DUSTY JOBS

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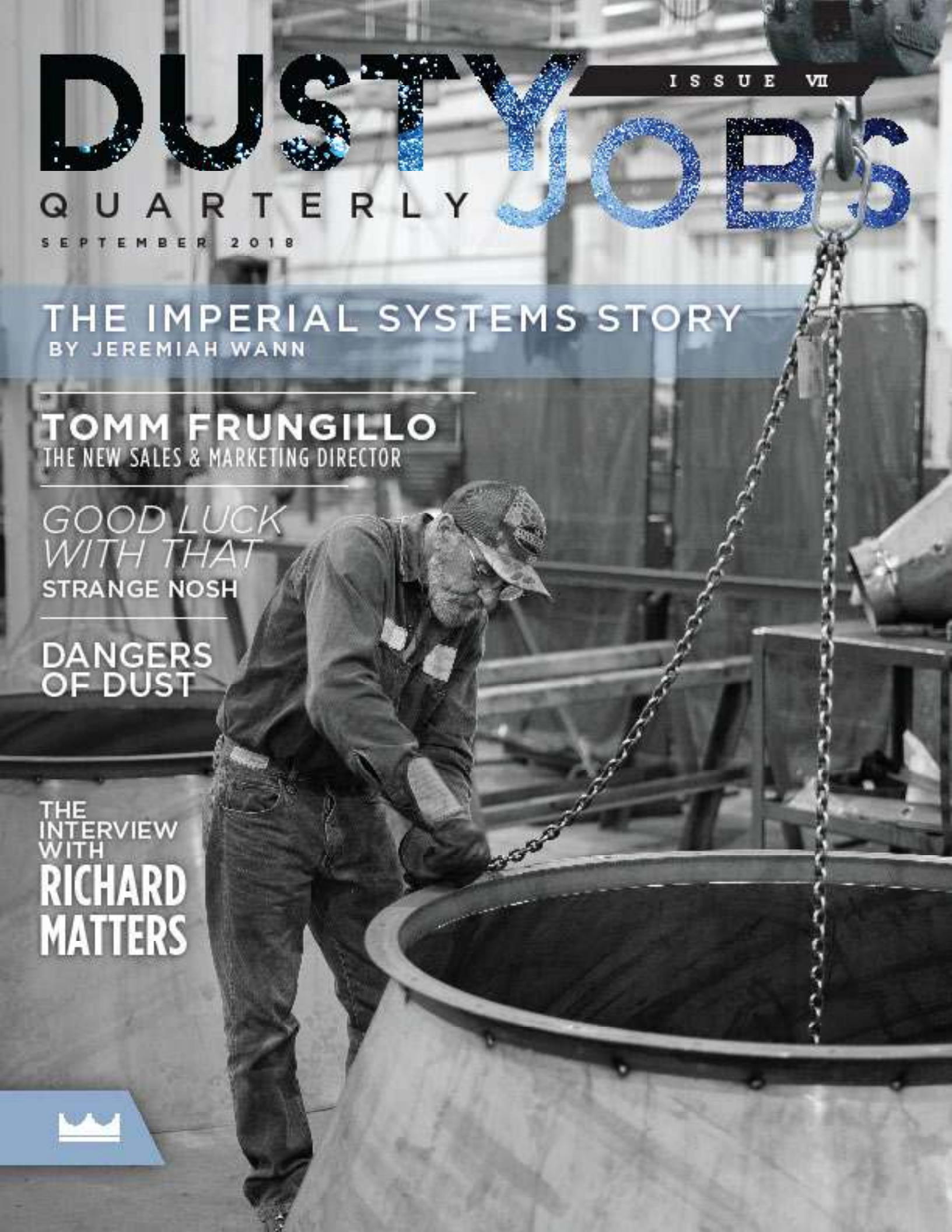

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THE IMPERIAL SYSTEMS STORY

By Jeremiah Wann

For several years, I worked as a Sales Rep for a large, European-owned dust and fume collection company. Like most of the big companies in this industry, they had an aggressive way of doing business that was not consistent with how I believed things should be done. They called it “filling holes,” which was the practice of sizing dust and fume collection equipment large enough to perform well, but not at a capacity that would minimize periodic filter replacement. Regrettably, I condoned it for far too long. How did I reach the tipping point where I decided to start my own business? My story starts with my granddad.

I grew up in a family-owned and operated sheet metal shop. My granddad, a loving and driven man, had me slagging parts and sorting hardware by age seven. I spent every minute of every summer in and around the shop. It was a noisy, greasy and busy place – and I loved it! At an early age, I was fascinated to learn what a cyclone and baghouse were and how they were built. Warm family gatherings always included shop talk and I would eagerly sit in on those conversations, listening to every word. Today is no different. I still love fabrication and never pass up an opportunity to tour a fabrication facility. Dust and fume filtration is truly in my blood.

I started as a sales rep in my early 20’s. At the time, the industry was led by a couple of company giants who promoted the practice of filling holes. I was quickly taught to stretch the limits, get the orders and move on to more projects. This philosophy was fundamentally against what I had learned growing up in the family business. Unfortunately, top dust and fume collection companies continue with this practice today. But being ambitious and eager to please, I unwisely suppressed my opinion of it and sold collectors in this manner for years. Increasingly unhappy with my circumstance, conviction compelled me to start my own business.

“I SPENT EVERY MINUTE OF EVERY SUMMER IN AND AROUND THE SHOP. IT WAS A NOISY, GREASY AND BUSY PLACE – AND I LOVED IT!”

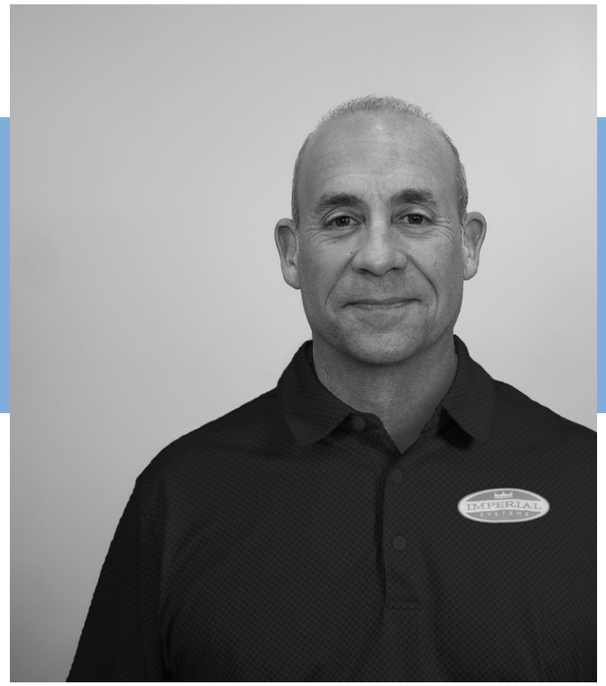
In October 2001, I founded Imperial Systems with the mission that my company would build the best dust and fume collection equipment on earth. Our collectors would be designed and built from an end user’s point of view, last longer and filter better than any other collector on the market. Growing up in manufacturing, I knew that one of our strongest attributes was that we were a company that knew how to design, build and install complete systems from start to finish. This was a distinct advantage over the big companies and still holds true today. Every one of our sales engineers has spent time in the field installing systems so that they understand what they’re selling and what it takes to get equipment properly designed for a dependable installation.

For years we successfully built and sold cyclones, baghouses, ducting and airlocks. In 2010, I decided to expand the company by building cartridge style dust collectors. When we started, we copied a major brand’s collector almost exactly. Unfortunately, this was a mistake for several reasons. For one, it did not differentiate us from our competitors. The technology was old, and by replicating it we made ourselves a “me-too” brand. The only way to compete was on price, which immediately put us at a disadvantage. We were the smallest industrial dust collector manufacturer in the industry. Why would someone buy from us over one of the larger, more established companies? When it was all about price, we would win a job but lost money as a consequence. Regrettably, I realized that copying a competitor was a short-sided strategy. Being a "me-too" company is not what I had envisioned as our future.

So, we regrouped and made some innovative design changes. We committed to build a better cartridge dust collector and differentiate ourselves from our competitors. It was then that I realized that our strength was in our differences. From that point on, we reminded ourselves of this insight at every design and engineering meeting. It became a mantra as we insisted on being innovators, not copiers. That’s when our business started to thrive. Independent sales reps started calling us unexpectedly to represent our product line. We started winning the majority of the quotes that we were working on. It was a new beginning for the newly designed CMAXX, now the flagship of Imperial Systems.

I am proud of the new approach and success that Imperial Systems has had with the CMAXX. The innovations came from customers reporting to us the problems with other equipment that they have had for years. They spoke and we listened. Because of these innovations and loyal customers, Imperial Systems is now the most progressive dust and fume collection company in the industry today. Ironically, CMAXX is now the most copied collector on the market!

I guess you can say we are now doing things right. We’ve emerged with dignity from being an ambitious imitator to an industry thought leader. We are transparent about the solutions we provide to fill needs, not holes. I’m so grateful to my granddad for his influence on my life. And I thank every member of the Imperial Systems team for fulfilling my true vision of this company. «



IMPERIAL SYSTEMS

WELCOMES A NEW DIRECTOR OF SALES AND MARKETING

TOMM FRUNGILLO

Imperial Systems is one of the fastest growing and most respected industrial dust and fume collection companies in North America. To supplement this growth, we welcome Tomm Frungillo to our leading group of sales professionals to help take this company to the next level.

Tomm comes to Imperial Systems from an extensive career in industrial dust and fume collection equipment. Tomm most recently held the position of Director of Sales at The Systems Group and was charged with growing sales globally. Prior to The Systems Group, he led many divisions of Camfil APC, most notably as Vice President of the Americas.

Prior to serving as Vice President Tomm led teams in charge of growing the Latin America mining market, creating the strategy and equipment for the pharmaceutical and biotechnology market, and growing the thermal spray market for the APC division. With his 25 years of experience in the industry, “We are looking forward to Tomm joining us by bringing his skill and knowledge to take us to the next level” says Jeremiah Wann, Owner/CEO, Imperial Systems Inc.

Imperial Systems’ growing popularity stems from a reputation of producing the best dust and fume collection equipment which is backed by an industry-leading 15-year warranty. We believe that Tomm’s experience growing a company through a focus on specific market segments will help Imperial Systems continue its path of profitable growth. «

by Jeremiah Wann, president and CEO, Imperial Systems Inc.

Dangers of dust

Learning what acronyms like KST, Pmax and MIE stand for, and more importantly, what they mean, is significant when combatting combustible dust

There are many things that can affect the hazard that your combustible dust presents. It’s possible for a dust that is very safe under most circumstances to cause a dangerous explosion if something goes wrong. Here, we’ll talk about some of the kinds of information that you may need to know about your dust to make sure you are protected.

Many engineers will recommend that you have your dust professionally tested before your system design is finalized. There are a variety of companies that do this; check with your systems engineer to find out who they prefer to work with. This test will require you to send in a sample of your dust. If you have more than one type of dust (for example, fine dust from welding and heavier rough dust from grinding), you will want to send samples of each one to make sure your system can be designed for maximum safety. Combustible dust explosions kill people every year and cause massive damage to property, so it’s worth having the problem safely controlled in your facility.

DUST TESTING MEASUREMENTS

PARTICLE SIZE (microns): Some materials are very inert as large pieces, but will burn rapidly as small particulates. These particles are measured in microns and are important when considering filter efficiency. Particle size is also very important for health purposes. Larger particles may be trapped in the nose and throat where they are easy for the body to get rid of, while fine particles (under 30 microns) can travel deep into the lungs.

MINIMUM IGNITION ENERGY (MIE): This is a measurement of how much energy is required to ignite your dust. Some dust requires a lot of energy to ignite, yet other dust can ignite with much less energy. In some explosions, the source of ignition has been an overheating bearing or an open flame. Static charges can also ignite many types of dust.

MINIMUM EXPLOSIVE CONCENTRATION (MEC): This measures how much dust must be present to cause an explosion. It is usually measured with airborne dust. It tells you how much dust in the air will ignite if there is a heat

source around. This is important because it explains how much dust needs to be floating around in the air to cause an explosion. A secondary explosion, which happens when dust accumulated in the area is lofted into the air by the first explosion, can involve a lot more dust and be a lot more dangerous.

MINIMUM AND MAXIMUM EXPLOSION PRESSURE (PMIN and PMAX): Tests on dust are conducted inside a container to measure explosion pressure. Pmin is the smallest amount of pressure that ignition of the dust can produce. Pmax, which is more important, is the maximum amount of pressure that explosive ignition can produce.

Pmax is measured by increasing the concentration of dust inside the closed chamber and measuring the pressure of the explosion until the maximum is reached (until the greatest possible amount of damage has been determined). This is an important calculation because it allows you to calculate how much damage your dust is capable of inside of a closed container (like ductwork or a dust collector).

MAXIMUM RATE OF PRESSURE RISE/DEFLAGRATION INDEX (KST): This is determined in a similar way to Pmax. A mathematical formula is used to convert Pmax to KST, taking the volume (size of the chamber) out of the measurement.

KST is an extremely important test! The Pmax measures the maximum pressure the dust could exert exploding in a closed space, but KST is a general measurement of explosiveness. It is widely accepted as a standard measurement for dust collection system design purposes.

THE IMPORTANCE OF KST:

KST is a measurement of explosion pressure, NOT of combustibility. A low KST does NOT mean that your dust cannot burn and cause catastrophic damage. KST only tells you how strong the potential explosive force can be, not how flammable the dust is.

A KST of 0 means that dust is not combustible; its Pmin and Pmax are 0 and in a testing chamber it cannot produce any explosion.

A KST greater than 0 means the dust is combustible; when Pmax is tested it can create an explosion in the testing chamber. From 0 to 200 (which includes many metal dusts) the explosion class is 1, which is considered a weak explosion. NOTE: a “weak explosion” does not mean “no damage”! The catastrophic Imperial Sugar explosion that destroyed a building and killed over a dozen people was caused by sugar with a KST of 1.

A KST from 200 to 300 is a strong explosion (Class 2), and could include things like cellulose dust, other organic fine dust, and some metals and plastics.

A KST over 300 is a very strong explosion (Class 3). Aluminum and magnesium dust are in this category.

Any dust with any KST above zero is potentially combustible and can cause an explosion, requiring your system to have appropriate fire and explosion prevention. Fire prevention, including spark traps, abort gates, and water or chemical suppression systems is key to keep ignition sources out of the dust collector. Explosion venting is also critical to make sure that an explosion does not cause serious damage if it does occur.

KST	Relative severity of a dust explosion compared to other types of dust, A measure of how severe a deflagration or explosion may be
MIE	Minimum ignition energy, The smallest amount of heat or energy that can cause your dust to ignite
MEC	Minimum explosive concentration, The smallest amount of dust in the air that will ignite to cause an explosion
PMAX	Maximum pressure, The greatest amount of pressure and maximum amount of damage that your dust can cause in an enclosed space

DUST TESTING: PUTTING THE PIECES TOGETHER

As you can see, all of these pieces of information are important when your dust is being tested.

- The KST (which is calculated from PMax) tells you how strong an explosion is likely to be.
- The size of the dust is important in determining whether it is combustible.
- The MIE tells you how much or how little energy it will take to ignite your dust
- The MEC tells you how much dust in the air will risk an explosion

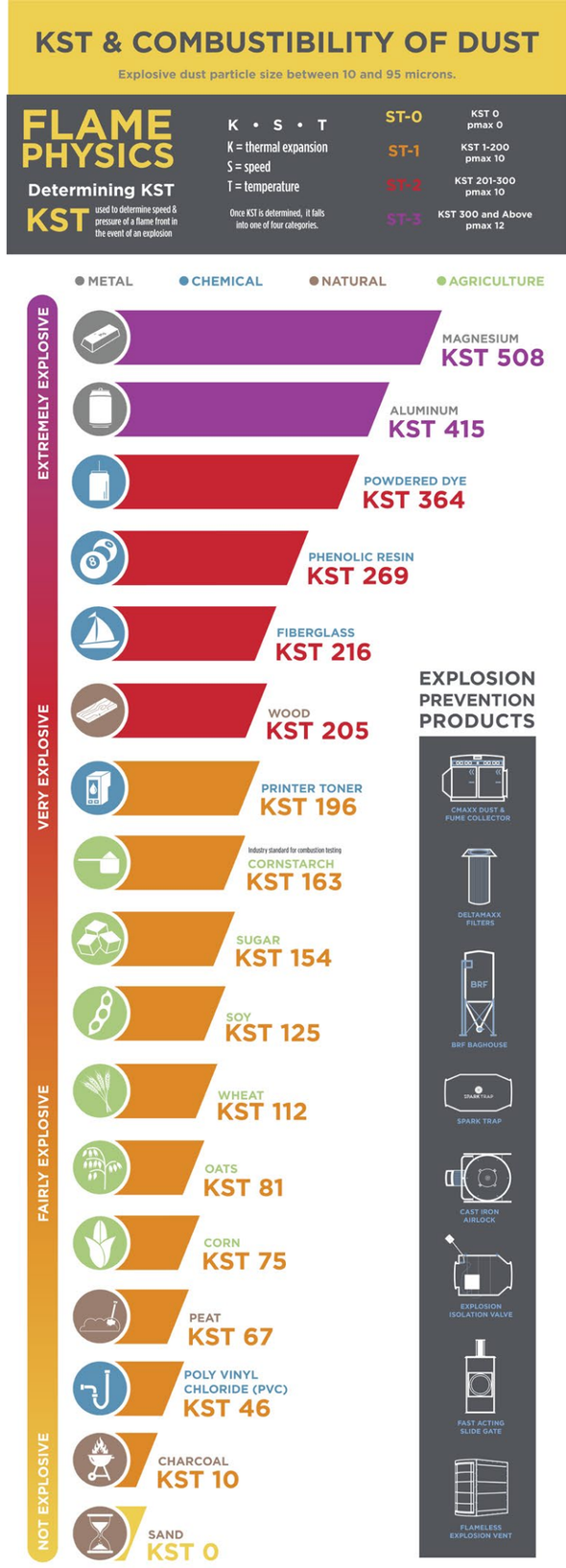
A dust with a low KST (sugar, as an example, but also many metals) has a low but not zero KST. It is not going to cause a strong explosion. However, in one facility that had a lot of accumulated sugar dust, an overheated piece of equipment exceeded the dust’s MIE value and ignited it. With so much sugar in the air, the MEC was also exceeded causing the dust to ignite explosively.

To review: in this instance, a dust with a low KST (sugar) was in contact with a heat source that exceeded the MIE and ignited the dust. Because there was a large amount of dust in the air, the MEC was too high and the dust exploded. Secondary explosions caused even more damage because the explosions blew dust into the air and raised the MEC even more. For more information on this incident, see the Chemical Safety Board’s report of the Imperial Sugar Explosions at https://www.csb.gov/imperial-sugar-company-dust-explosion-and-fire/.

While this explosion did create multiple large low-pressure explosions that blew apart the building and caused numerous deaths. A low KST does not mean your facility is safe from combustible dust explosions. «

Article featured in the July/August Issue of Shop Floor Lasers.

This information should be used as a reference only and should not be used in place of a dust test.



GOOD LUCK WITH THAT

STRANGE NOSH • CHARLIE MILLER

My profession has taken me to many interesting places across the US, Mexico, and Canada over the past 48 years. In my travels I visited a wide variety of business ventures from a mushroom farm in Kentucky, to a prosthetic breast manufacturer in Texas. I've been to automotive plants in Mexico and nuclear fuel cell producers in Canada. Work opportunities have taken me to 38 of our 50 Great States, from Maine to California, and I've seen many wonders along the way. Some of the most memorable things about all those trips are the regional foods I've eaten.

Leaving my Pittsburgh home and moving to Cincinnati in 1971 was my first encounter with regional cuisine. I had only been in Cincinnati a few weeks and was just learning my way around. A friend had invited me to join him for lunch at the chili parlor. It had been a while since I had any of my mom's homemade chili and that sounded great. When the food came I was served a plate of spaghetti with about a half pound of grated cheddar cheese on top. I told the waitress she made a mistake, I ordered chili! She looked at me like I had two heads. I soon learned to love "Cincinnati Chili". Whether it is Gold Star, Skyline, or Moonlight Chili, it's all good. Another Cincinnati delicacy is Goetta, sometimes referred to as "Cincinnati Caviar". The German immigrants brought Goetta to Cincinnati. It is made with ground pork or beef, mixed with steel cut oats and seasonings, and then pan fried to a crispy brown. It is a breakfast staple served with eggs and grits.

I've eaten many stranger regional foods in my travels. In previous articles I wrote about my first field trip to Syracuse with A-Man-Named-Earl. Being a very "junior" apprentice on that trip, I was dependent on Earl to pay all the travel expenses, including meals. The very first night Earl took me to a Syracuse bar. As we sat at the bar to watch the ball game, Earl asked for a beer and a "Bean Sandwich". The bartender pulled a large can of pork-and-beans from the cooler. He scooped out a wad of cold beans, spread it on sliced white bread, and handed it to Earl. He then asked if I wanted one, but I passed on the offer. Thankfully, we did go out to dinner at a little nicer place after that.

Later in my career another experience found me in Mexico with one of our installation mechanics. He had previously spent a year in Mexico on another project. He knew the language and basically how to stay safe in a foreign country. He was with me to help field measure, and to watch my back. On our last night in Mexico he suggested a better steak house for dinner. He ordered for both of us and began with an appetizer of Cridillas. He dug right in when they arrived. When I sampled the dish, he stifled a snicker and asked me if I knew what I was eating. I said I was pretty sure they are better known as "Rocky Mountain Oysters" in the western states.

Another delicacy I've tried, and surprisingly enjoyed, is escargot, which is a fancy French word for snails cooked in herb butter. I found them to be a bit chewy and tasted just like..Snails! Along with the snails I also enjoyed a meal of frog legs. In Canada I've tried Poutine, which is cheese curds with French fries covered with brown gravy. In Milwaukee I had Butter Burgers; a burger served with big pads of butter that melt into the bun. Some places serve them with so much butter that the plate will be swimming with it. I've eaten fried rattle snake in Texas, and fried gator in Florida. But, I've never tried fried Twinkies. Some things are just too gross to consider. Louisville, Kentucky is known for its barbecue and hosts one of the largest annual barbecue festivals in the country. There is another Kentucky dish called Burgoo made with four or five different meats and vegetables. It is cooked into a thick soup, or stew. I believe they created this dish just to get rid of leftovers. One of my more unique dining experiences came when a Japanese customer I became friends with invited me to an authentic Japanese restaurant for a traditional meal. We sat on floor mats and were served at a low table. I did not speak Japanese, so my host interpreted for me. I tried the traditional meal he suggested consisting of soup, rice, tofu, seaweed, pickled radish, and tempura. I enjoyed the experience and left there very full. On recent travels I discovered some of my co-workers enjoy Sushi. Initially, the thought of eating raw fish was not too appealing, but I did try it and found it to be much better than I expected. One of the weirder snack foods I've tried is meal worms. When these little guys are dropped into hot oil they puff up about 20 times their size. They have the consistency of crunchy cheese puffs and taste a little like fried pork rind. I understand them to be full of protein.

I'VE NEVER TRIED FRIED TWINKIES. SOME THINGS ARE JUST TOO GROSS TO CONSIDER.

There are a few foods I have tried with regret; Oysters-On-The-Half-Shell and Mud Bugs. I know there are folks who love Oysters, but I made the mistake of chewing this glob of nastiness when I tried them. I was unaware that the proper way to eat them is to just let them slide down your throat. This is probably to sneak the oysters past your taste buds before they realize it is in your mouth. I hear some people chase them with a shot of Vodka, probably to kill the taste. Mud Bugs are better known as crawfish and are a Louisiana treat usually prepared in a boil. I've thought about trying these on several occasions, but just could not get past the smell. I've only seen these served at festivals, and they do seem to be enjoyed and sell out fast. Maybe someday I will build up the nerve to try them.

I do have a few more years of travel ahead of me, and if you think I will refrain from sampling the local cuisines on my ventures, well Good Luck with that! «

THE INTERVIEW WITH

RICHARD MATTERS

Richard has been welding at Imperial Systems for twelve years, and in various other jobs for eighteen years before that. He is a graduate of Jamestown High School. Outside of work he enjoys relaxing with his wife and spending time with his three kids and eight grandkids.

Q: What date did you start working at Imperial Systems?

September 17, 2006

Q: You said it was only that first bay?

Yeah. It was probably ten or so guys working. The road crew was there.

Q: That would be pretty tight.

Yeah it was for everything we build, like us with the big BRFs. You see how much room the fourteen footers take up here. It was tight, but we did it.

Q: How long have you been welding?

Oh jeez. Twenty-five or thirty years. I had thirteen years in at Trinity Industries, twelve here, and five at Tri-County. I was welding dumpsters and stuff, rebuilding them. Then I worked a couple other places. There was a rail division down in New Castle. I didn't work there very long because it was too far of a drive from my house. It was an hour and a half each way.

Q: Did you go to trade school?

No. When Trinity shut down we did get to go to school. You could keep your unemployment because they moved out of the country and went to Mexico. So they put up a school and you could draw your unemployment while you were in school. Even when I started at Trinity they put me through weld school at Mercer Vo-Tech. It wasn't a long class, thirty days or something like that. It was heavier. Rail cars. It was big.

Q: How many kids do you have?

Three. Two girls and a boy. I've got eight grandkids. Two are twin boys.

Q: Do you like any sports?

I watch a lot of football. I'm a big Steelers fan.

Q: You got that question correct.

I'm a little unhappy with them right now.

Q: What do you do for fun?

We usually sit down back. We built a big pavilion and we usually sit down there, me and the wife, drink beer and listen to the radio, build a fire.

Q: What kind of music do you like?

Country. Willie 95. They've changed country so much. Its more getting into pop or something.

Q: Do you ever go to concerts?

Nah. Once I went up to Crawford County and George Jones was there. It was a pretty good concert. Loretta Lynn was there too that night, but she wasn't feeling good. She had laryngitis and was having trouble singing.

Q: Do you have any projects at home that you do?

All the time. It seems like the wife always has something for me to do!

Q: You ever go to any football games or anything?

No, I always wanted to, but usually I say "Why would I want to go watch that live when I could sit at home and watch it with no crowd?" And usually its too cold, too. I don't want to be out there in the freezing weather. Then, when you drink like I do you can't afford to go there with the price of their beer, jeez.

Q: You're just a good country guy, huh?

That's pretty much it. I don't bother no one, no one bothers me. That's what I like. We have a lot of parties though. We have a big Fourth of July party every year. We've been doing that for about twenty years now. We invite a bunch of people and get fireworks. Seems like it keeps getting bigger every year. More and more people come, and more fireworks we have to buy. But its fun. We have a lot of fun. We're out in the country enough that no one bothers you either, thats whats nice.

Q: What do you think about being in the magazine?

It's good. It gets it out.

Q: We're showing off our employees. We're proud of you guys. We want you to be known for the work you've done. It's because of you guys that this place...

It goes! And that's good. We need it to keep going for a long time, hopefully.

Q: Do you have anything else you want to say?

I do appreciate having the opportunity to work here. I appreciate that. And Jeremiah's real fair about everything, as far as I'm concerned. He's a good guy, and good to his people too. There ain't too many places where on holidays you leave early and they pay you for the rest of the day and stuff like that. I've never heard of any companies doing that, not that I worked for.

CMAXX CM012

Pipefitter's Union
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