PIRELLI 2013 MEDIA GUIDE

CONTENTS

INTRODUCTION BY PAUL HEMBERY

We've always said that we wanted to give the teams and drivers not only something to think about, but also something to remember. And the amount of action, overtaking and exposure that Formula One has witnessed over the last two years proves that our efforts have paid off. In our third year, the objective is no different.

However, we're obviously here in a supporting role for the real stars of the show: the drivers, teams and engineers. The pace of development in Formula One is such that they very quickly get to grips with our tyres, and the challenge is always to come up with something new, so that the spectacle stays fresh.

That's why we have created some new ideas for 2013, which represent some of the most far-reaching changes that we have made since entering Formula One. There are new compounds, structures and even a new colour, which should help us to achieve all our goals in 2013.

Last year we saw seven different winners from the first seven races – a record – and eight different winners throughout the season. By putting the emphasis on strategy once more, we hope that this season will be just as memorable.

Once more, we are proud to exclusively supply GP2 and GP3 as well, consolidating the ladder of talent that Pirelli – the world leader in Ultra High Performance tyres – has put in place to take promising young drivers all the way up to the pinnacle of the sport.

We hope you enjoy the season.

Paul Hembery
Pirelli Motorsport Director

PIRELLI'S 2013 TYRES

This year, Pirelli launches an entirely new range for the 2013 season, with new compounds and constructions for all four of the slick tyres.

After a 2012 season that featured seven winners from the first seven races – a Formula One record – the objective now is to help make the racing even closer and more spectacular.

In order to achieve this, the compounds have once again been made softer, as they also were last year. While the 2012 hard compound, for example, was closer in specification to the 2011 medium, the new 2013 hard compound is nearly the equivalent of the 2011 soft compound: an indication of just how far tyre technology has come in only the last two years.

But it's not just the compounds that are all new. The 2013 construction is all new as well; in other words the way that the tyre is designed. The new profiles and structures will influence the aerodynamics of the car-tyre package – one of the biggest performance differentiators in Formula One – and improve further the characteristics of the Pirelli tyres. The new design will enhance combined traction – the grip that the tyres offer during the transition from braking to acceleration and vice versa – while extending the window of peak performance.

Nonetheless, the objective is to maintain an average of between two to three pit stops per car per race. With the teams having fully understood the characteristics of the 2012 tyres, a slightly more radical approach has been taken for the 2013 tyres. So with softer compounds and a different design, this season's Formula One tyres will be the most extreme and performance-orientated rubber that Pirelli has ever produced, cementing the company's reputation as the world leader in Ultra High Performance tyres.

Once more, all the P Zero slick and Cinturato rain tyres will be produced in the 'Factory of Champions' at Izmit in Turkey: Pirelli's state-of-the-art motorsport facility that produces more than 200,000 competition tyres each year, 50,000 of which will be for Formula One.

The Pirelli Formula One tyres will again carry distinctive markings this year, which have been improved to enhance visibility both for spectators watching on television and live at the circuit.

There is one new colour: Orange now represents the hard compound instead of Silver. The other colours remain unchanged: White represents the medium compound, Yellow represents the soft compound and Red represents the supersoft compound.

While the slick tyres are known as P Zero – Pirelli's ultimate sporting brand – the rain tyres are called Cinturato: the name under which Pirelli tyres dominated Formula One in the 1950s, when the company first entered the sport. With the Formula One tyre regulations staying the same this season, there will once again be two types of wet tyre: the intermediate and full wet. The intermediate tyre is known as the Green – with corresponding markings on the sidewall – while the full wet is known as the Blue.

The compound and tread pattern of the Cinturato tyres remain unchanged for 2013. This means that the Green is capable of evacuating around 25 litres of water per second at full speed (300kph) while the Blue can evacuate 60 litres of water per second.

However, the construction of the two rain tyres has altered to mirror that of the slick tyres. Once again, the rain tyres have a slightly higher profile than the slick tyres, which helps to raise the ride height in order to avoid aquaplaning.

Apart from that, the Cinturato tyres share the same design characteristics as the P Zeros: speed, grip, safety and an extended window of peak performance, allowing the teams and drivers to showcase their abilities to the maximum at every grand prix.

At least two pit stops per race, and deliberate degradation levels that encourage overtaking, should lead to action-packed races that will help to boost the popularity of the sport still further in 2013, Pirelli's third year of supplying tyres to Formula One. Pirelli's return to Formula One has helped to put the accent on tyre strategy, allowing drivers and engineers to demonstrate another facet of their skills.

The compounds that will be raced this season were developed as a result of an intensive testing campaign throughout last year, using two experienced test drivers (Lucas Di Grassi and Jaime Alguersuari) in a 2010 Renault that has been modified in an attempt to replicate the latest technical regulations.

This has allowed the P Zero and Cinturato tyres to achieve unprecedented levels of performance, making full use of Pirelli's experience and know-how. The lessons learned in Formula One eventually filter down to the road car product, with road tyres such as the P Zero Silver and Cinturato P7 Blue inspired by their Formula One equivalents.

Last year's season was record-breaking in many ways: there were more races than ever seen before with the highest number of different winners, and six world champions lining up on the grid for the first time. Pirelli is aiming to help make it even better in 2013.

WHAT'S NEW FOR 2013?

While the tyre rules imposed by the sport's governing body remain exactly the same for 2013, with no aspect of the regulations altered, Pirelli has been able to make some far-reaching evolutions to the tyres – amounting to the biggest set of changes since the company entered Formula One.

A new colour

Visibly, the biggest difference is the new colour for the hard tyre, which will now be known as the P Zero Orange, changing from Silver. This will help viewers distinguish the hard compound more easily from the White medium compound when both are used together.

New compounds

All the compounds are generally softer, which leads to enhanced performance and a deliberately higher degree of degradation, with increased thermal degradation in particular. This should ensure a minimum of two pit stops at each race.

New structures

The new structures have been designed with a different philosophy and new materials that increase the footprint of the tyre, allowing more rubber to be in contact with the track and leading to better performance – particularly when it comes to combined traction and cornering. Secondly, it means that temperatures are more evenly distributed across the whole surface of the tyre, meaning that there is no localized heat build-up that can lead to blistering.

Wider working range

As a result of the modifications the 2013 tyres are generally easier to bring up to temperature and they have a more varied working range, making them more easily adaptable to a bigger variety of set-ups. Generally speaking, the hard and the soft tyre have a high working range, while the medium and the supersoft have a low working range. This should help the teams to understand the tyres – and how they interact with their cars – faster.

Bigger performance gaps between compounds

The different compounds will lead to an increased gap in performance between the compounds – even though they are all generally softer. The tyres have been engineered to provide a time difference of at least half a second per lap between each compound, whereas on occasions it was less than that last year. The bigger gap will make strategy all the more important, with more to gain by being on the right tyre at the right time.

More driveability in the wet

Both the Cinturato tyres have changed as well, with the construction of the rear tyres re-engineered in particular, so that they provide more progressive traction and better warm-up in wet conditions. This helps to reduce snap oversteer and so makes the handling of the car more linear.

Increased weight

The new construction means that the weight of the tyres has increased slightly, but not enough to affect the performance of the cars. On average, each front tyre now weighs around 200 grammes more than it did last year while each rear tyre is 700 grammes heavier, meaning that approximately two kilogrammes have been added to the overall weight of a set of tyres. However, the overall minimum weight of the car has been adjusted in the 2013 Technical Regulations to compensate for this.

More overtaking

The increased thermal degradation means that there will be more significant difference in speeds between different cars at different points in the race. This makes overtaking easier, and places the emphasis on an effective race strategy.

MEET THE 2013 COMPOUNDS

The compounds and constructions have all changed for 2013. Here is a step-by-step guide to the P Zero and Cinturato Formula One compounds:

Supersoft (red)

The P Zero Red supersoft was the only tyre last year to remain unchanged from 2011, but for 2013 it is all new with a softer compound designed to increase performance and degradation. The warm-up has been made even faster this year, ensuring that the P Zero Red will be instantly on the pace and offer optimal grip. This tyre is ideally suited for slow and twisty circuits, such as Monaco and Hungary. It is a low working range compound, so also very suitable for smooth asphalt.

Soft (yellow)

The P Zero Yellow soft is just over half a second per lap slower than the supersoft, but it is still softer than the equivalent compound last year. However, it has a high working range that makes it suitable for an extremely wide range of conditions, which is likely to make it one of the most frequently used compounds this year. This is the compound that has the most increased working range in 2013.

Medium (white)

The P Zero White medium has a lower working range, making it the ideal choice for circuits that are slightly less demanding or have lower ambient temperatures. The new medium tyre is not dissimilar to last year's soft, making it around 0.8 seconds per laps faster than the hard.

Hard (orange)

The P Zero hard tyre is the most visually different compared to the previous year as it changes colour from silver to orange. It also becomes a lot softer – closer in characteristics to last year's medium. The working range has been completely changed compared to last year, being higher and very similar to the soft. This compound is ideal for the toughest and hottest circuits.

Intermediate (green)

The Cinturato Green intermediate has a new rear construction, but the tread pattern remains the same as last year. However, modifications made to the rear tyres in particular have enhanced what was already one of Pirelli's most successful and driveable products.

Wet (blue)

The Cinturato Blue wet also benefits from a new construction. Like the intermediate, the rear tyres have been redesigned to offer more progressive traction and reduce snap oversteer, while maintaining the ability to evacuate 60 litres of water per second at top speed. The characteristics of this tyre are now more closely aligned to those of the intermediate.

TYRE REGULATIONS IN 2013

The basic tyre regulations for the 2013 season have stayed unchanged from last year, with each car allowed to have 11 sets of slick tyres over the course of every race weekend, i.e. six sets of the harder and five of the softer compound.

For each race, Pirelli will nominate two out of the four available dry compounds in advance: one softer compound and one harder compound.

One set of the harder compound is returned before the start of the second free practice session, while one set of the harder and one set of the softer compound are returned before the start of the third free practice session. From the remaining dry-weather tyre sets one set of each nominated compound must be returned before the start of qualifying. This leaves the teams with three sets of each compound for both qualifying and the race, and the way in which they use these six crucial sets of tyres forms the basis of the tyre strategy for the weekend.

At the start of the race the top-10 cars must be fitted with the tyres with which the driver set his grid time. This rule will only apply if dry-weather tyres were used to set the grid time and if dry-weather tyres are used at the start of the race. Those drivers in the top 10 who for ever reason did not set a time are free to choose which tyre they want to start the race with.

During the race, the drivers have to use each type of tyre at least once (unless it rains, in which case this rule does not apply). If they do not do this, they will be excluded. If a dry race is suspended for any reason before the drivers have used both types of tyre, then 30 seconds is added to their cumulative race time.

During Friday practice Pirelli has the possibility to provide teams with one additional set per car of either the harder or the softer compound, if it is a new circuit or high wear is expected. Alternatively, Pirelli also has the possibility to supply teams with two additional sets per car of prototype tyres, for development reasons. In each case, these sets must be returned before the start of the third practice session.

Wet tyres

Teams are allowed four sets of intermediate tyres and three sets of wet tyres per race weekend and car if it rains at any point. If it rains during Friday free practice, one extra set of intermediates is given to each car. This set has to be returned before the start of the third practice session.

If the race is started behind the safety car, then the teams must all start on the wet tyre.

If it starts raining during the race, then the teams are no longer obliged to run both slick compounds, and they can change over to either the intermediates or wets, as they feel is appropriate for the conditions.

Both the wet and intermediate compounds are available at each round of the championship and are given to the teams before the start of Friday practice.

THE LIFE OF AN F1 TYRE

In Milan, the home of Pirelli, 150 research engineers work exclusively on Formula One. The starting points are the physics and chemistry labs, where new compounds and structures are tested. There are about 100 elements in each tyre and 18 structural components.

At the motorsport factory in Izmit, Turkey, physical prototypes are built on the basis of the virtual model. Nearly 200 people work in the Formula One department at Izmit, from fitters to technicians to engineers. This is when the theory gets turned into practice: the compounds and structure are tailor-made and all the components are finally put together.

The first physical tests take place at Pirelli's experimental test centre in Milan, where sophisticated machines simulate every race condition and measure all the stresses to which the tyres are subjected. Once various laboratory tests have been concluded, the tyres then get to experience a real circuit. The tyres that have successfully made it through the track tests are then eligible to form part of the final selection offered to the Formula One teams for racing.

In Izmit, there are two parallel production lines. One line makes the shoulder and the carcass of the tyre. At the same time, on a parallel line, the belt and tread pattern are produced. Natural rubber, synthetic rubber and other artificial fibres are among the key ingredients. The elements produced by the first two production lines are assembled on a third line – which represents the key part of the production process, as a recognisable Formula One tyre is born.

The barcode, which acts as the tyre's 'passport', is affixed to the tyre. This contains all the relevant data about the tyre and allows its usage to be tracked from production to race.

The next step, the vulcanisation period during which the tyre is 'cooked', determines the definitive characteristics of the compound and structure. It also seals in the barcode.

Finally there is quality control, which takes in a visual check, weight check and a scan of the tyre similar to an x-ray. The tyre is then ready for dispatch to a race or test.

COUNTDOWN TO A GRAND PRIX

Before the grand prix

Pirelli, with the approval from the FIA, selects the tyres for the race – a softer compound plus a harder compound. This choice is mainly based on the track characteristics and expected temperatures.

Production of the tyre allocation begins at Pirelli's Izmit factory in Turkey. Between 1,800 to 2,000 Formula One tyres are supplied for each race (as the regulations allow for additional or experimental sets); about 700 more if the race is a GP2 round as well and another 600 for GP3.

Two weeks before the grand prix

For European events the tyres for the race are transported by road from Izmit to Didcot: a journey of approximately 3,100 kilometres that takes three days.

The tyres arrive at the Didcot facility and have their bar codes scanned into Pirelli's system. The FIA (the governing body of world motorsport) is then notified of the bar codes.

At random, the FIA allocates certain barcodes to each driver. The allocated tyres are then sorted by the team in Didcot and loaded into seven trucks for transportation to the grand prix (four trucks for F1, three trucks for GP2 and GP3).

One week before the grand prix

The trucks set off from Didcot for the race, normally arriving on the Monday before the race takes place. The 18 fitters set up the fitting area and the barcodes are confirmed again with the FIA.

Five days before the grand prix

The fitters start fitting tyres onto the rims. It takes an experienced fitter about 2.5 minutes to fit one tyre from start to finish, for all tyres of the weekend they need two days. The teams own the wheels: they are brought to Pirelli at the circuit for the tyres to be fitted onto them.

During the grand prix weekend

The sporting regulations determine that one set of the harder dry tyre must be returned after the first practice session, with one set of the softer and one set of the harder compound to be returned before the start of the third practice session. A further set of softer and one of the harder compound must be returned before the start of qualifying. This means that each driver has six sets of the dry compounds (three of each specification) available for qualifying and the race.

Tyres that are returned get taken off their rims, as they won't be used anymore, with the rims being returned to the teams.

After the grand prix

With the environment a clear priority for Pirelli, each tyre is carefully recycled. All remaining tyres, both used and unused, are therefore taken off their rims and then transported back to Didcot. When they arrive, these tyres are taken to a specialised plant where they are shredded and then burned at very high temperature in order to produce fuel for cement factories. The material produced in this process can also be used for road surfaces and other industrial applications.

RACE TYRE SYSTEM (RTS): PIRELLI'S UNIQUE TYRE DATABASE

Pirelli has developed an integrated computer system to collect data during tests and races. The Racing Tyre System (RTS) is the only one of its kind and unprecedented in Formula One, thanks to its comprehensive functionality that keeps Pirelli's engineers constantly in touch with the cars, the teams and Formula One Management (FOM) personnel.

This unique platform, designed by Pirelli's Information Technology division in Milan, allows engineers to monitor the performance, wear and evolution of each tyre when it is out on track. In particular, Pirelli's RTS tracks details of the electronic 'passport' (which is a unique bar code label cooked into the tyre at production) that belongs to each tyre and updates it in real time, from construction to recycling.

The bespoke system links the cars, the computer screens of the Formula One teams' engineers' and a tablet carried by each of Pirelli's tyre engineers to both a local server and a central server based in Pirelli's Milan headquarters. This server is updated with information about every one of the competition tyres made in Izmit, Turkey, during each test session and race. The central server stores information about the production process and quality control of every tyre at the factory, certifying its identity and providing relevant data about its characteristics.

Once the tyre has reached the circuit and is mounted on a wheel, the RTS collects all the information about the fitting phase and optimal tyre pressure range when the tyre is first fitted to the rim. Other information stored includes the weight needed for balancing the tyre, as well as the dimensions and weight of the tyre when first fitted. When out on track, the car sends telemetry data relating to tyre pressures, temperatures, wear and degradation – which is all recorded on the tablets of the Pirelli engineers.

This data is correlated with the car set-up and other telemetry recorded by the teams and sent to the central server. The accumulated data is always available for Pirelli's engineers to consult in real time from the track.

The latest evolutions on the RTS enable tyre analysis over a single sector and prescribed split times, in order to provide a complete picture of the performance of a tyre during each phase of the lap, and also make it possible to compile and send final reports to each team in real time, as well as to Pirelli's Research and Development division to enable them to provide instant analysis and projections.

The RTS system is additionally linked to a system specifically developed by Pirelli, which can analyse all the telemetry data received by the cars. This system combines all the data and provides very useful averages to the teams, without disclosing any confidential information.

It supplies average values as well as illustrates the range of values registered for wear, pressure and temperature – as well as plenty of other data. For the teams it is a valuable tool, as they can compare specific data from their own cars with the average from the rest of the field.

In addition, each tyre's temperature is measured at the end of every session by a special thermometer (called a pyrometer) that can send instant readings to the engineers' tablets and the central server via Bluetooth.

FOM, which helps the system to run by providing precise lap times for every driver, also receives data in real time from Pirelli, such as which compounds are fitted to which car. FOM then sends this information out to accredited television channels, helping to provide comprehensive media coverage for both journalists on-site and the spectators in front of their TV screens.

All information collected by the RTS in the first two years of Pirelli's Formula One involvement was used for the design and development of the new 2013 tyre range.

PIRELLI'S KEY MOTORSPORTS PEOPLE

Paul Hembery
Motorsport Director

Paul Hembery was born in Yeovil, England, but lives in Milan and Cheltenham. After being educated in the UK, he spent 20 years in the tyre industry, working in Research and Development before moving onto a commercial role. He joined Pirelli in 1992 and has been in charge of motorsport for the last decade.

He masterminded Pirelli's contract to supply control tyres to the World Rally Championship from 2008 onwards, and was then behind the Italian firm's move to Formula One. Paul's role on-event is to oversee all aspects of Pirelli's operations in Formula One and represent the company as it consolidates its motorsport programme into the future.

Mario Isola
Racing Manager

Mario, born in Milan, started his career in motorsport as a test driver for Pirelli's road car tyres, and the sensitivity of his touch meant that he was soon drafted into the R&D division, designing road car tyres before heading over to motorsport.

He was initially involved in designing tyres for GT cars and then moved onto managing Pirelli's sportscar campaigns in the FIA GT Championship. From 2006 he moved over to rallying, overseeing Pirelli's tenure of the exclusive tyre supply contract from 2008-2010 while also managing Pirelli's return to single-seater racing in GP3. In 2011 Mario became Pirelli's racing manager, in charge of day-to-day operations on the track for Formula One, GP2, and GP3.

Piero Losi
Head of Design and Product Development, Formula One

Piero joined Pirelli back in 1987 in the research and development department for road car tyres, starting to work within the pre-development division from 1995.

As a passionate enthusiast it wasn't long before he made the move to motorsport, where he headed up Pirelli's circuit racing department from the end of 2001, working chiefly in endurance racing series.

One year later he went back to his first love of research and development – but this time in motorsport, looking at the latest advances in competition tyres and pushing the boundaries of technology.

Piero has been involved in Pirelli's Formula One project from the very beginning but does not travel to all the races as his team chiefly focuses on development back at base in Milan.

Dario Marrafuschi
Modelling and application engineering

Dario is Milan born and bred, having studied engineering at university there. After graduating he went straight to Formula One, having worked as a tyre engineer and in various other technical roles, before going on to head up Ferrari's test team from 2006 to 2008 as trackside engineer.

He joined Pirelli at the end of that year as circuit racing manager, overseeing all of Pirelli's track-based activities. In 2010, Dario joined the growing R&D division as it started work on the Formula One project, specialising in modelling and pre-development. As well as keeping a close eye on the tyres for this year, Dario is concentrating on the future development of Pirelli competition tyres.

PIRELLI MOTORSPORT KEY NUMBERS

2	Number of commercially available Pirelli road car tyres inspired by Formula One: P Zero Silver and P7 Cinturato Blue
5	Number of drivers who have graduated to F1 with Pirelli through GP2 and GP3
5	Pirelli is the fifth-largest tyre company in the world
11	Number of dedicated GP2 / GP3 staff at each race
22	Number of Pirelli tyre factories all over the world
50	Number of times per second a P Zero tyre rotates at full speed
52	Number of Pirelli personnel that travel to each F1 race
130	Peak temperature reached by the P Zero compounds in centigrade
134	Number of international and national championships exclusively supplied by Pirelli
450	Speed in kilometres per hour that Pirelli tyres are accelerated up to during laboratory tests
1800	Approximate amount of tyres supplied for each F1 race
4500	Approximate amount of patents held by Pirelli all over the world
15,000	Space in square metres covered by Pirelli's Izmit factory, where the Formula One tyres and all of Pirelli's competition tyres are made
36,000	Approximate number of kilometres carried out by Pirelli in private testing since 2010
50,000	Number of tyres that will be produced for Formula One in 2013
270,000	Number of competition tyres made by the Izmit factory each year

PIRELLI'S MOTORSPORT HISTORY

The story actually started in China. Pirelli's first major motorsport victory was the 1907 Peking to Paris race, an adventure that at the time was regarded as a bit like attempting to drive to the moon. Several people said that the race was entirely impossible – but Giovanni Battista Pirelli, the company founder, was not one of them.

Neither was Prince Scipione Borghese, the well-known Italian adventurer who would go onto win the 15,000-kilometre marathon in a seven-litre Itala running on Pirelli tyres. The most incredible thing about his success was that one of the four Italian tyres actually went the entire distance without needing to be changed – and then drove on from Paris to Milan after the finish.

That success inspired the elongated 'P' logo that will once more be seen on all the Formula One cars this year. But Pirelli's involvement in Grand Prix racing actually dates back to the 1920s, before Formula One was formally established, thanks to a partnership with Alfa Romeo that saw some of the legends of the time such as Antonio Ascari and Giuseppe Campari triumph on the Italian tyres. Pirelli's first World Championship win came in 1925, thanks to Gastone Brilli-Peri in an Alfa.

Road racing was also a major part of Pirelli's sporting philosophy, with several victories in the iconic Mille Miglia that tore through Italy, bringing the whole country to an excited standstill.

But the real glory days arrived with the beautiful Formula One cars of the 1950s, and drivers such as Juan Manuel Fangio who have shaped the history of the sport. During the early part of the decade Pirelli was unbeatable, sweeping up four world titles in total with the last one being clinched by the great Fangio in 1957: his victory from the back at the German Grand Prix in that year is reckoned by many to be the greatest race ever.

Pirelli also triumphed in the Le Mans 24 Hours in 1954, with Maurice Trintignant and Jose Froilan Gonzalez winning in a Ferrari 375 MM. Other sports car successes followed at the equally well-known Sebring 12 Hours.

The competition wasn't just limited to four wheels. Since before the turn of the century Pirelli had been supplying tyres to motorbike racers, and by 1948 Pirelli-equipped motorbikes had set more than 30 speed records.

After Pirelli withdrew from the frontline of competition in 1957, the Italian tyres raced mostly in the hands of privateers.

In the 1970s, Pirelli came back to motorsport through rallying, where it has been represented ever since. Pirelli won in the very first year of the World Rally Championship, 1973, and the consequent success led to the company being asked to develop a brand new tyre for the fire-breathing Lancia Stratos: a race car for the stages capable of developing 240 horsepower. The radial tyre with a wide tread pattern and low sidewalls that resulted was the P7: and this was the thinking behind Pirelli's return to Formula One in the 1980s.

The company returned to the forefront of Grand Prix racing in 1981 with the Toleman team: the same outfit that would go on to give Ayrton Senna his Formula One debut on the Italian rubber. Victories in France with Nelson Piquet in 1985 and Mexico with Gerhard Berger in 1986 – not to mention innovations such as brightly coloured tyres – formed the highlights of Pirelli's comeback, before a short sabbatical while the team developed the first P Zero family of tyres: a name that is still used today.

The final Pirelli victory of the previous era in Formula One was at the 1991 Canadian Grand Prix, with Nelson Piquet after a dramatic race. Pirelli then bowed out of Formula One at the end of that season, having racked up a total of 44 victories from 200 starts.

The company returned to the pinnacle of motorsport in 2011 with a three-year contract to exclusively supply all teams with its latest range of Formula One tyres.

GP2

Launched in 2005, the GP2 Series is a one-make single-seater championship that has become the acknowledged stepping-stone to Formula One. Pirelli has been its exclusive supplier of tyres since 2011.

The 2013 season will host 26 aspiring drivers competing at the wheel of identical Pirelli-equipped Dallara cars, powered by a V8 Renault engine. This year's GP2 tyres are all new when it comes to compound and construction, designed to mirror the characteristics of Formula One tyres.

The GP2 Series adopts a similar points' system as Formula One and features closely aligned tyre regulations. The GP2 teams and drivers will have at their disposal two different types of Pirelli P Zero slicks to use during a race weekend, just like Formula One. The same colour markings used in Formula One will also be applied in GP2.

Every car will have five sets of dry tyres and three sets of wet weather tyres available for the race weekend. The five sets of dry tyres comprise three sets of the harder compound and two sets of the softer compound. This new rule, introduced jointly by Pirelli and the GP2 promoter in 2012, is directly modelled on Formula One to help prepare drivers for the top category.

The 2013 GP2 calendar takes in 11 races with several flyaway rounds in support of the Formula One season. Each round will include a single practice and qualifying session followed by two races.

A race weekend is composed of one half-hour practice session and one half-hour qualifying session, followed by two races. The qualifying session is a straight fight for the fastest lap time, and determines the order of the grid for Race One.

Two additional driver points are awarded for pole position. Race One is run over 170 kilometres or one hour, and each driver must complete one compulsory pit stop during which a minimum of two tyres must be changed.

The top 10 drivers score points, with an extra two points awarded to the driver who sets the fastest race lap. The grid for Race Two is determined by the finishing order of the first race, with the top eight positions reversed. Race Two is run over 120 kilometres or 45 minutes, with no pit stops allowed. The top six finishers in Race Two score points, and the driver who sets the fastest lap again scores two additional points.

The points for fastest lap in both Race One and Race Two will only be awarded to a driver who finishes in the top 10, and who has started the race from the grid.

GP3

Pirelli has been proud to support the GP3 Series since it began in 2010, marking the Italian firm's return to the top flight of single-seater racing. This year, the series has a brand new 400 horsepower car that is designed to bring it closer to GP2.

The GP3 Series follows the same basic rules and principles as GP2: a single chassis and engine with tightly controlled technical regulations to ensure a level playing field. Racing with identical cars and set-ups, it is the driver's ability that makes the difference.

Pirelli supplies the GP3 Series with three types of P Zero dry weather tyre (hard, medium and soft) – one type of which is nominated for each race weekend – and one pattern of wet weather tyre. During each race weekend every driver is provided with three sets of dry tyres and two sets of wet weather tyres. The compounds and constructions are all new this year to match the new car, which is expected to lap three to four seconds faster than its predecessor.

The GP3 season is made up of eight race weekends and for the first time since its inception in 2010, the GP3 Series will also take place during the Abu Dhabi Grand Prix, the final race for GP3.

The geographical scope has been limited to European venues in order to contain costs. Likewise, the race weekend format has been designed to maximise track time: each round features one practice session and one qualifying session, followed by two races.

Points are allocated in the same way as GP2, with the aim of putting the spotlight firmly on driving talent.

GT

Pirelli will return to the front line of GT racing once more this year, supplying the FIA GT Series and the Blancpain Endurance Series. Both series are based on race versions of road-going supercars.

Pirelli has a long and illustrious history in endurance racing, ranging from the Le Mans 24 Hours (which it won in 1954 with Maurice Trintignant, Froilan Gonzalez and Ferrari) to recent multiple titles in the American-based Grand Am series.

Pirelli has also claimed a huge variety of class wins in GT racing all over the world, as well as supplying exclusive one-make series such as the Ferrari Challenge, Lamborghini Super Trofeo and Maserati Trofeo.

This year's new GT championships take place over a wide range of circuits both in and out of Europe, such as Abu Dhabi as well as Spa and Monza. Manufacturers represented include Audi, BMW, Ferrari, Lamborghini, Mercedes-Benz and McLaren: all of which use Pirelli P Zero tyres as original equipment on their road cars. The slick tyres used for GT racing will also be branded P Zero: just like the slicks that have become a central feature of Formula One.

The design of the new Pirelli GT tyres has taken on board many of the lessons learned from other series, with the working processes further optimized to meet the needs of the FIA GT Championship while maintaining the performance characteristics that endurance drivers have appreciated in the past.

The GT series cars use 18-inch tyres, with the exception of Ferrari, which uses 19-inch tyres on the rear. These sizes are very close to those used for road cars, allowing a direct technology transfer from the track to the road.

Pirelli has also developed a new size (325/660-18) as a front fitment for central and rear engine cars. This new size ensures a better feel for the driver. Once more, motorsport has proved to be a brilliant proving ground for the tyres used by everyday motorists.

FROM RACETRACK TO MOTORWAY

Technology, safety, ecology and a sporting philosophy is what unites the Pirelli P Zero tyres seen on the race track with those driven by ordinary motorists on the road.

Both racing cars and road-going sports cars are guaranteed performance and reliability thanks to the P Zero range of Ultra High Performance tyres. Pirelli is a world leader in the automotive industry and has an exclusive relationship with over 50 racing series worldwide, including Formula One. This experience filters straight down to road car tyres.

The direct exchange of information and technology between Pirelli's motorsport division and the road tyre group has resulted in innovative products such as the P7 Cinturato Blue: a road car tyre that is inspired by the wet weather capability of its Formula One counterpart. There is also the P Zero Silver, which prioritises strong performances for drivers who cover long distances.

With eight worldwide Research and Development centres employing more than a thousand specialist engineers, the Pirelli group now has 22 factories in five continents, and is the holder of more than 4500 international patents. The Italian firm is one of the tyre-makers that invests most in research and development – up to 3% of its annual revenue.

From Ferrari to Porsche, Pirelli is used as original equipment by all of the world's most prestigious carmakers, with more than 200 homologation approvals.

The original equipment homologation process requires an incredible amount of research and development to fine-tune tyre characteristics in order to reach the performance goals that the vehicle designers have in mind.

In this respect, the lessons learned from Formula One are invaluable. Just as is the case in Formula One, homologating a tyre for original equipment use involves several rounds of engineering and manufacturing prototypes, then testing and adjusting each subsequent version to achieve the performance level that the vehicle manufacturer has targeted.

The result, in Formula One and on the road, is unprecedented levels of performance. The Italian firm currently holds the production car lap record for the Nürburgring Nordschleife, after a Pirelli-equipped Pagani Zonda R completed the 22.8-kilometre course in just 6m47s.

That's just one example of how competition benefits every tyre in Pirelli's range: from the track-derived P Zero, to the eco-friendly P1.

PIRELLI AND GREEN TECHNOLOGY

At the heart of Pirelli's sporting philosophy is green technology, which covers every aspect of the company's business, from Formula One down to the smallest road cars.

The 50,000 Formula One tyres needed for this year are manufactured at Pirelli's state of the art facility in Izmit, Turkey, where the company has been present for more than 50 years.

The processes used in Izmit are based on energy and water efficiency and the reduction of dangerous emissions like carbon dioxide. Special attention has been given to the re-use of production remnants and used tyres. Pirelli's waste handling protocol includes the recycling of all used Formula One tyres for either the generation of new primary material or energy production.

Formula One tyres, in line with the Pirelli Group's Green Performance strategy, have a pronounced natural rubber content, avoiding the need for damaging refinement procedures and benefitting recycling.

As well as pioneering new technology, Pirelli has traditionally led the way when it comes to sustainability, having eliminated aromatic oils from all elements of its tyre production processes long before legislation demanded it.

Formula One is Pirelli's most valuable mobile laboratory, constantly revealing new areas in which efficiency can be improved and pushing the boundaries of technologies in areas that will eventually see mass production.

Pirelli's attention to sustainability is also shown by its recent confirmation in the Dow Jones Sustainability World Index, where the Group has been the leading company in the 'Autoparts and Tyre' sector for six consecutive years.

Exactly the same thinking behind Pirelli's road car tyres applies to Formula One: ultimate performance and cutting-edge technology need not come at the expense of the environment.

THE P ZERO ROAD CAR TYRES

The name P Zero, used in the highest categories of single-seater racing, also describes a family of Ultra High Performance tyres for the road. The key to P Zero technology is the patented P Zero system, which uses directional tread at the front axle and asymmetric tread on the rear. Using directional tyres on the front maximizes the expulsion of water. In this way the asymmetric tyres fitted on the rear axle encounter a drier surface, adding up to a uniquely safe yet exhilarating driving experience. At a recent international tyre test with all the major brands represented held by Evo magazine, the magazine wrote that the P Zero was: “the only tyre to bring sparkle to the test car’s steering. There’s no doubt about our winner.”

P Zero Silver

The P Zero Silver has been directly developed from the Italian firm’s involvement in the highest level of motorsport and was Pirelli’s first road tyre derived directly from Formula One. It shares the same modelling process as Pirelli’s grand prix tyres, using cutting-edge mathematical simulation to finalise the design of the tyres under a wide range of road conditions. P Zero Silver, intended primarily as an aftermarket tyre, offers top performance, particularly for drivers who cover long distances.

P Zero Corsa System

The P Zero Corsa System is the latest Pirelli Ultra High Performance product specifically developed as an original equipment fitment for the highest-performing next generation vehicles. Developed with an innovative racing tread compound it is ideal for the fastest and most powerful cars in the Ultra High Performance sector.

P Zero

The P Zero is the famous benchmark for all top of the range sports and high-powered vehicles, setting the standard in every key area: road holding, grip, braking and traction. The structural integrity of the tyre improves steering response and also ensures uniform tread wear while enhancing driver feedback.

This tyre has been developed for all top of the range, sports and high-performance vehicles, with more than 200 homologations, and five patents protect its unique design. More than just a tyre, P Zero has become a motoring legend.

P Zero Nero

In P Zero Nero, Pirelli has created a tyre that gives extraordinary all-round performance, offering maximum sports driving pleasure together with optimal safety. The tread design has been developed to offer excellent levels of grip and road holding, as well as reduce the risk of aquaplaning.

P Zero Rosso

The P Zero Rosso is renowned as one of the most comfortable sports tyres to come out of Italy. It is the ideal choice for optimum balance between performance and comfort, while still providing precise steering response on dry and wet roads.

P Zero Trofeo

The P Zero Trofeo is classified as a motorsport tyre but is still road legal, and it is intended for drivers who regularly take their cars out onto race tracks. It was developed using technology acquired from Pirelli's asphalt World Rally Championship tyres.

PIRELLI IN EVERYDAY LIFE

There is much more to Pirelli than just tyres. Not only is the Italian firm well-known for its iconic calendar, but also for the P Zero fashion range, which is represented by the corporate uniforms you will see in the Grand Prix paddock, and its sponsorship of the Inter Milan football team, as well as different charitable foundations all over the world.

When Giovanni Pirelli founded his tyre and cable company in 1872, he employed only 45 people. He would probably have never guessed that his outfit would grow to become part of Italy's social fabric, thanks to some legendary tyres such as the 'Stelvio' – named after a tortuous mountain pass in Italy – and the 'Stella Bianca', which means 'white star' in Italian. The public awareness of these tyres was reinforced through colourful advertising campaigns that made full use of the stars of the day. "Today I've got the Cinturato on my car," proclaims Juan Manuel Fangio from one poster in 1965. "It's a tyre that's truly different to the others. What's most surprising is the absolute driving precision. Extraordinary."

The Cal

The Pirelli calendar is still one of the concepts most closely associated with the Italian brand. The very first calendar in 1962 simply featured models from Pirelli's key markets with images of tyres superimposed on them. But after this low-key start, Robert Freeman – who famously photographed the Beatles –changed it completely with his shots of models on the beaches of the Cote d'Azur.

The calendar was discontinued in 1974 because of the global recession due to the oil crisis and it took 10 years for it to be resurrected. Shortly afterwards it became a legend, establishing itself as a collectors' item all over the world with only a strictly limited run of 40,000 copies made per year.

Photographers have included Richard Avedon, Mario Testino and Patrick Demarchelier. Super-models have included Cindy Crawford, Kate Moss and Helena Christensen. Last year the calendar was launched in Rio de Janeiro, with renowned photojournalist Steve McCurry showcasing his images that colourfully depicted the social fabric in Brazil.

Inter Milan

Pirelli also connects with its customers on a day-to-day level through its sponsorship of the Inter Milan football club, one of the most popular teams not only in Italy but in the world.

The association between Pirelli and Inter Milan has existed since 1995 and it goes way beyond just a name on a shirt. Together, Pirelli and Inter Milan have created the 'Inter Campuses' charity scheme. This idea, which started off in Italy and then spread to the rest of the world, aims to help underprivileged children by giving them a start in academic and sports education.

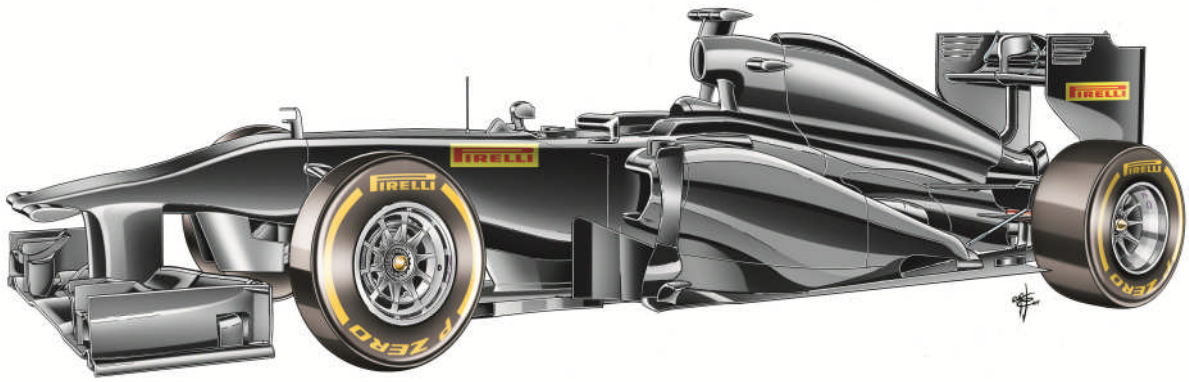
P Zero Fashion

Similarly, the P Zero fashion range is not just all about clothes. There are watches, belts, bags and shoes, favoured by celebrities ranging from Rupert Everett to Naomi Campbell, and a boutique – complete with a Formula One car – in Milan.

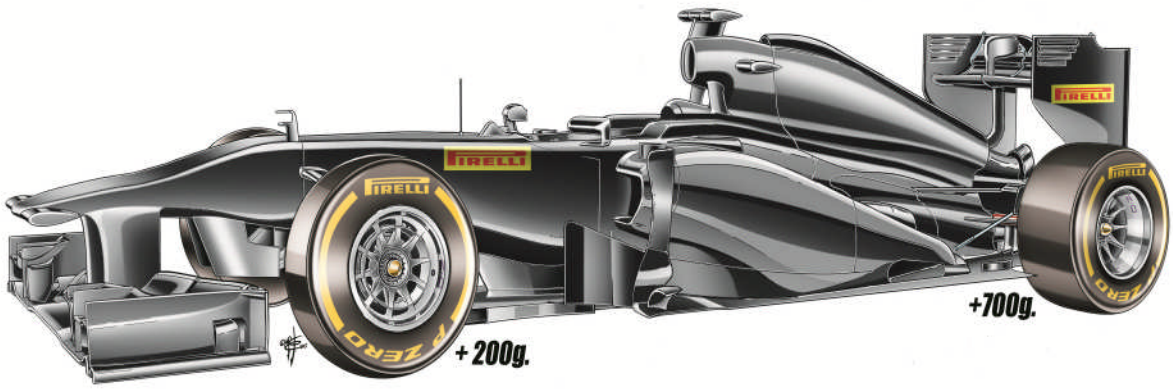
Pirelli's core product will always be tyres, and the ultimate expression of that art is Formula One. Yet Pirelli is more than just a tyre company: it is a household name not only in Italy, but throughout the rest of the world.

POWER IS NOTHING WITHOUT CONTROL

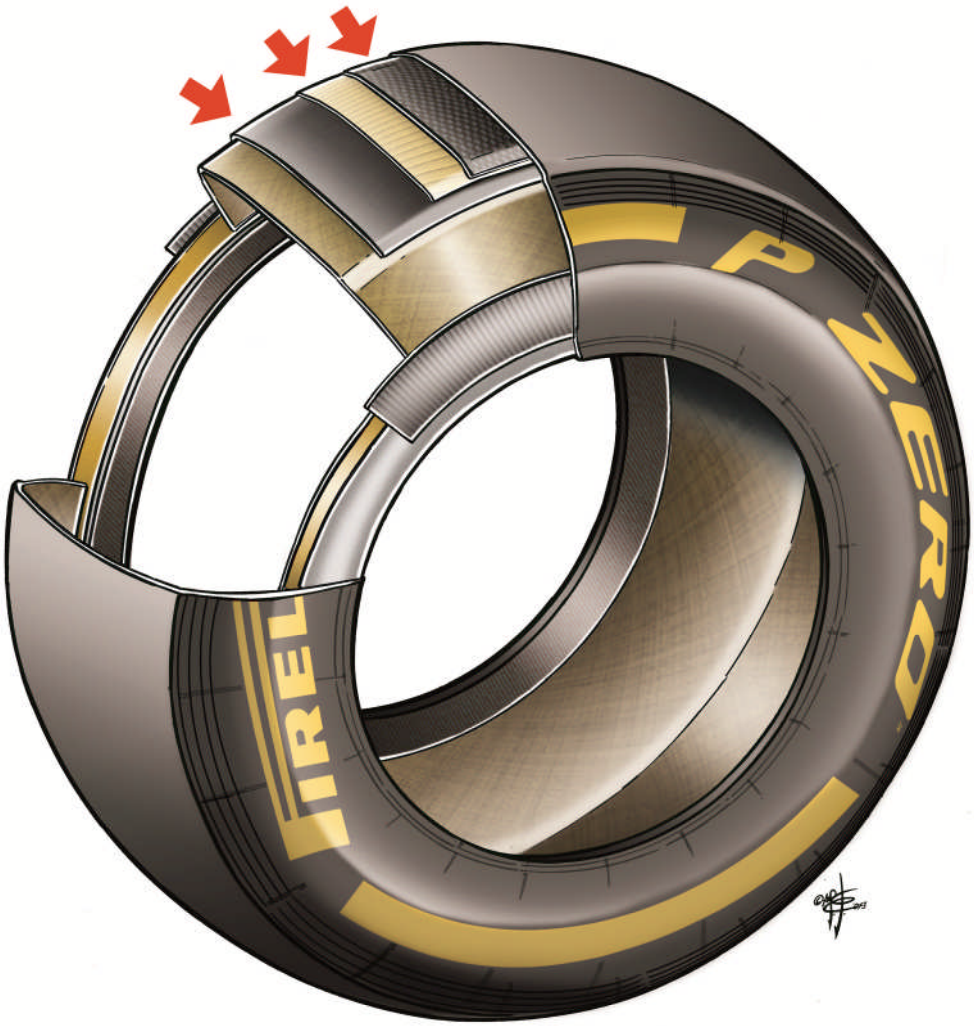
2013 PIRELLI TYRE DRAWINGS



2013 Formula One car with the new Pirelli P Zero Yellow compound.

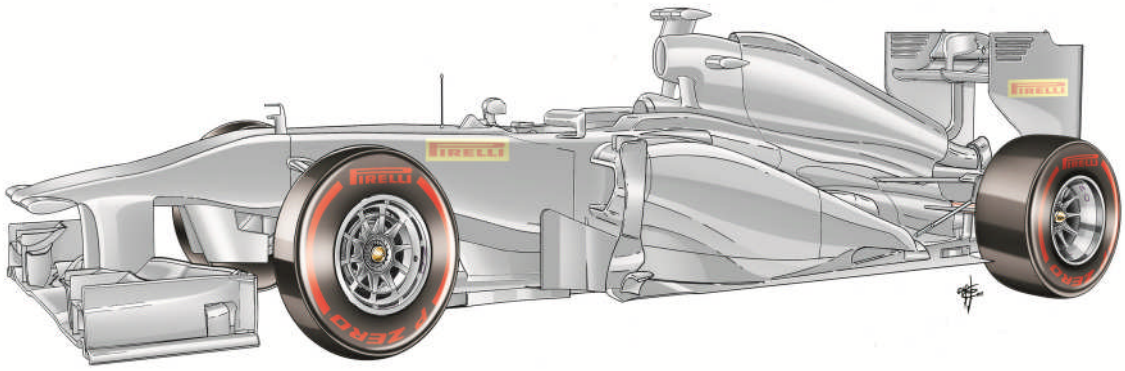


2013 Formula One car with the Pirelli P Zero Yellow compound, showing the altered weight of the tyres for this year.

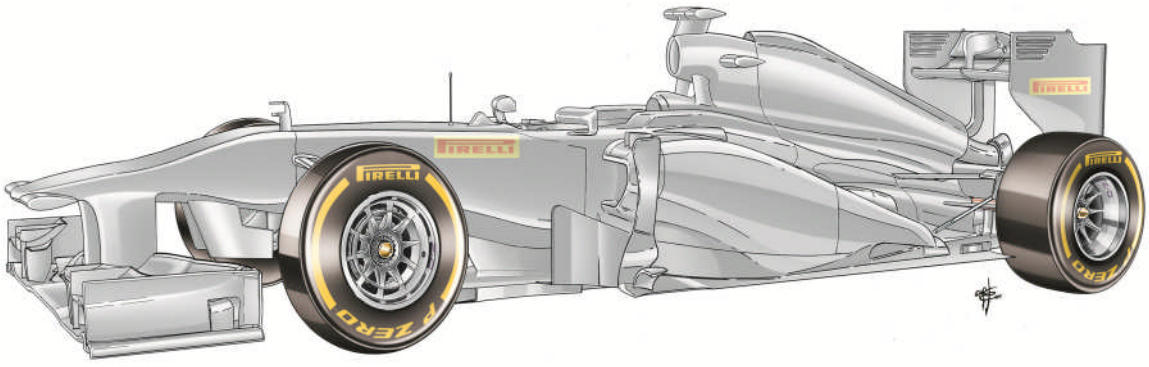


Graphics showing the cross-sections of a P Zero Formula One tyre.

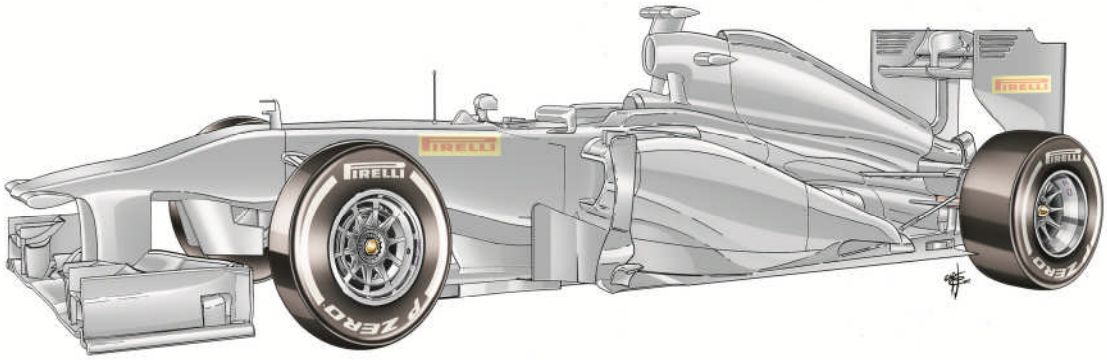
The arrows show the materials changed in the new 2013 construction. The vertical stiffness of the new construction was reduced, which could lead to a bigger footprint but less driving precision. To compensate for this, Pirelli reinforced the belt package to increase cornering stiffness, while maintaining excellent handling and performance.



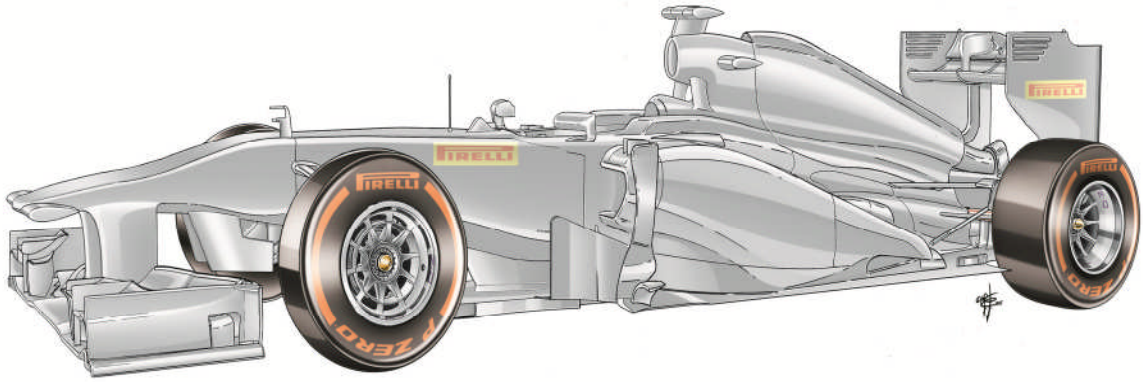
Pirelli P Zero Red Supersoft compound on a 2013 Formula One car



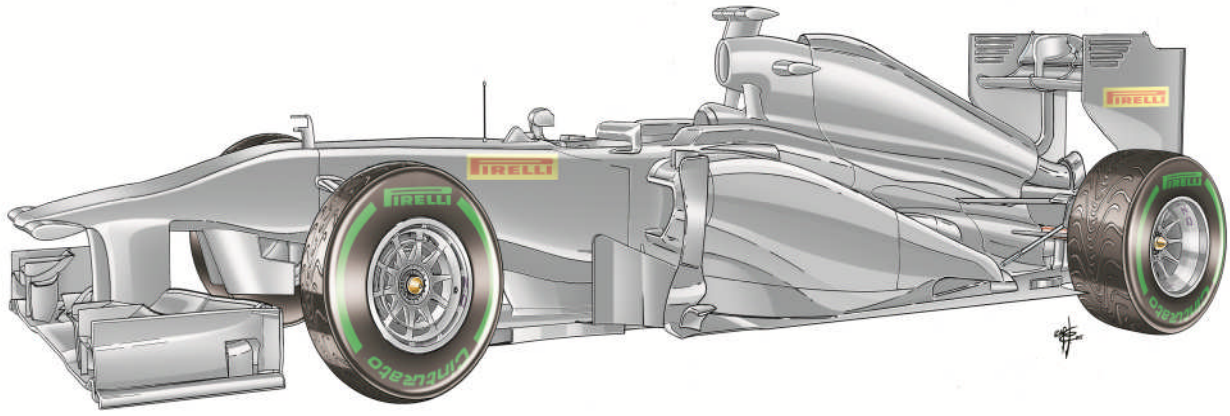
Pirelli P Zero Yellow Soft compound on a 2013 Formula One car



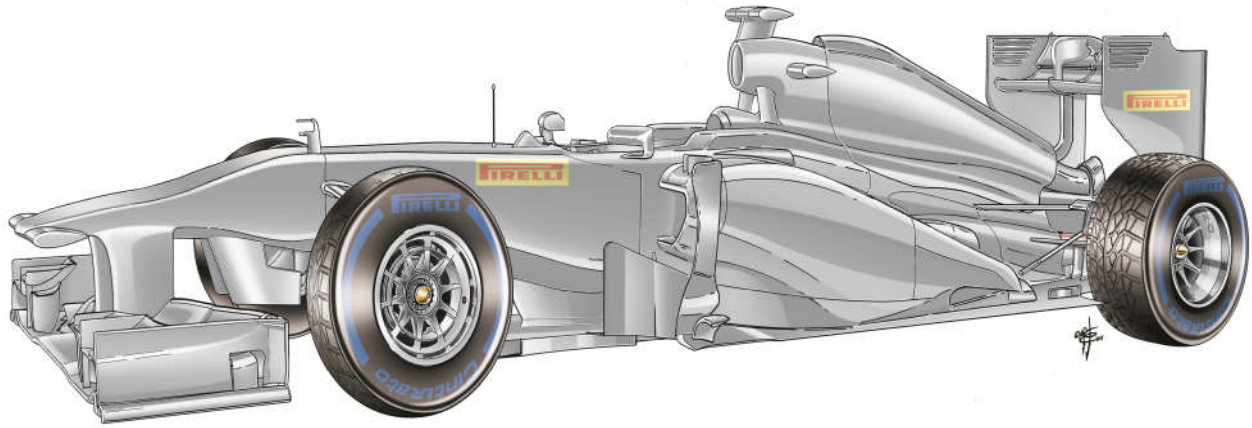
Pirelli P Zero White Medium compound on a 2013 Formula One car



Pirelli P Zero Orange Hard compound on a 2013 Formula One car



Cinturato Green Intermediate compound on a 2013 Formula One car



Cinturato Blue Wet compound on a 2013 Formula One car