



SMOKE REPORT

ISSUE 1: SPRING / SUMMER 2024

LIGHT NIGHTS

Dive into the forefront of flavour leadership and technical innovation as we unveil the secrets behind smoke. With insights from leading industry professionals, our bi-annual report is your essential guide to sensational flavour. Be part of shaping the future of smoke.

TWENTY YEARS



SMOKE INNOVATION
SINCE 2004

Huw & Dave on smoke, glutamate and the human economy
The essence of taste from lab to market - Our latest insights
Besmoke flavour journeys: Global grilling creating a world of taste
Time is tight - More about the new EU regulations around flavourings
Clean smoke and grill are going global
The art and science behind the Besmoke brand
Besmoke - 20 years of smoke innovation



BESMOKE®

SMOKE INNOVATORS



Welcome to the first in what we plan will be a series of regular market reports from Besmoke

TWENTY YEARS



SMOKE INNOVATION
SINCE 2004

As leaders in smoke and grill flavour, we want to share with you some of the key consumer trends and developments in our fast-growing sector. We've got a fascinating story to tell about continual innovation and how our amazingly skilled team create safe, clean-declaration ingredients while enhancing and heightening sensational taste.

Ours is a tale of scientific rigour, developing hero products, acting on customer feedback and reaching out to new markets. Thanks to investment in our advanced patented filtration technology, Besmoke is doing more to bring safe and amazing natural smoke flavour to the food and drink industry than anyone else.

We publish this report as the sector awaits the EU's latest re-evaluation of the market in flavourings, something we believe is a game-changing opportunity for us. That's because we have great management systems and are easy to trade with. We understand the industry, its processes and resources, and its channels to market. And we strive all the time to be ethical, sustainable and efficient.

We're here to help producers, manufacturers and flavour houses meet ever-changing consumer expectations and stay safe on standards compliance demanded by regulators in the UK, Europe and across the world.

Among the story content in this first report are a look back at the development of smoke flavour, how we have grown Besmoke from a garlic-smoking 'garden shed' operation to a global flavour leader and what the smoke and grill flavour market can expect from us next.

At a time of intense margins in food and drink manufacture and retailing, we explain why producers should talk to us to help in their pursuit of great flavour and how we can support them to come out on the winning side in terms of competitive advantage and market share.

If you have any feedback on this first edition we'd love to hear from you, so please contact us for more information or arrange a flavour demonstration and see how we can help bring your flavours to life.

Huw Griffiths:

Flavour obsessive
and Besmoke
Founder and CEO





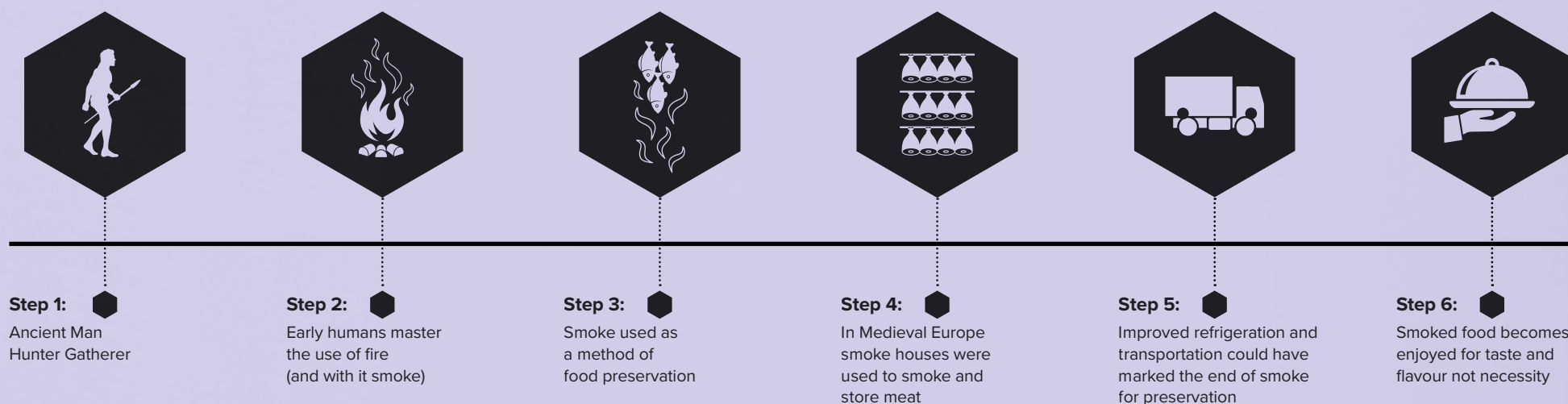
We want to change the perception of smoke and its capabilities

We believe smoke is a key element and a tool for innovation to push the culinary boundaries to make food taste great; and better for you.

There is more to smoke than just flavour.

Smoke, glutamate and the human economy

2 MILLION YEARS AGO



PRESERVATION

The generalised food customs of mankind are not to be viewed as random practices, adopted to please the palate or idle the appetite. These customs must be regarded as the outcome of profound instincts which correspond to certain wants of the human economy.

They are the fruit of a colossal experience accumulated by countless millions of people through successive generations.' - Sir William Roberts, Professor of Medicine, Owens College, Manchester, 1897
Harnessing the power of fire was a transformational advance in human evolution.

As well as a source of warmth and light, creating fire provided a defence against predators, a way to fashion hunting tools and of course a method for cooking food. But just when homo erectus first took control of a flame for the purpose of eating has long been a matter of debate. After all, unearthing evidence of activities from hundreds of thousands, if not millions of years ago, is far from straightforward.

Established methods of verifying the presence of a fire at an archaeological site have traditionally relied on detecting atomic changes in fragments of material such as charcoal, bone or flint.

Most evidence pointing to cooking over open fire dates to around 200,000 years ago, with only a handful of sites offering up older signs. The earliest anthropological evidence for the more widespread control of fire by anatomically modern humans dates to around 125,000 years ago.

Our early Paleolithic ancestors used fire and smoke to nourish the 'human economy' referred to so eloquently by Sir William Roberts. This activity, borne out of 'profound instincts' and 'corresponding to certain wants', led directly to our proliferation as a species, helping us to thrive, migrate and survive beyond temperate regions.

It is inevitable that as a consequence of the use of fire, smoke helped to preserve meat. Hunters learned to preserve their kills by hanging meat high in caves where the fire smoke would gently infuse and 'cure' it. This cooking, or smoking, of meats improved flavour by developing a succulent deliciousness that we found desirable.

At the same time, it changed the texture of the meat through dehydration thus reducing surface bacteria. We now know that glutamate is the amino acid responsible for the deep succulence of cooked meat proteins.

Glutamate is essential to nutrition and Roberts' 'human economy' as it occupies a pivotal role in umami taste. Umami is one of the five human taste receptors, along with sweet, sour, bitter and salty, and indicates that protein is present in the diet.

The succulent taste of umami has been selected by evolutionary processes as the protein detector indicating that amino acids are available for the growth and maintenance of muscle and the construction of life-supporting proteins such as enzymes and hormones.

While early homo sapiens would not have known it, the human foetus, bathed in amniotic fluids, is familiar with the taste of glutamate as the umami receptor grows and develops. A newborn baby tastes it in the mother's breast milk. This is constructed to contain high levels of glutamate, ten times more than cow's milk. You could call it a glutamate factory.

Even if the mother is unable to suckle her child straight away, the baby will eventually make its own way toward the breast to receive the first nourishment of colostrum. That instinct is driven by the intense need for glutamate, so abundant in the milk.

Glutamic acid induces the umami taste in breast milk and so do its salts - monosodium glutamate and monopotassium glutamate - both of which are present.

FLAVOUR

Human milk also has a high concentration of nucleotides that help to induce umami taste. These enhance the immune function in the early stages of life by helping to develop iron bioavailability, promote healthy gut growth and maturation, and increase the circulatory levels of white blood cells to stave off and recover from infections.

As we grow, our brain synthesises its own glutamate. This plays a critical role in brain function for the rest of our life.

Fire helped our early ancestors survive and thrive by releasing that essential amino acid in cooked meats. The combination of smoke and umami from the glutamates naturally present in meat became a delicious, mouth-watering source of safe calories.

And so it continues. Are we programmed to love smoke flavour and seek that deep succulent deliciousness that smoke and fire delivers?

When we're relaxing in the garden on a summer afternoon and someone lights up the barbecue, is it our Palaeolithic instinct that brings us together to celebrate our tribe? We think so.

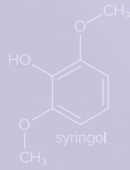
Smoke enhances the taste of glutamate and the enjoyment of eating which is why barbecued foods are so desirable. The combined taste of smoke and glutamate is deeply embedded in our culture and the reason why today it is so popular in our food supply.

Besmoke is all about the emotion of outdoor cooking. We recognise its importance to the 'human economy'. This is more than just the taste of smoke, it's in our DNA.



For more information on the early use of fire, scan the QR codes

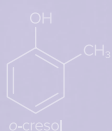
• smithsonianmag.com
• pnas.org



TODAY

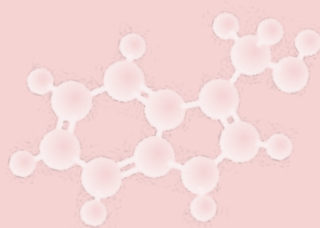


Step 7:
Through continuous innovation,
Besmoke combines the art and
science of smoke to deliver flavour
leadership within culinary



Professor Dave Baines:
World renowned food chemist
and flavour scientist Besmoke's
Director of Innovation.

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The essence of taste: from lab to market

Besmoke's increasing reach into global markets has created a busy time for Elena Cristea, Science and New Product Development Manager.

A multilingual food scientist and inventor, Elena has researched all aspects of smoke filtration and the removal of carcinogens in support of flavour creation. She believes it is natural for us to be drawn to smoking as a traditional way of cooking and for there to be smoked food ingredients in our diet.

Her focus is on ensuring that NPD at Besmoke results in safe, clean-label flavours that are natural, tasty and in step with what consumers are looking for. "The company was in the process of finalising its PureTech filtration system when I joined in 2015," says Elena. "Its development reflected the fact that while smoked food ingredients manifest themselves culturally and traditionally, people of course want to avoid contaminants or pollutants in what they consume. PureTech makes everything safer.

"We have invented and launched a revolutionary way of smoking products that is safe and which lifts and enhances the taste of food while removing acidity and PAHs. Our Puremami product acts as a umami enhancer, one of our key taste enhancers that complete our product range alongside smoked and grilled ingredients.

Besmoke's SKUs, retail and branded products all start off in the lab at the company's base in Arundel, Sussex. Basic sample kits can be sent to prospective leads, customised for every range, so people can try them out and cook with them.

"When we meet with a customer's product development team, we listen to what they want to achieve," says Elena. "We explain how we make a smoked ingredient clean and safe. We discuss the strength of the smoke they want in their product. All going well, once we have approved raw materials made in the factory, we can upscale to an industrial process. We can be working across several different technologies that encapsulate our products in any given week. Either I'm doing experiments, testing or analysis or I'm planning, writing reports or presenting results. In the lab, we're trying out different combinations of smoke ingredients, tinkering with the burning mix, changing filtration ratios, adding spices and herbs, always searching for that precise flavour or top note."

Elena says that despite our scientific world, the creation of the ultimate smoke or grill flavour remains an art. "As a species, we don't fully understand how our brains recognise certain molecules. That's still a work in progress. Humans are unique, beautiful creations who are subjective. We each associate flavour differently, based on our own experience. That's why we can be in the lab tweaking milligrams of flavour in the molecules of the top note of a basic oil. We can go through multiple modifications of the customer's brief to arrive at the one they ultimately approve. It's exciting when they do and so satisfying when you see your ingredient out there.

"I can look back and say we have done a lot already but for us, the journey doesn't stop. We're oriented towards the future, always trying to catch a new rabbit while reading into the trends and being proactive." While most bench top development is done at Arundel, team members from Besmoke are well used to attending customer labs and factories to offer their expertise onsite.

Colin Hitch, Chief Commercial Officer, says: "It can be difficult and take several attempts to replicate the specific smoke or grill flavour profile customers are looking for in products being cooked over an open fire. Our application technologists finesse the perfect combination of Besmoke ingredients to meet a customer's exacting brief. Working alongside Product Developers on application work in their own workspace saves valuable time and reduces the NPD process significantly."

As Besmoke intensifies its focus on creating global flavour profiles, the pace of NPD will only quicken even more. Peter Dingelhoff, Technical Sales Director, says: "In Europe, the big opportunity for us most immediately is from people who are looking to find alternatives to smoke flavourings, for example spice or brine manufacturers, given concern over a possible EU flavourings ban.

Aside from that, our strength in all sales territories is that we offer something much more compelling than just a straight replacement for someone else's flavouring. Our customers can have their very own regional smoke profiles. They can make their own blends. Profiles are very different from area to area, often informed by how long the shelf life had to be in the past. Food from Scandinavia, Germany and the

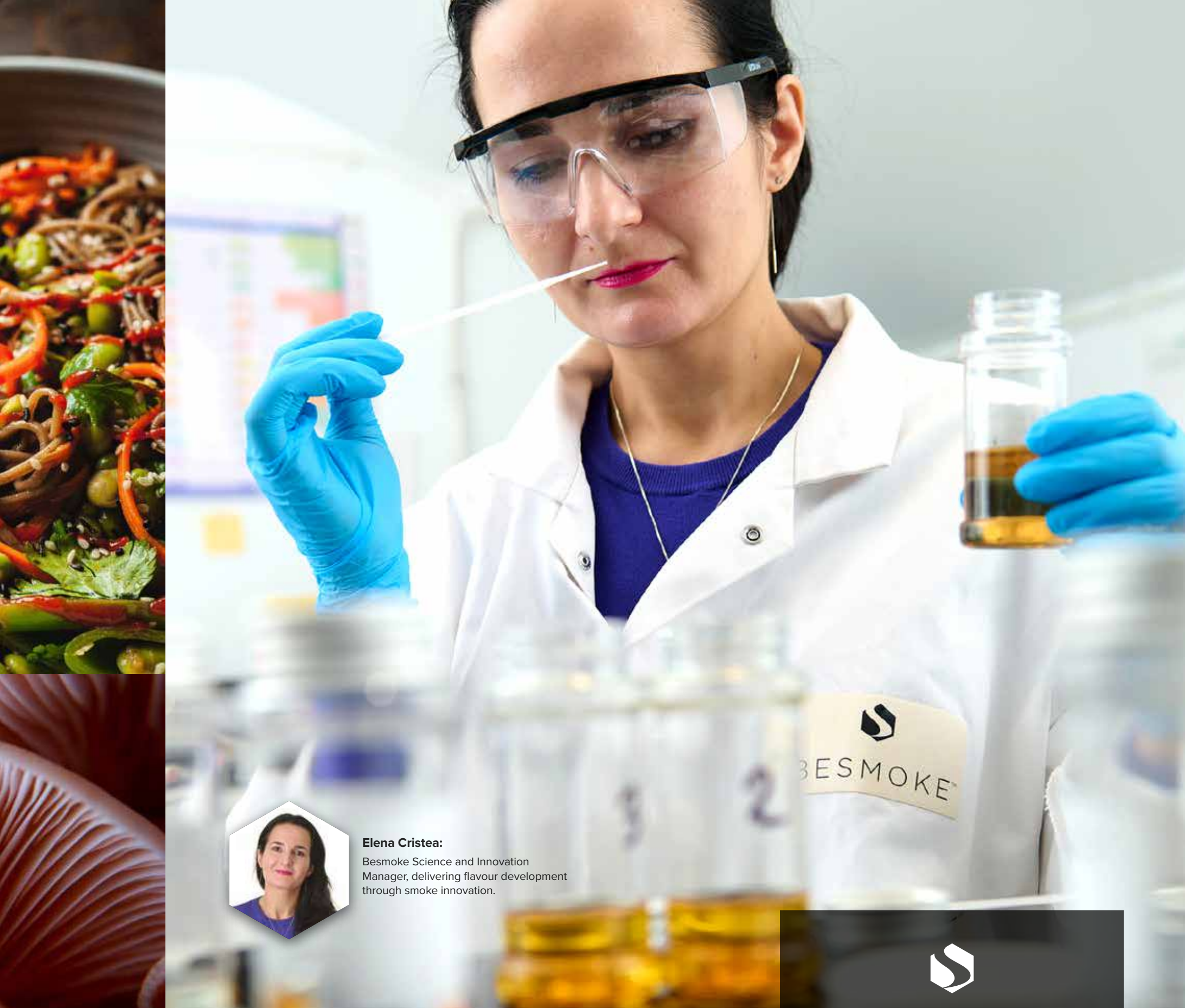


Netherlands will tend to have stronger smoke profiles than dishes from southern Europe.

Together we and the customer can play around and build up the profile to replicate exactly the flavour they want. It might be based on oak, hickory or other traditional wood source or have different ingredients and ways that the food is prepared whether smoked or grilled. Because of this degree of specialisation, we're expecting tremendous growth. We aim to become better known as the go-to company that knows about smoke. Our umami taste enhancer Puremami is key for us but there is huge potential in all our products."

UMAMI AND SMOKE - THE ESSENTIAL CONNECTION

Umami means 'essence of deliciousness' in Japanese. Describes a taste that is savoury, succulent or brothy. One of the five tastes - along with sweet, sour, salty and bitter - and often taken to indicate a succulence that deepens flavour. Common to meat, fish, shellfish, certain vegetables, mushrooms (especially Shiitake), cheese and other savoury foods. Normally available



Elena Cristea:
Besmoke Science and Innovation
Manager, delivering flavour development
through smoke innovation.

as food or seasoning in either paste or liquid form and made from fermented beans or grains. Umami taste is imparted by the salts of naturally occurring glutamic acid and ribonucleotides – molecular building blocks essential for most biological functions. Since the year 2000 we have seen the discovery of a cluster of receptors, including on the tongue, in the throat and in various organs in the body that specifically respond to the glutamate ion and to the ribonucleotides, working together on protein selection and the absorption of essential amino acids. Glutamic acid is ubiquitous across protein and is safely metabolised.

When you combine the elements of umami you create a synergistic bang, a 'umami bomb'. The umami taste is enhanced by smoke flavour ingredients. A prime example is Besmoke's Puremami, a taste enhancer that delivers umami with a reduction of up to 60% of salt and up to 30% of sugar. Puremami also delivers kokumi, a long lasting rich taste with a complimentary sense of body, complexity and mouthfeel.

Professor Dave Baines, Besmoke's innovation and technology leader, says: "In Japanese cuisine they have long learnt to combine foods and ingredients that contain the elements of umami. Bringing glutamate and ribonucleotide elements of foods together produces synergy and enhances the flavour of a dish.

"Over the centuries, the Japanese may not have understood that in scientific terms they were searching for a mix of glutamate and ribonucleotides but it is common knowledge there that the combination of kombu (seaweed - glutamate) with bonito flakes (ribonucleotides) makes a tastier soup.

"This was not widely known in the West before WWII. It only came to the fore when US soldiers discovered that Japanese POW ration packs were very tasty. "We have taken umami and applied our smoke flavour knowledge and advanced patented filtration technology, PureTech, to create Puremami as a truly revolutionary umami taste enhancer in the field of smoke and grill flavour."



FACT FILE

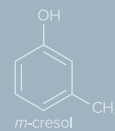
SMOKE FLAVOUR vs SMOKE FLAVOURING

Smoke flavour:

Roasted, smoky, sweet, vanilla. Products or ingredients from smoke that are filtered and made cleaner, sharper, crispier. This is what Besmoke does as a flavour leader specialising in clean label, delicious ingredients and flavour profiles backed with worldwide patents for its unique, proprietary filtration technology.

Smoke flavourings:

Typically made from concentrate, involving additives, governed by regulations. Increasingly seen as undesirable in some foods and ingredients. Currently under revaluation by the EU which could mean potential restrictions or even, in some cases, a ban.



Global grilling creates a world of taste

Cooking over an open fire may have begun in prehistoric times but it is emerging again as one of the 21st century's global food trends

Wherever you are in the world people love the taste of food cooked over an open fire. The interaction of heat, oil, fat, charcoal, woodsmoke and so on makes products more flavoursome, something that Besmoke's naturally smoked flavour profiles replicate perfectly in a safe way.

The company's 'global grilling' offer has become of major interest to value added protein processors, especially in the poultry sector.

Colin Hitch, Chief Commercial Officer says: "Besmoke can mimic the authentic taste of a rotisserie chicken cooked on a spit roast, when the fat hits the coal, ignites the flame and cooks the skin. Everyone loves that flavour but it isn't easy to recreate in your own kitchen for a midweek meal - until now, by using Besmoke Rotis flavour.

"Huw Griffiths, our founder & CEO, developed and captured the unique flavours of global grilling by researching the cooking methods, measuring the temperature of the coals, the distance between the meat and the coals, and what spices or flavours were dripping into the fire.

He then created different mixes of wood chips, charcoal, spices and herbs to create distinct smoke and grill flavour characteristics of specific cuisines from around the world. "It could be the mouth-watering piri piri chicken you find in Portuguese street food,

prepared in front of you and cooked over charcoal embers. Carefully selected chilli blends and spices all contribute to the flavour. We can deliver the finest authentic flavour profiles for so many other regional cooking platforms, through ingredients naturally smoked without any harmful carcinogens." Colin is confident that poultry products in the UK will become more flavoursome and greatly benefit from the smoke and grill flavour profiles produced by Besmoke.

"Poultry is a massive growth area for us. We've cracked the concept of how to replicate cooking chicken over an open fire and we are taking it global."

Colin's Besmoke colleagues Petra Tsitlakidou and Dave Baines, both fellow flavour scientists, agree the sector is a priority. "Poultry is one of the most popular meats across the world and smoke makes it all the more desirable and flavoursome," says Petra, Technical & Regulatory Director. "Smoke is well associated with enhancing savoury flavours, for example in marinades and sauces. It adds so much to the taste."

Dave, a food technology professor and Besmoke's innovation and technology leader, says: "The advanced patented technology we have built to filter smoke volatiles and strip out PAHs can be applied to poultry just as it can right across the food sector, safely and in line with consumer demand and legislative oversight."



Colin Hitch:

Chief Commercial Officer who's driving the global sales strategy to bring Besmoke to the masses.

"Poultry is a massive growth area for us. We've cracked the concept of how to replicate cooking chicken over an open fire and we are taking it global."



The heritage & history of Asian grilling

Exploring Asia's diverse grilling traditions, from time-honoured techniques to modern innovations. Join us as we delve into the rich heritage of open-fire cooking across this continent.

ROBATAYAK

**Pronounced: (roba-tay-aki)
meaning 'fireside grilling'**

Robatayaki, or robata, is a traditional Japanese fireside grilling method originating in Hokkaido centuries ago. Initially developed by fishermen to cook their catch during long days at sea, it has evolved into a revered culinary technique.

Charcoal, typically binchotan, is heated until it reaches temperatures exceeding 1000°F. Food is grilled on multiple racks at varying distances from the flame for precise heat control. Lower racks sear meats like steak, medium racks cook chicken, pork, and vegetables, while higher racks suit delicate foods like fish and bread.

Juices drip onto the charcoal, creating flavourful smoke that envelops the dish. Robatayaki imparts a distinctive smoky flavour, sealing in natural juices, yielding a crisp exterior and juicy interior, making it versatile and delicious for various dishes.

HIBACHI

**Pronounced: (huh-baa-chee)
meaning 'fire bowl'**

Originated during the Heian period (794-1185 AD). Initially, hibachis were portable pots used for heating rooms, primarily by samurais and wealthy families. During the Edo period (1603-1868), samurais popularised hibachi grilling by cooking thinly sliced meat on portable grills during journeys or breaks from battles.

By the early 1900s, hibachis transitioned into cooking devices, utilising coal or wood for searing meat and infusing food with a charcoal flavour.

Today, hibachi grills, are synonymous with Japanese grilling. They can reach temperatures up to 200°C and are versatile for cooking various foods like meat, seafood, and vegetables, with its unique cooking method and its charcoal grill surface. Hibachi chefs employ techniques like grilling, frying, and smoking, enhancing dishes with a top-secret cooking oil blend.

BINCHOTAN

**Pronounced: (Bincho-tan)
meaning 'white charcoal'**

Traditionally used in Japanese cooking, binchotan charcoal is renowned for its long burn time and purity.

Made from ubame oak, it undergoes a meticulous production process, firing at low temperatures for days before exposure to high heat. Resulting in odourless, smokeless, and high-temperature burning charcoal, it's favoured for preserving flavourful juices while crisping food.

Used in Japanese cuisine for over 400 years, binchotan's quality is ensured by skilled artisans. Its absence of moisture enhances food's crispiness, making it a favourite among chefs. Referred to as 'white oak bincho' or 'Japanese white charcoal', binchotan stands as the pinnacle of charcoal excellence worldwide.

ASIAN STREET FOOD: CHINA

Asian street food encompasses a myriad of flavours and cooking techniques, with Chinese BBQ standing out as a beloved tradition. Known as Shaokao or Chuanr, it involves skewering heavily spiced meats, fish, and vegetables and grilling them over coals.

Each region in China boasts its unique marinades, ranging from fiery chili to sweeter, umami-infused flavours.

Popular in North and West China, Shaokao can be found across bustling night markets. One iconic dish, Char Siu, originating from Guangdong, features seasoned pork skewered and roasted, embodying the essence of Chinese street food: bold flavours, communal dining, and culinary diversity.

ASIAN STREET FOOD: JAPAN & KOREA

In Japan, Yatai showcases the essence of street cuisine, featuring Yakitori, skewered chicken grilled over white charcoal and seasoned with sweet Tare or savoury Shio salt.

Yakiton, grilled pork, and Kushiyaki add to the experience, grilled over Binchotan charcoal on small tabletop grills like Hibachi or Konro. Ikeyaki, spicy soy sauce-marinated grilled squid, represents the simplicity and tradition of Japanese festival food, ideal for quick and flavourful street eats.

Korean street food, integral to Seoul's culture, features Gogigui barbecue, including pork belly, beef ribs (Galbi), and Bulgogi. Dakkocho spicy chicken skewers, brushed with sweet or spicy sauce, are another staple.

These diverse offerings epitomise Korea's dynamic street food scene, rich in tradition and flavour.

ASIAN STREET FOOD: THAILAND & FILIPINO

Bangkok's street food scene boasts diverse flavours with grilling as a highlight.

Moo Ping skewers feature thin pork slices marinated in savoury-sweet sauce, grilled over charcoal, brushed with coconut cream.

Moo Kata, Thai BBQ, combines grilling and hotpot, offering soups with meats, seafood, veggies, and noodles for communal dining adventures.

Filipino street food offers a flavourful journey with dishes like deep-fried pork belly and corned beef hash sando.

Grilling, a cornerstone of Filipino cuisine, is seen in the Inihaw method, known as Pinoy BBQ. Marinated pork, grilled over charcoal with a sweet, savoury sauce, delights with its distinct flavours.

Time is tight: EU set for new regulations around flavourings

The future of smoke flavourings in the food industry across Europe is uncertain. A re-evaluation of regulations by the European Food Safety Authority (EFSA) has been under way with the outcome likely to be a tightening of rules around what is permitted.

In some sectors, we could even be looking at a ban. Food manufacturers and processors who rely on smoke flavourings are waking up to the need to consider alternative solutions.

For Besmoke, this could be a gamechanger, explains Petra Tsitlakidou, Technical & Regulatory Director. “Our clean-declaration products are classified as food ingredients rather than flavourings,” says Petra. “They are smoked in a traditional manner through the slow combustion of untreated wood chips. Because this does not involve the fractionation or purification of a condensed smoke, they don’t fall under EU legislation on flavourings, nor on smoke flavourings.” And Besmoke founder Huw Griffiths’ message to the industry is clear: “We actually help you remove smoke flavourings from your products, it’s what we do. By working with us you are on board with the future of smoke and grill, using the best-tasting products and delivering the safest possible solutions to your customers.

“No-one else has the technology or enthusiasm we have to revolutionise the smoke flavour sector.

Our unique PureTech filtration methodology specifically addresses the principle of reducing the concentration of PAHs to as low a level as reasonably

achievable. That’s what EFSA’s Scientific Committee on Food has concluded it wants to see. In fact, PureTech brings the levels of PAHs down to what we believe are the lowest ever achieved in the history of smoke flavour.”

Huw adds: “UK manufacturers and processors should also take note about what’s happening in Europe. There is enough joined-up thinking between the UK and EU for the UK to follow any rule changes that are brought in.”

Huw’s advice is shared by Peter Dingelhoff, Besmoke Technical Sales Director and a leading smoke flavour professional who was instrumental the last EFSA evaluation process back in 2013. “I’m confident that Besmoke is outside the scope of any moves to ban smoke flavourings,” Peter says. “I believe smoke flavourings in applications such as sauces, spice-blends, marinades and brines are likely to be further restricted this time round or even banned, but that doesn’t apply to us because of our technology, our processes and our focus on ingredients and products.

“Our recommendation to the food industry is that if you are a company that currently relies on smoke flavourings you should be considering alternatives now.”



EU REGULATIONS ON SMOKE FLAVOURINGS:

EC No.2065/2003

EC No. 1321/2013

EC No. 2023/915

EC No. 1334/2008

EU No. 835/2011

EU No. 2015/1933

“I’m confident that Besmoke is outside the scope of any moves to ban smoke flavourings.”



Peter Dingelhoff:

Global Technical Sales Director,
Besmoke’s European smoke and
grill expert

Enthused and infused: from poultry to paprika, clean smoke and grill go global

As Besmoke's Chief Commercial Officer, Colin Hitch has global sales responsibilities and direct influence on new product development, market growth and customer engagement.

His energy and passion for the role come over clearly as he discusses expansion plans and how the business is evolving its remarkable journey of innovation. "I've never seen a product range prompt such initial excitement," says Colin, who has extensive career experience among food ingredient companies. "When we present and give out our tasting boxes to prospective customers – chefs, product developers and so on – they're smiling as you're talking about it. "That's because they immediately sense there is an emotional attachment to what Besmoke does and we have a compelling story and unique points of difference from anything else that is available in the food industry.

"It's a very strong proposition to be able to say that we have global patented technology and that 'only Besmoke can do it'.

"We're increasingly attracting worldwide customers from USA, Asia and Australasia to name a few," says Colin. "Our message is that because we understand the science and manipulate smoke volatiles, we can lay claim to creating the best tasting smoked and grilled ingredients, virtually free of PAHs, tar and acidity and blessed with clean, fresh and amazing flavour profiles.

"We have perfected a way to achieve intensity of flavour in smoked ingredients, evolving the technology to encapsulate the smoke volatile in such a way that it doesn't get dissipated. As a safe substitute for others'

smoke flavourings, Colin cites Besmoke's newly launched SMOAX products which are high-strength and declared as smoked maltodextrin.

Available in eight different Woodsmokes and eight global grill flavours in the Fire & Flame range, SMOAX offers a dry powder format that can be used to create unique recipes and signature flavours. SMOAX is suitable for wet or dry applications in meat, poultry, fish, brines, seasonings, coatings, sauces, cheese and bakery products.

"Put SMOAX Woodsmoke in a bacon cure and it will deliver amazing flavour without going anywhere near a smoke house," he says. "And instead of ten hours it's smoked for two and a half so it's more cost effective and energy efficient.

"There is no limit to what we can smoke – whether that's paprika, garlic, pepper or any other food ingredient. We have depth, breadth and complexity in our armoury that can work in any application, the world is your oyster.

"Our task is to keep the innovation going ahead of trends, whether that's about health and wellbeing, sustainability, cooking methods or world cuisines. "Consumer thoughts and demands are changing all the time. In the vegan market, for example, we have all witnessed the kickback against ultra-processed food products. Chefs are embracing the challenge to put vegetables at the heart of the meal, such as cauliflower steaks. Our smoke, grill and taste enhancement products really deliver delicious flavours for vegan applications."



SMOAX® Fire & Flame

Besmoke's high-strength smoked maltodextrin range that delivers the true and authentic taste of barbeque, grilling, and rotisserie.



SMOAX® Woodsmoke

Besmoke's high-strength smoked maltodextrin range that delivers the true and authentic taste of wood smoke.

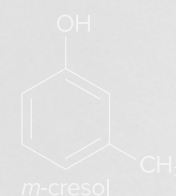
"It's a very strong proposition to be able to say that we have global patented technology and that only Besmoke can do it."



Colin Hitch:

Chief Commercial Officer who's driving the global sales strategy to bring Besmoke to the masses.





The art and science behind the Besmoke brand

What began as an artisan hobby in a garden shed has grown to become one of the most forward thinking, creative ingredients companies in the global food industry.

Besmoke celebrates its 20th anniversary in 2024. Increasingly recognised as a flavour leader, Besmoke mixes, blends and applies its patented three-stage PureTech process to produce the cleanest, safest smoke and grill flavour profiles and revolutionary taste enhancers.

This underlying technology differentiates Besmoke as it removes virtually all of the carcinogenic compounds, the PAHs, typically present in smoke flavour.

The three stages are creation, filtration and infusion. PureTech begins by adding a blend of select wood chips and combustibles to the furnace for low-temperature pyrolysis. The aim is to release only the finest smoke and grill flavour.

Then, the smoke is filtered to selectively remove the harmful PAHs (polycyclic aromatic hydrocarbons) and smoke tar while releasing hundreds of 'volatiles', the naturally occurring molecular compounds that have a beneficial impact on the perception of taste.

The infusion stage is where art and science come together. Here the volatiles are infused into flavoursome food ingredients enabling Besmoke customers to create the most versatile ranges of products from dry, oil-based or aqueous ingredients.

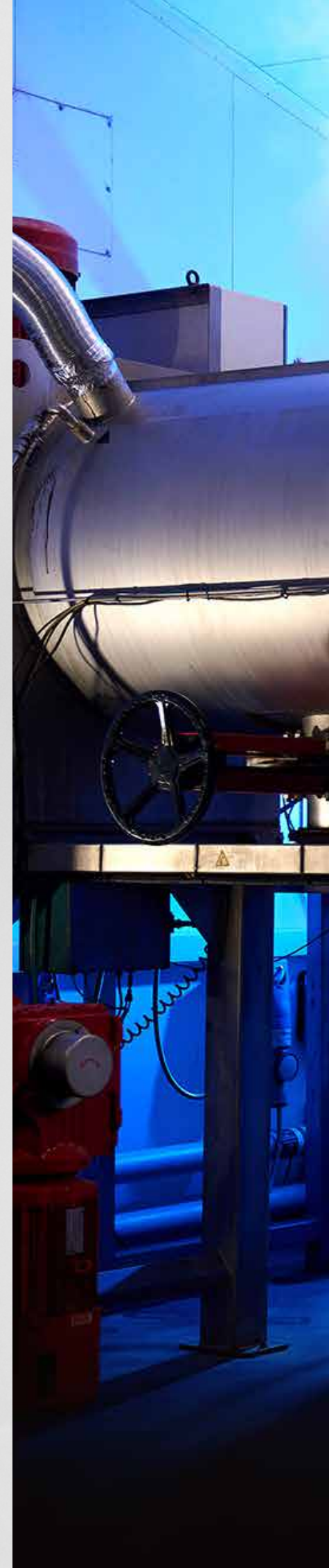
"We take the power of smoke and apply it to create a culinary experience that is cleaner, safer and tastier,"

explains Petra Tsitlakidou, Technical & Regulatory Director. "PureTech is a unique process that blends the art and science of smoke. At the same time, we continually innovate and experiment to achieve heightened flavour. We always follow scientific guidance and combine that with super creativity. The sky's the limit.

Creativity informed by PureTech has led us to some very unique pathways into authentic flavours and use of new ingredients. We're going further all the time to make food around the world taste better and safer with the authentic, traditional and true flavours of wood smoke and grill. We are here to support the food industry by removing PAHs from the food chain and offering clean-label solutions."

Petra's comments are echoed by Professor Dave Baines, a world-renowned food chemist and flavour scientist and Besmoke's innovation and technology leader. "We have long-standing knowledge and experience in understanding smoke flavour and making it safe," Dave says. "At laboratory scale we have removed 100% of PAHs, at commercial scale around 95%.

Because we offer safety and are covered by patent, we have an amazing opportunity to engage with the food industry as a flavour leader. We aim to be the go-to leader in smoke flavour, the global experts. It's right place, right time, right now."





THE PURETECH™ 3 STAGE PROCESS

Smoke Creation

Stage 1: The Art

A blend of select wood chips and combustibles are added to the furnace for low-temperature pyrolysis to release only the finest smoke and grill flavour.



Smoke Filtration

Stage 2: The Science

Smoke is filtered to selectively remove the harmful PAHs and smoke tar, releasing the PureSmoke® and PureGrill™ volatiles.



Smoke Infusion

Stage 3: The Art and Science

Creativity comes to life when we infuse these volatiles into the most diverse and flavoursome food ingredients available to create versatile ranges of products from dry, oil-based, or aqueous ingredients.



PURETECH™

“We take the power of smoke and apply it to create a culinary experience that is cleaner, safer and tastier.”

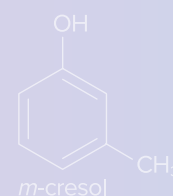


Petra Tsitlakidou:
Besmoke's Technical & Regulatory Director

TWENTY YEARS



SMOKE INNOVATION
SINCE 2004



Bringing flavour to life: founder Huw Griffiths charts the Besmoke story



2004



An obsession with smoke is ignited...

It all began smoking garlic in an old tin ballot box from Huw's seafront flat in Brighton and Besmoke is born

2010



The home of smoke innovation...

Besmoke moves to its current site to build smoke capacity

2011



Smoke innovation never stops...

Huw and Dave begin experimenting with smoke filtration

2018



PureGrill® launches...

We launch our clean declaration, natural grill and open fire cooking flavours

2019



PureMami® launches...

We launch our innovative taste enhancer that elevates savoury deliciousness, mask bitterness and heightens flavour whilst reducing salt by up to 60% and sugar by up to 30%

Besmoke founder, smoke creative and innovator Huw Griffiths started out smoking bulbs of garlic in an old tin ballot box in the garden shed of his Brighton beachfront flat in 2004.

"In the early days it was a hobby," says Huw. "I went to farmers' markets three or four times a week around Sussex and some food festivals. Foodies encouraged me. I began smoking different salts and veg.

"Eventually a little sample of my smoked pepper landed on the boss's desk at a sea salt company. The same thing happened with a spice company. They both expressed interest and I thought, 'I've got something here'.

"Over the next five years or so, I moved production from my garden shed to a farm shed in the Sussex countryside, a converted pig sty. I went for it. We had the first factory by 2010 with a team of seven or eight people.

"The following year I heard that a national retailer was in favour of a natural smoking approach for some of the sauces, seasonings and condiments it was selling. It was then that I met the flavour chemist Dave Baines. We had a meeting of minds, a shared vision of cleaning up the smoke industry to reduce the risk of consuming smoke flavours.

"There were two drivers to go 'clean'. We had an altruistic, ethical point of view as we didn't want anyone to consume PAHs anymore. And regulatory change was in the air as well. In the EU, smoke flavour evaluations tend to be every ten years.

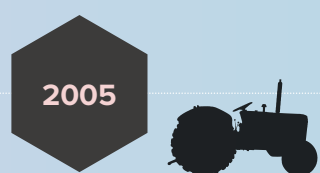
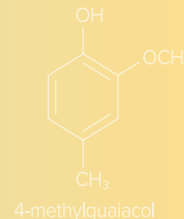
The EU was beginning to take steps to limit exposure to harmful PAHs. We wanted to replace what had been a long-standing concern about smoke flavour with a safe alternative, protect the future of the industry we loved and become the biggest, safest smoked ingredients company in the world.

"The key to this was to do rigorous research and development as a science-based business. "We knew that a traditional smoke chamber infuses smoke into meat or fish in quite a wasteful, inefficient way and of course entails the uncertain presence of PAHs.

"We developed PureTech as an energy-efficient, three-step filtration process capable of removing those dangerous PAHs that are otherwise created by smoke. Our system does exactly that, elevating a world of smoke that hasn't changed since human civilisation first discovered the taste sensations from cooking over an open fire.

"We discovered how a particular smoke volatile can make, say, a piece of chicken more tasty and at the same time deliver health benefits from the absence of toxic carcinogens.

"It was at the University of Reading in 2013 when Dave and I had our eureka moment. That was the first



2005 Farmers & foodies fan the flames...

Encouraged to smoke different salts and veg by passionate foodies at farmers markets, Huw builds his first scale up smoker on a farm in Sussex



2006 Smoke samples open the doors...

A smoked pepper sample opened the door and Besmoke moves into larger barns to scale up production of smoked ingredients



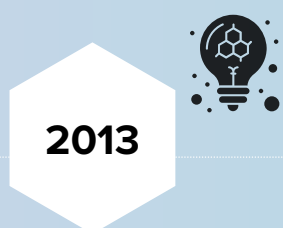
2007 Besmoke goes for it...

Production grows when Besmoke begins contract smoking for two major UK ingredients companies



2009 A meeting of minds...

Huw meets flavour chemist Professor Dave Baines who shared the same vision



2013 The Besmoke eureka moment...

The Eureka Moment at University of Reading where PureTech is born



2014 A win for smoke innovation...

The Innovate UK government funded project begins



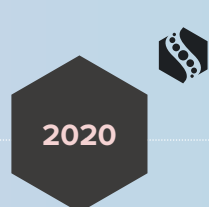
2016 Further expansion...

A new and expanded factory to produce PureSmoke opens



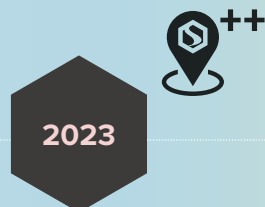
2017 PureSmoke® launches...

Besmoke launches its revolutionary clean declaration smoked ingredients



2020 SMOAX® launches

We launch our new high-strength smoked maltodextrin



2023 A new place for more space..

New dedicated and expanded factory to produce SMOAX opens



2024 The Besmoke experience...

New factory build completed and the new Besmoke innovation centre created

TWENTY YEARS
20
SMOKE INNOVATION
SINCE 2004

“It was at the University of Reading in 2013 when Dave and I had our eureka moment”

time we compared a PureTech smoke flavour, in tomato juice, with one made traditionally with smoke that still had PAHs. The taste test proved our case. When we did the comparison, the PureTech one was manifestly more delicious, more fruity and more flavoursome. We had actually made smoke taste better! And we’d done it through a completely new, safe process. It was the culmination of years of development, a truly magical moment.

“We then applied for and won some government funding for further development in association with the university and an industrial partner. By 2015 we were ready to commercialise and deliver the volumes required by the food industry.

“We expanded capacity and floor space at our factory site, growing from one unit to ten and establishing a centre of excellence. We brought all departments - kitchen, lab, production, finance -

under one roof and set about incubating a tank of creativity. We now have 45 patents worldwide.

“Our team collaborate enthusiastically. The same people deal with all sectors but each one is treated differently according to their needs, so we actively segment across retailers, flavour houses, ingredients and seasonings companies, manufacturers and processors. Our message to customers across the global food industry is that a little of our product input, just that tiny essential percentage, makes the whole consumer product truly amazing.

“People love coming to see us. They enjoy our set up and love the brand. There is so much energy throughout the business, a real buzz. “It’s an exciting time. We’ve done the science. Now we want to deliver taste, flavour and authenticity everywhere.

“Looking ahead, one product we’ll certainly be building on is Puremami, the latest innovation in our

expanding range of taste enhancers. Puremami elevates savoury taste while reducing salt by up to 60% and sugar by up to 30%. It’s delicious, masks bitterness and is ideal for snacks, soups, seasonings, sauces, meats, plant-based and bakery products.

“We also want to go further in capturing the essence of outdoor cooking, delivering truly authentic flavours in cooking styles from around the world. We love to eat food cooked with open fire, whether that’s in a tandoori oven, a Jamaican barbecue, a Mexican rotisserie or a charcoal pit on a beach in Sicily.

That roast vegetable feast, aromatic chicken, jerk seasoning or Sicilian fish tastes amazing because of how heat and fat react with smoke flavour.

We want to bring that unique taste experience to more people in a way that is natural, safe and authentic.”

Flavour Talk: engaging with industry

TWENTY YEARS



SMOKE INNOVATION
SINCE 2004

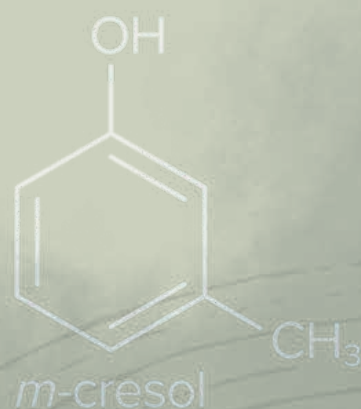
One of the ways that decision makers in the food industry engage with Besmoke is meeting the team at industry events. A prime example is FlavourTalk, an interactive 'speed-dating' type conference and expo first held in Geneva in 2010.

Apart from a pause during the pandemic, this leading flavour showcase has brought industry players together every year since then, in locations such as Singapore, Amsterdam and London.

The latest gathering was in March 2024 in the conference centre of London's Kensington Millennium Gloucester Hotel. Besmoke was among more than 30 companies exhibiting ingredients and products to representatives of flavour houses and other food manufacturers and suppliers.

"It's a scientific audience," explains Professor Dave Baines who, as well as being Besmoke's innovation and technology leader, is the founder of FlavourTalk. "It's an ideal way to engage with flavourists, evaluate new products and developments and discuss topics of importance. Key themes this year included AI, biotechnology and precision breeding."

The Besmoke stand was a hive of activity as our team met and talked to industry professionals, showcasing the very latest smoke innovation technology and developments in our range.



BESMOKE®

SMOKE INNOVATORS

SMOKE REPORT CONTRIBUTORS:



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Manager



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