

The INEOS logo is positioned in the top right corner of the page. It consists of the word "INEOS" in a bold, blue, sans-serif font, with the letter "O" stylized as a circle with a horizontal line through it. The logo is set against a white background that is part of a larger graphic element.

INEOS

# Rising to the Challenge

**2020 REVIEW**

Responding quickly to  
**exceptional circumstances**

Landmark deal completes the chemistry set

# Rising to the challenge

For most companies, spending \$5bn on one of the largest deals in its history would be the most significant thing to happen in any given year.

But 2020 has been quite exceptional

**F**or INEOS, this past year has been filled with challenges and successes in equal measure.

In March, everything changed. As coronavirus took hold, social distancing, remote working and widespread disruption became the norm. As an essential sector, the chemical industry had to carry on regardless – albeit facing myriad measures and restrictions.

“Of all years, 2020 has proven INEOS’ ability to respond rapidly and to get things done,” says Director of Corporate Affairs, Tom Crotty. “COVID-19 caught all of us by surprise but we reacted very quickly to protect our people and to do what we could to help.”

Safeguarding staff and supporting local communities was a priority, as was ensuring production facilities remained operational to ensure a steady and reliable supply of the 300 raw materials used by the medical and healthcare sectors, he adds.

As one of the world’s leading manufacturers, INEOS was also firmly focused on doing all it could to provide personal protective equipment (PPE), facemasks, the plastics used in ventilators, and hand sanitisers to help fight the virus.

“We reacted quickly to the shortage of hand sanitiser and worked with governments around the world to get the product out as front line medical teams were in desperate need of it,” says Crotty. “Our main aim was to get product made quickly and distributed free of charge to the health services. And out of all this, sprung a brand new business.”

COVID-19 had an irrevocable effect on our everyday lives and changed people’s behaviour. Hygiene and heightened levels of cleanliness had become a necessity, and the essential ingredients required to make hand sanitiser were in short supply. As Europe’s only manufacturer of ultra-high purity ethanol and one of just two producers of isopropyl alcohol (IPA), INEOS Chairman Sir Jim Ratcliffe responded to the needs of governments and suggested making hand sanitisers in-house.

“He set us a challenge to see if we could build a plant in 10 days and make one million bottles per month, which we duly did,” says Crotty. “We then ended up building six of these plants – each within a 10-day timeframe – and supplying millions of bottles of free hand sanitiser to thousands of hospitals across the UK, Europe and the US.”

With the concept proven, INEOS Hygienics was born – a new consumer-facing business with a rapidly-growing portfolio consisting of hand sanitiser gels, sprays, wipes, and dispensers.

This exemplifies the way INEOS



Ensuring plants remained operational and that staff were protected has been a priority during a tough year

works, says Crotty.

“The fact the company’s chairman and major shareholder is literally on the phone every day, talking about what we need to do tomorrow, means our decision-making processes are slick and that there aren’t any hurdles we can’t overcome,” he notes.

“It was a phenomenal response from everybody during a period of crisis. We all had a common objective: to get this done and to get it done quickly.”

Distributing those vital supplies to frontline medical staff was initially a bureaucratic minefield but it provided the perfect chance to leverage some of the unique skillsets from across the business.

A phone call from Ratcliffe enlisted the help of Sir Dave Brailsford. His cycling team – now the INEOS Grenadiers – quickly took control of the logistics, ensuring deliveries were made when, and where, needed.

Sir Ben Ainslie and INEOS TEAM UK also soon came onboard and despite their preparations for the upcoming America’s Cup offered their advanced 3D printers and machinery typically used for sail making to produce PPE face shields for the health service.

Its most recent partnership with the Mercedes-AMG Petronas Formula One team also saw them turn their unique engineering skills to developing a new respiratory ventilator system during the early stages of the outbreak.

“It was a real team effort; a united front that brought together all of

Newton Aycliffe in the UK was the first bottling site





these seemingly different ventures and the unique skills we've got within the group," notes Crotty.

"As an organisation we've always been very light at the centre. We've got 30 self-contained business units that could all move outside of the group and still survive. We run them as a federation rather than a corporation, and they all have the resources they need, when they need them. We always ensure we learn from one another. That's the way we operate and it's always worked well for us."

Even with all eyes turned to the handling of the pandemic, arguably one of the year's biggest headlines was the announcement in June that INEOS was to acquire BP's aromatics and acetyls business for \$5bn. It was hugely significant news – not only due of the deal's size and scale but because the complex negotiations had to be carried out virtually via Skype in the midst of the outbreak.

"INEOS was clearly not insulated from the impact of coronavirus but it has largely been business as usual," he insists. "We're bullish and in very good shape financially – and it certainly hasn't affected any of our long-term planning. So much so, that we're now in the process of making this massive acquisition that will completely change the shape of our chemicals business."

This "lockdown deal" completed on 31 December and, as of 1 January, reunited two world class petrochemicals businesses consisting of 15 sites, 10 leading joint ventures and more than 1,700

people, with assets that INEOS had already acquired from BP when it bought Innovene back in 2005.

"With BP looking to refocus and revise its strategy, an exit from the chemical business has been in the offing for some time. We've always let it be known that if there was this kind of opportunity, then we'd be interested – and now, we've finally completed the chemistry set," says Crotty.

"The BP deal will give us the Hull site in its entirety, so that's a huge step change for us. That means that we will then have three very large footprints in the UK – a triangle from Grangemouth at the tip, Runcorn on the west coast and Hull on the east coast. All are major sites that show the importance of the UK to our business."

Equally, tough times have called for some difficult decisions too. The financial impact of the virus, combined with the long-term decline in fuel demand, saw part of the Grangemouth refinery mothballed. "With the refinery, it's about rescaling for the future and having a 150,000bbl site that supports 450 high quality jobs. That's our aim," he insists.

It was also decided that the Forties Pipeline System, which had been due to start scheduled maintenance as part of a £500m rejuvenation plan, would have the works postponed until spring 2021. Given over 40% of the UK's oil and gas travels through the 500km network, delaying the plans would help to support customers and the wider economy during the crisis.

Other major projects, however, have been making good progress.

In the US, the Chocolate Bayou site in Texas has been a hive of activity, with work on INEOS Oligomers' new alpha olefins units.

On the other side of the globe, the three new plants in the Kingdom of Saudi Arabia at the Jubail 2 site are on track, while INEOS Styrolution is also expanding its footprint in China with a 600,000 tonne/year acrylonitrile butadiene styrene facility in Ningbo.

Engineering work on the €5bn Project One petrochemical complex in Antwerp, Belgium, is well underway too, although the project has been rephased to build

the cracker first. When complete, this will be home to Europe's first ethylene cracker for over two decades, and the most efficient.

INEOS' commitment to sustainability and the circular economy has been unwavering during the crisis and, despite all the disruption, there were still plenty of exciting developments.

Early 2020 started with news that UPM Biofuels would supply renewable raw materials to produce bio-based polyvinyl chloride (PVC) – another world first. This was followed by a partnership with Forever Plast to recycle and reuse over 6.5bn bottle caps, plans for a new plant with Plastic Energy to convert plastic waste into new high quality polymer, and the unveiling of the ambitious Power to Methanol project to produce methanol from captured CO2 combined with hydrogen generated from renewable electricity.

Add a decade-long wind farm deal to source renewable energy, and the launch of a new hydrogen business into the mix, and INEOS' commitment to a more efficient and environmentally-friendly future is evident.

"I'd like to see 2021 be the year where we start to grow our hydrogen business and we can really demonstrate our commitment to advanced recycling by getting some facilities up and running," he says. "We also want to see the Hygienics business well established and integrate the new BP businesses firmly into ours. There's the launch of the Grenadier and on the sporting side, if we can win a couple of Grand Tours and finish in the top four in the Swiss and French Leagues, that wouldn't be too bad either."

"Something that's really changed this year is our profile as a company. Our name is now seen on the shirts of a cycling team, a Formula One car, and on the sail of a boat. We also now have three significant consumer businesses in INEOS Hygienics, the Grenadier car project and Belstaff clothing."

"We always used to joke that INEOS was the biggest company you've never heard of, but that is definitely no longer the case."

By Andy Brice



*"This year, of all years, has proven INEOS' ability to respond rapidly and to get things done"*

**Tom Crotty,**  
Director of  
Corporate Affairs,  
INEOS



Production lines were built within just 10 days

# GETTING HANDS ON WITH COVID

Spurred on by an unprecedented health crisis, INEOS has now quite literally established itself as a household name

**R**esponding to government's call to address the shortage of hand sanitiser for frontline doctors and nurses INEOS acted quickly, applying its enormous resources to help ease the massive shortages.

"Our solvents business was already making key raw materials for hand sanitiser – pharmaceutical ethanol and isopropyl alcohol – but we did not supply the public direct. That was the birth of the idea to start making our own," says Ashley Reed, CEO of INEOS Enterprises and Chairman of the newly formed Hygienics business.

Not for the first time in its history, the petrochemical major would be treading unfamiliar ground.

By now it was clear the virus was highly contagious, and front line medical and care services were in dire need of help. To stem the rapid spread of infection, INEOS committed to setting up a purpose built facility to produce

large quantities of hand sanitiser to supply thousands of hospitals free of charge.

News channels had been broadcasting footage of China's race to build a new hospital in Wuhan City to treat coronavirus patients, and that provided inspiration for INEOS Chairman Sir Jim Ratcliffe.

"I remember sitting in his office and Jim saying that if they could do that, then INEOS should be able to build a bottling site that quickly too," says Reed. "He then posed the challenge to set up a plant in 10 days that could make a million bottles each month."

Given the current circumstances, the target seemed a little ambitious.

"At that time, we didn't really know how it could be done," he admits, "but frankly, for a company the size of INEOS that builds hugely complex petrochemical plants, it didn't take long to recognise that what we were

looking to do was relatively straight forward."

"The idea then moved very rapidly. We'd decided on a plant in the UK on the first day, planned another in Germany by the third day, and by the fourth we were expanding to France."

Newton Aycliffe near Middlesbrough, UK, was selected as the location for the first factory. The 160-acre site was making polyvinyl chloride (PVC) compounds as part of the INEOS Enterprises portfolio and was home to polymerisation plants, compounding halls and laboratories but no major petrochemical facilities – thereby minimising any risk of disruption or cross contamination. Most importantly, however, it had plenty of vacant warehouse space available and was also conveniently close to Grangemouth, the source of the required feedstock ethanol.

Mixing equipment was soon installed and readied for the raw materials ethanol, hydrogen peroxide and glycerol. Initially, it was a very manual linear process; fixed volumes being passed through semi-automatic fillers into bottles that passed along the production line, ready for labelling and boxing. A 24/7 three shift system soon saw output exceeding targets, with around 80,000 bottles being filled each day.

Such was the project's success, it soon became clear this could be a viable long-term business opportunity. George Ratcliffe, who was leading the compounds business, was duly appointed COO of the new operation.

"Doing anything like this is obviously complex, and there were obstacles coming at us left, right and centre," says Ratcliffe. "This was where I was able to call on different INEOS resources and make use of their expertise."

Heightened demand had left the world short of pumps, bottles and packaging – so sourcing supplies while launching a hand sanitiser business at the peak of the pandemic proved problematic.

Although INEOS makes a lot of the plastic that goes into these bottles, caps and closures, it didn't actually manufacture the bottles themselves. Far from the 50ml



*"It's now recognised that we're far more than just about producing chemicals"*

**George Ratcliffe,**  
COO, INEOS  
Hygienics

bottles that were needed, the smallest containers used by the company were typically 45-gallon drums, he notes.

Fortunately, INEOS Olefins and Polymers was able to make the necessary introductions to some of its customers to source the coveted containers.

But getting the production lines up and running was only half the challenge, admits Ratcliffe.

"We genuinely thought the biggest obstacle would be building these plants so quickly," he says. "It turned out that distributing the products would pose some of the biggest problems."

Unless, of course, you have access to the world's most successful cycling team, which specialises in coordinating logistics (see box).

"With all the travelling done by Sir Dave Brailsford and the Grenadiers, they are fantastic at moving all their equipment and are meticulous in their planning. Every detail is covered and literally no stone goes unturned," says Ratcliffe.

"They helped to get everything organised, communicate with the hospitals and understood where the hotspots were so we could prioritise them with hand sanitiser. It was a huge undertaking and was done so professionally. We had their riders literally jumping in vans and driving around the country to drop off the deliveries."

Equally, INEOS-owned Ligue 1 football team OGC Nice would help to coordinate deliveries from the two manufacturing facilities in France and identify the areas worst hit by the virus.

"I don't think anything has ever happened as quickly as this in the history of INEOS. This has by far been the fastest turnaround from concept to proof, and it really tested our skills to the limit," notes Ratcliffe. "I was able to reach into any of the INEOS businesses and access the people, resources, and skillsets we needed – and it was a really good example that we could pull together and prove that that we're a nimble company with an attitude that we get things done."

Right on schedule, the first batch of 3,000 bottles was sent to the Nightingale pop-up hospital at London's Excel Centre within

that first 10 days, he says. By early April, INEOS hand sanitisers were being shipped to 28 hospitals across the UK, with wider distribution across Europe as the plants reached full capacity.

After Newton Aycliffe came Herne in Germany, closely followed by Lavera and Etain in France. INEOS' international response soon spread across the Atlantic, with sites in Jacksonville, Arkansas, and Neville Island, Pennsylvania.

INEOS continued to improve efficiencies and has now stopped production at Lavera and Neville Island to focus on the four remaining permanent sites – each ramping up their monthly output to over 5m bottles.

Efforts have since been raised to build awareness about the INEOS Hygienics brand and to get its gels, sprays, wipes and the new automatic dispenser direct to the consumer via its website, supermarket shelves and the online retailer Amazon.

"We're delighted with how the Hygienics business has helped raise awareness of INEOS. People are much more familiar with us and it's now recognised that we're far more than just about producing chemicals," he says.

INEOS has gained widespread praise for its rapid response to the crisis and its efforts have also earned recognition from Cefic, the European Chemical Industry Council – naming the Hygienics business among the winners of its 2020 European Responsible Care® Awards. This year's recipients drew particular acclaim for keeping critical supply chains functioning, protecting workers, and supporting local communities.

"It's great for the teams working at these manufacturing sites to get some much deserved recognition for what they've done during the pandemic," says Ratcliffe, "and I really think that this is the perfect example of how INEOS can pull together, be responsive and deliver a high quality product. We set ourselves a challenge and I can quite confidently say we've achieved it. In just a few months, we've built a new business and a brand – and that's quite remarkable."

*By Andy Brice*

## THE GRENADIERS DELIVER THE GOODS

As if producing millions of bottles of hand sanitiser was not hard enough, INEOS faced an arguably tougher job of delivering them to those most in need. The rapid spread of the COVID-19 meant there was no time to waste in getting the much-needed supplies to front line medical staff.

An offer of help from Sir Dave Brailsford and the INEOS Grenadiers cycling team provided the perfect solution.

"The lockdown had postponed all our races and we wanted to help in any way we could," says Brailsford. "We offered our support and Sir Jim Ratcliffe came back to us asking whether we could look after the distribution to the hospitals for INEOS Hygienics."

Through close collaboration with the UK government and NHS Trusts, Brailsford and his team quickly coordinated efforts and put plans in place to distribute the hand sanitiser around the country.

"The logistics side of our sport is very complicated and intricate," he says. "We can have three events going on at the same time in three different parts of the world, and we'll have our riders swapping between teams to compete in those different races. We're always having to make sure all our equipment, bikes and clothing is in the right place, at the right time."

"Once we'd analysed the supply chain structure and processes, we were able to tap into them and figure out the right contacts to make sure that the country had equal distribution. We did the same for France, Germany and Belgium."

Within days of getting involved, INEOS hand sanitiser had been delivered to 28 hospitals including Grangemouth, Halton, Teesside, Derby and London.

"We even rebranded some of our vans and the team got involved by personally making deliveries to hospitals around the country," adds Brailsford.

"The Grenadiers were really pleased to be able to help. We all found it extremely rewarding and felt we were making an important contribution."



Distributing the hand sanitiser proved extremely complex

Another non-stop year for INEOS' petrochemicals businesses has seen landmark deals secured, new projects announced and continued expansion into promising markets

# Building on firm foundations



**N**ever a company to sit back on its laurels, INEOS has seen another year of growth in 2020, both in terms of extending its footprint and expanding capacity. Undoubtedly, the biggest move is the agreement made in June to acquire BP's acetyls and aromatics business. At the time of writing, the transaction was set to close by end 2020/early 2021.

The \$5bn deal, which completed on 31 December, is INEOS' second largest in its history, adding 15 manufacturing plants across Europe, the US and Asia, which BP said produced 9.7m tonnes of petrochemicals in 2019. Eight plants are located in Asia – notably China, Indonesia, Malaysia, South Korea and Taiwan – five in the US at South Carolina (where there are two purified terephthalic acid (PTA) units), Texas and Trinidad, and two in Europe – the UK and Belgium, the latter housing two PTA units and one paraxylene (PX) plant at Geel.

INEOS also picks up BP's Infinia advanced recycling technology as well as its interest in Tricoya, a joint venture that intends to build a wood elements acetylation plant at the Saltend Chemicals Park in the UK.

BP's aromatics business produces mixed xylene, PX and PTA, key feedstocks for making polyethylene

terephthalate (PET), while the acetyls business produces acetic acid and derivatives such as acetic anhydride.

The transaction brings a whole new chemistry set and increases coverage of markets for polyester fibre and film, says Stephen Dossett, CEO of INEOS Aromatics. While INEOS was already present in the polyester market, it was through its supply of monoethylene glycol (MEG) feedstock rather than PTA.

Growth in the polyester resin and fibre markets is 4-6% per year, according to Dossett, who adds that the acquisition is "a good route" for INEOS to enter the aromatics business in Asia, especially China. He points also to BP's cost leadership position in aromatics in all three world regions as well as its "excellent and world-leading PTA technology".

BP reentered the PTA licensing market in 2014, but Dossett says it is too early to say yet what INEOS' position will be in that regard.

There are nevertheless challenges for the aromatics business. There has been a significant build-up in PTA/PET production in Asia, leading to excess capacity with the region's export capabilities expected to put downward pressure on other manufacturers. Looking to Europe, the region's directive to target the inclusion of 25%

recycled plastic in PET beverage bottles from 2025, rising to 30% from 2030, will affect demand for virgin polymer.

But on the flip side of challenges also lie opportunities. Dossett notes that BP had been developing a sustainability programme on PTA/PET. Initiatives include PTAir, a low carbon and carbon neutral PTA brand, and PTAir Neutral, which the UK energy giant claimed at the time of launch in September 2016 was the world's first certified carbon neutral PTA. Also, Infinia technology, which BP designed to turn difficult-to-recycle PET plastic waste, such as black food trays and coloured bottles, into recycled feedstock.

The BP assets also boost INEOS' acetyls footprint, especially in Asia, where there are joint ventures with Sinopec, Lotte, Petronas, and China America Petrochemical Co (CAPCO) and Formosa Petrochemical in China, South Korea, Malaysia and Taiwan, respectively.

David Brooks, CEO of INEOS Acetyls, says the company is aiming to expand its market share and look at how it can grow in Asia. He notes that growth rates in the region for acetic acid are above GDP with not much new capacity due to go online in the next few years. "I would like INEOS to be

## MAKING PROGRESS ON PROJECT ONE

**W**ork on INEOS' flagship project at Lillo, Belgium – dubbed Project One – continues to forge ahead.

The past year has been dominated by engineering, with INEOS working with companies in Europe and South Korea to develop a blueprint for the complex, which comprises a propane dehydrogenation (PDH) unit and ethane cracker.

John McNally, CEO of Project One, says the early engineering work will conclude next year. Detailed design work will follow and INEOS expects to apply for the various necessary permits by mid-2021.

By the end of 2021, likely in the fourth quarter, McNally expects to

award engineering, procurement and construction-type contracts. He says the cracker will be built in modular form, with sections constructed in the East and shipped to the site for assembly.

A final investment decision is expected by late 2021 or early 2022. The aim now is for the cracker to go online first – scheduled in late 2025/early 2026 – with the PDH to follow at a later date.

The size and scale of the project is a first for INEOS. The environmental footprint of the project is also looking increasingly attractive, at less than half of CO2 emissions per tonne of product compared with the most efficient crackers in Europe.



Lillo in Belgium will be home to the major new cracker and PDH project

the next producer that builds a new worldscale acetic acid plant,” says Brooks.

INEOS is now Europe's leading manufacturer of acetic acid, producing over 500,000 tonnes/year at Saltend. However, the company has been less integrated into downstream derivatives, such as vinyl acetate monomer (VAM) and acetic anhydride, compared with some of its competitors, with a big focus on the merchant market. The BP deal will likely change that.

“We are interested to see how much further we can integrate downstream of acetic acid,” says Brooks, adding that the company continues to consider investing in a VAM plant at Saltend. A decision to go ahead will be made in the first half of this year.

For INEOS Olefins & Polymers Europe, 2020 has been dominated by a series of projects at Cologne, Germany, that include modifications to the cracker's furnaces, new infrastructure plus a new jetty on the Rhine river.

The work, which was completed in May 2020, significantly increases the cracker's feedstock flexibility. Rob Ingram, CEO of O&P Europe, explains that the cracker is now able to use substantially more butane, as well as naphtha.

In addition, a new storage tank has been built at Antwerp,

Belgium. INEOS says the facility is the largest of its kind in Europe and is fed by Very Large Gas Carriers (VLGCs) that bring material in from the US, giving the cracker more options and improving its cost competitiveness.

Also under construction are two cogeneration units at Cologne and Grangemouth, UK, to provide steam and power. The plants will also bring significant improvements in the sites' CO2 footprint, Ingram says.

An additional ethylene furnace is being installed at Grangemouth, expanding output by 100,000 tonnes/year with completion due towards the end of this year.

The possibility of expanding at Rafnes, Norway, is an option for the long term, notes Ingram, but Project One (see box) will fulfil INEOS' needs for the near future.

He says the European petrochemicals industry is characterised by ageing assets, and producers' abilities to maintain and upgrade their capacities to remain competitive for the long term will be key for the region. “That is why we see Project One as a significant commitment to Europe's petrochemicals industry and to support the competitive growth of our European customers,” says Ingram. “We have seen a general trend of increasing

market share for imported materials into Europe on the back of new investments with advantaged feedstock. Project One gives us that same competitive advantage allowing us to compete on a level playing field, but with local production we can also provide the service and flexibility that our customers need.”

For INEOS Phenol, a new worldscale cumene plant is under construction in Marl, Germany, with commissioning due by late 2021 and full operation in 2022. Hans Casier, CEO of INEOS Phenol & INEOS Nitriles, says the plant will underpin its business in Europe, providing its own supply of cumene, which is currently sourced on the merchant market.

He also reveals that the business is once again looking at the prospect of building a new phenol plant in China, something that was on the table a couple of years ago.

Possibly, the company could build on what it already has in Asia on nitriles – INEOS has a joint venture with Sinopec on acrylonitrile (ACN) technology, called the INEOS Sinopec Technology Joint Venture (TJV). Casier says the current, and main focus, for the nitriles business is with TGV in China, where demand is healthy, as well as its upcoming 400,000 tonne/year ACN plant in Saudi Arabia. ▶

► Across the Atlantic in the US, INEOS has moved ahead with installing new linear alpha olefins (LAO)/polyalphaolefins (PAO) units at its flagship site in Chocolate Bayou, Texas. The 420,000 tonne/year LAO unit came onstream late in the second quarter of 2020, with the PAO facility to be operational in the second half of 2021.

Joe Walton, CEO of INEOS Oligomers, says the plants are a key milestone in the first phase of its growth strategy and provide worldwide capability on the US Gulf Coast, where they can capitalise on globally competitive

evaluating other opportunities. “Oligomers is preparing for the next step forward for growth. The business has had a lot of momentum and, in true INEOS style, we will keep that momentum going,” says Walton.

The INEOS O&P USA business made a significant acquisition in November, agreeing terms to buy partner Sasol’s 50% share of their Gemini joint venture for \$404m. The deal, which closed at the end of 2020, gives INEOS full ownership of the venture, which is located at the Battleground complex in LaPorte, Texas and makes bimodal high-density PE (HDPE) for the pipe and



*“The acquisition will allow the business to meet the needs of a growing market”*

**Michael Nagle,**  
CEO, INEOS  
O&P USA

and the consolidation of US R&D activities at Battleground. A pilot plant from Naperville in west Chicago moved to the complex, along with a number of catalyst development and production labs. A second pilot plant at Naperville was closed and rebuilt in Rosignano, Italy.

Bob Learman, Chairman of INEOS Oxide, O&P USA and Oligomers, says he is particularly proud of the concerted efforts all the businesses have made in 2020 to improve Chocolate Bayou’s production reliability and logistics capability. He says there has been a lot of infrastructure spend, which makes it easier for INEOS to consider future investments at the site, where it still has a lot of spare land available for expanding derivatives at a later stage.

Styrenics producer INEOS Styrolution announced the largest investment in its history in January 2020 when it revealed plans to build a world-scale acrylonitrile-butadiene-styrene (ABS) plant in Ningbo, China.

Engineering work has begun on the “hallmark project”, which will produce 600,000 tonnes/year when it starts up in the second half of 2023. This new investment follows the acquisition of two polystyrene (PS) plants in Ningbo and Foshan from Total in 2018. Groundbreaking was due to take place in mid-December.

INEOS Styrolution’s Chairman Kevin McQuade says China is the largest ABS market in the world, where demand is growing in line with GDP and output will serve markets such as automotive and household appliances.

Also, construction is well underway on a new worldwide styrenics specialties plant for 100,000 tonnes/year acrylonitrile styrene acrylate (ASA) polymer in Bayport, Texas, which is due on stream in 2022.

Recycling is a major focus for the styrenics company, which is working with several partners on PS depolymerisation technologies with projects in Europe and the US moving ahead.

Together with Trinseo, INEOS Styrolution plans to build a PS recycling plant in Wingles, France,



gas and ethylene economics, complementing production assets in Canada and Europe.

INEOS has also made extensive modifications to the site’s barge dock, which handled light olefins and gases, to enable it to ship LAO and PAO liquids. Work was completed with first shipments made in October. It has also added four new barges to its fleet.

New LAO/PAO plants, as well as the ACN unit, are also planned for Saudi Arabia, as part of the Amiral petrochemical complex being implemented by Saudi Aramco and Total. INEOS’ involvement in the project was originally announced in mid-2019 and engineering work has continued to progress. Start-up is expected in Q3 2026.

The Saudi investment marks a second phase of growth for INEOS Oligomers, which will also be

film markets.

“Bimodal products are in high demand and the acquisition allows the business to meet the needs of a growing market,” says INEOS O&P USA CEO Michael Nagle.

At Chocolate Bayou, the business has carried out a series of upgrades and debottlenecking measures, adding 275,000 tonnes/year of new ethylene capacity from late 2020/early 2021. The extra output will feed existing polyethylene (PE) production, as well as the new oligomers output and Styrolution’s needs in the Houston area.

For Nagle, the highlights of 2020 include the Q1 start-up of a “power island” at Chocolate Bayou, which consists of two new cogeneration plants and three steam boilers to improve electrical and steam reliability,



*“We have recently demonstrated the potential for mechanical recycling of PS into food contact applications, previously viewed as a near impossible achievement”*

**Kevin McQuade,**  
CEO, INEOS  
Styrolution



capable of processing up to 50 tonnes/day of post-consumer feedstock. Operations are scheduled to start by mid-2023.

In the US, Agilyx technology will be used in a new 100 tonne/day PS depolymerisation facility in Channahon, Illinois as part of a joint venture with AmSty. Start-up could potentially be in 2022-2023.

An independent life cycle assessment for depolymerised styrene has shown up to a 50% reduction in greenhouse gas emissions compared with fossil-based styrene, according to INEOS Styrolution.

McQuade adds that the business has also made great strides on the mechanical recycling of PS and ABS. "We have successfully introduced commercial grades of recycled ABS (ECO ABS) into the market with very positive feedback and high interest and demand from customers," he says. "Moreover, we have recently demonstrated the potential for mechanical recycling of PS into food contact applications, previously viewed as a near impossible achievement."

A noteworthy event for INEOS Styrolution was the awarding of a platinum rating from EcoVadis for its advanced sustainability performance. INEOS Styrolution is the first among the INEOS group to receive the rating, which is the highest available and awarded to just the top 1% of companies.

"I believe we are at the forefront of INEOS on sustainability and circularity within the industry," says Steve Harrington, CEO of INEOS Styrolution. "It is recognised as a major achievement by both our customers and suppliers."

For the future, the company aims to develop its footprint further in Asia, the largest growth area for styrenics. "We will continue to make large investments and acquisitions in Asia, with a specific focus on ABS and specialties," says Harrington, noting that innovation efforts are looking at providing new materials for electric cars and electronic components in vehicles, as well as in construction and telecommunications, such as 5G.

*By Elaine Burridge*

## PLANS PROVIDE A SOLID PLATFORM FOR THE FUTURE

**T**hese are challenging times for oil and gas operators, with the sector blighted by pricing volatility and widespread uncertainty because of the coronavirus outbreak.

Such has the impact been on revenue streams that it has been necessary to constantly revise plans and review projects this past year to ensure they make sense from an economic and technical perspective, says Dougie Scott, CEO of INEOS Oil & Gas.

"We've been in defer mode but there is optimism ahead," he insists. "If you look at the last 12 months, there were some key events that shaped our thinking on how best to run the business."

"One was the historically low gas price, which actually dropped prior to COVID. The full impact of the lockdown also meant we had to reorganise our business to ensure continuing safe and reliable production."

"I think we've got another challenging year ahead of us but I'm optimistic because we're all working tirelessly to ensure that our cost base is appropriate," he says.

With gas prices down at historical lows during the summer, Scott says the business decided to shut in some fields. "This was an economic decision and our partners fully supported us," he says. "We're now back up and running and are reaping the benefits of the higher gas prices. It showed our flexibility and agility, and that we're able to adapt to a situation like this and make decisions very quickly."

Looking to the future, the business has identified several exciting developments, including a number of wells being drilled

in Norway, and plans to tap into large reserves in Denmark's Hejre oilfield.

The rerouting of the Clipper South gas field through the Shell Bacton export hub has also been a huge success, he notes, and "has outstripped expectations". The Clipper South field was due to be shut down in 2018 due to third party infrastructure decommissioning. However, the re-route has extended the Clipper South by at least 12 years. The heart of the Clipper South system is a remote-control gas water separator to handle high levels of liquids from the wells. This is the first time this technology has been operated successfully in a remote-control application.

"This has been another great example of how we're taking assets and rethinking how they operate," adds Scott.

Perhaps among the most intriguing prospects moving forward, he adds, is an ambitious project to inject and store carbon dioxide into disused and depleted oil fields in the North Sea.

"The Greensand project has enormous potential and would allow the Danish Government to fully deliver on its 2030 carbon reduction targets," he says. "Over the last few months, we've engaged heavily with its Climate Ministry about funding for the project and have had a very positive response."

Surveys are currently being carried out to check the field's suitability. The results are expected by the middle of 2021.

*By Andy Brice*



# SET ON A SUSTAINABLE STRATEGY

A continued focus on sustainability and the circular economy remains central to INEOS' plans moving forward

In September INEOS agreed the largest ever industrial wind power purchase contract in Belgium with ENGIE

**S**ustainability has always been a focus for INEOS. It is viewed by the company as fundamental to the way it does business today.

Peter Williams, INEOS Group Technology Director, explains that embracing sustainability “means the business is conducted so that it contributes to society, conserves the environment; and is successful economically.”

He sees sustainability as a key driver of innovation. As such, he says, it is highly integrated into all of INEOS' activities.

This approach was recently recognised by EcoVadis, the world's most trusted provider of business sustainability ratings.

INEOS received a gold sustainability score, with an overall rating that puts INEOS into the top 4% of companies.

“The gold rating by EcoVadis confirms a strong position

in the industry based on our sustainability objectives and performance and sits alongside gold and platinum ratings for our INOVYN and Styrolution businesses,” comments Greet Van Eetvelde, Head of Energy & Innovation at INEOS Group. “We are committed to continuous improvement as we progress our long-term sustainability goals.”

Van Eetvelde adds: “Just as over 20 years ago, we started taking steps that would ensure our business could be sustained to the present day. Today, we are taking new steps to ensure we will be sustainable through to 2050 and beyond. That now means moving towards the net zero economy of 2050.”

In the past, the focus was very much on efficiency, in terms of both energy and materials use. Today, with increasing societal demands and regulatory pressures, sustainability practices are being



*“Our headline priorities are to help meet the climate-neutrality challenge, the circular economy, developing new businesses and moving to green raw materials”*

**Geir Tuft**,  
CEO, INOVYN

enlisted by INEOS to meet the needs for:

- Reduced use of fossil fuels for energy to help meet the climate-neutrality challenge;
- Increased re-use and recycling – in a move towards a circular economy; and
- Progress towards net-zero greenhouse gas (GHG) emission operation.

“As a chemical company, we need to meet these needs and even lead the way,” says Williams.

INEOS' strategy takes a holistic view of what is needed to deliver a sustainable business: operational safety; development and diversity of its people; ethical governance; support for local communities and the natural environment; and climate and circularity.

All are vital, says Williams, but the climate and circularity focus is attracting particular effort at present and looks set to drive

business innovation for the future.

Indeed, it is already leading to the creation of new products, businesses and partnerships, in areas such as plastics recycling, hydrogen production, methanol and polyvinyl chloride (PVC).

Responsibility for driving sustainability at INEOS resides with each of the major business units, with their CEOs responsible to the INEOS board and shareholders for progress and hitting targets.

Geir Tuft, CEO of INEOS' INOVYN business, has a number of priorities, driven largely by the fact that the PVC producer is a huge consumer of energy and that PVC has historically been under pressure from the environmental lobby. "Our headline priorities are to help meet the climate-neutrality challenge, the circular economy, developing new businesses and moving to green raw materials," he explains.

At INEOS Olefins and Polymers Europe, priorities run along similar lines, with recycling/circular economy and alternative raw materials high on the agenda, says CEO Rob Ingram.

Williams highlights five initiatives in the climate area which have the promise to deliver GHG savings over the next five years. With climate initiatives, Williams says, "there is no silver bullet. We need a manifold strategy and need to drive energy efficiency and get new energy systems in place as renewables develop in scale and become more economic."

First in line are improvements in energy efficiency across INEOS' existing sites. "We have a whole raft of projects in place that will improve our efficiency and cut GHG emissions over the next three years. Just by these actions, we anticipate near term reductions in GHG emissions of 10%," notes Williams.

Second, there is investment in new plants which will enable INEOS to bring in state-of-the-art technologies that are even more energy efficient. Williams points to INEOS' €5bn Project One development at Lillo, Antwerp, which will see construction of a new ethane-fed cracker and propane dehydrogenation unit.

"This will enable us to make a

step change in energy efficiency and carbon footprint – a key aspect of progress. The new cracker will have half the emissions of Europe's best performing crackers," he says.

Third, INEOS is exploring the use of biofeedstocks in its steam crackers, to make polyolefins and PVC that have significantly lower GHG footprints. "It is early days," says Williams, "but it will start to meet an evolving demand from the market for green materials."

Ingram adds some more details on the move to alternative feedstocks by INEOS to improve sustainability. The company has recently signed a long-term agreement with Finland's UPM Biofuels for supply of the latter's UPM BioVerno, a sustainable naphtha substitute made from the residue of wood pulp processing.

This is being fed into the Cologne naphtha cracker to produce bioethylene and hence a wide range of bio-attributed polyolefins as well as PVC. These can be used in a range of products from plastic food packaging, to medical items and pipes.

The Roundtable for Sustainable Biomaterials (RSB) has certified each step in the process, starting from UPM's crude tall oil residue, to the bio-naphtha and then to final polymers.

The agreement supports INEOS' plans to make plastics from renewable materials, thus significantly reducing GHG emissions and supporting a more sustainable approach to its business, says Ingram.

Tuft points out that INOVYN is now commercialising BIOVYN™, a green PVC from two production sites in Europe, which it offers as 100% non-fossil-fuel attributed. It can do this because of the use of biofeedstocks in INEOS' Cologne cracker. Using a mass balance approach and third-party certification by the RSB, the bioethylene so-produced can be attributed to VCM and hence to the BIOVYN™ PVC.

The product is already attracting a lot of interest, he says, from customers in the automotive, flooring and pipe sectors who want to use a material to meet their end customers' green demands. The product, he adds, delivers a GHG saving of more than 90% compared

to conventionally produced PVC.

But biobased feedstocks are not the only materials that can be used in the cracker feed. INEOS is also looking at using waste polymers processed so that they be used to replace naphtha. It has started a collaboration with Spanish company Plastic Energy that will take waste plastic and chemically convert it into feedstock using Thermal Anaerobic Conversion technology to produce a product known as Tacoil.

The partnership aims to have a recycling plant up and running by the end of 2023, once the processing has been optimised to give a suitable cracker feedstock. The resulting material will also be used in the Cologne cracker to make new polymer.

Such advanced recycling, says Ingram, makes it possible to make a final product with an identical specification as the virgin polymer. "To take plastic waste back to virgin plastic is the ultimate definition of recycling and will create a truly circular economy," says Ingram.

Fourth, says Williams, INEOS is looking to use alternative energy sources in its operations. It has, for example, just signed a 10-year deal with Belgium's ENGIE to buy 84MW of wind power which, Williams says, will save INEOS 1.15m tonnes of GHG emissions over the coming decade. The electricity from the North Sea will be used by existing INEOS production sites and ultimately the new Project One cracker and PDH unit.

And lastly, INEOS has just established a new hydrogen business, as part of INOVYN, to explore the use of clean hydrogen as an alternative energy source for its own plant operations – either in fuel boilers or via electricity generation – and for sale to external customers.

The hydrogen will be manufactured by decomposition of water using renewable electricity, using INOVYN's expertise in electrolysis.

The business will have its headquarters in the UK and aims to build capacity to produce hydrogen across the INEOS network of sites in Europe, in addition to partner sites where hydrogen can help address the



*"To take plastic waste back to virgin plastic is the ultimate definition of recycling and will create a truly circular economy"*

**Rob Ingram,**  
CEO, INEOS  
Olefins & Polymers

► climate-neutrality challenge.

The company already produces 300,000 tonnes/year of hydrogen from its operations, largely as a by-product. INEOS, says Tuft, already has the technology to produce, transport and store hydrogen.

In a complementary initiative, INOVYN has joined a major seven-strong consortium in Antwerp seeking to demonstrate production of sustainable methanol from green hydrogen and captured carbon dioxide. If joint feasibility studies are successful, the Power to Methanol project will see the construction of an 8,000 tonne/year methanol plant at INEOS' site at Lillo, in the Port of Antwerp.

Tuft says a second phase could increase capacity to 50,000 tonnes/year if the technology proves successful. The initiative is not so much about creating a new source of methanol, Tuft argues, but finding a viable way to use hydrogen, which is energy intensive but relatively inefficient to transport. Using it to produce methanol or ammonia, for instance, gives you more usage options, he argues.

"This is an exciting project and an excellent fit with our sustainability strategy, as it includes pursuing options for alternative energy and lower carbon production of chemicals."

On the circular economy front, says Williams, "as a chemicals and polymers company, we are mainly a materials producer and therefore the circular economy theme goes across the company as a whole. Plastic waste is a global issue and INEOS is putting efforts into both mechanical and more advanced recycling of polymer products."

INEOS has made quite some progress on plastic recycling and gained traction with customers, adds Ingram. He sees INEOS contributing to the circular economy recycling effort in several key ways, where it has skills and capabilities to offer. "We are looking to work with partners and stakeholders to make progress."

First, it is looking into design for recyclability and working with customers and the value chain to re-engineer products and materials to make them easier to recycle. Second, it is looking at building the capacity and market for mechanical

recycling, by stimulating investment in collection and processing and by developing ways to upgrade recycle into high specification materials.

It has, for example, just launched a range of Recycl-IN polyethylene and polypropylene grades, made using a blend of very high-spec virgin material with up to 60% of recycle to produce a polymer without sacrificing final product performance. The range covers rigid and flexible products for use in non-food contact applications.

Recycl-IN uses post-consumer recycled plastic from a number of recycling companies, which will include Viridor's new state-of-the-art recycling plant.

INEOS is adopting the same partnership approach to advanced recycling – which can be used to address the issue of recycling lower quality and mixed plastics waste. Here, technology is not yet so advanced and INEOS is helping with technology development as well as promoting infrastructure investment through partnerships.

INOVYN is looking at the advanced recycling of PVC into materials that can be used to manufacture new PVC. Tuft points out that mechanical recycling of the polymer is already well established – some 750,000 tonnes/year of recycle being marketed in the EU, but that advanced recycling (or chemical recovery) would be a "game changer", allowing much more post-consumer waste to be recycled and dealing with legacy issues in the PVC sector. It is early days, Tuft explains, and "poses a significant challenge, so we may need to form partnerships."

In future, says Williams, INEOS will be disclosing more on its sustainability activities, having not felt the need to do so in the past as a private company. It is currently updating its Group Sustainability Report.

The key thing, he points out, is to be pragmatic, and do things now to reap early rewards. "Our roadmap to climate neutrality and circularity has both short term and longer-term options in it. But it is really important that we bank today's opportunities whilst working on approaches for the longer term."

*By John Baker*

**2020**

**January**

- Styrenics Circular Solutions (SCS) members – which includes INEOS Styrolution – to evaluate Pyrowave plastic-to-plastic advanced recycling technology



**February**

- INEOS partners with Forever Plast to recycle over 6.5bn bottle caps back into high quality caps
- Agreement with UPM Biofuels to supply a renewable raw material to produce bio-attributed polyolefins in Germany



**April**

- Collaboration with Plastic Energy on new plant to convert waste plastic into raw material to make new plastic by late 2023



**June**

- INEOS Styrolution research proves post consumer polystyrene waste can be a valuable feedstock and can halve greenhouse gas emissions



**July**

- INEOS Styrolution awarded platinum rating by EcoVadis for its advanced sustainability performance. The platinum rating is awarded to the top 1% of companies



**August**

- INEOS Styrolution and Recycling Technologies sign joint development agreement for recycling polystyrene



**September**

- INEOS becomes first company in the chemicals and polymers sector to achieve certification from RSB – the Roundtable on Sustainable Biomaterials
- INEOS Styrolution signs agreement to advance the circularity of polystyrene with AmSty, Agilyx and Trinseo; plans first European polystyrene recycling plant in France with Trinseo; announces joint facility for advanced recycling of polystyrene in the US with AmSty, using Agilyx technology
- Largest-ever purchase contract of wind energy for heavy industry in Belgium agreed. Deal with ENGIE to cut CO2 by over 1m tonnes/year
- INEOS Olefins & Polymers partners with Saica Natur in supply agreement for recycled LDPE and LLDPE for use in virgin quality flexible packaging



**November**

- Emission reduction commitment ensures INEOS will be climate-neutral in Antwerp, Belgium, by 2050 at the latest
- INEOS launches new Clean Hydrogen Business
- Agreement with Hyundai Motor Company to examine potential of hydrogen applications and technologies – including Hyundai's fuel cell system for the Grenadier 4x4 vehicle



**December**

- Former BP CFO Brian Gilvary appointed as Executive Chairman of new INEOS Energy venture that incorporates all oil and gas assets
- Decade-long renewable power deal agreed with RWE to cut CO2 from Belgian sites by a further 745,000 tonnes
- EcoVadis awards INEOS gold standard sustainability rating, placing it among top 4% of companies in the sector

## ON TARGET

INEOS aims to achieve four ambitious circular economy targets by 2025

- 1 To use 325,000 tonnes of recycled polymer in products
- 2 To offer a range of polyolefin products for packaging containing 50% or more recycled content
- 3 Use on average 30% recycled content in products destined for polystyrene packaging in Europe
- 4 Ensure 100% of polymer products can be recycled

# FINITE RESOURCES... INFINITE POSSIBILITIES

**S**ustainability and the circular economy are not new concepts for INEOS but they have become the cornerstone of an ambitious and forward-looking strategy. INEOS recognises the potential to reuse, repurpose, and recycle to minimise waste and create value.

A year that started with plans for the world's first commercially available bio-attributed polyvinyl chloride has ended with a gold sustainability rating from EcoVadis

– putting INEOS into the top 4% of companies in the sector. INEOS Styrolution was also awarded a platinum rating by EcoVadis for its advanced sustainability performance.

Across its business units around the globe, it remains committed to reducing its carbon footprint, exploring innovative technologies, and harnessing the potential of renewable energy and feedstocks.

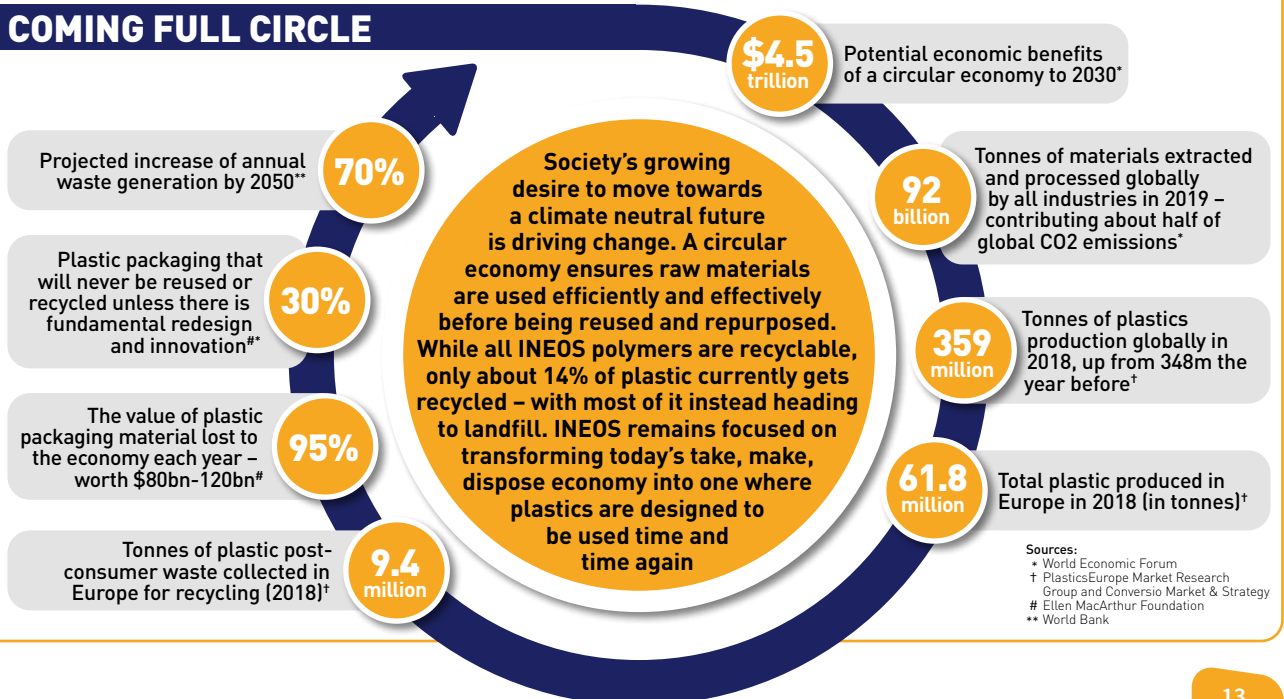
From advanced recycling and new hydrogen applications, to

making plastic from renewable raw materials or storing carbon dioxide in depleted oil fields, INEOS is challenging the conventional.

By leveraging its capabilities as one of the world's largest manufacturers and exploiting its resources, technologies and expertise, the business has created a robust framework to ensure it plays a key role in building a more sustainable business for the future.

By Andy Brice

## COMING FULL CIRCLE



# On track Off road



INEOS' rugged and uncompromising off-roader is on track, with the first vehicles expected to roll off the production line in 2021

In just four years, starting with a discussion over a pint of beer at a London pub in 2016, INEOS Chairman Sir Jim Ratcliffe's idea of building a new 4x4 vehicle is now coming very close to reality.

"The Grenadier project started by identifying a gap in the market, abandoned by a number of manufacturers, for a utilitarian off-road vehicle," says Ratcliffe. "This gave us our engineering blueprint for a capable, durable and reliable 4x4 built to handle the world's harshest environments. But it had to look the part as well."

In the latest step, announced on 8 December 2020, INEOS

Automotive revealed that it had acquired Mercedes-Benz's production plant at Hambach.

Describing Hambach as "the ideal facility" for manufacturing the Grenadier, the company says it is one of Europe's most modern automotive manufacturing sites, with a highly experienced and capable workforce, also recently benefitting from a major investment to enable the dedicated production of SUV vehicles, similar in size to the Grenadier.

In addition, the location, only 200km from Stuttgart, allows excellent access to suppliers and target markets.

The plant currently builds smart EQ fortwo electric vehicles, which INEOS will continue to produce under contract to Mercedes-Benz, as well as some of the German carmaker's components, alongside the Grenadier.

"This acquisition marks our biggest milestone yet in the development of the Grenadier," says INEOS Automotive CEO Dirk Heilmann, adding that it can now begin preparations at Hambach to

build the 4x4 from late 2021 for delivery to customers worldwide in 2022.

The Grenadier's design was revealed last July, showing an uncompromising vehicle built with aluminium body panels on a steel chassis, ready to cope with the world's toughest terrain.

The ethos of the design was clear – a utility vehicle developed to do a job, with function selected over form and every decision made with practicality in mind.

"We set out to design a modern, functional and highly capable 4x4 vehicle with utility at its core," says Head of Design, Toby Ecuyer. "A design that is 'easy-to-read', with no ambiguity about the Grenadier's role in life. There to do everything you need, and nothing you don't. Nothing is for show. Modern engineering and production techniques ensure the Grenadier is highly capable, but we have been able to stay true to the essence of creating a utilitarian vehicle that will stand the test of time."

He explains that while the design was engineering-led, that did not

*"We have been able to stay true to the essence of creating a utilitarian vehicle that will stand the test of time"*

**Toby Ecuyer,**  
Head of Design,  
INEOS Automotive

## GRENADIER SPECIFICATIONS

- Box-section ladder frame
- Beam axles front and rear
- Multi-link suspension with coil springs and heavy duty dampers
- BMW 6-cylinder, 3-litre petrol or diesel engine
- Automatic 8-speed gearbox with driver override
- 17-inch or 18-inch steel wheels
- Bridgestone Dueler A/T 001 tyres

mean the car had to be ugly. The resulting distinctive and permanent four-wheel-drive vehicle is built on a super-strong ladder frame, featuring simple round headlights and a built-in utility rail. Under the bonnet is a BMW six-cylinder, three-litre diesel or petrol engine and the gearbox is an eight-speed automatic with a driver override option. The wheels are steel, available as 17-inch or 18-inch options, with tyres specially developed for INEOS by Bridgestone.

INEOS Automotive chose to work with Austrian offroad engineering giant Magna to develop the Grenadier. The first job was to select the chassis, with engineers opting for the well-proven ladder frame, the basis during the past 70 years or so for some of the world's most iconic off-roaders. The ladder frame is exceptionally strong, stiff, stable and reliable, and also ideal for attaching extra, heavy duty equipment, such as winches and trailers.

Subsequently, engineers at Italian axle specialist Carraro decided beam axles front and rear were the ideal and most robust choice for the Grenadier, and less vulnerable to damage.

Turning to suspension, Magna

engineers took apart some of the world's most renowned off-road vehicles and benchmarked them, ultimately exploring three main options: leaf springs; coil springs; or air bags. They used computer-aided design to develop a theoretical new model that combined the best engineering ingredients to ultimately create something they said would be even better.

The result was a multi-link suspension set-up with separate coil springs and heavy duty dampers that give the Grenadier maximum traction and articulation.

Taking an existing BMW engine – known to be robust and reliable – INEOS modified it to give a higher amount of torque at low revs, while still having something in reserve.

The steel wheels – capable of being hammered back into shape if damaged – are fitted with Bridgestone versatile All Terrain (AT) 001 Dueler tyres, which are designed to balance both on- and off-road characteristics, enabling drivers to keep going in all conditions and terrains.

Bridgestone said the tread design provides enhanced traction and braking, while enhanced tread grooves create better water evacuation, as well as low noise on tarmac, without compromising on-road performance. There is also the option of BF Goodrich AT tyres for pure off-roading.

Mark Tennant, Commercial Director at INEOS Automotive, says the team at Bridgestone had taken INEOS' "built-on-purpose" message to heart in tailoring the Dueler A/T 001 to its requirements.

INEOS Automotive is planning to reveal the vehicle's interior in the first half of 2021. Ecuyer says the "traditional" offroader look has been replaced with a modern

design that is quite different to other, similar vehicles. He says INEOS took inspiration from vehicles as diverse as lorries, tractors and even a quarrying machine, as well as aircraft.

"This research shines through strongly in the interior, which has a very practical edge but still an element of sophistication," Ecuyer notes, adding that electronics have been kept to a minimum as much as possible.

For the design overall, Ecuyer says there is a very difficult balance between deciding what you want to spend money on and what is acceptable as a carry-over part. "There is a huge amount of skill in bringing it in at the right price and the interior is a good example of that."

In August 2020, the INEOS cycling team officially switched to become the INEOS Grenadiers, ahead of the start of the Tour de France.

As part of the Grenadier's "testing-in-plain-sight" programme, vehicle prototypes attended the start of the Tour de France in Nice and have been following the team around the world as they complete the rigorous testing and development phase that needs to accumulate 1.8 million kilometres on and off-road over the coming months.

At the outset of the Grenadier project, Ecuyer says the company brought some of the great 4x4s of the past into the studio to look closely at what made them so enduring. Legendary offroaders include the Land-Rover, Toyota FJ40, the Willys Jeep, and the Mercedes-Benz G-Wagen, to name a few.

He notes the common design traits, proportions and same clarity of purpose between these and the Grenadier, saying: "I think the Grenadier sits very naturally among these 4x4 icons and if others agree, then we've achieved our design objective."

Offroading experts and drivers will undoubtedly share their views once the first models start rolling off the production line.

For the future, the company has also been working on a pick-up version of the Grenadier, with a double cab.

By Elaine Burridge

The new vehicle will be built at the Hambach plant



# BACK IN THE SADDLE AFTER LOCKDOWN

It has been quite a year for Sir Dave Brailsford and the INEOS Grenadiers – particularly as national lockdowns forced delays to the race programme and saw the team divert their resources to support INEOS' COVID response. As part of the "Hands On!" project, they delivered millions of bottles of hand sanitiser, free of charge, to thousands of UK and European hospitals (see page 5).

With riders unable to train outdoors for long periods because of the restrictions, they also took to e-racing and virtual competitions. This included 2018 Tour de France winner Geraint Thomas livestreaming his attempt to ride the equivalent of a typical shift of an NHS worker. He ended up riding 12 hours a day for three consecutive days, raising £360,000 for the health service.

The postponed Tour de France in late August would be the inaugural race for the newly named Grenadiers and mark the start of a new era. Despite not ending with the same highs as last year, it



certainly proved a turning point, says Team Principal Brailsford.

"The way the team has responded to adversity is something we're very proud of," he says. "Although it wasn't to be in the Tour de France this year, the response from the team to go on the attack and race so aggressively was fantastic."

"Becoming the Grenadiers was a big change for us and I think it helped us find our racing spirit again. As a team, we're very pragmatic and adaptable. We've discovered a more expansive style

of racing, with greater aggression and more freedom. It's about putting your heart on your sleeve and going for it."

That was certainly the case by the time of the Giro d'Italia in October, particularly with the loss of Thomas to injury on the second day. Tao Geoghegan Hart had been tied on time with the race leader on the final day and went on to win it. "They raced with real style and flair in what turned out to be our best ever Grand Tour where we won seven stages," adds Brailsford.

## Britannia rules the waves

The America's Cup is recognised as one of sailing's toughest competitions, with a 170-year legacy that has so far eluded a British winner. Sir Ben Ainslie and INEOS TEAM UK are still hoping to rewrite the history books.

The competition is a feat of engineering, science and determination that was made even tougher given the coronavirus outbreak put paid to many carefully laid plans. The onset of the pandemic affected everything from training to travel and forced the team to relocate from its base in Cagliari, Sardinia, back to Portsmouth on

the south coast of England for an altogether different summer of sailing and preparation.

"It has been an incredibly tough time for everybody around the world. For us as a professional sports team it had a huge impact on our logistical programme and our strategy around that," says Ainslie. "Logistically and strategically, it has been very challenging year but the team has done an admirable job in terms of dealing with that frustration, changing our plans and trying to be as efficient as we possibly could be throughout that whole process."

Despite their hectic schedule, the team felt it particularly important that they contribute to the fight against COVID, he adds.

They were able to

quickly put their 3D printers to use and produce over 5,000 face shields for local health services.

"The fact that we as an organisation could chip in and help at the local level was great," he says. "Everyone – the shore team, sailing team, design team, management team, and more – all took the opportunity to get stuck in and help, and that created a great feeling. We all felt proud that we were able to help out."

In their pursuit of the America's Cup, often described as the Formula 1 of competitive sailing, it is perhaps fitting that the Mercedes-AMG Petronas F1 Team has also been able to help directly with the boat – christened Britannia – through the Mercedes Benz Applied Science division.

"Mercedes F1 has helped hugely on our technical preparation, not just of the boat but all the components – most particularly the foils and the manufacturing process, which is incredibly detailed. They have been fantastic





The Vuelta a España the following month proved equally exciting, with some closely contested rides seeing the Grenadiers' Richard Carapaz come second in what was the year's tightest margin of victory.

"It was an epic season with all the big races going right down to the wire and three different winners in each of the Grand Tours," he says. "Whereas other sports may have suffered because of COVID, our season was concentrated into a small window and was pretty full on. The racing was just brilliant."

"As a sports team, you tend to mirror the values of your ownership. I think that's definitely been a factor. We've not only embraced the Grenadier values of getting the job done, but that INEOS spirit – the grit, rigour and hunger of INEOS and Sir Jim Ratcliffe himself – has filtered into the mentality of the team. We're now more adventurous, more expansive, and a little bit more about taking risks and enjoying competition."

in helping us go through that process," he says.

"They have also helped on some of the aerodynamics around the yacht including the sail and the rig. Then, of course, reliability is an issue for all technical sports teams, including us, and being able to learn from some of the Mercedes reliability processes has had a big impact on the team."

While the pandemic has certainly not been conducive to preparing for arguably one of the biggest challenges in sailing, the support from across INEOS and the other elite sports teams has been phenomenal, he adds.

"Being a part of that culture within the wider INEOS family has been very important to us and has helped us a lot as an organisation," says Ainslie.

"For us, the goal has always been to win the America's Cup for Britain. As far as I am concerned it is unfinished business and, as Challenger of Record, we still need to achieve that goal."

## FOCUSED ON A LONG-TERM GOAL

INEOS bought Lausanne Sport in November 2017, followed by OGC Nice in August 2019. The 2019/20 season was a successful start to its broader football project says Bob Ratcliffe, Head of Football at INEOS Sport. "We saw promotion back to the top division with Lausanne, we qualified for Europe in our first season with Nice, and our partner club Racing Club Abidjan (RCA) qualified for Africa Champions League."

The aim is to put both Nice and Lausanne on successful sustainable footings, and that requires the development of young talent from across France and Switzerland and more broadly, the pipeline of talent emerging from RCA.

INEOS has now also appointed Souleymane Cisse as Director of Football for Lausanne. He was the visionary behind the development of RCA over the last 10 years. "It is very special to partner with INEOS," says Cisse. "We received a lot of interest in our academy from leading European clubs but you can see the unique passion for sport and Africa that comes from Sir Jim Ratcliffe. I am convinced we now have the very best pathways for our young players. The young player's brain is not a vase that we fill but a wick that we light."

Like all sport businesses, football remains significantly challenged with the persistence of COVID-19, which will likely see the absence of most fans for the current season. And with the early departure from European football, the difficult decision was taken to ask Patrick Vieira to step down as coach.

Nice have now appointed a new head coach, Adrian Ursea, the experienced former Romanian international known for his technical and analytical approach. He has significant experience with the Nice players and has worked alongside leading European coaches. The target for the remainder of this season is to continue climbing the table and secure European competition once again.

"We see Adrian being able to help further develop our predominantly

young players and start to imprint a style of play that is technical on the ground football with an emphasis of attacking play with quick transitions," says Ratcliffe. "It takes time but all the successful clubs have established their own variant of playing DNA and it is our challenge to start establishing that."

In November, Lausanne-Sport opened a new 12,000 seat stadium which was something else to celebrate.

"It's a real auditorium built to a high Swiss standard and importantly, we can now house all activities of the club there, so it's a real home" says Ratcliffe. "It's just a shame that because of COVID we haven't got spectators in there yet but it's going to be a great venue for us going forward."

"We believe the best way to compete effectively in football is by continuing to develop top young players. We've now got a robust scouting network and a great pipeline so that's a real positive for us."

"What we're doing with our football

Eyeing success on and off the pitch



teams is building them from the bottom up. This is a project and it's going to take time to get all the building blocks in place. We're not yet the finished article but we're at the start of the journey," he says. "There's still a lot of work to do to fulfil our ambitions but we're making good progress, even if it may not always appear that way – but that's football."

## FORMULA ONE TEAM CHAMPIONS INEOS

A record-equalling seventh Driver Championship title, combined with a Constructor's title and the most-ever wins, podiums and poles, certainly made this a season to remember for Lewis Hamilton and the Mercedes-AMG Petronas F1 Team.

Among the other milestones, in February, they also formed a partnership with INEOS – adding to the manufacturer's growing group of elite sports teams.

"It's been such an amazing start-up of a relationship," says reigning world champion Hamilton. "Naturally, when you have partners you want to have people that are truly passionate about the sport and are true racers at heart because I think that just sets us up for a good working relationship."

Just a few months later in August, the team lent its support to the official launch of INEOS' new Hygienics business, as Hamilton crossed the line and stood atop the winner's podium at the British Grand Prix.

Health and hygiene are vital for sport, with the wellbeing of athletes paramount for peak performance, so in the midst of a global pandemic, the partnership with INEOS Hygienics was particularly welcome.

"Every single disruption and individuals falling ill, particularly in overseas races, can be a real problem for the team and can really set us back," adds Toto Wolff, Team Principal and CEO of Mercedes-AMG Petronas F1 Team. "We have always set a benchmark within the industry in terms of hygiene but INEOS Hygienics has taken us to a totally different level."

During a severely disrupted season, the F1 engineers developed a new state-of-the-art respiratory system to help patients' breathing and keep them out of intensive care.

This past year, Mercedes-Benz Applied Science has also assisted INEOS TEAM UK in its preparations



INEOS is now a one third shareholder of the F1 team

for the America's Cup – helping with everything from simulations and computer fluid dynamics to the design of the foils. Wolff and his team have also been working with the INEOS Grenadiers to improve their cycling hardware and boost performance.

In December, INEOS became a one third shareholder in the team, which is owned in three equal parts by Daimler AG, INEOS and Wolff.

"The ethos and ambition is very similar. We strive for the best; we know that it's all about the people. You can talk about the team but in reality, you need every single individual that stands behind it. We set our ambitions high but we are able to have realistic expectations and I think the values of our senior leadership overlay perfectly."

## A GLOBAL VISION FOR THE DAILY MILE

The team behind the Daily Mile had another very busy year in 2020, expanding the uptake in schools around the world. To date, more than 3.1m children at 12,000 schools in 79 countries are running a mile every day. One third of schools in England are taking part, and Greater Manchester has become the first Daily Mile City.

In addition, the Scottish government has appointed a National Daily Mile coordinator – as part of Scotland's remit to be the first Daily Mile nation and embed the initiative across the life course, from nursery through to care homes, including workplaces and learning places such as schools, colleges and universities.

One of the major benefits of The Daily Mile is its inclusivity as children who have mobility issues, for instance needing walkers or wheelchairs, can also take part. "We have seen a huge uptake in children with special educational needs," says Elaine Wyllie, founder of The Daily Mile. "Schools have really appreciated The Daily Mile's



Elaine Wyllie is helping children worldwide improve their health and fitness

## A UNITED INEOS PROVIDES COMMUNITY CARE

To coincide with the launch of its “Hands On!” programme – a pledge to produce millions of bottles of hand sanitiser and distribute them free to health workers during the early stages of the pandemic – INEOS also announced a £1m international Community Fund.

Its aim was to offer support to local charities and services in its neighbourhoods that were feeling the strain during a time of crisis. Coronavirus was not only threatening people’s health and livelihoods but the very support networks that were designed to help them through such tough times.

Typically, these groups were either suffering from reduced funding or were being inundated with requests for help from those struggling.

INEOS employees across all global sites were invited to help identify worthy organisations in their communities, and submit their applications for a grant.

Launched in April, 67 INEOS sites participated, with 159 projects supported in 15 countries.

These included schemes to help the elderly, disabled and vulnerable through food banks, mental health, and domestic abuse support, as well as hospices and care homes. The organisations received contributions of up to £10,000 to support their work at a critical time.

INEOS received so many requests for help that the fund was fully allocated by early July, just three months after its launch.

Among them was Vineyard Anaheim, located near INEOS’ Carson site south of Los Angeles in the US, which received money towards its food bank. The donation helped feed over 3,500 people a week for three months.

Funds were also provided for CHOICES for Victims of Domestic Violence in Dublin, Ohio. COVID-19 forced people to stay physically

closer to their abusers than usual so this grant helped keep phone hotlines operating to ensure their calls for help were being answered quickly. CHOICES also supported children with distance learning to continue their education, and set up home offices for adults so they could continue working while in shelter.

Another hugely worthwhile initiative was Mental Helse in Bamble, Norway, which runs a free anonymous helpline offering much-needed comfort to those facing mental health difficulties. INEOS’ contribution went towards its operating costs during a time when calls were climbing.

“The response has been fantastic and it’s been particularly heart-warming to get such good feedback, not just from the charities themselves but from our employees who have told us how proud they are to work for this company,” says INEOS Director of Corporate Affairs, Tom Crotty.

*By Andy Brice*

inclusivity. There are no hard-to-reach groups that are excluded, nor any that under-represented. For those children who are not particularly good or able at PE and sport, this is not a problem for The Daily Mile. They can still take part outdoors with their friends.”

The programme’s spread around the world is impressive. John Mayock, trustee of The Daily Mile Foundation, says that in order to expand the initiative across the globe, the Foundation is active in building sustainable partnerships with like-minded organisations who have the passion and expertise to launch The Daily Mile in their own countries.

“Our franchise/development model offers partners our support before and after implementation, allowing them freedom to promote and properly embed The Daily Mile across their nation,” says Mayock. “By working closely with teachers, public health authorities, parents and government, our partners have been hugely successful. The Daily Mile is now being implemented by official partners in more than 20

countries across three continents... and counting.”

Even the COVID-19 pandemic has not stopped the scheme in its tracks – in fact just the opposite, as it has boosted uptake. Mayock says another 707 schools from across the globe signed up in September alone, equalling another 201,000 children. Schools have recognised that they can implement The Daily Mile safely in COVID times, given that it is outdoors with children able to participate in their bubbles.

As communities emerged from lockdown and schools reopened during the course of the year, Mayock says it was essential to give teachers the confidence that The Daily Mile at schools, outdoors in the fresh air, could be managed effectively, and was precisely what children needed to boost their physical and mental health.

He adds that the partnership with television networks ITV and Sky also helped to raise awareness through this difficult period, noting that 28.7% of adults saw the TV campaign at least once – that’s just under 15m people.



*“Schools have really appreciated The Daily Mile’s inclusivity. There are no hard-to-reach groups that are excluded, nor any that under-represented”*

**Elaine Wyllie,**  
Founder of  
The Daily Mile

Research with Imperial College London has suggested that the scheme has been particularly popular in urban and deprived areas, reaching out where other paid-for initiatives do not. This, says Wyllie, is because The Daily Mile is free, simple and effective, and it empowers children to do it for themselves.

Other independent research by various organisations has also found that The Daily Mile improves children’s attentiveness and concentration throughout the school day.

For the future, both Wyllie and Mayock are hoping for more of the same. Wyllie says The Daily Mile is gathering momentum and the Foundation gets an approach or sees a development every day. “The stakeholders are the children. We really need to focus going forwards on children’s right to have fun, and be healthy and physically active. We want more partnerships that recommend that and make it happen for children. The Daily Mile Foundation has a global vision.”

*By Elaine Burridge*

Published March 2021

Cover: © INEOS

# INEOS

Founded in 1998, UK-headquartered INEOS has grown to become one of the world's largest chemical companies. It comprises 34 businesses, employs 26,000 people globally and achieved sales in excess of \$61bn. The vertically-integrated chemicals producer has 194 manufacturing sites in 29 countries, and boasts a diversified portfolio serving the petrochemicals and oil & gas markets.

## **INEOS Group Headquarters**

38 Hans Crescent  
Knightsbridge  
London SW1X 0LZ  
UK

[www.ineos.com](http://www.ineos.com)

 @INEOS

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