

ETRMA high-PAH Oil Testing Programme – Q&A

Why did the ETRMA¹ conduct this test?

With a growing focus on environmental and safety standards, both at international and European level, the European Commission has over the past few years introduced an increasing number of stringent health, safety and environmental requirements, which are applicable in the tyre sector as in others.

The EU Reach Regulation sets out a prohibition on use of so-called “high-PAH” extender oils in the production of tyres. Producers of tyres throughout the EU stopped using the prohibited high-PAH oils well before the EU marketing ban took effect on 1 January 2010. Independent testing has confirmed these EU producers’ compliance with the marketing ban. However, there has been strong industry concern that many tyres being placed on the EU market are not being tested for compliance, a concern that has appropriately been voiced also by responsible national authorities. Certain national authorities, for example in the United Kingdom, have already announced projects in the context of REACH enforcement, to ensure that the marketing ban on use of high-PAH oils in tyres is enforced effectively in conformity with the binding EU REACH Regulation.

In light also of imminent new regulations on tyre labelling and mandatory minimum performance requirements that will be introduced from 2012, ETRMA’s members believe that there is an important principle to establish for everyone: legislation, once it enters into legal force, must also be effectively enforced in the market. The aims are clear, first to protect the consumers and environment that the legislation is intended to protect, and second to ensure that all manufacturers, EU and others, who have in fact invested substantially to comply with the EU legal requirements and certify that their products are fully compliant, can compete on a level playing field.

Which EU regulation was the programme meant to test?

The programme tests for compliance with the marketing ban under the EU’s REACH Regulation 1907/2006/EC, Annex XVII, entry 50, which prohibits the presence in tyres of extender oils containing high level of dangerous polycyclic aromatic hydrocarbons (high-PAHs extender oils). This marketing ban was first enacted into EU law in 2005 by Directive 2005/69 and was subsequently integrated into Annex XVII² of the EU’s REACH Regulation 1907/2006, in June 2009. The marketing ban became officially applicable from 1 January 2010, concerning all tyres placed on the EU market by manufacturing or importing.³

What are extender oils and why are they used in tyres?

Extender oils used in tyre industry are derived from refining in the petrochemical industry. Their function is to facilitate the processing of the rubber compounds from which tyres are made. Extender oils are also an essential component in the technical performance of the tyre, in particular for its road adherence (or grip) and wear properties, and ensure that tyres wear out more slowly. They therefore contribute directly to the quality of the tyre and ultimately driver safety. Following the precautionary approach of the European Union, the highly aromatic oils were banned. Unfortunately the different types of extender oils are not easily interchangeable, and the switch from high-PAH extender oils to safer, low-PAH oils required significant R&D and also the reformulation of the various rubber mixes in the tyre in order to maintain the crucial adherence and wear properties of the tyre.

Are PAHs used as a direct material in tyres?

¹ European Tyre and Rubber Manufacturers’ Association. ETRMA corporate tyre producer members include Apollo Vredestein, Bridgestone Europe, Cooper Tires, Continental, Goodyear Dunlop Tires Europe, Hankook, Marangoni, Michelin, Mitas, Nokian Tyres, Pirelli and Trelleborg Wheel Systems.

² Annex XVII (“Restrictions On The Manufacture, Placing On The Market And Use Of Certain Dangerous Substances, Preparations And Articles”), Entry # 50.

³ The ban concerns tyres produced as from 1 January 2010 intended for all vehicles (as specified in the law), from those for motorcycles and passenger cars to the largest truck, bus, agricultural and earthmover tyres.

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No, PAHs are not directly added to the tyre or the rubber compounds that make a tyre, but some of the extender oils purchased for tyre production contain traces of PAHs. It is therefore an unintended by-product carried into the tyre from the use of certain extender oils.

So why are some PAHs a problem?

PAHs are naturally present in the air, water and ground. PAHs are also present in aromatic oils produced by oil refining, and thus also end up as an unintended consequence in tyres which use these oils during the production process. PAHs as such are not a purposeful or useful addition to tyres. Eight kinds of PAH's have been classified as carcinogenic by the EU - they can be harmful to human health in the case of chronic exposure. Emissions of PAHs coming from tyre wear particulates are minor (2%) relative to total PAH emissions in air, water and ground, according to the Opinion from the European Commission Scientific Committee on Toxicity, Ecotoxicity and the Environment (CSTEE). Much more PAH release comes from iron and steel production, forest fires, motor vehicles, home barbecues and even cigarettes. For example, one smoked cigarette releases 44 times more PAH than one tyre over its entire useful life.

Nevertheless, ETRMA's members have accepted the EU's precautionary approach and believe that their transition to use of low-PAH oils in their tyres is a responsible environmental move. They have made significant investments and technology efforts to comply with the requirements of the REACH Regulation, without compromising key tyre performances.

To whom does the legislation prohibiting these high-PAH oils apply?

The legislation applies to all tyres sold in the EU which were produced after 1 January 2010 (all tyres whose date of production code stamped on the tyre is 0110 or higher). The restriction applies equally to tyres produced within the EU and tyres imported into the EU, and covers all types of tyres (passenger, motorcycle, commercial vehicle, agricultural and earth mover tyres).

What happens to existing tyre stocks (i.e. those produced before January 1st 2010) in EU tyre distribution networks that do not adhere to this regulation?

Tyres made before 2010 (you can check the production date code on the tyre) can still be sold legally, since the ban applies to tyres manufactured from 1 January 2010 onwards. These tyres can therefore be sold out.

However, tyre stocks at the start of 2010 were at their lowest levels due to the global economic crisis of 2008-2009. Therefore, we expect that only a few tyres produced before January 2010 might still be on shelves or in warehouses in the EU waiting to be sold.

What did the test programme conducted by the ETRMA entail?

Under the first phase of ETRMA's testing campaign concluded on 18 February 2011, a sample group of **110 tyres** produced under **45 different brands** were purchased at retail outlets in 3 major EU Member States where a wide selection of tyres is normally available. As indicated on the tyres themselves, all of these tyres were produced after 1 January 2010 and hence are subject to the marketing ban on use of high-PAH oils in tyres as set out in the EU's REACH Regulation, Annex XVII, Entry 50 (extender oils with high PAH content).

All of the tyres in the sample group for testing have been analyzed according to the official test method decided by the International Standards Organisation, ISO 21461⁴, in order to check their compliance with the REACH marketing ban. Under REACH, the ban on high-PAH oil applies to all components of the tyre. Under the test procedure, the tyre tread was tested in every case. In a number of cases other components (e.g. sidewall, bead, chafer) were also tested. In total, **184 tests were conducted**.

The tyre segments tested so far include: **passenger car (65%), light truck (25%), motorcycle (5%), truck (4%) and industrial [earth mover] (1%)**.

⁴ ISO 21461:2009 provides a method for the determination of aromaticity of oil in vulcanized rubber compounds. The method is based on nuclear magnetic resonance (NMR) spectrometry.

Who conducted the tests?

The initial tests were coordinated by the ETRMA. When initial testing pointed towards non-compliance, all the samples in question were submitted to certified independent testing bodies in different Member States for cross-checking of that result. The independent testing bodies include TARRC (in the UK), HENKEL (in Germany) and CERISIE (in Italy).

Where were the tyres that were tested manufactured?

The tested tyres were produced in the main tyre production countries, both from within and outside the European Union. The marking on the tyres themselves indicated that they were produced in 16 countries (9 EU countries and 7 non-EU countries) and from a total of 92 different production plants in these countries. The countries of production are listed below.

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- | | |
|-------------------|-------------|
| • Czech Republic | • China |
| • France | • Indonesia |
| • Germany | • Japan |
| • Hungary | • Korea |
| • Italy | • Taiwan |
| • The Netherlands | • Thailand |
| • Romania | • Turkey |
| • Spain | |
| • UK | |
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Which tyres were found to be non-compliant?

It should be noted that all tyres tested from factories in EU Member States were REACH-compliant. As regards imports, the tyres tested from 6 of the total 7 non-EU origin countries were also compliant. While a number of the sample group tyres produced in China were REACH-compliant, all of the non-compliant tyres were produced in China, in 7 different factories.

At the same time, it is important to remember one of the key principles under REACH concerning imports: it is ultimately the importer who is responsible for compliance with the REACH rules.

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Can you tell us which tyres did not comply with the REACH market ban?

The table below gives all the pertinent details of the non-compliant tyres.

Brand Name	Made in	Country of purchase	Year/week of manufacture	Plant Code ⁵	Tyre Size	Non compliant parts of tyre
Passenger Car Tyres						
Westlake	China	Germany	2010/02	JU	175/65 R 14 82H	Tread
Zeetex (HengFeng)	China	France	2010/01	83	195/65 R 15 91V	Tread, sidewall
Hero (Federal Group)	China	UK	2010/06	2E	205/55 R 16 91W	Sidewall, chafer, bead
Kumho	China	UK	2010/10	C0	215/65 R 16 98H	Sidewall, bead, liner
Westlake	China	Germany	2010/02	7D	205/70 R 15 96H	Tread
Kumho	China	Germany	2010/20	C0	195/65 R 15 91T	Sidewall
Infinity (Linglong)	China	France	2010/18	0U	195/65 R 15 91V	Tread
Linglong	China	Belgium	2010/44	0U	245/40 ZR 18 97W	Sidewall
Fullrun	China	Belgium	2010/16	83	195/65 R 15 95H	Tread and sidewall
Gremax	China	Belgium	2010/32	UR	185/60 R 14 92H	Tread and sidewall
Light Truck Tyres						
Federal (Federal Group)	China	UK	2010/08	2E	195/70 R 15C 104/102R	Sidewall, chafer, bead
Truck Tyres						
Linglong	China	Belgium	2010/28	0U	295/80 R 22.5 152/148M	Sidewall

Does this mean all tyres produced by these brands in China are non-compliant?

No, not necessarily. We have noted, however, that tyres of the same brand produced in two different factories in China have been found to be non-compliant. This may or may not be indicative that yet other plants owned by this particular brand have similarly not transitioned to use of the mandatory low-PAH oils for the EU market. Only further testing would confirm this.

Does that mean that all tyres imported from China are non-compliant?

No, the test found that many Chinese products were compliant to the ban. This means that the Chinese industry is able to cope with the regulation. It is a pity to see that some importers decided to import non-compliant products into Europe.

Have you informed the authorities about these results, and will they be telling the public which illegal tyres are currently on the market?

Yes, we have sent our results to the national authorities responsible for REACH enforcement. You will have to ask them if they intend to further publicise our results and to take follow-up enforcement action.

11% doesn't seem that high. Is there really cause for concern?

The fact that 11% of the tyres tested are illegal should be shocking news to drivers, also to the national authorities. We also believe that 11% may be the tip of the iceberg because:

- The growth of tyre imports from China is very strong, with a yearly 30% growth. Imports for car and light truck are forecasted to reach 40,0 mio tyres for 2010, or more;
- Some of the illegal tyres tested were manufactured as recently as October 2010 – showing that volume production with high-PAH oils is still occurring
- Importers that may be tempted to bring in illegal tyres, and manufacturers of tyres that are illegal in the EU but thinking of trying to sell them anyway, may be waiting to see the level of enforcement before deciding to sell them off for the EU or not;
- ETRMA's first phase of testing focused on tyres from the major producing countries. Tyre producers in other countries on the fringes of the EU, where average incomes are lower and which we know to be markets where lower-priced products are more tempting, may be tempted to also sell these tyres into the EU market as well.

⁵ The plant codes are assigned by the US NHTSA and can be found at <http://www.nhtsa.gov/cars/rules/manufacture/index.html>

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To draw a comparison: ETRMA is certain that if ECHA found that 11% of substances that were supposed to be registered with appropriate data on safety under REACH last November were not, in fact, registered and illegal production/import of these substances was now occurring, there would be major remedial activities taken by ECHA and the national enforcement authorities. ETRMA believes that non-compliance with another key element of REACH, regarding substances that have already been found to be dangerous and which are expressly prohibited in certain uses (Annex XVII), is just as important and deserves effective enforcement action.

How can consumers tell if a tyre they plan to buy contains illegal high-PAH oils?

They cannot, and this is why we are asking that proper surveillance methods be established and used by the authorities. Tyre importers and wholesalers have the same responsibility as the manufacturer to sell only REACH-compliant tyres. As key actors in the supply chain, they have the right and obligation to demand and obtain confirmation that the tyres they have ordered from outside or inside the EU are perfectly compliant with REACH Regulation. Distributors of tyres from both outside or inside the EU should ask such confirmation from their tyre suppliers.

Which tyre sellers are to blame for this? Will you be revealing which shops or garages are selling illegal tyres?

ETRMA of course has a record of where all tyres in the sample testing group were purchased, and all relevant information will be provided to the national authorities. It is their responsibility to contact the shops in question and determine the appropriate corrective action.

Are shops or garage owners complicit in the illegal trade?

Not necessarily. Shops or garages offering tyres to consumers may also be victims in this.

Who then, is responsible for the compliance of imported tyres with the regulation?

According to the REACH Regulation, the importer is legally responsible for compliance. There may, additionally, be local laws applicable.

Is there a danger to consumer health and safety in the fact that they may be driving on tyres with excess levels of dangerous PAHs?

Industry current understanding of the science is that there is no direct threat to consumer health or safety, should their vehicles be equipped with such non-compliant tyres. What is clear, however, is that these tyres are illegal on the EU market due to safety concerns determined by the EU health and safety authorities, and thus cannot lawfully be sold. Whether or not these particular tyres further comply or not with other essential EU regulations on tyre safety has not been checked in these ETRMA tests. Moreover, allowing non-compliant tyres to enter the EU market not only undermines the credibility of the EU's legislation, it also increases the risk of consumers being misled and potentially unsafe tyres being passed off as equal to others.

Why is it so important that this legislation is enforced?

Legislation without enforcement has no benefit for consumer or environmental safety and will not deter any unscrupulous market behaviour by commercial operators. We cannot hope to curtail the use of prohibited or dangerous chemicals and move toward a greener and safer environment if all parties – tyre manufacturers, importers and distributors alike – do not adhere to the legislation.

If some manufacturers and importers are allowed to flagrantly ignore the current legislation, they may also choose not to adhere to important upcoming regulations, such as the new tyre labelling regulations which are due to come into effect in 2012. Allowing non-compliant tyres to enter European markets not only undermines the credibility of the EU's legislation, it also increases the risk of consumers being misled and inferior or illegal tyres being passed off as equal to others.

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What action needs to be taken to ensure compliance to these and upcoming regulations, in the view of the ETRMA?

The ETRMA and its members fully support the current and upcoming EU regulations governing the tyre industry. As such, ETRMA members have already invested more than €100 million to ensure they conform to the current legislation which expressly prohibits the use of high-PAH extender oils in their tyre production.

The ETRMA requests urgent attention to be given to the creation of a clear, coherent and coordinated market surveillance program, which can help ensure that all tyres placed on the European market today are indeed compliant with the Union's health, safety and environmental regulations. Only through the implementation of a coordinated, effective market surveillance program and through a strong collaboration between all parties concerned – national authorities, producers, the supply chain and final consumers – can we hope to create a safer, greener society and ensure that the tyres on our vehicles are not compromised.

Concretely, the ETRMA therefore

- **calls on the EU and national authorities to intensify and broaden their own testing and enforcement activities**
- **urges Member State authorities to impose swift and dissuasive sanctions on those who do not comply with the EU law**
- **urges tyre distributors, importers and the retail industry to request confirmation from their suppliers that their tyres are fully compliant with the REACH regulation.**

Who do I contact if I have further questions regarding the test programme?

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Q&A – to accompany ETRMA publication of its second round PAH testing results - *update November 3, 2011*

1. In the second round testing, which tyres were found to be non-compliant?

ETRMA dossier number	Brand Name	Made in	Country of purchase	Year/week of manufacture	Plant Code ¹	E-Number	Tyre Size	Non compliant parts of tyre
Passenger Car Tyres								
111	Linglong	China	Italy	2010/34	0U	E4 0230192, 010608 S	165/70 R14 81T	SIDEWALL
136	Linglong	China	Germany	2011/15	0U	E4 0238424, e4 0248768-S; M+S	195/60R15 88H	TREAD
160	Fullway	China	Italy	2010/47	83	E4 0241090 - 010591S	205/65R15 94V	TREAD
204	Fullrun	China	Germany	2010/40	83	E4 0241078, e4 010955-S	175/65R14 86T	TREAD, SIDEWALL
Truck								
140	Torque	China	UK	2011/16	83	E4 0022866, e4 011649-S	295/80R22.5	TREAD, SIDEWALL
178	Chengshan	China	Germany	2011/4	4Y	E4: 0017544, 011575-S	385/65 R 22.5	SIDEWALL
179	Boto	China	Germany	2011/20	80	E4: 0016617, 011266-S	385/65 R 22.5	SIDEWALL
182	Austone	China	Germany	2010/51	4Y	E4: 0017544, 011575-S	385/65 R 22.5	TREAD, SIDEWALL
Motorcycle								
113	Golden Tyre	THAILAND	Germany	2010/31	1S	n.a.	3,75-19	SIDEWALL, BEAD FILLER

2. Where were the tyres that were tested in the second round manufactured?

In total, 94 tyres from 9 different countries were purchased at EU retail outlets and tested. Most of these tyres tested in the 2nd round were from Asia (China, Taiwan, India, Thailand, Sri Lanka, Korea, Japan, etc.), but we also tested tyres produced in Turkey, Russia and Portugal. One objective in this second round was to extend the testing scope beyond both the brands and countries tested in the first round, in order to have a better overall picture of compliance.

3. What are results from the two campaigns?

	1 st Round September 2010 February 2011	2 nd Round April 2011 September 2011	Total September 2010 September 2011
Tyres	110	94	204
Brands tested	45	51	75
Number of Tests	185	154	339
Manufacturing Countries	16	11	20 (EU -10)
Production Plants	83 plants located on 20 countries		

	1 st Round			2 nd Round		
	Total	Non-compliant	Share of Non-compliant	Total	Non-compliant	Share of Non-compliant
Tested tyres	110	12	10.9%	94	9	10%
SEGMENT	Passenger Car	72 (65%)	10	53 (56%)	4	
	Light Truck	28 (25%)	1	1 (1%)	0	
	Motorcycle	5 (5%)	0	2 (2%)	1	
	Truck	4 (4%)	1	11 (12%)	4	
	Earth Mover	1 (1%)	0	0 (0%)	0	
	Agricultural	0 (0%)	0	15 (16%)	0	
	Industrial	0 (0%)	0	12 (13%)	0	

4. What are the main conclusions from the second round testing?

- New segments (truck and AGRO/INDU)

- New countries of production(4)
- new brands (31)
- More recent production tyres (late 2010 + 2011)
- Some brands (Linglong, Fullrun) found non-compliant in the 2 rounds
- 11 Truck Tyres tested – 4 found non compliant
- Plants « 0U » and « 83 »
 - 83= Shandong Hengfeng Rubber and Plastic Co. and is located in Guangrao Country, Shandong, China (all tyres tested non-compliant)
 - 0U = SHANDONG LINGLONG TYRE CO., LTD , (brands INFINITY and LINGLONG), operates with multiple oils (tyres tested compliant and non-compliant)

5. Except 1 tyre from Thailand, all the non compliant tyres are once again from China. What does it mean?

ETRMA is concerned that non-compliant tyres are being sold to consumers in Europe. It is of little importance if these tyres come from one country or from several. What is important is that the Member State authorities effectively survey the market and impose sanctions against any product that doesn't comply with the EU regulations, in order to ensure a level playing field for all tyre makers wherever they are located.

6. Should future enforcement activities focus only on products manufactured in and imported from China?

Enforcement activities should cover all tyres being sold on the EU market. However, it is clear that any enforcement strategy, especially where enforcement resources are finite, can benefit from reliable information in the public domain about potentially non-compliant products. ETRMA has thus made sure that its testing campaign is both broad and technically reliable, to be useful to the competent authorities. It is then for the authorities to carry out their enforcement responsibilities.

7. It seems that all tyres tested from plant “83” in both rounds were found not-compliant.

Which actions should be envisaged? Focus on imported tyres produced in this specific plant? Over the two rounds of testing, a total of 5 tyres, under 4 different brand names and in both passenger car and heavy truck categories, were tested from this factory “83”. We understand that this factory, owned by Shandong Hengfeng Rubber and Plastic Co., is located in Guangrao County, Shandong, China. While these results cannot be conclusive regarding all tyres produced at this factory, it would appear from our samples that high PAH extender oil is still being used for production at this factory and thus most if not all of the production at this factory is likely non-compliant with the EU’s PAH rules. As indicated on the tyres themselves, they were produced in 2010 and 2011 and therefore fully subject to the EU regulations if sold within the EU.

8. Did the second round of testing include any ETRMA member tyres? / If compliance was verified in the first round for ETRMA members’ passenger car tyres, why did you assume their tyres in segments new covered by the second round (agricultural and industrial) are in compliance without being tested?

We have a limited amount of resources for this market surveillance project and, more importantly, we have also expressly confirmed that all ETRMA members are producing at all their sites with the safe, low-PAH extender oils required by the REACH Regulation. For this second round of testing, we therefore decided to concentrate our resources on extending the category, brand and country scope of testing to ensure a broad compliance perspective for the benefit of consumers and the national authorities.

9. What criteria were used to choose the tyres for the second round of testing (brand, origin, segment...)? How did the first round results impact the second round testing?

In this second round, we attempted to include tyres from segments that we were not able to test in the first round (agricultural and industrial tyres), and to do more extensive testing in categories that had less testing in the first round, such as on truck and motorcycle tyres.

10. How is it possible that the same factory produces both compliant and non-compliant tyres?/
Can a plant re-start use of the banned extender oil?

A tyre factory can use both low and high-PAH types of oil. Tyres made with high-PAH oils that are prohibited in Europe might still be sold in other regions where these oils are still allowed. Therefore it is possible for a factory to switch back and forth between prohibited and clean oils.

11. Why didn't the ETRMA test a larger number of tyres in the 2nd round?

As explained above, we have limited resources for this surveillance plan. Given that we are sampling, however, the important fact is not the absolute number of tyres tested but rather the percentage of tyres in the sample group which are non-compliant.

12. What was the cost of this testing programme for the ETRMA members (in total for the two testing campaigns)?

The cost of tyre purchases, pre-screening testing costs and third party testing, is close to €260,000.

13. What action needs to be taken to ensure full compliance with REACH and other EU regulations intended to ensure consumer and environment safety - in the view of the ETRMA?

It is clear that compliance with the law must be assured by the national authorities. This can only be accomplished through application of enforcement activities appropriate to meet the actual challenge of illegal or unsafe products on the market and specifically by applying “effective, proportionate and dissuasive” penalties as required by REACH. Only fast and firm deterrent actions can convince unscrupulous producers that the EU will enforce all of its laws, both existing and future.

For further questions:

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