

Regulation of the State Secretary for Infrastructure and Water Management, of 12 January 2021 No. IENW / BSK-2020/125046, amending the Vehicle Regulation for the introduction of the PTI particulate filter check with particle counter.

HOOFDDIRECTIE  
BESTUURLIJKE EN  
JURIDISCHE ZAKEN

The State Secretary for Infrastructure and Water Management,

Having regard to Articles 71 and 71a of the 1994 Road Traffic Act;

DECISION:

**Article I**

The Vehicle Regulation is amended as follows:

**A**

Article 5.2.11 is amended as follows:

1. In the eighth paragraph, the phrase "Paragraphs 8 to 10: visual inspection." replaced by "Visual inspection."
2. Ninth and tenth paragraphs shall be replaced by a new ninth paragraph, renumbering eleventh and twelfth paragraphs to tenth and eleventh paragraphs:

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|--|-----------------|
| 9. For passenger cars with a combustion engine with compression ignition of which: <ul style="list-style-type: none"><li>- the type 1 particulate mass stated in the vehicle registration register is less than or equal to 0.005 g/km and 5 mg/km, respectively, or</li><li>- the environmental classification stated in the vehicle registration register or on the registration certificate is equal to or greater than Euro 6 or Euro VI, or</li><li>- the vehicle registration register states that a particulate filter has been established,</li></ul> the diesel particulate filter must be present and not clearly defective. | Visual control. |
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3. In the eleventh paragraph (new), the phrase "in the ninth and tenth rows" is replaced by "in the ninth paragraph".

4. In the eleventh paragraph (new), the phrase "This requirement will not be tested during the general periodic inspection for the purpose of issuing an inspection report." is replaced by "-".

5. After paragraph 11 (new), a new paragraph 12 is added, reading:

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| 12. The obligations, referred to in the seventh and tenth paragraphs, do not apply to passenger cars with a combustion engine with compression ignition and a particulate filter, as referred to in the ninth paragraph. | - |
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**B**

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IENW/BSK-2019/\*

Article 5.3.11 is amended as follows:

1. In the eighth paragraph, the phrase "Paragraphs 8 to 10: visual inspection." replaced by "Visual inspection."
2. Ninth and tenth paragraphs shall be replaced by a new ninth paragraph, renumbering eleventh and twelfth paragraphs to tenth and eleventh paragraphs:

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| 9. | On commercial cars with a combustion engine with compression ignition of which: <ul style="list-style-type: none"><li>- the type 1 particulate mass stated in the vehicle registration register is less than or equal to 0.005 g/km and 5 mg/km, respectively, or</li><li>- the environmental classification stated in the vehicle registration register or on the registration certificate is equal to or greater than Euro 6 or Euro VI, or</li><li>- the vehicle registration register states that a particulate filter has been established,</li></ul> the diesel particulate filter must be present and not clearly defective. | Visual control. |
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3. In the eleventh paragraph (new), the phrase "in the ninth and tenth rows" is replaced by "in the ninth paragraph".

4. In the eleventh paragraph (new), the phrase "This requirement will not be tested during the general periodic inspection for the purpose of issuing an inspection report." is replaced by "-".

5. After paragraph 11 (new), a new paragraph 12 is added, reading:

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| 12. | The obligations, referred to in the seventh and tenth paragraphs, do not apply to commercial cars with a combustion engine with compression ignition and a particulate filter, as referred to in the ninth paragraph. | - |
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**C**

Article 5.3a.11 is amended as follows:

1. In the eighth paragraph, the phrase "Paragraphs 8 to 10: visual inspection." replaced by "Visual inspection."

2. The ninth paragraph is replaced by the following:

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| 9. | On busses with a combustion engine with compression ignition of which: <ul style="list-style-type: none"><li>- the environmental classification stated in the vehicle registration register or on the registration certificate is equal to or greater than Euro 6 or Euro VI, or</li><li>- the vehicle registration register states that a particulate filter has been established,</li></ul> the diesel particulate filter must be present and not clearly defective. | Visual control. |
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3. In the eleventh paragraph, the phrase "the ninth row" is replaced by "the ninth paragraph".

4. In the eleventh paragraph, the phrase "This requirement will not be tested during the general periodic inspection for the purpose of issuing an inspection report." is replaced by "-".

5. After paragraph 11, a new paragraph 12 is added, reading:

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12. The obligations, referred to in the seventh and tenth paragraphs, do not apply to busses with a combustion engine with compression ignition and a particulate filter, as referred to in the ninth paragraph. -
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#### **D**

Article 6.10 is amended as follows:

1. After the third paragraph, a paragraph is added, reading:

3a The requirement for the Euro 5 particulate matter standard included in Annex IV, referred to in Annex I of Regulation (EC) 715/2007 and the requirement for the Euro 6 particulate matter standard, referred to in Annex I of Regulation (EC) 595/2009, apply in case of amendment of an emission control system as referred to in the first paragraph for passenger cars, only from a date of first admission that is on or after 1 January 2017.

2. Parts a to d of the fourth paragraph are replaced by two new parts, reading:

- a. it concerns a passenger car that was taken into use before 1 January 2017;
- b. it concerns a vehicle other than a passenger car, which was taken into use before 1 January 2012 and of which the particulate mass was measured in g / km, or which was taken into use before 31 December 2013 and of which the particulate mass was measured in g / kWh.

#### **E**

After Article 8.4.77 a new article is added, reading:

##### Article 8.4.78

The manual associated with the particle counter contains, in addition to the information referred to in Article 8.3.6, second paragraph:

- a. the time intervals and procedures for adjustment and maintenance that must be followed in order to ensure continuous compliance with the maximum error requirements;
- b. a description of the leak test procedure;
- c. the maximum and minimum storage temperature;
- d. a statement of the conditions of use;
- e. if applicable, the specifications of the battery

#### **F**

In Annex VIII, belonging to Chapter 5, Article 45f "Number of particles at idle speed" will read as follows:

The exhaust fumes of passenger cars, commercial vehicles and buses with a combustion engine with compression ignition and a particulate filter may not contain more particles than 1,000,000 particles per cubic centimeter at idle speed.

**G**

In Appendix VIII. Corresponding to Chapter 5, Article 45g "Method of inspection" is amended as follows:

1. In the fourth paragraph, "the exhaust system" is replaced by "an exhaust system with one particulate filter".
2. After the fourth paragraph, a paragraph is added, reading:
5. If an exhaust system contains several particulate filters, a check is carried out in the mouth of each particulate filter.

**Article II**

These regulations will enter into force on 1 July 2022, with the exception of Article I, section E, which comes into force on the day after the date of issue of the Government Gazette in which these regulations are published.

This regulation will be published in the Government Gazette with the explanatory notes.

THE STATE SECRETARY OF INFRASTRUCTURE AND WATERSTATE,

S. van Veldhoven - Van der Meer

## **EXPLANATORY STATEMENT**

### **General**

#### **1. Introduction**

This amendment to the Vehicle Regulation aims to make the particle test for the inspection of diesel particulate filters compulsory for the PTI. From 20 May 2018, diesel cars with a particulate filter fitted by the manufacturer are visually checked whether the filter is present and whether the particulate filter is not clearly defective. This change introduces a check of the operation of particulate filters with a particle counter. For diesel cars with a diesel particulate filter, the new PTI soot particle test replaces the current PTI-free acceleration smoke test and the reading of the Emission-related On-Board Diagnosis system (EOBD).

In addition, by means of this amendment, a relaxation is made of the conditions under which passenger cars are permitted to deregister the diesel particulate filter fitted by the manufacturer at the RDW. This extends the transitional arrangement for the introduction of the new PTI test for passenger cars. In addition, a relaxation is made to the standard for the number of particles per cubic centimeter that diesel cars with a particulate filter, taken into use after December 31, 2014, may contain at idle speed. Finally, an article related to the manual belonging to the particle counter is restored that has been canceled by mistake.

#### *Plan of approach for checking particulate filters*

The introduction of a diesel particulate filter test is part of the Dutch plan of approach for particulate filter control<sup>1</sup>. Elements of this plan include the visual inspection of diesel particulate filters in the PTI and the development of a test with a particle counter that can better detect removed and defective diesel particulate filters. The new PTI particle counter test for particulate filter control will be introduced from January 1, 2022. For the introduction of this new test, a large number of parties (Dutch measuring institute (NMI), manufacturers, suppliers, PTI-companies, RDW) must carry out preparatory activities. Therefore, July 1, 2022 is the earliest possible date that the new test can be introduced.

The introduction of a particle counter test for the control of particulate filters gives substance to the motion of the members Hoogland and Van Tongeren of 29 October 2015<sup>2</sup>. In this motion, the government is requested to implement as soon as possible an effective test in the PTI regarding pollutant emissions. Considerations were that there are approximately 100,000 cars without a diesel particulate filter or other environmental systems, that cars without a particulate filter emit up to 30 times more particulate matter than cars with a particulate filter and that cars with a particulate filter removed rarely or never run into the lamp.

#### *Dutch plan of approach for checking particulate filters*

The introduction of a diesel particulate filter test is part of the Dutch plan of approach for particulate filter control. Elements of this plan include the visual inspection of diesel particulate filters in the PTI and the development of a test

<sup>1</sup> Kamerstukken II, 2017/8, 31 209, Nr. 217

<sup>2</sup> Kamerstukken II 2015/16, 34300-XII nr. 29

with a particle counter that can better detect removed and defective diesel particulate filters. The new PTI particle counter test for particulate filter control will be introduced from 1 January 2022. Before the introduction of this new test, a large number of parties (Dutch measuring institute (NMI), manufacturers, suppliers, APK approval holders, RDW) must carry out preparatory activities. Therefore, January 1, 2022 is the earliest possible date for the new test to be introduced.

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The motion of the members Hoogland and Van Tongeren of 29 October 2015 has been implemented with the introduction of a particle counter test for the control of particulate filters. In this motion, the government is requested to introduce an effective test in the MOT regarding pollutant emissions as soon as possible. The motion was based on the fact that there are approximately 100,000 cars without a diesel particulate filter or other environmental systems, that cars without a particulate filter emit up to 30 times more particulate matter than cars with a particulate filter and that cars with a particulate filter that have been removed rarely or never run into the lamp.

#### *Diesel particulate filters for clean air*

Clean air for healthy lungs is vital. On January 13, 2020, the State Secretary for Infrastructure and Water Management, together with 46 municipalities and provinces, signed the Clean Air Agreement. This concerns a package of measures that makes the air in the Netherlands cleaner and healthier. Checking diesel particulate filters in the PTI is one of the most important traffic measures from the Clean Air Agreement. Due to its small size, diesel particles can penetrate deep into the lungs and even into the bloodstream, which can cause damage. The harmful effect is partly caused by the fact that carcinogens, such as Polycyclic Aromatic Hydrocarbons (PAHs), adhere to the particles. Diesel particulate filters are very effective in capturing diesel particles.

#### *Particulate filter fraud*

Particulate filter fraud is at the expense of clean air. In the case of fraud with particulate filters, the filter element is often removed from the particulate filter housing. In addition, the On Board Diagnosis (OBD) system is manipulated so that the control lamp on the dashboard does not come on. Sometimes a hole is drilled through the filter element. The hole is just so large that the OBD system does not detect the fraud committed. Another less used method is that the entire particulate filter is replaced by a piece of exhaust pipe.

Particulate filters are automatically regenerated while driving. Regenerations of the diesel particulate filter take place approximately every 500 km and take 10 to 20 minutes. Some ash is always left behind during a diesel particulate filter regeneration. To remove this, a diesel particulate filter requires maintenance every 150,000 to 200,000 km. The particulate filter is cleaned externally to remove carbon residues and ash from the filter. Another option is to replace the filter with a new filter. If many short distances are driven with a cold engine, more frequent maintenance may be required. There can also be specific technical causes for a diesel particulate filter to clog up structurally, such as problems with the turbo or diesel injectors.

Diesel particulate filters are removed to save maintenance or replacement costs. Maintenance is required when a particulate filter is too silted up and the vehicle

itself can no longer successfully regenerate the particulate filter. In that case, the filter must be disassembled and cleaned externally. A diesel particulate filter must be replaced if external cleaning of the filter is no longer possible, for example because the filter element has been damaged. In addition, it happens that with chip tuning (loading custom software), perfectly working filters are "preventively" removed.

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#### *PTI soot particle test needed for enforcement of ban*

The new PTI soot particle test is necessary for the effective enforcement of the prohibition<sup>3</sup> of the removal of soot filters. Reading the On-Board Diagnosis (OBD) system and the free acceleration smoke test are not effective to check the operation of particulate filters. For diesel passenger cars from 2011, diesel vans from 2012 and diesel trucks from 2014, a particulate filter is mandatory for admission to road traffic. In the Netherlands, diesel particulate filter may be removed for diesel cars before these dates, provided this is reported to the Dutch Road Vehicle Authority (RDW). Because no particle counter test is carried out for the PTI after deregistering the particulate filter to RDW, this can be regarded as a transitional arrangement. After reporting to RDW, diesel passenger cars and diesel delivery vans are eligible for the yearly Vehicle Tax surcharge for diesel cars without a particulate filter.

#### *Development of a new PTI test*

The new particle test has been developed in recent years by the international NPTI working group. Germany, Belgium, the Netherlands, the Swiss organization VERT, the research organization JRC of the European Commission and approximately 10 particle counter manufacturers participated in this working group. For the Netherlands, the Netherlands Vehicle Authority (RDW), the Netherlands Metrology Institute (NMI), the research organization TNO and the Ministry of Infrastructure and Water management participated. The Netherlands and VERT took the lead in this working group. In 2019, the activities of the NPTI working group ended with two documents drawn up by NMI: one document with the specifications and one document with the type approval procedure of PTI particle counters. Germany and Belgium are also in the process of introducing the new particle test. On 6 July 2015<sup>4</sup>, 3 April 2017<sup>5</sup>, 12 July 2018<sup>1</sup> and 20 February 2019<sup>6</sup>, the House of Representatives reported on the development of the new particle test.

## **2. Control of particulate filters with a particle counter**

In November 2019, an amendment to the Vehicle Regulation was published to allow control of particulate filters with a particle counter<sup>7</sup>. As a result, this test is available from 1 January 2020 for roadside inspections by the police and for inspection stations of the RDW. With this amendment to the Vehicle Regulation, the new PTI test is mandatory for diesel cars with a factory fitted particulate filter. To do this the provision in the Vehicle Regulations must be deleted that the proper functioning of the particulate filter is not tested during the general periodic inspection (PTI) for the purpose of issuing an inspection report. This provision

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<sup>3</sup> Stcrt, 2017, 39710.

<sup>4</sup> Kamerstukken II, 2014/5, 30 175, Nr. 220

<sup>5</sup> Kamerstukken II, 2016/7, 30 175, Nr. 250

<sup>6</sup> Kamerstukken II, 2018/9, 30 175, Nr. 328

<sup>7</sup> Staatscourant Nr. 63953, 22 november 2019

should be deleted three times, namely for passenger cars, commercial vehicles and buses.

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## **2,1 Implementation of the PTI test for soot particles**

### *Doing the PTI particle test*

The PTI particle test is carried out by measuring the number of soot particles in the exhaust of a diesel car with the engine running at low idle speed. The particle counter test may be performed under all engine conditions, for example, both cold and warm engine. The test begins with a 15-second period for the measurement signal to stabilize, followed by a recording time of at least 15 seconds. The recording time may be divided into several periods. If the measured value immediately increases to more than twice the rejection standard at the start of the measurement, the measuring procedure may be interrupted immediately and the test has not been passed (fast fail).

For the particle test introduced on 1 January 2020, the rejection standard is 1,000,000 particles per cubic centimeter for cars up to and including 2014 and 250,000 particles per cubic centimeter for cars as of 2015. The rejection value of 1,000,000 particles per cubic centimeter corresponds roughly to approximately 20% of the soot particles are let through. The rejection value of 250,000 particles per cubic centimeter means that approximately 5% of the particles are let through. Studies by TNO<sup>8</sup> and the European Commission<sup>9</sup> show that the requirement of 250,000 particles per cubic centimeter is a factor of three to five times less stringent than the Euro-5b standard for the particle emissions of 600,000,000,000 particles per kilometer. With this amendment regulation, the standard for cars from 2015 is relaxed.

### *European framework for the PTI*

Directive 2014/45/EU<sup>10</sup> sets the European framework for the periodic roadworthiness tests of motor vehicles. Article 6 of this Directive determines which areas the PTI covers (first paragraph), which technical items are checked and which recommended methods are used (second paragraph). Equivalent test methods apply for a number of points. According to recital 30 of the Directive, it should be possible for alternative equipment reflecting technological progress and innovation to be used, provided that an equivalent high-quality level of testing is ensured.

The recommended test method for checking diesel engine emissions is to measure the opacity of the exhaust gas during free acceleration. Instead of this smoke test, Member States can also read out the On-Board Diagnosis (OBD) system for diesel cars up to and including Euro-5 based on an equivalence assessment. There is no equivalence assessment for Euro-6. By means of this amendment to the Vehicle Regulation, measurement of the number of soot particles is prescribed as a test method for checking the emissions of diesel cars

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<sup>8</sup> TNO 2017 R10530 | 1.0

<sup>9</sup> GIECHASKIEL, B., LAHDE, T., SUAREZ-BERTOIA, R. et al. Particle number measurements in the European legislation and future JRC activities. *Combustion Engines*. 2018, 174(3), 3-16. DOI: 10.19206/CE-2018-301

<sup>10</sup> Richtlijn 2014/45/EU van het Europees parlement en de Raad van 3 april 2014 betreffende de periodieke technische controle van motorvoertuigen en aanhangwagens en tot intrekking van Richtlijn 2009/40/EG.



with a soot filter. This new test method replaces the recommended opacity measurement and the equivalent reading of the OBD system.

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The new soot particle number test ensures a higher level of control of diesel car emissions. The opacity test is not accurate enough for checking particulate filters. Modern diesel cars emit little visible smoke, even if the particulate filter is defective or removed. The dimensions of diesel particles are so small that they are not visually noticeable. However, the number of ejected particles is very large. Reading the OBD system is also ineffective for checking particulate filters. Damage to the diesel particulate filter element is not detected by the EOBD system. Furthermore, the EOBD system is often manipulated when removing the diesel particulate filter.

#### *Availability of particle counters*

Particle counters approved by the NMI must be used to check particulate filters. On the basis of the 1994 Road Traffic Act, the NMI has been designated as the inspection body for PTI measuring equipment. On behalf of the State Secretary of Infrastructure and Water Management, the NMI set up a procedure in 2019 for the certification of PTI particle counters in accordance with the requirements laid down in the Vehicle Regulations. This procedure includes the type approval test, the initial inspection and the periodic inspection of particle counters for stationary cars with an idling engine. In March 2020, the NMI was ready to issue national type-examination certificates for particle counters.

Various manufacturers worked on the development of a PTI particle counter in recent years. About five manufacturers, including one Dutch, had a prototype PTI particle counter available at the beginning of 2020. Another similar number will have a working prototype ready in the course of 2020. From March 2020, particle counters will be offered to the NMI for type approval. In October 2020, the NMI had issued two approvals for PTI particle counters. By the end of 2020 approved PTI particle counters can be ordered. The price is not be much higher than that of existing smoke meters. Manufacturers have indicated that they have a considerable production capacity available to be able to place sufficient particle counters on the market. In October 2021 it will be evaluated whether sufficient particle counters from different manufacturers are available.

## **2.2 Motion by VVD / CDA about the new PTI particle filter test**

On December 1, 2020, the motion by members Remco Dijkstra (VVD) and Postma (CDA)<sup>11</sup> about the new PTI soot filter test was passed. In this motion, the government is requested to focus for now on vehicles where a particulate filter has been deliberately removed and not to penalize the motorist acting in good faith, and to refrain from introducing (this form of) the particulate filter test and await the European introduction of the new PTI test. In order to meet this motion, the following adjustments have been made with regard to the introduction of the new PTI test:

1. Relaxation of the standard for diesel cars, introduced after December 31, 2014, from 250,000 to 1,000,000 particles per cubic centimeter. The standard of

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<sup>11</sup> Kamerstukken II, 2020/21, 32 813, nr. 612

1,000,000 particles per cubic centimeter therefore applies to all diesel cars. With a more flexible standard, the focus is less on particulate filters with a small defect.

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2. Further expansion for diesel passenger cars of the transitional arrangement to cars up to and including 2016. This is an extra two years (2015 and 2016) compared to the already intended expansion up to and including 2014 as announced in the letter<sup>12</sup> from the State Secretary of Infrastructure and the Environment to the Second Room from October 5, 2020.

3. Entry into force of the new PTI test as of July 1, 2022. This is six months later than the intended date of entry into force of January 1, 2022, as announced in the letter of October 5, 2020.

Below is an explanation of these three adjustments:

*(1) Relaxation of the rejection standard for cars from 2015*

As of January 1, 2020, the permanent requirement that the diesel particulate filter must function properly, applies to diesel cars with a diesel particulate filter fitted by the manufacturer. The proper functioning of the particulate filter is checked by measuring the number of soot particles in the exhaust with a particle counter. For diesel cars up to and including 2014, a standard of 1,000,000 particles per centimeter applies and for diesel cars from 2015 a standard of 250,000 particles per cubic centimeter applies. 1,000,000 particles per cubic centimeter means that approximately 20% of the particles are allowed through. At 250,000 particles per cubic centimeter, approximately 5% is transmitted.

In implementation of the VVD / CDA motion, the rejection standard for diesel cars from 2015 is relaxed to 1,000,000 particles per cubic centimeter. This concerns a structural relaxation, which applies to diesel passenger cars, diesel delivery vans, diesel trucks and diesel buses. With this relaxation, particulate filters with a defect between approximately 5% and 20% are considered to be functioning properly. For the park as of 1 January 2020, this concerns an estimated 15,500 fewer rejected cars compared to the 100,000 to 125,000 rejected cars as mentioned in the answer to the VVD parliamentary questions of 23 January 2020<sup>13</sup>. If the more flexible standard applies to almost all cars in the long term, there will be an order of 50,000 fewer cases of PTI rejection.

The Dutch standard of 1,000,000 particles per cubic centimeter is estimated to be six to eight times as flexible as the standard foreseen in Germany and Belgium. The standard value of 250,000 particles per cubic centimeter, which Germany and Belgium are considering, is in itself four times less flexible than the Dutch standard of 1,000,000 particles per cubic centimeter. Furthermore, Germany and Belgium are considering carrying out the particle test under heavier engine conditions than the Netherlands. More particles are formed under these heavier engine conditions. The Netherlands allows the test to be carried out under optimal engine conditions for particle emissions. As a result, the broader standard of 1,000,000 particles per cubic centimeter works out extra smoothly for the Netherlands.

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<sup>12</sup> Kamerstukken II, 2020/21, 32 813, nr. 572

<sup>13</sup> Aangangsel Handelingen II 2019/20, 1461

*(2) Further broadening of the transitional arrangement*

In the letter of October 5, 2020 to the House of Representatives, the intention was already announced to expand the transitional arrangement simultaneously with the inclusion of the new soot filter test in the PTI. The extension announced in this letter concerned passenger cars up to and including 2014. In order to implement the VVD / CDA motion, the transitional arrangement is extended by two additional years, namely 2015 and 2016. With this further expansion, an even larger group of people than now is offered the opportunity to avoid repair costs by reporting a defective or removed soot filter to the RDW. After reporting to RDW, a particle test is no longer done at the PTI, but diesel passenger cars and diesel delivery vans are eligible for the yearly Vehicle Tax surcharge for diesel cars without a particulate filter. The extension of the transitional arrangement only applies to passenger cars because costs for repair of particulate filters mainly play a role in relation to private vehicle owners.

The extension of the transitional arrangement is being implemented by adjusting the conditions under which the soot filter may be deregistered at the RDW in such a way that all diesel passenger cars that were taken into use before 1 January 2017 are covered. With the planned expansion up to and including 2014, 345,000 extra diesel passenger cars would fall under the transitional arrangement and with the further expansion up to and including 2016 this will be 540,000. Including passenger cars up to and including 2010, which were already covered by the transitional arrangement, an estimated 90 to 95% of passenger cars with a defective or removed particulate filter can invoke the transitional arrangement. Diesel passenger cars up to and including 2016 will be at least 5 years old when they go to the MOT in 2022. With the expansion, owners of passenger cars aged 5 years and older can make the decision to have the particulate filter repaired or to deregister the filter from the RDW when the new PTI test is introduced.

*(3) Effective from 1 July 2022*

As stated in the letter of 5 October 2020, the intended date for the introduction of the new PTI test was 1 January 2022. In order to accommodate the submitters of the motion, the implementation date of the new test will be 1 July 2022, so six months later than the previously intended implementation date. This delay is also due to the fact that the RDW has indicated that approximately eighteen months of preparation time is required and that entrepreneurs in the sector need clarity in time to prepare for the test. The call from the motion to await the European implementation has not been met. From Europe, the particle test for the control of particulate filters will probably not be made compulsory until around 2028. Given the urgent need for effective enforcement of removed filters, this cannot be waited for.

Finally, with the introduction of the new test for checking the particulate filter, no new European check point will be introduced, but an existing European APK point will be checked according to a better test method. The European directive allows the use of alternative equipment based on technological progress and innovations, provided that an equivalent high level of control can be guaranteed. In addition to the above three amendments in response to the motion of VVD / CDA, research will be carried out into whether the procedure for deregistering particulate filters at the RDW can be accelerated and a relaxation will be made with regard to the purchase of particle lenses by PTI recognition holders.

*Research into quick procedure for deregistering filters*

To ensure that the introduction of the new PTI test runs as smoothly as possible for drivers with a defective or removed filter, it will be investigated whether a quick procedure can be introduced for deregistering particulate filters at the RDW. This offers the possibility to do the soot filter test as a pre-check. The intended way to work is that the pre-check is done immediately after a car arrives at the PTI garage. If the pre-check is not passed, it must be possible to quickly deregister the filter from the RDW for cars for which this is permitted.

As an indication, the aim is that approximately one hour is required for processing the filter cancellation in the vehicle registration register. After quick filter deregistration, the actual PTI can then be carried out, in which case no soot filter test with particle counter is performed because the vehicle has a deregistered filter according to the vehicle registration register. The advantage of a fast procedure for deregistering the particulate filter is that a full APK does not have to be done twice, with approximately 5 working days in between for processing the deregistration. A motorist does not end up with a rejected car for a few days, which is not allowed to be driven.

*Free choice of the purchase of a particle counter by PTI garages*

The car sector in the Netherlands has asked to investigate scenarios in which garages can specialize. One scenario is that PTI garages can only inspect a diesel car with a particulate filter if a particle counter is available. A PTI garage then has the free choice to purchase a particle counter. This approach means an adjustment of the current PTI system. The PTI recognition and inspection authority Regulations must be amended as well as the ICT systems used for the PTI. When consulting the vehicle data and also when reporting the approval of a vehicle, it will automatically be checked whether the PTI garage has the correct equipment. In 2021, the necessary adjustments will be made to realize this scenario.

### **2.3 Number of defective and removed particulate filters and environmental effect**

*Number of defective and removed particulate filters*

As indicated in the answers to parliamentary questions from members of the VVD group of January 23, 2020 about the message "New test for diesel emissions"<sup>14</sup>, the proportion of diesel cars with a defective or removed particulate filter in the current fleet is not exactly known. Various samples that have been carried out with particle counters in various countries in recent years have shown that the proportion of malfunctioning particulate filters varies between 9 and 14%<sup>15</sup>. However, these samples were sometimes limited in size and not always 100% representative. Often a stricter rejection criterion was applied.

To answer the VVD parliamentary questions of January 23, 2020, 8 to 10% rejections on diesel cars with a particulate filter subject to PTI was assumed to be a realistic estimate for the current vehicle fleet. This estimate is based on a

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<sup>14</sup> Aanhangsel Handelingen II 2019/20, 1461.

<sup>15</sup> Report TNO 2020 R10006. Follow-up research into the PN limit value and the measurement method for checking particulate filters with a particle number counter.

rejection standard of 1,000,000 particles per cubic centimeter for diesel cars up to and including 2014 and 250,000 particles per cubic centimeter for diesel cars from 2015. The table below shows the number of diesel cars in the Dutch vehicle fleet on January 1, 2020. Based on 1,230,000 diesel cars with particle filters subject to PTI as of January 1, 2020<sup>16</sup> and 8 to 10% defective and removed particulate filters, it was estimated that 98,400 to 123,000 diesel cars would fail the particle test.

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Number of diesel cars 1 January 2020	Diesel passenger cars	Diesel delivery cars	Diesel trucks	Diesel busses	Total
In fleet	1.230.000	930.000	170.000	8.500	2.340.000
With filter	990.000	560.000	85.000	3.500	1.640.000
With filter subject to PTI	820.000	340.000	70.000	3.000	1.230.000
Filter removal allowed	195.000	80.000	5.000	-	280.000

To estimate the effect of broadening the standard for diesel cars from 2015 to 1,000,000 particles per cubic centimeter, a further analysis of the results of field tests conducted abroad was carried out. In particular, the large-scale measurement study that was carried out in 2019 by the Belgian organization GOCA<sup>17</sup> was examined. Based on this, the following estimate has been made for the fleet as of 1 January 2020 for the number of cars that will be rejected for the PTI, depending on the size of the particulate filter defect. For this estimate is taken into account that in the Netherlands the test may be carried out under the most optimal engine conditions, while the Belgian study did not pay specific attention to this.

<b>Particulate filter defect</b>	<b>Emission</b> [particles per cm <sup>3</sup> ]	Limit 250.000	Limit 1.000.000	Number of PTI rejections 1 January 2020
<b>No</b>	< 50.000	Approval	Approval	-
<b>Small</b> 0-5% doorlaat	50.000 - 250.000	Approval	Approval	-
<b>Larger</b> 5-20% doorlaat	250.000 - 1.000.000	Approval	Disapproval	15.500
<b>Removed (incl. very large)</b>	> 1.000.000	Disapproval	Disapproval	98.500
Total				114.000

<sup>16</sup> The table shows updated numbers compared to answers to parliamentary questions from the VVD. The numbers mentioned concern vehicles that were registered as active at the RDW on 1-1-2020, including company stock and of which an owner was also registered.

<sup>17</sup> PN study. Presentation for the VERT Forum Conference on 14th of March 2019, Dübendorf. Buekenhoudt, De Meyer & Chavatte (2019)

The table above shows that caused by the relaxation the rejection standard to 1,000,000 particles per cubic centimeter and calculated on the basis of the vehicle park as of January 1, 2020, an estimated 15,500 diesel cars with a larger soot filter defect (5-15% transmission) will be rejected less for the PTI. This is about 1.5% less rejection compared to the previously estimated percentage of 6 to 8% that applied to the combined rejection standard of 1,000,000 and 250,000 particles per cubic centimeter, respectively. By easing the standard of 1,000,000 particles per cubic centimeter for diesel cars from 2015, the estimate of 8 to 10% disapproval for the diesel vehicle park with soot filter from 1 January 2020 will thus be reduced to 6.5 to 8.5%.

In the long run, the more flexible standard of 1,000,000 particles per cubic centimeter applies to almost all cars. The aforementioned large-scale measurement study from 2019 by the Belgian organization GOCA shows for 'total' a rejection rate of 14% at a standard of 250,000 particles per cubic centimeter and a rejection rate of 9% at a standard of 1,000,000 particles per cubic centimeter<sup>18</sup>. With a difference of 14% - 9% = 5% and calculated on the basis of 1.5 million decreasing to 1 million diesel cars for which the more flexible standard will apply, the number of fewer PTI approvals in the long run is in the order of 50,000.

The table below shows an estimate for the number of diesel cars in the vehicle fleet on 1 July 2022. Due to the lower sales of new diesel cars, the total number of diesel cars will decrease in the coming years. However, the number of PTI mandatory diesel cars with soot filters will increase in the coming years. This is because 'at the rear' diesel cars without soot filter flow out, while 'at the front' only diesel cars with soot filter flow in. With the extension for passenger cars of the transitional arrangement for vehicles up to and including 2016, the soot filter can be deregistered on 1 July 2022 for a total of 740,000 diesel cars. This applies to 53% of all PTI mandatory diesel cars with soot filter. Without extension, this would have been an estimated 200,000 vehicles on 1 July 2022, or 14% of the PTI mandatory diesel cars with soot filter.

Estimate for the number of diesel vehicles 1 July 2022	Diesel passenger cars	Diesel vans	Diesel trucks	Diesel busses	Total
In vehicle park	1.073.000	903.000	166.000	7.000	2.150.000
With particulate filter	930.000	665.000	112.000	4.000	1.710.000
Subject to PTI with filter	824.000	465.000	100.000	3.000	1.390.000
Deregistration allowed	674.000	60.000	5.000	0	740.000

On 1 July 2022, 82% of diesel passenger cars with a particle filter subject to PTI will fall under the transitional arrangement. Because soot filter problems occur more often in older cars, the proportion of cars with defective or removed soot

<sup>18</sup> See sheet 7 of the presentation for the percentage of 'Total'.

filter that can make use of transitional arrangements is higher. With the extension up to and including 2016, it is estimated that by 1 July 2022, an estimated 90 to 95% of passenger cars with such problems will be able to make use of the transitional arrangement. The extent to which this actually happens depends of course on the consideration that the owners in question will make with regard to the costs.

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*Environmental impact*

The estimation of the structural environmental effect of the PTI measure is based on the assumption for the number of diesel cars with a soot filter that is expected to be part of the vehicle fleet by 1 January 2025 is assumed. This is two and half years after the intended implementation date of 1 January 2022 and approximately halfway through the depreciation period of 5 years of the particle counters to be purchased by PTI garages. The table below shows an estimate of the total number of diesel cars, the number of diesel cars with a soot filter and the number of diesel cars that are subject to PTI on 1 January 2025. Due to the declining sales of new diesel passenger cars, the total size of the diesel vehicle fleet will have decreased. However, the number of diesel cars with factory particulate filters will have increased

Assumption for the number of cars 1 January 2025	Diesel passenger cars	Diesel delivery cars	Diesel trucks	Diesel busses	Total
In fleet	980.000	930.000	176.000	6.900	2.100.000
With filter	890.000	770.000	138.000	4.300	1.800.000
With filter subject to PTI	790.000	580.000	125.000	4.000	1.500.000

To estimate of the environmental effects, a number of assumptions are made. The first assumption is that without the prospect of effective control, the proportion of defective and removed soot filters in diesel cars subject to PTI will be approximately 9% in 2025. This higher percentage is a result of the fact that diesel cars with a particulate filter subject to PTI will be older on average in 2025 than now. Older diesel cars have a greater chance of a malfunctioning particulate filter. A second assumption is that this concerns 7% removed soot filters and 2% defective soot filters. Defective soot filters allow an average of 30% of the soot particles to pass through. The table below shows that with these assumptions, the structural environmental effect of making the test with a particle counter mandatory leads to a particulate matter reduction of 121 thousand kg.

Estimate for environmental impact, reduction of particulate matter emissions per year on 1 January 2025	Diesel passenger cars	Diesel delivery cars	Diesel trucks	Diesel busses	Total
Number of PTI checks per year	790.000	580.000	125.000	4.000	
Annual mileage [km]	24.000	20.000	60.000	40.000	
Emissions without filter [g/km]	0,033	0,05	0,05	0,05	
Emissions with removed filter [kg]	0,8	1	3	2	
Emissions with defective filter [kg]	0,24	0,3	0,9	0,6	
Total emissions [thousand kg per year]	48	44	29	1	121

The estimate now made of 121 thousand kg of particulate matter reduction in 2025 is 7% lower than the previously made estimate of 130 thousand kg of particulate matter reduction. The difference is caused by the fact that the rejection standard for diesel cars will be structurally relaxed from 2015 onwards. The difference between the two estimates is relatively small, because by relaxing the standard, only cars with a small particle filter defect are rejected for the environmental effect.

Expanding the transitional arrangement will reduce the environmental impact during the early years of the new PTI test. The extent to which depends on the consideration made by the owners in question with regard to costs. The transitional arrangement will apply to 540,000 extra passenger cars. Suppose that 9% of these, i.e. 48,600 vehicles, have a defective or removed filter and that for 45,000 vehicles, the filter will be deregistered from the RDW. Assume that two ninths (10,000) are defective filters (0.24 kg particulate matter emissions per year) and seven ninths (35,000) are particulate filters removed (0.8 kg particulate matter emissions per year). With these assumptions, the environmental benefits in the transitional situation will be 30 tonnes lower per year, that is to say about 25%. The structural environmental effect remains the same. The total effect of the transitional scheme is greater than 30 tonnes less particulate matter emissions, because 200,000 vehicles would already fall under the transitional scheme without the extension. In place of the lower effect of the new PTI test as a result of the transitional arrangement, the environmental effect



of the MRB surcharge for diesel cars with a deregistered particulate filter comes instead.

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The extension of the transitional scheme has a limited effect on the allocation of emission classes for environmental zones. Euro-5 passenger cars from 2011 to 2016 will continue to be designated as emission class 5 vehicles after deregistering the particulate filter. However, residual stock Euro-4 passenger cars are also regarded as an emission class-5 vehicle after deregistering the filter. The latter, however, concerns a limited number of vehicles. It should be noted here that the characteristic emission class 5 does not in any case mean that a diesel passenger or delivery van is fitted with a soot filter. Emission class 5 (heavier) diesel (delivery) cars with a European approval according to the truck regime are usually not equipped with a particulate filter. From 2025, the emission class 5 attribute may be used for the admission of diesel passenger cars and delivery vans to environmental zones.

### **3. Reviews and administrative burdens**

#### 3.1 Implementation review by the RDW

Pursuant to Article 11 of the Regulation on the management and supervision of the Netherlands Vehicle Authority, the draft of this amendment regulation has been submitted to the Netherlands Vehicle Authority (RDW) for an implementation review. On March 29, 2018, the State Secretary for Infrastructure and Water Management asked the RDW in writing to carry out an implementation review into the possibility of introducing a particle test for the inspection of particulate filters in the PTI in 2021, to make a cost estimate and to outline the options available to implement the new PTI test. The RDW delivered this implementation review on April 30, 2020.

The conclusion of the RDW implementation review is:

*The introduction of the particle counter test as a mandatory part of the PTI is possible for the RDW and its PTI garages. In view of the current state of affairs and the development surrounding the particle counter, a longer implementation period should be adhered to, so that all starting points and preconditions can be met and the risks are sufficiently mitigated. A realistic timeframe for this is to have the implementation take place at the earliest approximately eighteen months after publication of the regulations. Now that the regulations are expected to be published in October 2020, implementation of the particle counter will in the most favorable case be possible from 1 January 2022.*

*The RDW's proposal is to have implementation take place as of May 2023. The reason for this is that in May 2023 the mandatory introduction of equipment under Directive 2014/45 will take place. Simultaneous implementation of these two components creates a total package of new requirements that the industry can take into account. Moreover, there is only one moment when changes take effect within the APK. This will reduce the burden on the recognition holders.*

In view of the expected publication date of these regulations, the Ministry of Infrastructure and Water Management asked the RDW on 7 October 2020 to indicate whether a preparation time of one year is feasible so that the new PTI

test could be introduced on 1 January 2022. In addition, it was asked to consider all the consequences of extending the transitional arrangement. In response to this, the RDW announced to the Ministry on 25 November 2020 that it would adhere to a preparation time of at least eighteen months. Another factor in this is that additional preparation time that is required for adapting the PTI system (free choice to purchase particle counter). In order to broaden the transitional arrangement, the RDW must also make additional adjustments to the ICT for deregistering particulate filters. Partly on the basis of this, the implementation date has been set at 1 July 2022.

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### 3.2 Effects of regulatory burden on citizens and businesses and advice ATR

For this amendment regulation, an assessment has been made of the regulatory burden effects for citizens and businesses as a result of the introduction of the new APK particle test for particulate filters. The starting point for this is that the costs for maintenance and repair of a car are part of the normal car costs. Maintenance of a particulate filter may consist of the particulate filter having to be cleaned externally or replacing the particulate filter with a new one. If a DPF is removed to save maintenance costs, this is considered as improper maintenance resulting in hidden damage to the vehicle. The owner of the vehicle must then incur additional costs to return the vehicle to a good state of maintenance.

#### *Costs PTI test and PTI measure*

Introduction of the new particle counter test for the inspection of particulate filters has consequences for the costs of the PTI of diesel cars with a particulate filter. For the PTI costs, on the one hand, a new test must be performed that costs time and therefore money, and for which the PTI garage must purchase a particle counter once. The first indication is that PTI particle counters will not be much more expensive than existing smoke meters. On the other hand, the current control of emissions by reading the EOBD system can be canceled. Also, the difficult to perform free acceleration smoke test, which must now be performed when emission-related error codes are found in the EOBD system, can also be canceled.

In order to estimate the administrative burden of the introduction of the PTI particle test, the aforementioned implementation review by the RDW is used. As for the estimate of the environmental impact, the date for estimating the costs is 1 January 2025, i.e. approximately halfway through the depreciation period of 5 years for the particle counters. As indicated above, it is assumed that on 1 January 2025 there will be approximately 1.5 million diesel cars with a particle filter fitted by the manufacturer for which the new test must be carried out. For an estimate of the costs, it is further assumed that all 9092 PTI garages that check diesel cars, will purchase a particle counter.

The RDW investigated options to limit the impact of a new PTI test for the inspection of particulate filters for PTI station. This also included the possibility that PTI stations who do not inspect diesel cars with a particulate filter do not have to purchase a particle counter. In this study, a trade-off was made between cost reduction on the one hand and the interests of effective and efficient supervision for the proper implementation of the PTI on the other. Partly at the request of the Dutch car sector, the scenario has been chosen in which PTI holders of diesel are given the free choice to purchase a particle counter. The

effects of this have not yet been included in the cost estimate below. Any adjustment with regard to the required possession of the required PTI measuring equipment will be implemented in the Regulations for recognition and inspection authority PTI.

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A time saving of 8 minutes is taken into account for the performance of the particle test compared to the current emission control. The time required to carry out the particle test is approximately 2 minutes and an average time of 10 minutes is assumed for the current emission control. The EOBD system must be read for the current emission control. If error codes occur or the EOBD procedure is not completed successfully, a free acceleration smoke measurement must be performed. Reading the EOBD system takes an average of 3 minutes. Full implementation of a smoke measurement including warm-up and connecting the extraction takes 20 minutes. The mentioned 10 minutes of emission control is the average for current practice. In addition to these times required for carrying out the various measurements, there is time for preparing and warming up the equipment.

**Cost:**

Investment particle counter approximately	€ 7,500
Depreciation for a period of 5 years	€ 1,500 per year
Number of PTI garages (diesel) <sup>19</sup>	9092
Depreciation costs for particle counter per year	9092 x € 1,500 = € 13,638,000
Costs of maintenance / calibration	9092 x € 500 = € 4,546,000

**Savings:**

Current method	10 minutes
New method	2 minutes
Saving in time per deregistration	8 minutes
Savings in time with 1.5 million cancellations	12.8 million minutes = 200,000 hours
Price per hour of a mechanic	€ 34
Saving in money	200,000 x € 34 = € 6,800,000

The costs of the introduction of the new PTI particle test for the inspection of particulate filters amount to € 13,638,000 + € 4,546,000 - € 6,800,000 = approximately € 11 million per year. Based on 1.5 million particle counter tests to be carried out on diesel cars, the costs for the PTI will increase by approximately € 7.60 per car.

The costs for the introduction of the new test are offset by social benefits, in particular through avoided costs for health care. Lower particulate matter emissions lead to an improvement in air quality. The external costs of particulate matter amount to € 536 per kg for traffic in highly urbanized areas and € 129 per kg for traffic in rural areas<sup>20</sup>. Assuming 10% highly urbanized traffic and 90% rural traffic, the weighted average is € 170 per kg. As indicated above, it is

<sup>19</sup> This is the total number of APK companies diesel. As a result of the free choice to purchase a particle counter, the number of companies that will invest in a particle counter is probably lower. This has not yet been taken into account in this cost estimate.

<sup>20</sup> Handboek Milieuprijzen 2017. Methodische onderbouwing van kengetallen gebruikt voor waardering van emissies en milieu-impacts. CE Delft, juli 2017. Publicatienr.: 17.7A76.64.

estimated that the structural environmental effect is a reduction in particulate matter emissions of 130 thousand kg. The social benefits from cleaner air thus amount to € 170 x 130,000 = € 22 million. The social benefits from cleaner air are thus approximately twice as high as the implementation costs of the measure.

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A draft version of this draft regulation was sent to the Advisory Board on Regulatory Burden (ATR) on 28 May 2020 with a request for an initial response. On 29 September, the final version of the draft regulations was submitted to the ATR for final review. On 5 October 2020, the Ministry of Infrastructure and Water Management submitted the final draft version of the draft regulations<sup>21</sup> to ATR for advice. ATR has assessed the proposed regulations on (1) usefulness and necessity, (2) less burdensome alternatives, (3) workability and (4) consequences for the regulatory burden. In the advice issued on 4 November 2020<sup>22</sup>, the Commission concludes that the usefulness and necessity are substantiated and that it sees no possibility for less burdensome alternatives. With regard to workability, the Commission advises to discuss in more detail the concurrence of the intended entry into force with the entry into force of relevant European regulations regarding APK obligations. The final judgment of ATR is that the regulation can be established after taking this advice point into account.

The following should be noted with regard to this advice point regarding the concurrence with the entry into force of European PTI regulations. In the implementation test, the RDW proposes to introduce the new PTI test as of May 2023, simultaneously with the mandatory introduction of new equipment under Directive 2014/45. Simultaneous implementation creates a total package of new requirements that the industry can take into account. The date of May 2023 stems from the transitional provision of Directive 2014/45 that Member States may, for a maximum period of five years after 20 May 2018, allow the use of monitoring facilities and equipment that do not meet the minimum requirements laid down in this Directive. The new requirements, which will take effect in May 2023, relate to the test bench for checking wheel play on trucks.

This proposal from the RDW has not been followed up. This is based on the desire to start the new APK test for the inspection of particulate filters as soon as possible. Furthermore, the resulting concurrence would have a limited scope due to simultaneous introduction. In principle, the new APK test for the inspection of particulate filters will apply to all approximately 9,000 APK companies that inspect diesel cars. The number of MOT companies for trucks that do not yet meet the new requirements for the backlash tester, on the other hand, is only 150 to 200. The simultaneous introduction would also place these 150 to 200 MOT companies at double investment costs. This can be seen as an argument for not doing it simultaneously.

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<sup>21</sup> Version that has been made public through the internet consultation.

<sup>22</sup> <https://www.atr-regeldruk.nl/wp-content/uploads/2020/11/20-U143-Min-IenW-Reg-voertuigen-ivm-invoering-APK-roetfiltercontrole-met-deeltjesteller-w.g.pdf>

#### 4. Consultation and advice

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##### 4.1 Advice and pre-consultation SO-APK.

On 21 January 2020, the Minister of Infrastructure and Water Management requested a written advice from the PTI Consultative Body (SO-APK) regarding the intended introduction of the soot particle test for the inspection of soot filters of diesel vehicles in the PTI. Participants in the SO APK are all parties directly involved in the PTI: The Royal Dutch Touring Club ANWB, RAI Association , BOVAG association of Automobile Companies BOVAG, Transport and Logistics Netherlands (TLN), PTI garages, etc. On April 6, 2020, the SO APK issued its advice.

This advice reads:

*In principle, the SO-APK is positive about the introduction of a particle test in the PTI. The most important consideration is the major effect that the particulate filter has on the quality of the emissions. Research by TNO shows that one vehicle with a malfunctioning or removed particulate filter emits more particulate matter than 25 to 100 vehicles with a properly functioning filter. The SO-APK makes a number of important comments with regard to, among other things, the investment costs, the delivery and use of the particle counter and the communication regarding the introduction of the new PTI test.*

*According to the SO-APK, it is not realistic that the new PTI particle counter test will still be introduced in 2021. Introduction as of 01-01-2022 seems the earliest feasible possibility. Conditions for this are that the regulations will be realized in the third quarter of 2020 and that several type-approved particle counters will be available and deliverable in January 2021. The SO-APK is of the opinion that the implementation date can best be determined after the height of the corona crisis. The SO-APK recommends that an evaluation be carried out 3 years after the introduction of the particle counter.*

A draft version of this amendment regulation was submitted for pre-consultation on 26 May 2020 to the PTI Consultative Body (SO-APK). In response to this, the SO-APK requested clarification with regard to (1) the (joint) use / possession of particle counters by APK recognition holders, (2) the number of cars for which the new APK test must be performed and (3) the times required for performing the various measurements. As a result of this, a new analysis / estimate has been made of the numbers of cars as of January 1, 2020 and January 1, 2025 respectively, and the RDW has once again looked closely at the time needed to perform the various measurements. The insights from this have been incorporated into the estimate of the environmental impact (see section 2) and the costs of introducing the new APK test (see section 3.2). In addition, the explanation of this amendment regulation has been supplemented on these points.

##### 4.2 Internal consultation

Because this amendment regulation entails changes in the rights and obligations of citizens, companies and institutions, a consultation was conducted via the

internet. With the sending of the letter<sup>23</sup> about Sustainable Mobility to the House of Representatives, the internet consultation started on October 5, 2020. In this letter, the State Secretary of Infrastructure and Water Management states that she intends to offer a larger group of people the opportunity to avoid costs for repairing their vehicle at the same time as the MOT test is taken soot filter to the RDW. The point regarding broadening the transitional arrangement has therefore been included as a question in the consultation.

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The consultation resulted in 12 responses. Most responses are critical. Opponents argue for a postponement. Mainly the high costs, which have to be recouped with a decreasing number of diesel cars, are mentioned. Some reactions are positive. Three SO-APK members indicated in the consultation that they did not see any expansion in the transitional arrangement. In the follow-up pre-consultation, which was held prior to the internet consultation, the SO-APK had already come up with this response. One person who responded to the internet consultation indicated that he was in favor of broadening. Regarding the investment costs, one SO-APK member specifically points in the response to the free choice of APK companies diesel for the purchase of a particle counter. As stated above, this will be followed up in 2021.

## 5. Notification

The draft of an earlier amendment to the Vehicle Regulations to enable the checking of particulate filters with a particle counter was submitted to the European Commission on 8 July 2019 in order to comply with the provisions of Article 5, first paragraph, of Directive (EU) 2015 / 1535 of the European Parliament and of the Council of 9 September 2015 regarding an information procedure in the field of technical regulations and rules relating to information society services (OJ 2015, L 241; notification number 2017/0351 / NL).

Pursuant to Article 6 (1) of the aforementioned Directive, a standstill period of three months was subsequently observed, which period ended on 9 October 2019. No responses were received within this period. The amendment regulation to make the particle test possible was hereafter signed by the Minister for Environment and Housing on November 21, 2019 (no. IENW / BSK-2019/202498) and published in the Government Gazette on November 22, 2019 (No. 63953, November 22, 2019).

With this amendment to the Vehicle Regulations, the rejection standard for diesel cars will be expanded from 2015 to 1,000,000 particles per cubic centimeter. Furthermore, no changes will occur with regard to the permanent vehicle requirement that the particulate filter of diesel cars with a particulate filter fitted by the manufacturer must work properly. This change regulation only ensures that a test will be carried out during the APK whether the existing permanent requirement with regard to the proper functioning of the factory particulate filter is met. The permanent requirement itself will not be modified, nor will the scope be extended or limited. Since the technical vehicle requirement itself does not change, there is no reason to notify again.

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<sup>23</sup> Kamerstukken II, 2020/21, 32 813, Nr. 572

## Article-by-article explanation

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### Article I.

#### Part A.

In Article 5.2.11 the ninth and tenth paragraphs are combined into a new ninth paragraph that concerns the visual inspection of particulate filters. The criteria for visual inspection of the old ninth and tenth member are hereby adopted for the new ninth member. Due to the disappearance of the tenth member, the eleventh and twelfth member must be renumbered as the tenth and eleventh member. With the merger of the ninth and tenth paragraphs, a simplification of the regulations is implemented. In Article 5.2.11 only one paragraph now relates to the requirement regarding the presence and the unclear defect of the particulate filter. A further adjustment is that for the ninth paragraph of article 5.2.11 it is separately stipulated that a visual inspection applies to the method of inspection. This is no longer determined for the ninth paragraph in the eighth paragraph.

The particle mass type 1 is the value as measured on the dynamometer in the European type test of passenger cars and delivery vans and where the emissions are expressed in grams per kilometer and since Euro-5 in milligrams per kilometer. A new element for the ninth paragraph is that the PTI particle filter check must also be carried out on vehicles that have been determined to be fitted with a particulate filter. This concerns diesel cars for which, as part of the rebuttal scheme for the MRB road tax soot surcharge, it is established at an RDW inspection station that the vehicle is fitted with a soot filter. Vehicle owners can have this inspection carried out on diesel cars from before 1 September 2009 for which no particulate matter value has been recorded in the vehicle registration register. Vehicles that have been determined by the RDW to be fitted with a particulate filter are no longer eligible for the MRB road tax soot surcharge.

In the eleventh paragraph (old twelfth paragraph) of article 5.2.11, under Inspection method, the passage that "This requirement is not tested during the general periodic inspection for the issuing of an inspection report" will be deleted. The shelving of this passage is the most essential part of this amendment regulation. As a result, from the date of entry into force of this amendment regulation, it must be tested during the PTI whether the requirement with regard to the proper functioning of the particulate filter has been met. This makes the soot particle test for the inspection of soot filters a mandatory part of the PTI of diesel passenger cars with a factory soot filter. By merging the ninth and tenth paragraphs of article 5.2.11, the reference to the tenth paragraph in the eleventh paragraph of article 5.2.11 will be deleted.

Finally, a new twelfth paragraph is added to Article 5.2.11, which stipulates that the obligations referred to in the seventh paragraph and tenth paragraph do not apply to passenger cars with a combustion engine with compression ignition and a soot filter, as referred to in the ninth paragraph. The requirement of the seventh paragraph relates to the amount of soot in the exhaust gases and is checked by performing a free acceleration smoke test with an opacimeter. For diesel cars with particulate filters, the particle test thus replaces this opacity test. The requirement of the tenth paragraph (old eleventh paragraph) relates to the reading of the EOBD system. With the introduction of the new particle test for

diesel particulate filter check, the EOBD system is no longer read out to check the exhaust gases.

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**Part B**

In Article 5.3.11, the same adjustments are made for commercial vehicles as in Article 5.2.11 for passenger cars. The requirement with regard to the amount of soot in the exhaust gases during free acceleration (seventh paragraph) will lapse for diesel commercial vehicles with a particulate filter. The alternative requirement regarding the successful completion of the EOBD procedure (tenth paragraph, old eleventh paragraph) will also lapse for diesel commercial vehicles with a factory particulate filter. In addition, the provision for these vehicles is deleted that during the general periodic inspection for the purpose of issuing an inspection report, the requirement regarding the proper functioning of the soot filter is not checked.

For diesel commercial vehicles with a factory particulate filter, this means that as of the date of entry into force of this amendment regulation, the EOBD system is no longer read out during the PTI to check the exhaust gases and that no more free acceleration smoke measurement is performed. Instead, a particle number test is carried out in the PTI of diesel commercial vehicles with a factory soot filter to check the soot filter.

**Part C**

In Article 5.3a.11, the same changes are made for buses as in Article 5.2.11 for passenger cars and in Article 5.3.11 for commercial vehicles. For diesel buses with a particulate filter, the requirement with regard to the amount of soot in the exhaust gases during free acceleration will be canceled (seventh paragraph). The alternative requirement regarding successful completion of the EOBD procedure (tenth paragraph) will also be dropped. For the requirement with regard to the proper functioning of the particulate filter, the passage stating that this requirement is not checked during the general periodic inspection for the issue of an inspection report is deleted. This means that the obligation to read the EOBD system and the free acceleration smoke test is no longer required for diesel buses with a factory-fitted particulate filter. Instead, for diesel buses with a factory soot filter, a soot particle number test is introduced in the PTI to check the proper functioning of the soot filter.

**Part D**

The third paragraph of Article 6.20 already stipulates that the lightest commercial vehicles (category N1, class I) after modification of the construction must meet the Euro-5 particulate matter standard of 0.005 g / km from 1 January 2012. This aligns the requirement for a change in construction with regard to an emission control system for all light commercial vehicles (category N1). Similarly, the new paragraph 3a of Article 6.20 stipulates that for passenger cars the requirements included in Annex IV of the Vehicle Regulations for modification of the construction with regard to a system for controlling emissions that require the use of a particulate filter fitted by the manufacturer entail, do not take effect until 1 January 2017. For vehicles for which the emissions are measured in grams per kilometer for the European type test, this concerns the Euro 5 particulate matter standard referred to in Annex I of Regulation (EC) 715/2007, and for vehicles where the emissions are measured in grams per kilowatt hour, the Euro 6 particulate matter standard, referred to in Annex I of Regulation (EC) 595/2009.



This provision is independent of the type-approval according to these regulations, which vehicles must comply with when first admitted on the road.

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In the fourth paragraph of article 6.10 it is determined that, in deviation from the first paragraph of article 6.1, a change in the construction whereby an emission control system has been removed from a vehicle with compression ignition may be demonstrated by means of a notification by the registration holder to the RDW. By means of this amendment regulation, the fourth paragraph of article 6.10 is amended in such a way that this manner for reporting the relevant change of the construction applies to passenger cars that were taken into use before 1 January 2017 as well as to vehicles other than a passenger car that are in use. taken before 1 January 2012 when the particulate mass is measured in grams per kilometer, or taken into use before 31 December 2013 when the particulate mass is measured in grams per kilowatt hour. On this basis, it is permitted for these vehicles to remove the particulate filter without requiring approval as referred to in Article 6.1, first paragraph.

#### **Part E.**

By means of the Regulation of the Minister of Infrastructure and Water Management, of December 15, 2020, no. IENW / BSK-2020/240562, to amend the Vehicle Regulation and several other regulations in connection with the adaptation of various permanent requirements<sup>24</sup>, user requirements and technical requirements under Article I, part AK, Article 8.4.78 has erroneously been deleted. As indicated in the article-by-article explanation, it was assumed that requirements were set in Article 8.4.78 for exhaust gas testers that only monitor the measurement of carbon monoxide. By means of the Regulation of the Minister for the Environment and Housing of 21 November 2019, no. IENW / BSK-2019/202498, to amend the Vehicle Regulation to enable the inspection of particulate filters with a particle counter and a number of other technical changes due to However<sup>25</sup>, the old Article 8.4.78 with requirements for exhaust gas testers for measuring carbon monoxide has been replaced by a new Article 8.4.78 with requirements with regard to the manual belonging to the particle counter. The latter requirements should not be allowed to lapse. With these changes, the requirements for the particle counter manual are restored.

#### **Part F.**

In Article 45f of Annex VIII, a change is made to the standard for the number of particles at idle speed. For all diesel cars with a particulate filter, the rule is that the exhaust gases at idle speed must not contain more particles than 1,000,000 particles per cubic centimeter. This means that the stricter standard of 250,000 particles per cubic centimeter that applied to vehicles put into service after December 31, 2014 will lapse.

#### **Part G.**

An adjustment is made in Article 45g of Annex VIII to ensure that in a diesel car with several soot filters, each soot filter is individually checked. With some diesel engines, especially with larger diesel engines in V-arrangement, it may happen that the exhaust system consists of two separate parts, each with its own particulate filter. In that case, both particulate filters must be checked separately.

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<sup>24</sup> Stcrt, 2020, 64644.

<sup>25</sup> Stcrt. 2019, 63953.

In order to ensure that each soot filter is checked separately in the fourth paragraph of Article 45g, the phrase "the exhaust system" has been replaced by "an exhaust system with one soot filter". This sentence will therefore read as follows: If an exhaust system with one particulate filter has more than one outlet, the check is limited to one outlet. Subsequently, a new fifth paragraph is added that reads as follows: If an exhaust system contains several particulate filters, a check is carried out in the outlet of each particulate filter. In the case of an exhaust system with one particulate filter and two exhaust outlets, a particle measurement is therefore sufficient, and with an exhaust system with two particulate filters and two exhaust outlets, a check must be carried out in the outlet of each particulate filter.

**Article II**

1 July 2022 as the date of entry into force of the new PTI test is in line with the fixed change times for ministerial regulations. Assuming that in 2021, several PTI particle counters approved by the NMI will be offered on the market, by starting the new PTI test from 1 July 2022, sufficient time will be given to PTI stations to purchase a particulate matter counter. In October 2021, it will be considered whether sufficient particle counters from multiple manufacturers are available. If this is not the case, the entry into force of this change will be determined again. Article I, part E, with the requirements with regard to the manual belonging to the particle counter comes into effect on the day after the date of publication of this amendment regulation in the Government Gazette.

THE STATE SECRETARY OF INFRASTRUCTURE AND WATER MANAGEMENT,

S. van Veldhoven – Van der Meer