they can have serious operational impacts. Red worms fatten up by feeding off your treatment plant's nutrient-rich bacteria and sludge.

You might even see your plant's mixed liquor decrease even though you're not wasting. With a quick 10 day growth cycle, these worms repopulate fast; that's why it's important to hit them hard in the larval stage and disrupt the cycle.



Active ingredient is a non-toxic bacterial strain.



AQUABACxt

XT'RA EFFECTIVE. US EPA approved larvicide for controlling red worms and midge flies in wastewater treatment plants.

5 Gallon Case ----- \$69.00/gal

SUCCESS STORY



Richard is the chief operator of a 1.3 MGD design capacity plant with 3 oxidation ditches, with a 4th ditch being added soon. They operate under the very tight standards of the Chesapeake Bay watershed. During warm weather and lower flows, red worms show up in his plant, and left unchecked they cause issues with nutrient removal. "We were infested with midge flies until I started using AQUABACxt weekly. It completely took care of the flies and red worms. I highly recommend this product to anyone to control midge flies."



Red worms hatch to become midge flies.

ENHANCE AQUABACxt'S PERFORMANCE:



Breaks down cocoons; exposes more red worms to AQUABACxt.

BUGJUICE

Red worms protect themselves from AQUABACxt by hiding in fats, papers, fibers, and waxes. BugJuice destroys their defensive barriers and enhances AQUABACxt's performance.

- 5 Gallon Case ----- \$70.00/gal
- 55 Gallon Drum ----- \$64.00/gal



NEW!

VITASTIM REBUILD

Red worms eating your sludge? VitaStim Rebuild helps rebuild your mixed liquor.

- 30 lb Pail ----- \$16.65/lb
- Available in 1 lb or ½ lb packets.



A SMARTER CARBON SOURCE FOR THE 21ST CENTURY

Bring your mixed liquor back to life. SmartBOD puts more control back into the hands of the operator, to improve nutrient removal, and build a better floc.

Offsets Problems Related To:

- Low Incoming BOD
- Incoming Toxicity
- Poor Settling or Bulking
- Low F:M Filaments

» SmartBOD was evaluated by UW-Stevens Point. [Read more on pages 66-67.](#)



« NEW!

Vastly outperforms dog food, molasses, and crude glycerin.

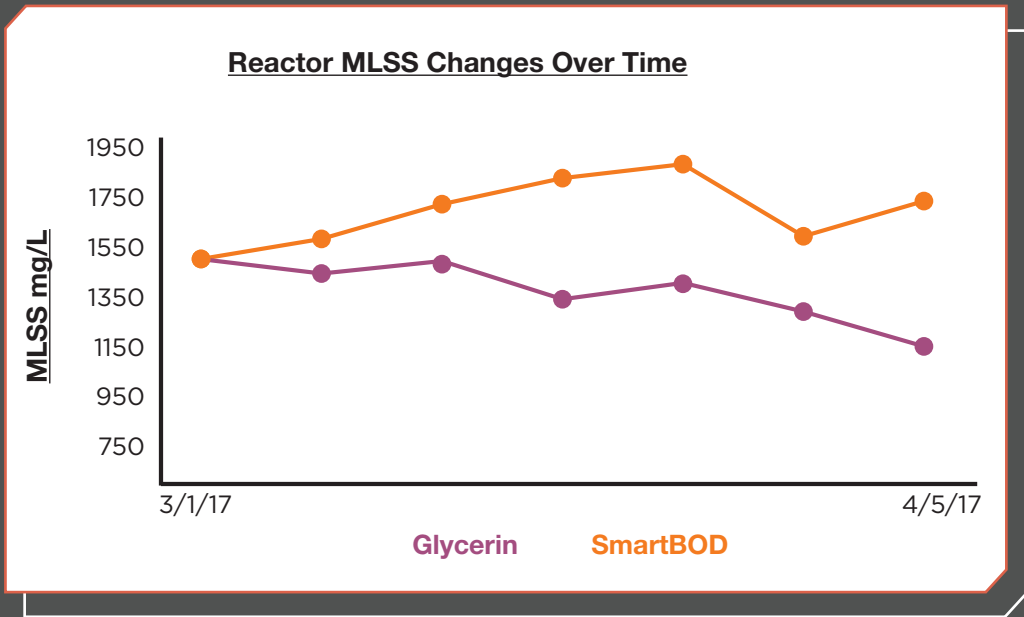
SMARTBOD

SmartBOD provides an advanced carbon source to promote flocculation, build a healthy and diverse biomass, and can promote ammonia and phosphorous removal. As a dry powder SmartBOD is easy to use and can be added in by hand or in larger applications can be fed with a screw feeder or slaking system.

50 lb Bag (bulk) ----- \$8.50/lb



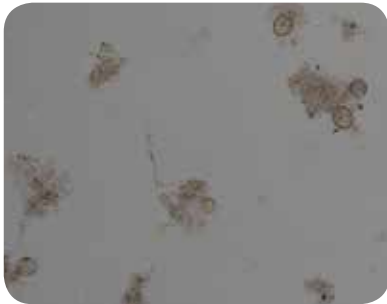
UW-Stevens Point study comparing SmartBOD to common glycerin based carbon. SmartBOD builds a more robust and better settling mixed liquor.



More carbon study results on pages 66-67.

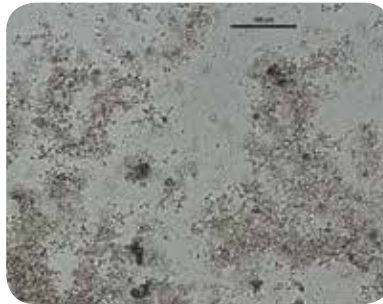
SMARTBOD

GOOD BIOLOGY IN TOUGH CONDITIONS



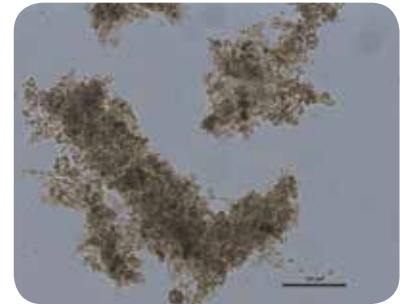
DAY 1

Poor nutrient balance resulted in only partial floc formation. Operators experiencing poor settling, and high susceptibility to filaments.



DAY 7

After adding SmartBOD for seven days bacterial health is improving. Floc structure is starting to come together, and effluent quality is improving.



DAY 14

Floc are fully formed and settling well. Nutrient removal is excellent, and the plant is much less likely to suffer from filamentous bacteria.



ACCELERATING AEROBIC DIGESTION

The toughest types of BOD to degrade end up in your digester. BugJuice creates a better decant, improved settling, and thicker sludge by digesting these difficult substrates. The catalysts in BugJuice do this by speeding up reactions that transform insoluble BOD into soluble BOD.

What is
insoluble BOD?

- Lint
- Paper
- Fibers
- Grease



SUCCESS STORY

Alan runs a 0.5 MGD oxidation ditch in East Texas. This plant receives a combination of municipal and industrial waste and it sees a fair share of grease. This can cause excess sludge and poor settling in his aerobic digesters.

In the digester he adds BugJuice to degrade grease, papers, and fibers and as a result he gets better settling, produces less sludge, and he keeps his polymer costs down.



BUGJUICE

BugJuice saves you tens of thousands of dollars by cutting hauling 10%-30%. It reduces sludge, increases percent solids, improves settling, reduces foaming, and clears decant water.

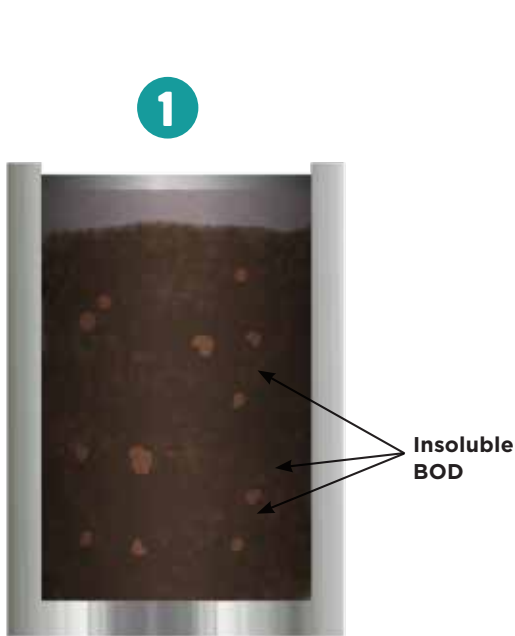
5 Gallon Case ----- \$70.00/gal

55 Gallon Drum ----- \$64.00/gal

HOW BUGJUICE WORKS



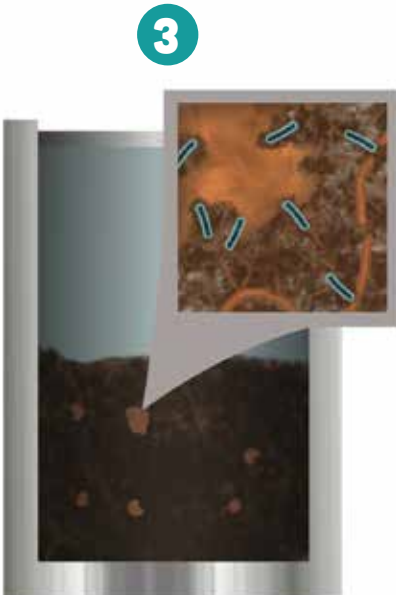
BugJuice converts insoluble BOD into soluble BOD that bacteria can use.



30% of the BOD in a wastewater plant is insoluble and ends up in the digester. In the digester they bulk up the sludge, dewater poorly, and cause a cloudy supernate.



BugJuice is a biochemical catalyst that converts these insoluble BODs.



As BugJuice converts these BODs, bacteria work to consume the previously inaccessible energy source.



30 days later, the result is a more refined sludge. The more refined sludge has a higher percent solids, settles better for a clearer supernate, and dewater better for easier and cheaper disposal.



STIMULATING ANAEROBIC DIGESTERS

- 1 Boost Methane**
Biogas1 delivers essential micronutrients
- 2 Build Methanogens**
Anaerobic Food Supplement builds robust methanogen populations
- 3 Stop Upsets**
- Qwik-Zyme L digests fats and oils that cause foaming



BIOGAS1

Biogas1 boosts methane production and improves the function of methane forming bacteria by delivering bioavailable micronutrients. This product speeds conversion of volatile acids and can help anaerobic digesters become more stable.

5 Gallon ----- \$24.85/gal

55 Gallon Drum ----- \$17.40/gal



Helps methane formers keep up.

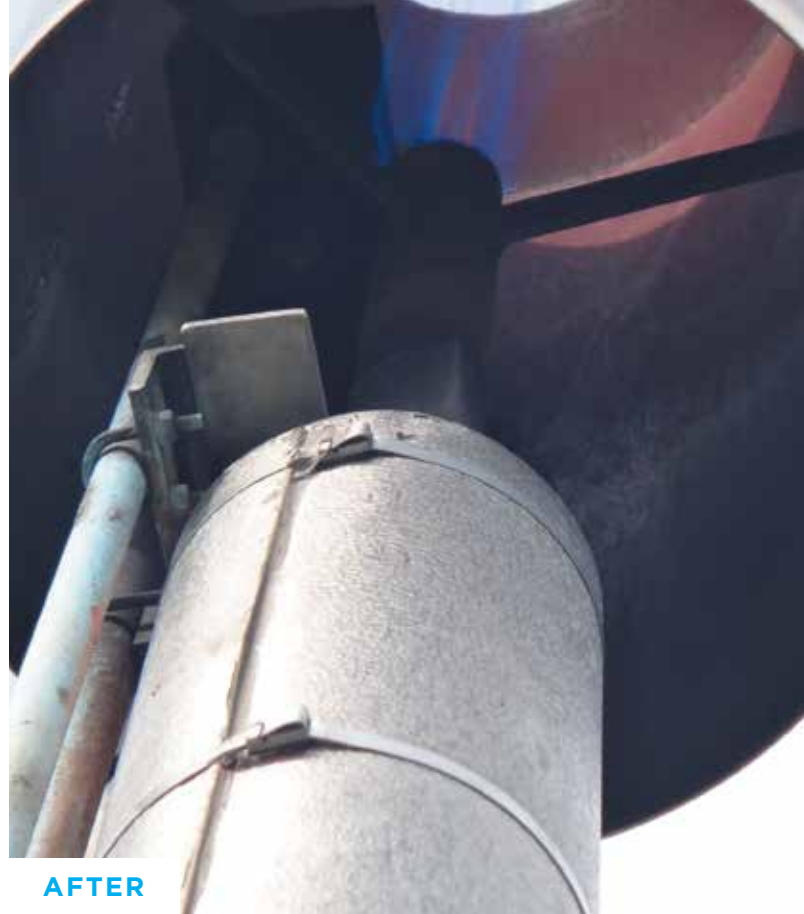
ANAEROBIC FOOD SUPPLEMENT

Grows your population of methane forming bacteria. Great for digester startup, and when loading is low or inconsistent. This food supplement contains the building blocks of anaerobic life to build and maintain methanogen populations.

30 lb Pail (bulk) ----- \$8.45/lb



BEFORE



AFTER

Using Biogas1 improved gas production significantly.



QWIK-ZYME L

WORKS FAST. Lipid-degrading enzymes that break down grease and long chain fatty acids that can build up in anaerobic digesters and cause foaming. Add whenever a load of high FOG feedstock is added, or whenever fatty acids are building up in the digester.

5 Gallon Case -----\$36.50/gal

55 Gallon Drum -----\$29.54/gal



SUCCESS STORY

Rob and his team run an anaerobic digester that converts organic food and agricultural waste into energy. The microorganisms break down biodegradable organic waste without oxygen. However, the occasional mechanical issue, change in incoming feedstock, volume processed, or other minor changes can cause upsets.

To help their system better handle fats, oils, and grease, they add Qwik-Zyme L daily to the EQ blending pit. This helps kick start the process of turning complex fats into simpler short chain fatty acids. When fats are allowed to build up, operators often note an uptick in their volatile acid concentration. Now any time they need to bring down the volatile acids a little Qwik-Zyme L is always close by to help.

ANAEROBIC DIGESTER APPLICATION DIAGRAM

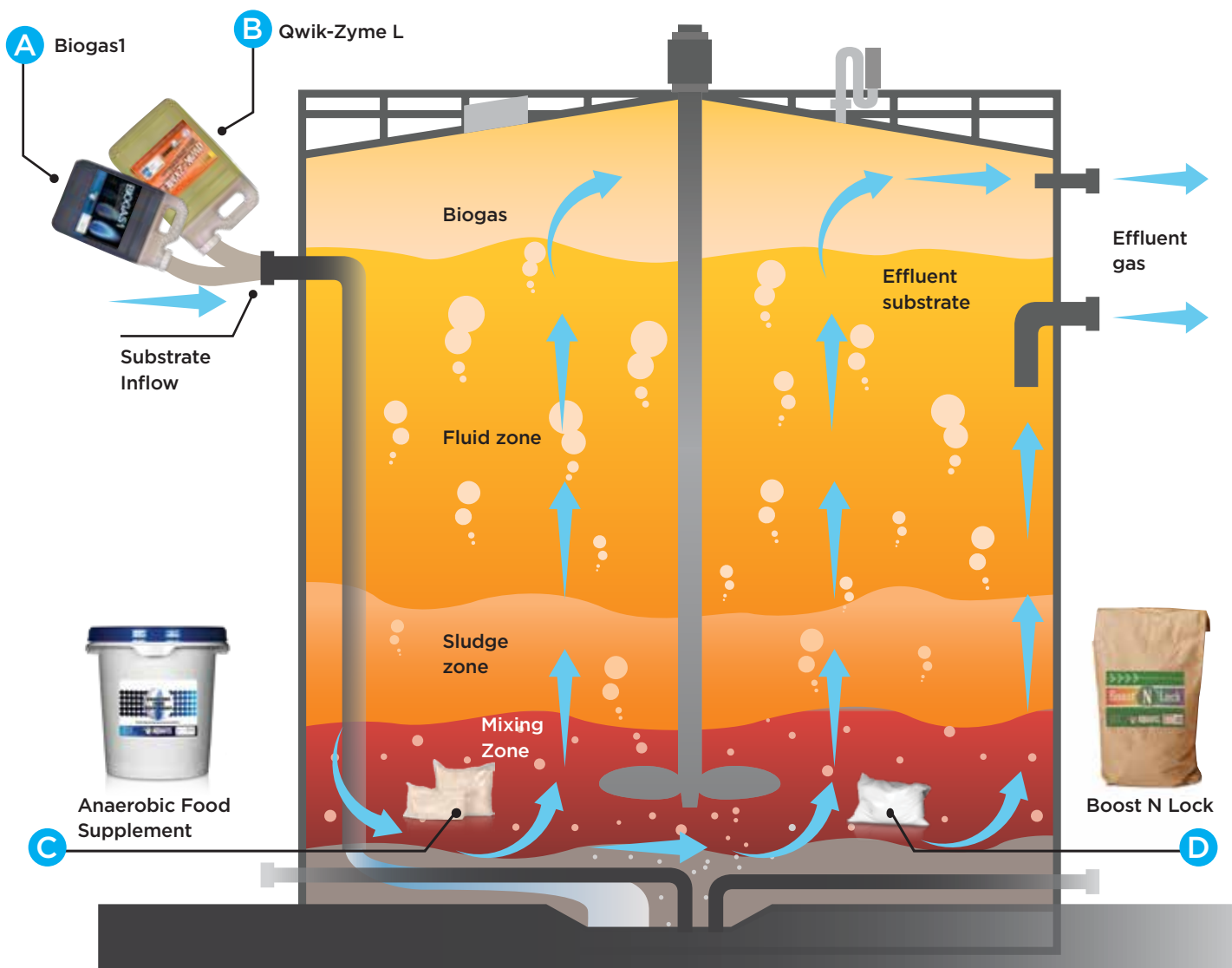
Anaerobic digesters encounter a serious problem when methane-forming bacteria struggle to catch up and complete methanogenesis. To protect methanogenic bacteria, and boost methane production, we use our Biogas1, Anaerobic Food Supplement, and Qwik-Zyme L, found on pages 28-29, as well as our Boost N Lock, found on page 31.

A Biogas1 - Increase methane

C Anaerobic Food Supplement

B Qwik-Zyme L - Fat degrader

D Boost N Lock - pH Control



pH DROPPING?

BOOST IT & LOCK IT

The combination of pH adjusters in Boost N Lock work better together than any individual component could. It works in aerobic and anaerobic systems for preventing pH drops and for adjusting pH up to neutral. Boost N Lock is safe to use and won't contribute to sludge accumulation.

The bicarbonate, carbonate, and hydroxide alkalinity found in Boost N Lock stabilize the pH by improving buffering capacity. As an added bonus in plants that struggle with nitrification, the added alkalinity can help boost nitrification.



Use aerobically or anaerobically.



NEW!

BOOST N LOCK

This ultra-efficient blend of pH adjusters prevents pH drops and raises pH to neutral when starting pH is above 6. Below 6 use pure magnesium hydroxide first, then Boost N Lock.

50 lb Bag (bulk) ----- \$2.40/lb

2000 lb Pallet ----- \$1.50/lb



4 ADVANTAGES OF OUR DAIRY WASTE SOLUTIONS

- 1 **Digests** fats and proteins
- 2 **Improves** effluent clarity
- 3 **Boosts** nitrification
- 4 **Reduces** polymer costs

Cheese plants tend to be overloaded, and on top of that dairy proteins and fats are difficult to degrade. This can result in foaming, excess sludge, and a cloudy effluent. Our Dairy Waste Line will clean up this waste, reduce sludge production, and slash the polymer budget.

» Learn about our dairy treatments at www.teamaquafix.com/products/milk-cheese-control/qwik-zyme-p-cheese-plant-odor-control/



Work better
together



QWIK-ZYME L

WORKS FAST. Provides a fast way to break-down grease and long chain fatty acids that can build up in wastewater plants and cause foaming. Use with VitaStim Cheese Degradator to accelerate results. Works great in SBRs!

5 Gallon Case -----\$36.50/gal

55 Gallon Drum -----\$29.54/gal

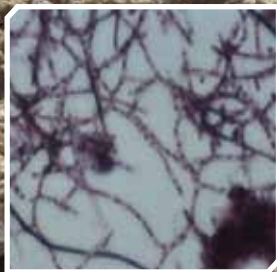
VITASTIM CHEESE DEGRADER

DEGRADES SUGARS AND DAIRY FATS. VitaStim Cheese Degradator is great for cheese and dairy production facilities. It chews up your dairy waste stream's proteins and fatty acids in order to reduce grease, filaments, sludge hauling, and foaming.

30 lb Pail ----- \$24.50/lb
Available in 1 lb or 1/2 lb packets.



BEFORE



AFTER

When high fats and proteins caused foam in this dairy plant, Qwik-Zyme L and Qwik-Zyme P were the solution. Read more in the success story below.



QWIK-ZYME P

REDUCE SLUDGE PRODUCTION.
 Qwik-Zyme P improves digestion of dairy waste by breaking down proteins, including casein. Undigested proteins cause excess sludge production, odors, and a cloudy effluent.

5 Gallon Case ----- \$49.00/gal

55 Gallon Drum ----- \$42.00/gal



SUCCESS STORY

Joe runs a creamery that makes famous Wisconsin cheese curds. Their system relies on a DAF to collect fats, oils, and grease as pretreatment. When that DAF unit went down, and parts were only available with a multi week lead time, their aerobic treatment system was quickly overwhelmed. The new influx of loading resulted in uncontrollable foam and poor effluent quality.

Joe didn't have time to wait for the DAF to come back online to address the issue. He began treating with Qwik-Zyme P and Qwik-Zyme L. Qwik-Zyme L degraded the fats, oils, and grease that were the biggest contributors to foam. Qwik-Zyme P attacked the difficult to degrade dairy proteins that were the biggest contributors to poor effluent quality. In a short time frame the system was no longer foaming and produced quality effluent. "When I started using Qwik-Zyme P and L my clarifier went from 18 inches of visibility to 48 inches. That stuff works, holy cow!"



REDUCE THAT SLUDGE!

CRYSTAL CLEAR LAGOON EFFLUENT

Rejuvenating your sludge-filled lagoon has never been easier, and our VitaStim Lagoon line and OxyPaks gives you a one-two punch that will clean up sludge and clarify effluent. VitaStim is infused with bacteria and probiotics to speed digestion and get rid of odors.

1/10th the cost of dredging

» To read more about how we treat each type of lagoon, go to www.teamaquafix.com/wastewater-lagoon-pond-treatment/



VITASTIM LAGOON LINE

SLUDGE-EATING PIRANHAS! The VitaStim Lagoon Line was formulated for lagoon and pond systems and is an easy way to remove 30%-60% of the sludge from your lagoon. Save on dredging and limit floating organic matter while lowering ammonia.

Above 75°F VitaStim Summer Slam - \$17.97/lb

Between 65-75°F VitaStim Sludge Reducer \$15.25/lb

Below 65°F VitaStim Polar ----- \$16.41/lb
Available 30 lb pails and in 1 lb or ½ lb packets.



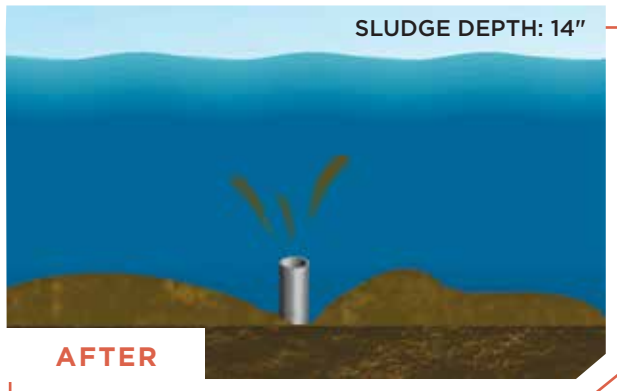
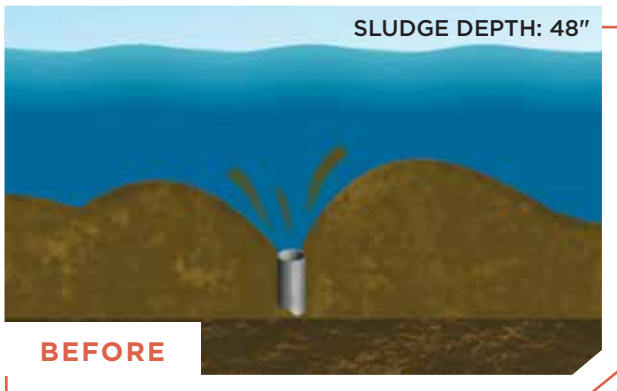
OXYPAKS XL

KICK BACTERIA INTO OVERDRIVE! OxyPaks XL is an oxygen source that is used in wastewater lagoons, as well as sand and rock filters, to accelerate the digestion of sludge and prevent odors. This product allows the VitaStim Lagoon Line bacteria to better penetrate the sludge and degrade it.

50 lb Pail ----- \$6.00/lb
Available in 1 lb packets.



Technical Service Rep. Jonathan performs sludge judging



SUCCESS STORY

This Midwest lagoon averaged 17" of sludge, with huge accumulations around the corners and near the inlet pipe.

In 2015 the pipe had 48" of sludge around it. They began a sludge reduction program using VitaStim Sludge reducer, Summer Slam and OxyPaks XL.

During the latest sludge judge event, the area around the inlet pipe had decreased to 14" of sludge.



ALGAE ALERT

UNCONTROLLED ALGAE IS A SERIOUS LIABILITY

Lagoons may be low maintenance but that doesn't mean NO maintenance. Our algae control line works to stop algae outbreaks and

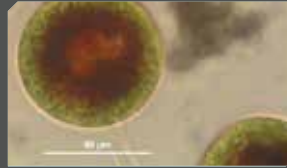
the associated pH, TSS, and fecal coliform spikes. Have a wastewater pond you can be proud of.



Oedogonium



Spirogyra



Euglena



Pithophora

➤ To learn how algae can affect your lagoon pH, go to www.teamaquafix.com/high-lagoon-ph-caused-by-algae/



PONDZILLA PRO

CLARIFY WATER. PondZilla Pro* is an aquatic catalyst that provides better algacide results by enhancing penetration. This product also contains a specific blend of biostimulants that spur the naturally-occurring bacteria and fungi to take over degradation of dead algae. PondZilla Pro allows the algacide to work more thoroughly and helps to clarify the water.

* THIS PRODUCT DOES NOT kill aquatic plants or algae. Restrictions on application may apply in some states, such as California, Michigan, Washington, New York, and several others. Rules for application must be followed in each state. Call us at 888.757.9577 for more information.

5 Gallon Case ----- \$90.00/gal

55 Gallon Drum ----- \$78.00/gal

Work better
together



SECLEAR G

SeClear G is an algacide and water quality enhancer that provides effective algae control while reducing phosphorus levels.

50 lb Bag, bulk ----- \$10.20/lb



BEFORE



AFTER

A Harmful Algae Bloom (HAB) turned this pond neon green but it was cleaned up with a combination of PondZilla Pro and SeClear G.



VITASTIM LAGOON LINE

The VitaStim Lagoon Line is formulated for lagoon and pond systems as an easy way to clean your pond from the bottom up. These products invigorate beneficial bacteria and eliminates excess nutrients.

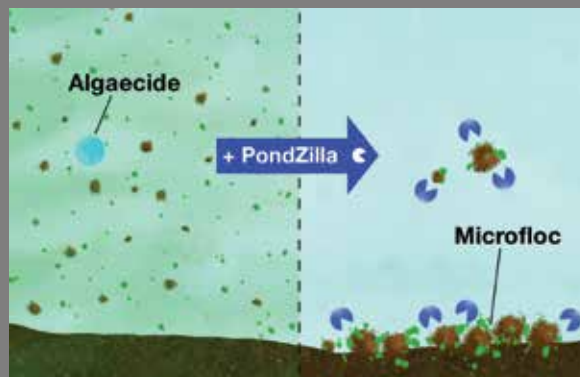
Above 75°F VitaStim Summer Slam ----- \$17.97/lb

Between 65-75°F VitaStim Sludge Reducer ---- \$15.25/lb

Below 65°F VitaStim Polar ----- \$16.41/lb

Available 30 lb pails and in 1 lb or ½ lb packets.

PONDZILLA PRO CLARIFYING EFFLUENT



PondZilla Pro speeds chemical reactions and penetration of algaecides in addition to helping flocculate and degrade dead algae.

FREEBIES

ORDER OVER
\$4000

(CHOOSE ONE OF TWO)



FOLDING CHAIR



BACKPACK COOLER

ORDER OVER
\$2500

(CHOOSE ONE OF TWO)



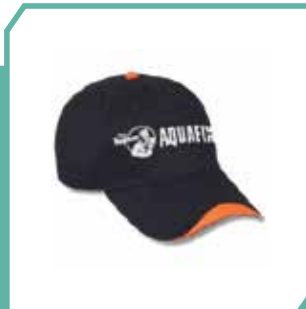
GRILL KIT



CAR EMERGENCY KIT

ORDER OVER
\$1500

(CHOOSE ONE OF TWO)



AQUAFIX BASEBALL CAP



FLASHLIGHT

ORDER OVER
\$750

(CHOOSE ONE OF THREE)



CAR CELL PHONE HOLDER



CAR PHONE CHARGER



PIZZA CUTTER

Freebies are given based on individual order amounts, not a cumulative total of all orders.

QWIKLY DEGRADE GREASE

QWIK-ZYME L PG 16



COLD TEMP



TREATMENT FOR COLD WEATHER

When water temperatures dip below 65°F, warm weather bacteria turn lethargic. Our cold weather bacteria improve effluents by keeping bacteria populations active during the dead of winter.



» Learn about how toxicity and other stressors interact with cold weather on pages 44-45.



VITASTIM POLAR

TOTALLY PSYCHROPHILIC. VitaStim Polar saves systems during the dead of winter because of its ability to degrade municipal wastes, surfactants, and other industrial wastes at temperatures as low as 40°F. VitaStim Polar also helps with nitrification.

30 lb Pail ----- \$16.41/lb
Available in 1 lb or ½ lb packets.



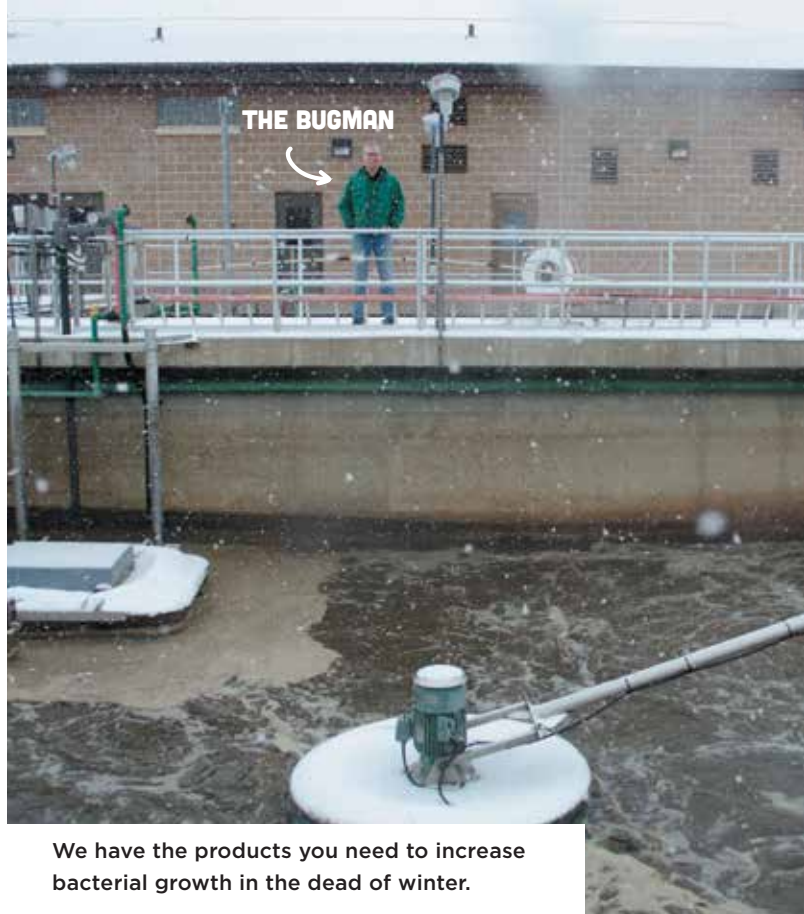
GREASEZILLA

GreaseZilla is the latest technology with grease-degrading bacteria that activate quickly in cold weather conditions to degrade hard, stuck-on grease in collection systems.

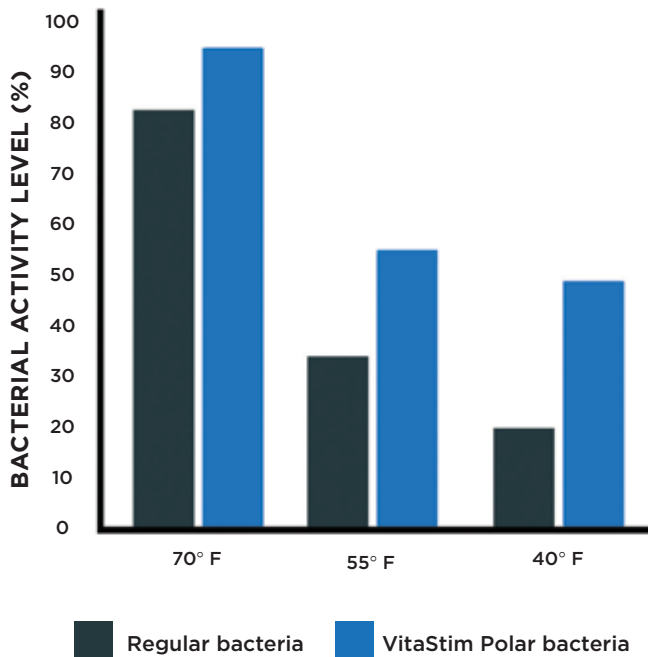
5 Gallon Case ----- \$38.00/gal
55 Gallon Drum ----- \$33.00/gal



VitaStim Polar will help lower BOD and ammonia in your wastewater pond.



We have the products you need to increase bacterial growth in the dead of winter.



Even just a 15° drop in temperature results in more than 50% less bacterial activity. VitaStim Polar offsets this effect.



SUCCESS STORY

Jeff entered the wastewater field with a sort of trial by fire. He and a very small team had to start two SBRs within a couple of years that receive high levels of grease and soap, combined with occasional dumps from a local industrial park. Jeff and his team needed backup, which Aquafix was happy to provide.

When winter hits and the high amounts of incoming waste continue, Jeff adds VitaStim Polar to keep the SBRs balanced, and to provide consistency in nitrification and FOG degradation.



COMPLETELY ELIMINATE ODORS

MAKE YOUR NEIGHBORS HAPPY

When your wastewater system becomes surrounded by homeowners our products provide an easy way to neutralize odors and stop the complaints. Skip the perfumes and fragrances. Our safe and easy chemistries stop corrosion and neutralize odors on contact.

- 1 **H2S**
Meter De-Sulph-A-Nator in at lift station
- 2 **Lagoon Odors**
DAZZeL Eco Plus over lagoon surface
- 3 **Sewer Plant Odors**
DAZZeL Sewer Sweetener at influent well
Diluted DAZZeL Eco Plus in misting system



DAZZEL SEWER SWEETENER

Neutralize odors in the collection system, or as the waste stream enters the plant. These essential oils bind with odor causers, and neutralize them quickly.

5 Gallon Case -----\$32.00/gal

55 Gallon Drum -----\$23.50/gal



DE-SULPH-A-NATOR

THE INSTANT H₂S NEUTRALIZER.
De-Sulph-A-Nator is easily metered into your system to diminish H₂S gases and odors. It is a non-hazardous sulfide scavenger. This changes the chemistry of the sulfide odor and breaks it down.

5 Gallon Case ----- \$35.00/gal

55 Gallon Drum----- \$30.00/gal



Select the odor product that fits your system, and spend less time dealing with odor complaints.



DAZZEL ECO PLUS

This ultra concentrated blend of essential oils can be diluted 20:1 before use. It is excellent for lagoons, forming a micro-film of odor neutralizer across the surface. Or add the diluted product to your misting system.

5 Gallon Case -----\$159.50/gal

55 Gallon Drum ----- \$149.50/gal



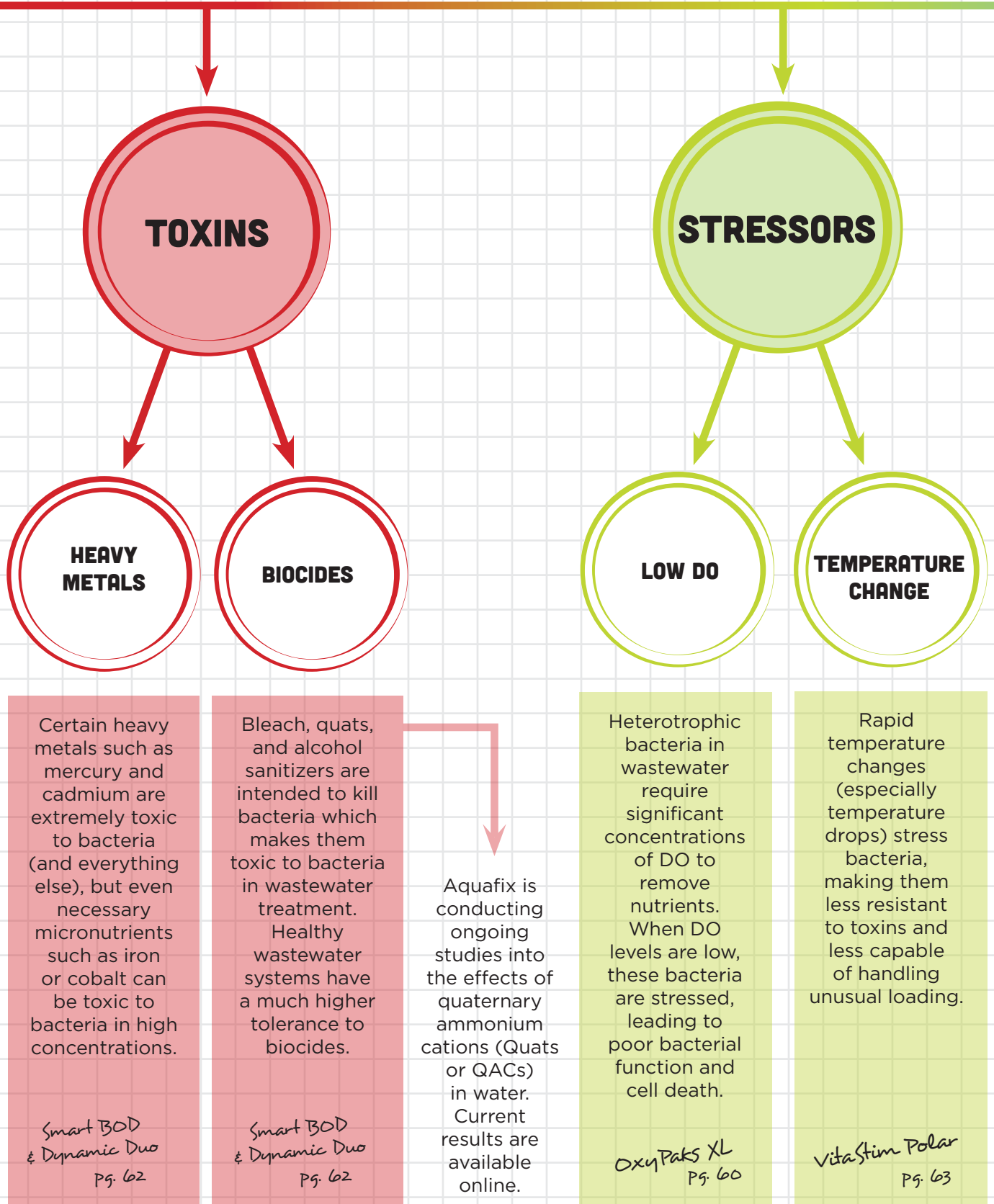
SUCCESS STORY

A 3 MGD activated sludge plant in Texas was receiving odor complaints from 3:00 - 8:00 pm every night in the summer.

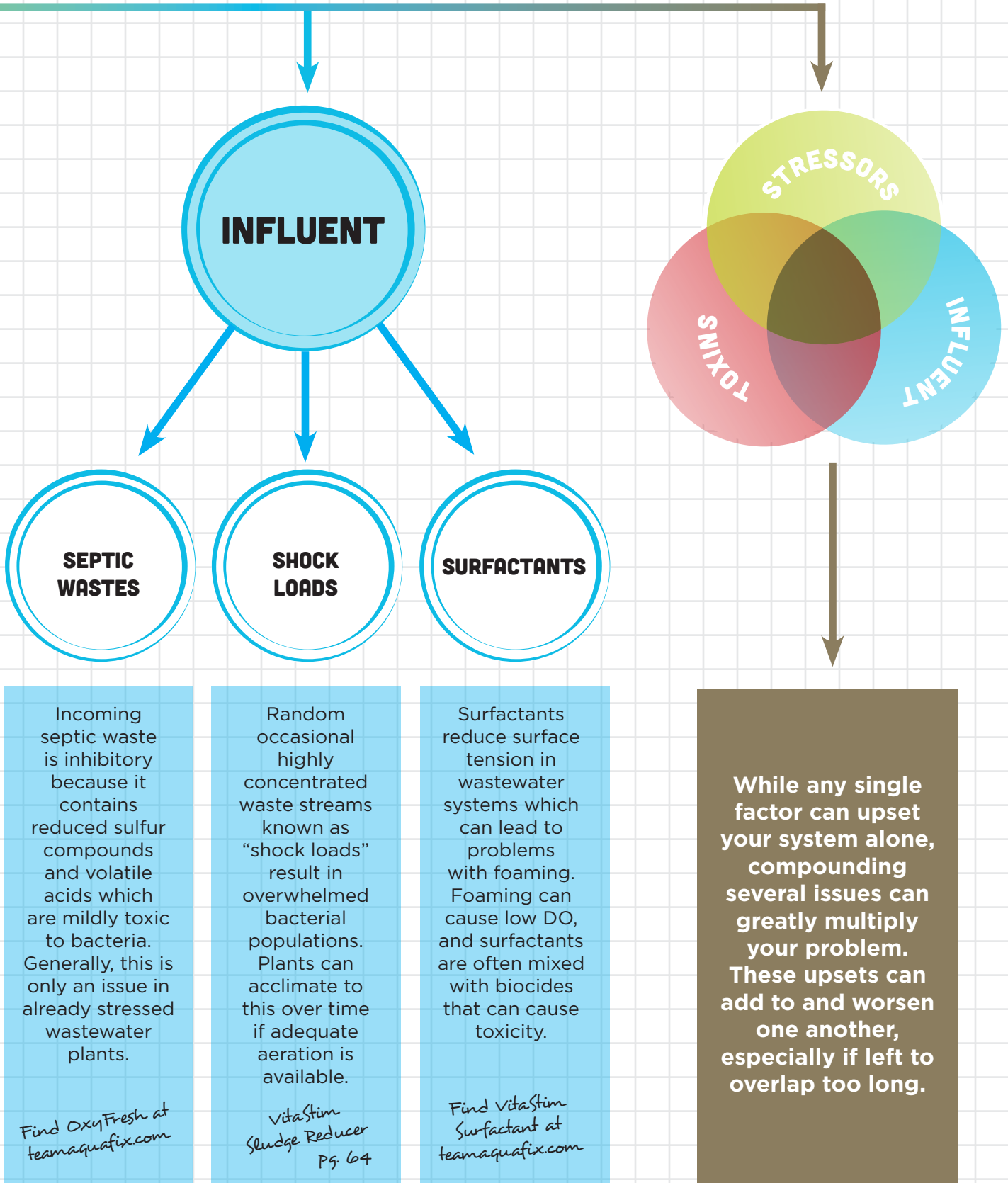
They started metering in DAZZel Sewer Sweetener at the front end of the plant so it would spread throughout the whole process.

The plant experienced an immediate drop-off in the odors and complaints.

Recovering from upset?



Email us at technicalservice@teamaquafix.com for your **FREE** printable copy of this chart!





AQUAFIX LABORATORIES—*Magnifying the Why*

The Aquafix Laboratories are a fundamental part of all our products. We study wastewater conditions in all types of applications. At our University Research Park location, we have access to state-of-the-art equipment and the latest research in the field. Through this work we know how to influence wastewater bacteria to benefit your operation.

For more information, or to request a test kit, call 888.757.9577 or read more online at: www.teamaquafix.com/submit-a-sample

MICROANALYSIS & FILAMENT ORIGINS	\$425.00	<ul style="list-style-type: none"> • Identification of major and minor filaments and subspecies with Gram and Neisser staining • Precise explanation of their presence and origin • Testing of EPS sliming • An analysis of metazoa and protozoa in the system • An analysis of floc structure, sludge age, and oxygen penetration • Treatment and process recommendations • 3-4 day turnaround
PROACTIVE MICROANALYSIS PROGRAM	\$1,200.00	<ul style="list-style-type: none"> • 4 Microanalysis and Filament Origin tests, use at your own pace • Spot potential problems before they become a major issue • Filament ID, EPS sliming, floc structure and oxygen penetration, and more • Helpful recommendations to improve biology function and optimize treatment plant • Get a clearer picture of how your plant conditions evolve over time
TREATABILITY STUDY	\$1,260.00*	<ul style="list-style-type: none"> • A partnership between our lab and customers with unique issues. • An in-depth study of the problem and your process results in finding a biological, enzymatic, or oxidative solution • Examination of entire wastewater system • Includes Microanalysis testing • Treatment and process recommendations

*The Treatability & Odor Study starts at \$1,260.00 and includes 9 hours of testing; additional hours will be \$140.00 per hour.



» Watch the easy how-to video at <https://teamaquafix.com/submit-a-sample/>

SOLUTION-BASED WASTEWATER TESTING GETTING ANSWERS IS EASY



1 CALL AND REQUEST YOUR COOLER

Aquafix will give you instructions for how and where to collect your sample. Send it back via 2 day shipping.



2 FILAMENT DRS ANALYZE YOUR SAMPLE

Our chemist and microbiologist both put your sample under the microscope. They collect images and observations based on the needs of your plant.



3 RECEIVE YOUR REPORT

Your report includes pictures of lab observations, explanations, and recommendations from both the lab and technical experts.

COMMON PROBLEM-CAUSING FILAMENTS

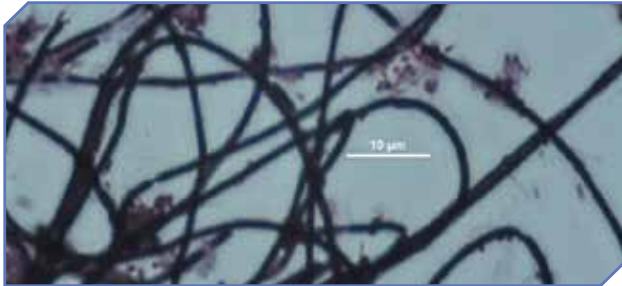
Filaments can cause all sorts of problems for wastewater operators like foaming and bulking. These problems can lead to violations in effluent limits and less efficient treatment. There are many more filaments that can appear in wastewater than are included in this guide. It can also be difficult to identify these filaments because identical species tend to vary in appearance due to plant conditions.

This guide will cover the environmental conditions which can lead to most filamentous growth. We will also cover how we use each filament's environmental preferences to create an effective way to limit the growth of these filaments in wastewater systems.



FOAMING FILAMENTS

Microthrix parvicella



M. parvicella under Gram stain

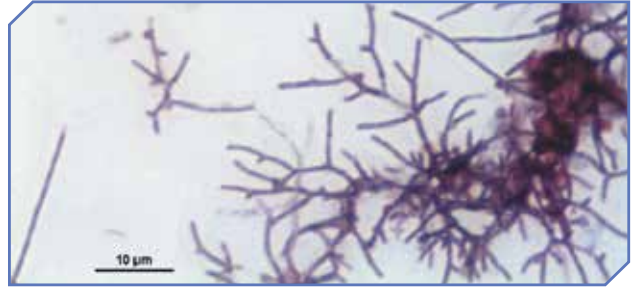
M. parvicella is usually a very distinctive filament in wastewater treatment. This is due to its spaghetti-like appearance under Gram stain. It stains strongly Gram positive and contains Neisser positive granules. *M. parvicella* tends to thrive in cold temperatures with high fats, oils, and greases (FOG). *M. parvicella* floats in water due to the high concentration of low density fats present in its cell wall. This filament forms a tangled mat on the surface of aeration systems which effectively traps air from air diffusers leading to foam formation. While *M. parvicella* is known for forming a thick layer of dark brown scum up to around 6 inches, *M. parvicella* can lead to foaming of a variety of colors and consistency and therefore must be identified microscopically before an effective treatment can take place.



M. parvicella under Neisser stain

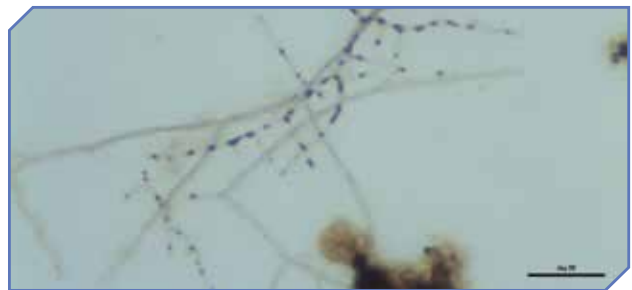
M. parvicella foaming can be controlled effectively through the addition of Foam Buster and Qwik-Zyme L while increasing sludge wasting. Foam Buster provides a blend of proteins, amino acids and micronutrients which allows wastewater floc forming bacteria to better outcompete filamentous bacteria in conditions with high levels of incoming FOG. Qwik-Zyme L enzymatically degrades fats, oils and greases to allow floc forming bacteria to more easily outcompete filamentous bacteria such as *M. parvicella*.

Nocardioforms



Nocardia Gram stained

Nocardioforms, or “*Nocardia*,” are typically easy to identify in wastewater because of their true branching, Gram positive staining, and Neisser positive granules. True branching means one filament continues to grow in multiple directions, like the growth of an oak tree. Nocardioforms, like *M. parvicella* produce a low density fatty cell wall which causes them to float on the surface of water. This in combination with their generation of surfactants during growth, and their formation of a thick mat due to branching causes them to typically form very stable foam that can be several feet thick. While Nocardioforms are known to produce a very thick stable foam, they also can form thin layers of scum which means you cannot definitively identify “*Nocardia* foaming” without microscopic observations.



Nocardia Neisser stained

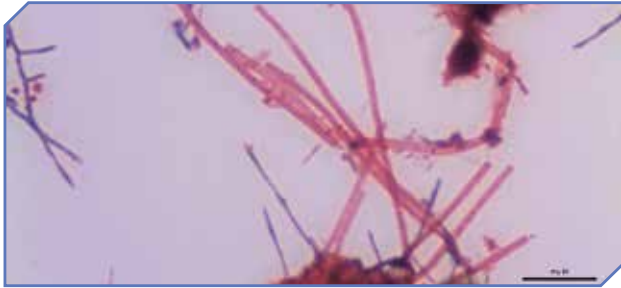
Nocardioforms can be controlled with the addition of Qwik-Zyme L, and Foam Buster to favor floc-forming bacteria over filaments, and through increased wasting to reduce sludge age. VitaStim Low F:M can be used to rebuild bacterial populations after increased wasting.

RECOMMENDED PRODUCTS:

Foam Buster	pg 16
Qwik-Zyme L	pg 16
VitaStim Low F:M	Visit our website

BULKING FILAMENTS *Nitrogen Deficient*

Type 0092



Type 0092 Gram stained

Type 0092 can cause bulking problems in aerobic wastewater systems but is an important precursor to *M. parvicella* foaming. Type 0092 uses the same food sources as *M. parvicella* but prefers warmer conditions. This filament's individual cells are difficult to see as they are normally contained within floc. These filaments have a sheath which stains a very distinctive blue-violet after Neisser staining. Due to the similar food requirements of Type 0092 and *M. parvicella*, they tend to trade prevalence when the weather gets warmer or cooler. Therefore, if you observe Type 0092 in high levels in the fall, you are very likely to see the population shift to high levels of *M. parvicella* as the temperature cools in a wastewater system leading to foaming.



Type 0092 Neisser stained

Type 0092 can be controlled by Qwik-Zyme L upstream from a wastewater system and the addition of Filament Buster in a wastewater aeration basin are effective for the control of this filament.

RECOMMENDED PRODUCTS:

Filament Buster	visit our website
Qwik-Zyme L	pg 16

Thiothrix/Type 021N



Unstained *Thiothrix*/Type 021N

Thiothrix/Type 021N are thought to be different forms of the same filament. The Type 021N form is more prevalent in nitrogen deficient conditions and *Thiothrix* tends to be more observed in low DO, septic, and sulfur reducing conditions. Type 021N tends to have disk-shaped large cells, and *Thiothrix* usually has rectangular cells which sometimes contain sulfur granules. Both filaments stain Gram negative but can contain granules which stain Gram positive. Occasionally these granules can be present in high enough levels to make the staining identification difficult.

These filaments can be controlled by our Filament Buster in a wastewater aeration system as well as the addition of OxyFresh to regions of a wastewater plant with low DO, and whenever septic waste is added.



Thiothrix/Type 021N Gram stained

Filament Buster provides a balanced source of nitrogen which is readily available to floc forming bacteria to allow them to out compete low nitrogen filaments. OxyFresh increases wastewater plant ORP to help limit septicity in low DO conditions.

RECOMMENDED PRODUCTS:

Filament Buster	visit our website
OxyFresh	visit our website
Qwik-Zyme L	pg 16

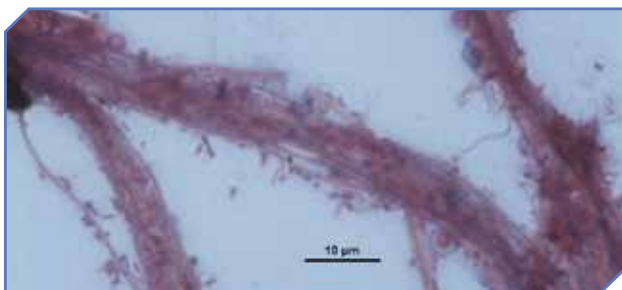
BULKING FILAMENTS *Low F:M*

Type 1851



Type 1851 under Gram stain

Type 1851 is a Gram positive (or Gram variable) filament that is relatively easy to distinguish due to its rectangular cells, attached growths, and tendency to form bundles when populations get high. Generally, this filament appears in wastewater systems with Low F:M conditions. This filament occasionally appears in systems with high levels of Nocardioforms. This is because Nocardioforms are very effective at removing nutrients. This can lead to low F:M conditions in systems with typically acceptable F:M ratios. In these cases, if you can control the Nocardioforms, then you can control the low F:M filaments such as Type 1851.



Type 1851 with thick bundles

We recommend the addition of SmartBOD when this filament is causing problems. SmartBOD is a well-balanced, easy to use food source that assists in the growth of floc-forming bacteria, allowing them to out compete low F:M filaments.

RECOMMENDED PRODUCTS:

SmartBOD	pg 24
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Type 0041/Type 0675



Unstained Type 0041/Type 0675

Type 0041/0675 are slightly different forms of the same filament. Type 0675 is usually slightly thinner than Type 0041 but both filaments stain Gram positive (or Gram variable), contain square shaped cells, and generally have high levels of attached growths present. These filaments generally do not cause major problems but occasionally increase in prevalence in mild low F:M conditions which can lead to bulking. These filaments can be easily controlled by the addition of SmartBOD in severe cases, and by the addition of VitaStim Low F:M.



Type 0041/Type 0675 Gram stained

RECOMMENDED PRODUCTS:

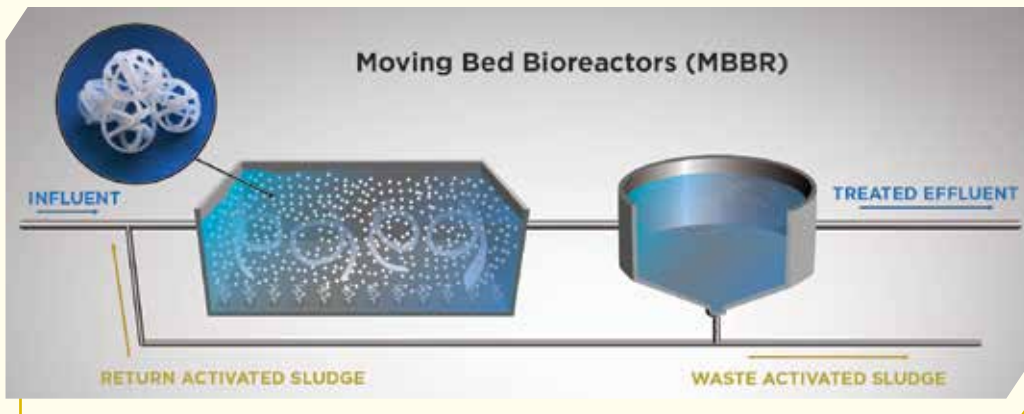
SmartBOD	pg 24
VitaStim Low F:M	Visit our website

UNIQUE APPLICATIONS

DEGRADING CANOLA OILS THAT NEVER GOT TO FRY A POTATO CHIP

MBBR (moving bed bioreactors) use additional media within the wastewater plants to increase the biofilm and speed COD removal rates. A facility that processes canola oil outgrew their wastewater process and was violating effluent COD discharge permits. In addition during slow times the MBBR's

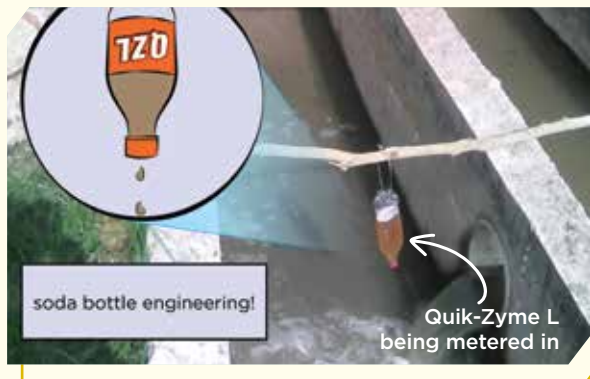
had a tendency for *Nocardia* foam. Treatability testing by Aquafix Laboratories determined the addition of our Qwik-Zyme L and Qwik-Zyme P into the front end of their process could speed the breakdown of COD. They have noticed a 20-30% improvement in effluent COD.



YUCCA STARCHES IN SOUTH AMERICA

Our distributor Pablo in Colombia, South America came up with a great way to meter in enzymes, pictured below. This lagoon's waste stream consists of municipal sewage, yucca plant processing waste, and dairy waste. The combination of difficult to degrade yucca starches, and difficult to degrade dairy proteins was leading to sludge buildup and odors.

We loved the constant warm temperature of the lagoon water. The warm water allowed for high efficiency and fast COD removal rates by our protein degrading enzyme, Qwik-Zyme P, and our workhorse enzyme, BugJuice. They used VitaStim Summer Slam to add some good bacteria to the system as well.



CORN OILS USED FOR BIO FUELS

An industrial wastewater plant in Illinois has an aerobic and anaerobic process that each receive half of their waste. Every six months they shut down the system to clean and make repairs. During this time, the incoming waste is stored in a diversion tank that is mixed with an agitator. When the system is turned back on, the diversion tank is slowly drained back through the system. This has caused issues due to its high concentration of corn oil.



They wanted to begin treatment in the diversion tank so they can send the waste through their aerobic process without causing issues. Since corn oil is mostly made of fat, Qwik-Zyme L was used to enzymatically break down the long chain fatty acids into easier to digest short chain fatty acids. By pairing Qwik-Zyme L with OxyPaks XL they were able to regain DO, and drain their diversion tank faster than ever before.



TREATING AN ORGANIC DAIRY

An organic dairy in Central Wisconsin found their farm surrounded by homes. The fact that the dairy was there first made little difference to the neighboring homeowners. Upon talking with the farmer we started them on VitaStim Manure, developed to degrade manure waste and fixate the high levels of ammonia found in

this waste. The farmer has been using this product for 7 years off and on and he tells us he can always tell when he forgets to add the product because, the odors increase and so do the complaints. As a side benefit he has reduced his sludge production and he is able to fixate the manure's nitrogen and return it to the field.



HIGH SUGAR WASTE AND EPS SLIMING IN PENNSYLVANIA

A borough in Pennsylvania was experiencing predictable foaming and poor settling during certain times of the year. They were certain that the foaming was directly related to a food/juice processing facility, whose production cycle generated lots of sugary waste during some seasons. Polyaluminum chloride and a silicone defoamer were not keeping up with the issue. Aquafix began with lab testing which showed signs of

nitrogen deficiency and organic carbon overloading. This was leading to high levels of extracellular polymeric substances (EPS), as well as some zoogloea colonies. The EPS sliming then led to stabilized foam and poor settling. They began using Foam Buster, and an organic nitrogen supplement to help keep EPS levels down, and improve the nutrient base.



BACTERIAL CULTURES FOR TARGETED SLUDGE REDUCTION

A city in South Carolina operates an SBR wastewater treatment plant, with the effluent being held in a large lagoon. To prevent short circuiting in the lagoon a curtain forces the flow to run along the length of the 22 acre lagoon all along one side. Over time sludge had built up in this area. They used Aquafix's Lagoon Line, containing

sludge eating bacteria cultures and probiotics. After just 3 months, they reduced average sludge thickness from 33 inches to 20.5 inches. A reduction of 23,472 cubic yards in the 1 acre target area.



DECREASING POLYMER USE AND SLUDGE HAULING

A new plant in the Chicago, Illinois area had the latest technology for primary solids removal, aeration, and sludge digestion but still wanted to decrease their polymer use for sludge dewatering. They added BugJuice to their two primary digesters to degrade the troublesome insoluble BOD (papers, waxes, and

microscopic paper fragments) that pass through the system and into the digester. They added .33 gallons of BugJuice, once per week, to the 2 primary digesters. The savings came in the form of reduced polymer use, and a decrease in the amount of sludge to be disposed of.



POLYMER TOTES REQUIRED PER 100 TONS OF SLUDGE



With the addition of BugJuice this WWTP was able to increase their sludge cake solids content by 4.7% and decrease polymer use by 25.1% which equated to a yearly savings of \$8,378.30.

DOSAGE RATES

Quantity discounts available for plants larger than 3 MGD.



AQUABACxt pg. 22

Midge Fly and Red Worm Elimination

Super Dose (Recommended)	½ gal per 100,000 GPD twice a week for first 2 weeks
Initial Dose	1 quart per 100,000 GPD twice a week for first 2 weeks
Maintenance Dose	1 pt per 100,000 GPD once a week

Note: Feed all at once, do not gradually feed



Anaerobic Food Supplement pg. 28

Builds Populations of Methane Formers

Week 1	1-2 lb per day per 100,000 gallon incoming flow
Week 2	3-4 lb per day per 100,000 gallon incoming flow
Week 3	5-10 lb per day per 100,000 gallon incoming flow
Maintenance Dose	Dependent on desired methane generation



Biogas1 pg. 28

Micronutrients to Boost Methane

Initial Dose	5 gal per 100,000 gallons tank volume
Maintenance Dose	2.5 gal per 50,000 gallons daily inflow, added once per week



Boost N Lock pg. 31

Stabilize pH in Aerobic and Anaerobic Wastewater Systems

pH < 6:	Use our high purity magnesium hydroxide
pH > 6*:	Initial dose: 210 lb per MGD per day until pH is neutralized Maintenance Dose: 20 lb per MGD per day

*General dose rates, exact rates are determined by titration. Visit our website or call us for titration help.



Bug Juice pg. 26

Sludge Reduction in an Aerobic Digester

Initial Dose	½ gal per 100,000 gallons once per week for 4 weeks
Maintenance Dose	1 qt per 100,000 gal basin once per week



Bug On A Rope pg. 12

24-7 Slow-Release Block For Lift Station Grease Removal

How to use	The faster it dissolves, the faster the results. Keep in mind that warmer weather will cause the brick to dissolve more quickly. After 3 months, any remaining material should be knocked off the plastic core into the lift station.
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Where to Place

Heavy Grease	When grease is the heaviest, place Bug On A Rope directly under the incoming flow or use multiple Bug On A Ropes farther from the flow.
Moderate Grease	For grease maintenance; when lift station is at its lowest flow rate, place Bug On A Rope 1-2 ft. under water in middle of lift station. This will assure best dissolving rate during moderate incoming levels of grease.

Dissolving Rates

20,000-50,000 GPD	2-3 months
100,000 GPD	6 weeks-2 months
300,000 GPD	3 weeks



DAZZeL Eco Plus pg. 43

Concentrated Odor Neutralizer

Lagoons	1 gal per acre as needed
Waste Pit	1 pint per 1,000 gallons
Wastewater Plant	Dilute 20:1 and spray perimeter, or meter into waste stream.



DAZZeL Sewer Sweetener pg. 42

Fast-acting Odor Control

Initial Dose	4 gal per 100,000 GPD for 10 days
Maintenance Dose	1 gal per 100,000 GPD for 30 days



De-Sulph-A-Nator pg. 42

Lift Station/Collection System/Sewer Line Sulfide Odor Control

Flow Rate	Drip/Meter Dose	Atomized/Mist Dose
1,000 GPD	1.5-6 oz per day	n/a
10,000 GPD	15-60 oz per day	n/a
100,000 GPD	1-4.5 gal per day	0.5 gal per day
1 MGD	12-45 gal per day	2-4 gal per day

Note: General doses based on 20 ppm of H₂S in the system.



DeFoam 3000 pg. 17

Fast Foam Deflation

Initial Dose	1 gal per 1,000 sq ft of surface area
Maintenance Dose	1-2 qt per 1,000 sq ft of surface area



Foam Buster pg. 16

Foam Caused by *Microthrix parvicella* or Foam Less than 12" Thick

Flow Rate	Initial Dose	Maintenance Dose
100,000 GPD	1 lb per day for 30 days	½ lb per day for 30 days
500,000 GPD	2 lbs per day for 30 days	1 lb per day for 20 days
1 MGD	2 lbs per day for 30 days	2 lbs per day for 30 days

Dark Foam Greater Than 1" Thick or *Nocardia*

Dose at 2-4 times the *Microthrix* rates, depending on severity.

Note: For best results, use with Qwik-Zyme L. Quantity discounts available for plants larger than 3 MGD.



GreaseJett pg. 15

Jet Truck Grease Application:

Step 1:	Add 1 gal of GreaseJett per 1,000 gallons of water in jet truck
Step 2	Apply the solution as you jet the line upstream.
Step 3:	Let soak for 10 minutes. Jet again and retrieve line.



GreaseZilla pg. 13

Lift Stations/Collection Systems/Sewer Lines Grease Control

Flow Rate	Initial Dose 1-2 Weeks	Maintenance Dose
10,000 GPD	6.5 oz per day	6.5 oz twice a week
100,000 GPD	½ gal per day	½ gal twice a week
500,000 GPD	2.5 gal a day	2.5 gal twice a week
1 MGD	5 gal a day	5 gal twice a week

Grease Trap Treatment

Grease Trap Size	Heavy Dose	Maintenance Dose
50 Gallon	8 oz twice per week	2 oz per week
500 Gallon	1 qt twice per week	4 oz per week
1,000 Gallon	0.5 gal twice per week	8 oz per week



OxyPaks XL pg. 34

Oxygen Source for Lagoon Bacteria

Lagoon Sludge	25-100 lb per acre, depending on the amount of sludge and companion products used
Sand Filter Backwash	2-4 lb per 10,000 gal of backwash



PondZilla Pro pg. 36

Booster for Algaecides

Diluted and Blended with SeClear G (Algaecide):	½-2 gal per acre depending on severity of algae
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Qwik-Zyme L pg. 16

Microthrix parvicella Foam & WWTP Grease

Initial Dose	1 qt per 100,000 GPD per day for 30 days
Maintenance Dose	1 pt - 1 qt per 100,000 GPD per day until foam is gone (30 day recommended)

For Nocardia Foam

2-4 times *Microthrix* dosage; must pair with Foam Buster

Lift Stations & Sewer Lines

Initial Dose	1 qt per 100,000 GPD three times for first week
Maintenance Dose	1 qt per 100,000 GPD once a week



Qwik-Zyme P pg. 33

Milk & Cheese Waste

Initial Dose	1 qt per 100,000 GPD per day for 30 days
Maintenance Dose	1 pt per 100,000 GPD per day



SeClear G pg. 36

Lagoon Algaecide

Initial Dose	7-15 lb per acre when paired with PondZilla Pro
Maintenance Dose	7-15 lb per acre depending on severity when paired with PondZilla Pro. Wait a minimum of 10-14 days between treatments



SmartBOD pg. 24

Dose rates for BOD supplementation are ultimately decided based on F:M and metabolism of BOD. General rates below.

Plant start up/ Severely low F:M	30 lb per day per 1 MGD for 10 days
Above 59°F (15°C)	15 lb per day per 1 MGD. Best when combined with VitaStim Low F:M
Below 59°F (15°C)	15 lb per day per 1 MGD. Best when combined with VitaStim Polar Blend
Below 49°F (9.5°C)	Call for custom dosing

Note: Actual dose rates will depend on F:M ratio and incoming BOD.



VitaStim Cheese Degradator pg. 32

Milk & Cheese Waste

Initial Dose	½ lb per 100,000 GPD per day for 30 days
Maintenance Dose	½ lb per 100,000 GPD per every other day as needed



Note: Quantity discounts available for plants larger than 3 MGD.

VitaStim Dynamic Duo pg. 21

Ammonia Control per 100,000 GPD Flow

Water Temperature	Initial Dose	Maintenance Dose
Below 60°F (15.6°C)	36 oz per day for 10 days	—
60°–72°F (15.6°–22.2°C)	12 oz per day for 4 days	2 oz per day for 6 days
Above 72°F (22.2°C)	12 oz for first day	2 oz per day for 8 days

Ammonia Control per MGD Flow

Water Temperature	Initial Dose	Maintenance Dose
Below 60°F (15.6°C)	36 gal per day for 10 days	—
60–72°F (15.6–22.2°C)	1 gal per day for 4 days	12 oz per day for 6 days
Above 72°F (22.2°C)	1 gal for first day	12 oz per day for 8 days



VitaStim Grease pg. 12

Grease in WWTP or Lift Station

Initial Dose	½ lb per 100,000 GPD per day for 30 days
Maintenance Dose	½ lb per 100,000 GPD per every other day as needed

Note: For lift station grease, apply upstream.



VitaStim Rebuild pg. 23

For Low F:M Ratio/ Toxicity/ Rebuilding Biomass

Initial Dose	1 lb per 100,000 GPD per day for 10 days
Maintenance Dose	½ lb per 100,000 GPD for 20 days



VitaStim Polar pg. 40

For Lagoon Sludge — Below 65°F (18.3°C)

Cleanup Dose	2 lb per day per 4 acres
Maintenance Dose	½ lb per day per 4 acres

Municipal Sludge & BOD Reducer in WWTP

Initial Dose	½ lb per 100,000 GPD per day for 30 days
Maintenance Dose	½ lb per 100,000 GPD per every other day as needed



VitaStim Sludge Reducer pg. 37

For Lagoon Sludge — 65°–75°F (18.3°–23.9°C)

Cleanup Dose 2 lb per day per 4 acres

Maintenance Dose ½ lb per day per 4 acres

Municipal Sludge & BOD Reducer in WWTP

Initial Dose ½ lb per 100,000 GPD per day for 30 days

Maintenance Dose ½ lb per 100,000 GPD per every other day as needed

Note: If facultative, double the dosage. For best results, combine with OxyPaks XL.



VitaStim Summer Slam pg. 37

For Lagoon Sludge — Over 75°F (23.9°C)

Cleanup Dose 2 lb per day per 4 acres

Maintenance Dose ½ lb per day per 4 acres



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College of Natural Resources
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Wastewater experts, Dr. Paul Fowler & Justin Hall, of UW-Stevens Point, in front of their pilot wastewater treatment plant.

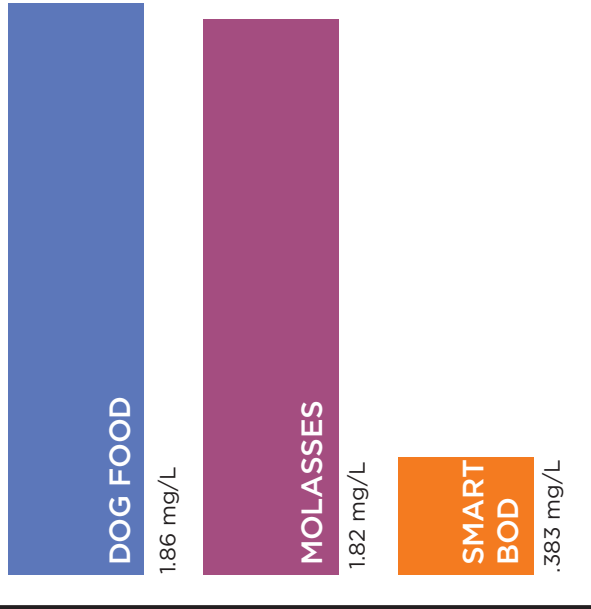
WE ASKED UW-STEVENS POINT TO PUT **SMARTBOD** TO THE TEST

STUDY DESIGN:

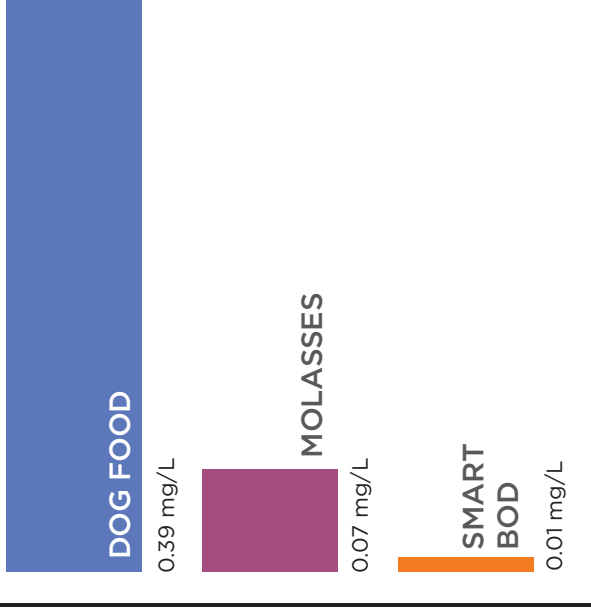
- Provide an equal BOD amount of each carbon daily to reactors
- Assess impacts on floc structure and setting
- Measure affect on effluent COD, ammonia, and phosphorus
- MLSS - Controlled to 1500 ppm
- Decant cycles - 3 per day
- Influent BOD - 250 mg/L

TESTED CARBON SUPPLEMENTS

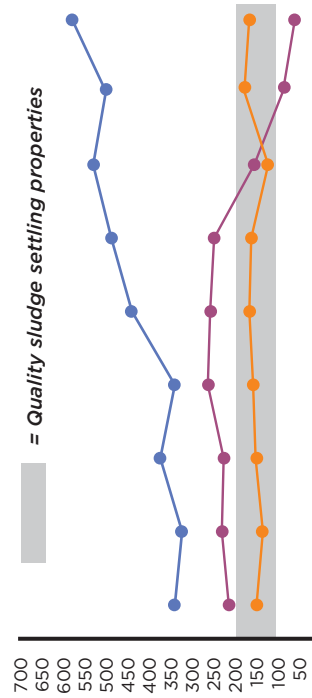
Effluent Ammonium



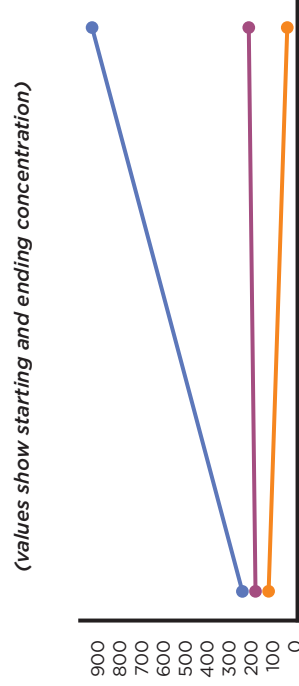
Effluent Phosphorus



SLUDGE VOLUME INDEX



EFFLUENT COD



Learn more about this study, and a follow-up comparison against glycerin on pg. 24-25 and on the web!
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