

TYRE TEST 2012

The tyres you fit to your car can make or break the way it performs. So which should you be looking at amongst the current crop of rubber?

***John Barker** has the answer*



The phrase 'you get what you pay for' might not have been coined for tyres but it's a pretty good rule of thumb. As numerous *evo* tests have shown, cheap tyres typically fall well short of premium tyres, and usually in the most vital tests – those concerning wet-weather performance.

From November a rating system

will be introduced giving us, the consumers, some information to help us make a more informed decision. New tyres will come with a label showing ratings for rolling resistance, noise and wet braking, much as the efficiency of, say, a refrigerator is rated. This is welcome news, a long-overdue development. However, as the results of this test show, it really only hints at the overall wet-weather performance you can expect.

This year we tested the 225/45 R17, a massive seller in the 17in size

and standard fitment on a tranche of performance hatches, mid-sized saloons and a fair few MPVs too. We put ten different tyres, from budget to premium, through the same extensive test cycle, with the top-rated tyre in each test scoring 100 per cent and the rest earning a percentage of this. Objective tests make up 60 per cent of the final score, subjective ratings the other 40 per cent, so that you have the all the information to choose the tyre that best suits your needs and preferences.












THE TYRES

- 1. BRIDGESTONE POTENZA S001**
225/45 R17 91Y £91
- 2. CONTINENTAL SPORTCONTACT 5**
225/45 R17 91W £95
- 3. DUNLOP SPORT MAXX RT**
225/45 R17 94Y XL £98
- 4. GOODYEAR EAGLE F1 ASYMMETRIC 2**
225/45 R17 94Y XL £99
- 5. HANKOOK VENTUS S1 EVO2**
225/45 R17 94Y £90
- 6. KUMHO ECSTA LE SPORT**
225/45 R17 91W £79
- 7. MICHELIN PILOT SPORT 3**
225/45 R17 94W XL £96
- 8. NEXEN N8000**
225/45 R17 91W £70
- 9. PIRELLI P ZERO**
225/45 R17 94Y XL £99
- 10. VREDESTEIN ULTRAC VORTI**
225/45 R17 94Y £93

'AS THE RESULTS OF THIS TEST SHOW, THE NEW RATINGS ONLY





● The car

The front-drive Audi A3 1.8 TFSI was our tyre testing platform this time. It's powered by a turbocharged in-line 'four', so it's able to put tyres under pressure nice and early in a turn – peak torque arrives at a diesel-like 1500rpm. Full power of 168bhp weighs in at around 6000rpm, while the chassis is capable and benign, the steering accurate and well weighted. It also has excellent air conditioning, which was a boon given the (ahem) harsh climate in which we had to work...

● The track

There's probably no more glamorous a setting for a proving ground than Goodyear's Mireval in the south of France – a location chosen partly because the climate is so consistently warm and dry. The high average temperatures – around 26deg C on our visit – give tyres a hard time, as do the elevations and curves of the handling tracks. Once more, our test team comprised editor-at-large John Barker on driving duties and Kim Adams on logistics.

■ Many thanks to Goodyear Dunlop's Kate Rock for her tireless assistance and to Mireval performance tester Patrice Fouqueray and tyre fitter Steve Picardin for support at the track.

HINT AT THE WET-WEATHER PERFORMANCE YOU CAN EXPECT'





Wet handling

When the sky is grey and the road shimmers with rain, you get closer to the performance limits of your tyres than in the dry. How they grip under acceleration, cornering and braking is paramount, and is reflected unflinchingly in the lap times we recorded for this test, but for your sense of well-being, the feedback they give, their responses and the

confidence they inspire are equally valid; a tyre that communicates how hard it is being pushed and looks after you if you broach the limits will help keep you out of trouble. We assessed both on the wet handling circuit.

A weir system irrigates the shiny, wetted road that snakes and loops through the parched, scrubby landscape under the Mediterranean sun. It's a challenging circuit, featuring significant gradient changes and plenty



of testing corners. The trickiest are the shallow, downhill left-hander, and the hairpin that follows and leads you into the tense, fast, left-right-left sequence that gives the lap a knife-edge finish. Adding extra spice are some grabby mid-corner patches of calcification deposited by the flowing water.

We still had anti-lock brakes to fall back on if required, but the Audi's stability control was disabled.

No fewer than four tyres were within



Left and right: our Audi tackles Mireval's wet handling circuit; unusually, there are no big sprinklers – a weir system spreads the water – so there is no need for wipers



a second at the top of the lap time table, the Pirelli topping them on 70sec dead and backing this up with the highest lateral G-force at 0.682G. The Goodyear and Michelin were barely half a second down on lap time, with the Continental only a fraction behind them, but it was the Goodyear that topped the subjective ratings. 'This tyre makes all the right moves,' we noted, 'hooking up well out of the turns, braking confidently and taming the fast left-right-left better than any other. Unmatched.'

Subjectively, the second-placed Michelin displayed a very similar skill set, blended with a little more neutrality: 'A tyre that delivers security and ability in equal measure.' Although it missed out on the hat-trick of wet handling results, the Pirelli was also well-liked for its almost gritty hold on the wet surface and well-matched traction, lateral grip and braking. Like the other fancied tyres, it was 'consistent in its abilities, reassuringly transparent in its intentions'.

The Continental was not far behind this top trio. A little down on lateral G, it was within a second of the Goodyear around the lap and the difference seemed to be corner-exit traction:

'GRIP UNDER ACCELERATION, CORNERING AND BRAKING IS PARAMOUNT'

'Spins up a little more readily out of turns, a fraction looser in the quickest kink but otherwise a solid performer.'

Bagging fifth in both lap time and lateral G was one of the Kumho's strongest showings of the whole test. Subjectively it was a little off the pace, inducing noticeable tail slip, which helped get the car into the corners and was good for the lap time but not driver confidence.

The Dunlop scored the second-highest lateral G and nailed a good lap time too, but it didn't rank well subjectively: 'Has a lighter hold on the road compared to the best.' In contrast, the Bridgestone was within two seconds of the best lap time and felt like it was going to deliver more but never quite did, perhaps because it was very neutral. The more willing Vredestein scored fractionally better but with the caveat of a light, tentative feel, and it was well down on lateral G and over 2sec adrift of the Pirelli's lap.

However, only the Nexen felt completely out of this league. It wasn't just that it was placed last by all three measures but that it was so by a significant margin, notably 5.1sec behind over the wet lap. It wasn't rated subjectively, either: 'Simply doesn't grip very well. Feels approximate, even when it's travelling more slowly than the rest, let alone the best.'

WET HANDLING

LAP TIMES	sec	%	LATERAL G	G	%	SUBJECTIVE	score	%
1. PIRELLI	70.00	100	1. PIRELLI	0.682	100	1. GOODYEAR	54	100
2. GOODYEAR	70.63	99.1	2. DUNLOP	0.678	99.4	2. MICHELIN	50.5	93.5
3. MICHELIN	70.67	99.1	3. MICHELIN	0.655	96.0	3= CONTINENTAL	50	92.6
4. CONTINENTAL	70.81	98.9	4. GOODYEAR	0.649	95.2	3= PIRELLI	50	92.6
5. KUMHO	71.17	98.4	5. KUMHO	0.617	90.5	5. VREDESTEIN	49	90.7
6. DUNLOP	71.19	98.3	6. CONTINENTAL	0.613	89.9	6. BRIDGESTONE	48.5	89.8
7. BRIDGESTONE	71.82	97.5	7. BRIDGESTONE	0.611	89.6	7= HANKOOK	47	87.0
8. VREDESTEIN	72.10	97.1	8. HANKOOK	0.603	88.4	7= KUMHO	47	87.0
9. HANKOOK	72.18	97.0	9. VREDESTEIN	0.599	87.8	9. DUNLOP	46	85.2
10. NEXEN	75.11	93.2	10. NEXEN	0.543	79.6	10. NEXEN	34	63.0



'TWO OF THE THREE RATINGS ON THE INFORMATION LABEL THAT

● Braking

Two of the three ratings on the information label that must be available with every new tyre sold in the EU from November are tested here. The first, wet braking from 80kph (50mph) to 1kph, shows a very close result, with the best, the Goodyear, stopping in 24.62m, which is less than 1.5m better than the tyre that took the greatest distance to stop, the Hankook, at 26.08m. That 1.46m is less than half

the length of a normal car, so all ten tyres would attract the same rating on the tyre label. However, as our wet handling test shows, the wet braking result cannot be taken as an indicator of overall wet-weather performance.

Dry braking, which isn't in the labelling system, is similarly close. The top tyre is the Dunlop, which takes 33.75m to slow from 100kph (62mph) to 1kph. That's 38cm better than the Goodyear, while at the other end of the table, the Kumho takes 36m dead,



some 2.25m longer than the Dunlop.

There are greater differences in the other label category – rolling resistance. This is a measure of the energy the tyre absorbs as it runs against the road. Best is the Goodyear, worst the Bridgestone, their difference equivalent to about 1mpg on a car capable of around 30mpg. This stacks up with the labelling – the Goodyear and Dunlop would be C-grade tyres, the rest down to the Bridgestone E-grade (on an A to G scale).



All ten tyres performed respectably in both the wet (right) and dry (above) braking tests

BRAKING

WET BRAKING			DRY BRAKING			ROLLING RESIST		
	metres	%		metres	%		coeff	%
1. GOODYEAR	24.62	100	1. DUNLOP	33.75	100	1. GOODYEAR	7.98	100
2. DUNLOP	24.69	99.7	2. GOODYEAR	34.13	98.9	2. DUNLOP	8.86	90.1
3. CONTINENTAL	24.82	99.2	3. BRIDGESTONE	34.58	97.6	3. MICHELIN	9.59	83.2
4. PIRELLI	24.85	99.1	4. CONTINENTAL	34.73	97.2	4. HANKOOK	10.07	79.2
5. NEXEN	25.11	98.0	5. VREDESTEIN	34.80	97.0	5. CONTINENTAL	10.09	79.1
6. BRIDGESTONE	25.43	96.8	6. NEXEN	35.15	96.0	6. KUMHO	10.31	77.4
7. VREDESTEIN	25.82	95.4	7. PIRELLI	35.18	95.9	7. NEXEN	10.36	77.0
8. KUMHO	25.91	95.0	8. MICHELIN	35.58	94.9	8. VREDESTEIN	10.41	76.7
9. MICHELIN	26.01	94.7	9. HANKOOK	35.89	94.0	9. PIRELLI	11.00	72.5
10. HANKOOK	26.08	94.4	10. KUMHO	36.00	93.8	10. BRIDGESTONE	11.73	68.0

● Aquaplaning

These tests are all about clearing away water from the tread footprint to keep the rubber in touch with the asphalt. Michelin was the star here, claiming the top spot in both the straight-line and curved tests.

The results reflect performance across a range of speeds, each tyre starting from the same nominal speed. This is 50kph (30mph) in the straight-line test and here some of the tyres, like the Michelin, resist aquaplaning well beyond this and only reach 15 per cent slip beyond 80kph (50mph). All of this is worked into the overall percentage score, so the max kph shown in the table (the speed at which 15 per cent slip occurs) is only one

indicator of performance.

Up there at the top of both tables with the Michelin were Pirelli and Continental, with Dunlop not far behind. In the straight-line test, all four resisted slip in 6mm of water until beyond 70kph (44mph) and didn't reach 15 per cent slip until beyond 80kph (50mph). At the other end of the table were Kumho and Goodyear, the latter starting to slip from 67kph and reaching 15 per cent by 74.9kph.

In the curved aquaplaning test, carried out on a 100m-radius circle with 8mm of standing water, the results were largely similar, the only notable adjustment being to the Nexen. It was a respectable mid-field performer in the straight test but was bottom of the table on the curve.

AQUAPLANING

STRAIGHT LINE	max kph	%	CURVED	max kph	%
1. MICHELIN	81.4	100	1. MICHELIN	87.9	100
2. PIRELLI	80.5	97.5	2. CONTINENTAL	87.4	95.0
3. CONTINENTAL	81.1	97.4	3. PIRELLI	84.9	93.0
4. DUNLOP	80.3	95.9	4. DUNLOP	84.3	91.9
5. HANKOOK	77.1	90.7	5. HANKOOK	84.7	89.5
6. NEXEN	76.8	90.5	6. KUMHO	83.5	86.9
7. BRIDGESTONE	74.6	89.8	7. VREDESTEIN	83.5	86.6
8. VREDESTEIN	74.9	89.2	8. BRIDGESTONE	84.7	86.3
9. KUMHO	73.5	88.8	9. GOODYEAR	83.3	85.3
10. GOODYEAR	74.9	88.3	10. NEXEN	81.5	82.9

Far left: aquaplaning test involves driving the car along a rail, while slip on the wheel driving through water is measured

MUST SOON BE AVAILABLE WITH EVERY NEW TYRE ARE TESTED HERE'



● Dry handling

As is normally the case, the dry handling circuit produced a narrow spread of lap times, the slowest tyre setting a time within three seconds of the fastest. It's a fast, 2-mile lap at Mireval, punctuated by some tricky technical sections that tease out the depth of ability of a tyre and, just as importantly, reveal its character: its turn-in response, its impression of grip and how it handles flicking from one lock to another. And rated subjectively, there was a much greater spread from best to worst.

Overall dry handling victory went to

the Pirelli. On lap time it was a very close second to the Vredestein and was top rated subjectively: 'Outstanding steering feel; connected and responsive and with a light, accurate touch.' It was also remarkably neutral where others got loose, but still made a good job of hitting every apex.

The Bridgestone was a second adrift of the Pirelli's lap time despite finding more traction driving out of the slower corners. It came closest to matching the Pirelli's well-balanced abilities too: 'Stable and neutral but changes direction well and gets stuck in. A solid, confidence-inspiring performance.' A mere half a point

behind the Bridgestone's subjective score was the Continental. It was a fraction quicker around the lap despite feeling like it was scrubbing out. 'Not the brightest but soaks up the pressure and gets on line where you think perhaps it won't.'

Just outside the top three was the Goodyear, another tyre that feels 'gritty' under pressure, like it's working hard to make the clipping points. But it does, and proved the most agile in the lower speed right-left-right sequences. 'Effective rather than inspiring.'

The Hankook scored well subjectively, feeling light and biddable. It wasn't the most tenacious but felt connected and gave the car a sense of flow and poise. Very similar comments applied to the Michelin, which felt balanced and willing turning in but then ran a fraction wide on the exit.

The Dunlop had a connected, direct feel but this didn't translate into useful agility and under pressure it became less responsive and accurate, though this didn't stop it being third fastest. Fastest of all was the Vredestein, yet like some others it felt scrubby and, like the Dunlop, lost its precision when

Below left: one of many, many wheel changes. Below right: Adams and Barker analyse another batch of test results





worked hard.

Dead last on lap time, the Nexen felt slow-witted and a little reluctant, while extracting that lap time involved ignoring the slightly tortured noises and extra lock required to get near the line. Despite being a second a lap faster than the Nexen, the Kumho was rated dead last subjectively. It gave light steering and seemed to have an equally light hold on the road. Oh, and it was very noisy, too.

DRY HANDLING

LAP TIMES	sec	%	SUBJECTIVE	score	%
1. VREDESTEIN	107.45	100	1. PIRELLI	41	100
2. PIRELLI	107.74	99.7	2. BRIDGESTONE	39	95.1
3. DUNLOP	108.03	99.5	3= CONTINENTAL	38.5	93.9
4. CONTINENTAL	108.17	99.3	3= GOODYEAR	38.5	93.9
5. GOODYEAR	108.55	99.0	5= HANKOOK	38	92.7
6. BRIDGESTONE	108.70	98.9	5= MICHELIN	38	92.7
7= HANKOOK	108.75	98.8	7. DUNLOP	35	85.4
7= MICHELIN	108.75	98.8	8. VREDESTEIN	34.5	84.1
9. KUMHO	109.10	98.5	9. NEXEN	31	75.6
10. NEXEN	110.06	97.6	10. KUMHO	29	70.7



'TRICKY TECHNICAL SECTIONS TEASE OUT THE DEPTH OF ABILITY OF A TYRE AND REVEAL ITS CHARACTER'



'OUR ROAD ROUTE INCORPORATED THE SORT OF IMPERFECTIONS THAT HAVE TO BE DEALT WITH EVERY DAY'

Results



10TH NEXEN

This is the least expensive tyre here but not by as big a margin as some woefully underperforming 'budget' tyres in previous tests. Scores mid-table in wet braking – the test included in the new mandatory tyre labelling – and also straight aquaplaning, but is then poorest performing in all other wet tests. Objectively better in the dry but not liked on the handling track ('slow witted and noisy,' we noted) or the road

route, where it rode decently but felt vague. Cheaper than the rest, and it shows.

9TH KUMHO

Much closer in performance to the tyres above it than the Nexen, the Kumho scores well in the wet tests with fifth best lateral G and lap time, the latter helped by some tail-happiness. It felt rather light at the wheel, though, and in dry handling, where it was among the slowest, it was rated

dead last, principally because it felt lacking in grip. Lack of steering weight saw it score low marks on the road route, too, though like the Nexen its ride was good.

8TH VREDESTEIN

The new Vredestein delivered the goods in dry handling, posting the fastest lap time. It didn't feel like it was giving up the time willingly but bolstered this with a strong dry

○ Road route

Our road route took us beyond the proving ground's limits and onto quiet local lanes characterised by the sort of imperfections that have to be dealt with every day. We incorporated speed humps and sharp transverse ridges, broken edged and pristine asphalt, and raised manholes and sunken drains. To help assess steering feel, weight and accuracy at a variety of speeds from town to motorway, we used the dry handling circuit again.

The Pirelli made a convincing case for itself, blending bright, connected steering with smooth running over imperfections. It wasn't the quietest but neither was it the noisiest. 'Unmatched feel and ability – the only tyre here that brings noticeable sparkle to the test car's steering,' we noted.

The second-placed Michelin came close, mind, showing a good road balance: 'Nicely weighted, keen steering and up there with the best in terms of quietness and suppleness, too.'

In third was the Continental. It was a little more surface sensitive and its steering was a little dull at town speeds, but thereafter it felt as connected as the Pirelli. 'A good performer that gets better the faster you go.'

Just off the podium came a trio of closely matched tyres. The Bridgestone felt firm-riding and gave good steering weight but not quite as much feel as the leading brands. The Hankook was great for feel and precision but rather noisy, flagging up surface changes in particular. The Dunlop rode firmly and quite noisily over coarse asphalt at moderate speeds, but the pay-off was steering that was responsive and connected, though it became less sharp at higher speeds.

Goodyear and Kumho were close behind. The Goodyear absorbed big



Left: our Audi A3 ventured onto public roads for the final test, and it claimed a few victims along the way (above)

imperfections and choppy surfaces well but was rather noisy and offered only a half-decent sense of connection through the steering. The Kumho's steering was lighter and less positive, even at motorway speed, though it too rode most surfaces well.

The Vredestein delivered decent steering – consistently positive with a crisp, clear feel – but this came at the expense of ride quality: 'Very firm, abrupt, lots of rumble over rough surfaces. Not good.' Just below it came the Nexen, which had a fair, if noisy, ride but delivered easily the poorest steering. It was described as 'vague and unresponsive' at 30mph and it didn't get any better thereafter.

ROAD ROUTE

SUBJECTIVE	score	%
1. PIRELLI	22.5	100
2. MICHELIN	21.5	95.6
3. CONTINENTAL	21	93.3
4. BRIDGESTONE	19.5	86.7
5= DUNLOP	19	84.4
5= HANKOOK	19	84.4
7= GOODYEAR	18.5	82.2
7= KUMHO	18.5	82.2
9. VREDESTEIN	17.5	77.8
10. NEXEN	17	75.6

braking result. Its demeanour on the road route showed that good steering came at the expense of ride comfort ('very firm, lots of rumble'). It was OK in the wet, a little off the pace in aquaplaning and braking, but demonstrated a good precision feel in the handling test.

7TH HANKOOK

A fair set of results across the board for the Hankook. Second to last wet handling lap time

and longest wet braking distance were the low points, yet it felt OK, with enough swing to help the Audi around the lap and compensate for a lack of lateral grip. It wasn't the most tenacious in the dry either, but gave a decent rolling resistance result and was well rated subjectively: 'Felt connected and gave the car a sense of flow and poise.'

6TH DUNLOP

A strong performance from

the Dunlop in the wet, with second best braking and lateral G, and good aquaplaning numbers, too. It scored best braking in the dry, was third fastest in dry handling and delivered a very strong rolling resistance result, too. However, its subjective scores held it back; its steering felt direct and connected but the tyre didn't deliver positive feedback under pressure in the dry or the wet, and on road its ride was firm and quite noisy.

5TH BRIDGESTONE

Middle-ranking in most of the wet tests, the Bridgestone's positive, grippy feel suggested it ought to have attained a little more, especially around the wet handling circuit. It did deliver in the dry, though, getting within a metre of the best in dry braking and being ranked second in dry handling: 'Stable but changes direction well... confidence-inspiring.' On road it was firm with well weighted steering.

4TH CONTINENTAL

The Continental was impressively close to the performance of the best in the wet tests, scoring especially well in aquaplaning and wet braking, and it was a solid performer subjectively, too. It backed this up with equally strong results in the dry – objective and subjective. It soaked up the pressure to produce accurate, quick, repeatable laps, and on the road its steering was a little dull-feeling at town speeds but great thereafter: ‘Gets better the faster you go.’

3RD MICHELIN

Top in both aquaplaning tests and top three in most of the other wet tests, the Michelin Pilot Sport 3 is a great rain tyre, despite the anomalous second to last in the stock wet braking test... ‘Delivers security and ability in equal measure.’

1ST PIRELLI

There’s no doubt about our winner. The Pirelli P Zero puts together a consistent and convincing set of objective test results and subjective scores to take the overall win by a good margin. It topped the wet handling test – ‘consistent in its abilities, reassuringly transparent in its intentions’ – and dominated dry handling too – ‘outstanding steering feel; connected and responsive and with a light, accurate touch’. Its only weak spot is rolling resistance (where it found itself second to last), because on the road it delivered a smooth ride and was ‘the only tyre to bring sparkle to the test car’s steering’. In a very crowded, very competitive segment of the market, the Pirelli is clearly the best.

It didn’t shine quite as brightly in the dry tests but felt ‘willing and responsive’ around the lap and was well liked on the road for suppleness and quietness that were among the best, and its ‘nicely weighted, keen steering’. A high-quality tyre.

2ND GOODYEAR

There were plenty of table-topping performances from the Goodyear Eagle F1 Asymmetric 2, including wet braking. It was ranked number one subjectively in the wet too – ‘unmatched’. Which makes its bottom-ranking aquaplane results rather odd. It sparkled less in the dry tests, being described as ‘effective rather than inspiring’ as it ground out a decent dry handling time, sentiments that were echoed on the road route, but the lowest rolling resistance cemented an impressive all-round performance.

FINAL RESULTS

TYRE	%
1. PIRELLI	95.5
2. GOODYEAR	94.6
3. MICHELIN	94.1
4. CONTINENTAL	93.8
5. BRIDGESTONE	91.9
6. DUNLOP	91.6
7. HANKOOK	90.9
8. VREDESTEIN	89.6
9. KUMHO	88.2
10. NEXEN	79.9