

NEW

Shell
FuelSave Diesel



Dual Detergent
DYNAFLEX TECHNOLOGY

SHELL FUELSAVE DIESEL EURO 2M AND EURO 5 FREQUENT ASKED QUESTIONS

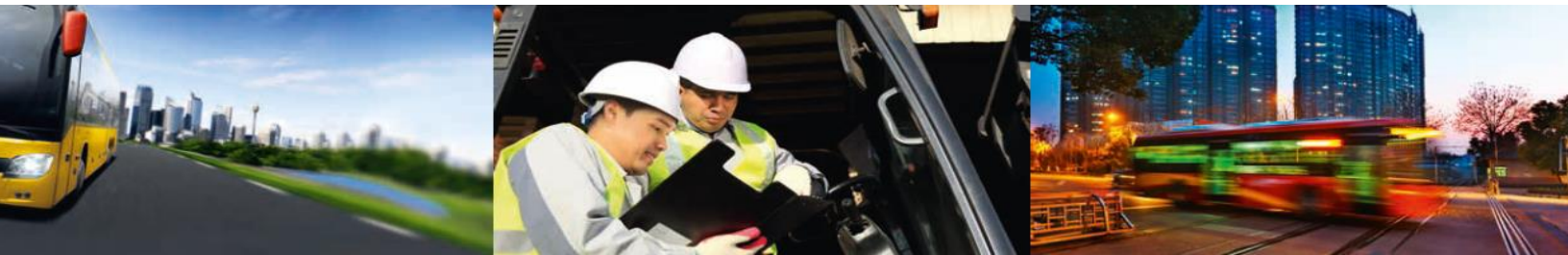
Release 13/11/2017

NOTE: FAQ below is intended for Automotive Diesel on Heavy Duty commercial diesel vehicles or equipment. For further clarification or enquiries, do contact your respective Shell Account Managers.

EURO Emission Standards and Fuels

1. Q: What is EURO Emission Standards?

A: European emission standards defines the acceptable limits for **exhaust emissions** of new vehicles sold in the European Union and European Economic Area member states. The emission standards are defined in a series of European Union directives staging the progressive introduction of increasingly stringent standards. The key component to meet EURO specific emissions is **engine technology**. For example, to meet EURO 5 emission limits, EURO 5 engines are needed. Changing the fuel alone will not change the emissions. EURO specification fuels are only required because the specific EURO engine technology employed requires a specific Sulphur content to prevent damage to advanced emissions control technologies in your vehicles and equipments.



2. **Q: What is the current specification for Malaysia with regards to Sulphur content for fuel sold in the market?**

A: At current, gazetted specification as per SIRIM's MS123:2014 E2M is 500ppm Sulphur content, which is EURO 2M compliant. It is scheduled to move to 10ppm Sulphur content by 2020 as per "Jadual Kedua [Perenggan 4(1)(b)]" below; subject to change by the Clean Air Act 2014, Department of Environment.

"JADUAL KEDUA
[Perenggan 4(1)(b)]

Piawaian Diesel Malaysia

(1) KANDUNGAN	(2) EURO 5		(3) KAEDAH UJIAN	(4) TARIKH DITETAPKAN
	MINIMUM	MAKSIMUM		
Jumlah sulfur	-	10 mg/kg	MS 1891	1 September 2020
Nombor setana atau Indeks setana	49 49	- -	MS 1895 MS 1890	1 September 2020
Ketumpatan pada 15 °C	-	845 kg/m ³	MS 1893	1 September 2021
Penyulingan pada 95 %	-	360 °C	MS 563	1 September 2021
Hidrokarbon aromatik polisiklik	-	8% jisim	EN 12916	1 September 2022

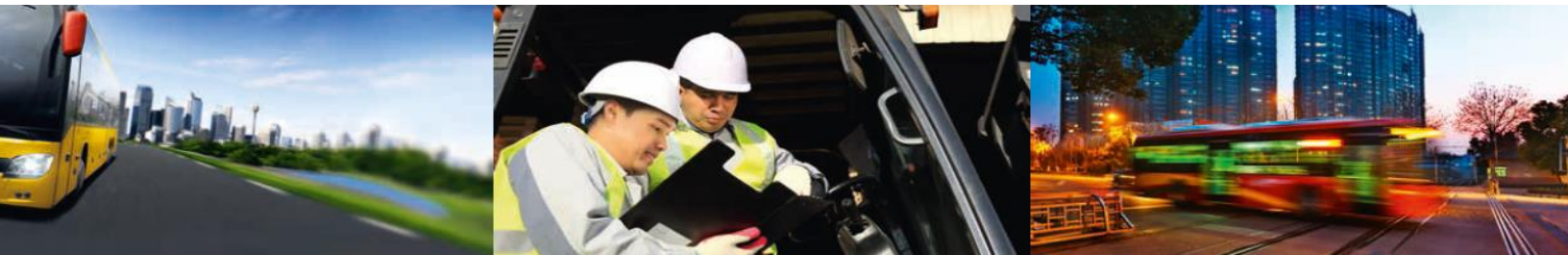
Dibuat 18 November 2015
[AS(S) 91/110/919/014 sk 05; PN(PU2)280/XVI]

3. **Q: What does EURO Emission Standards mean to diesel fuels?**

A: To achieve specific EURO Emission Standards, specific EURO engine technologies are required and usually these in turn requires **compatible fuels*** to run at its optimum performance; i.e.

- to meet EURO 2 emission specifications, EURO 2 diesel engines are needed. To prevent damage to these engines they must run on at least EURO 2 diesel fuel quality, or
- to meet EURO 5 emission specifications, EURO 5 diesel engines are needed. To prevent damage to these engines they must run on at least EURO 5 diesel fuel quality.

** The EURO number does not necessarily correspond to the fuel number. (e.g. EURO 6 engines actually require EURO 5 fuels)*



4. **Q: How do I know if I need EURO 5 diesel fuel?**

A: It is recommended that you refer to your vehicle manufacturer manual for the required grade of fuels in order to achieve optimum running conditions of your vehicles/equipment.

5. **Q: Can I use EURO 5 diesel on my EURO 2 vehicle?**

A: Yes, you may; however, unlikely to benefit from any performance improvements. The EURO specification for an engine actually pertains to emission limit, not performance! However, as engine technologies develop, newer engine technologies not only achieve better emissions, but also come with improvements in fuel economy and performance. It is therefore the type of engine that gives the extra performance, and changing to a lower Sulphur fuel will not change the performance of an EURO 2 vehicle. There is no harm in using an EURO 5 diesel fuel in a EURO 2 engine, but there will be no performance gain. We recommend that you use the vehicle manufacturer required grade; i.e. EURO 2 engine running on EURO 2M diesel fuel, or EURO 5 engine running on EURO 5 fuels.

6. **Q: Will EURO 5 diesel help me reduce carbon deposit and other fuel related maintenance issues?**

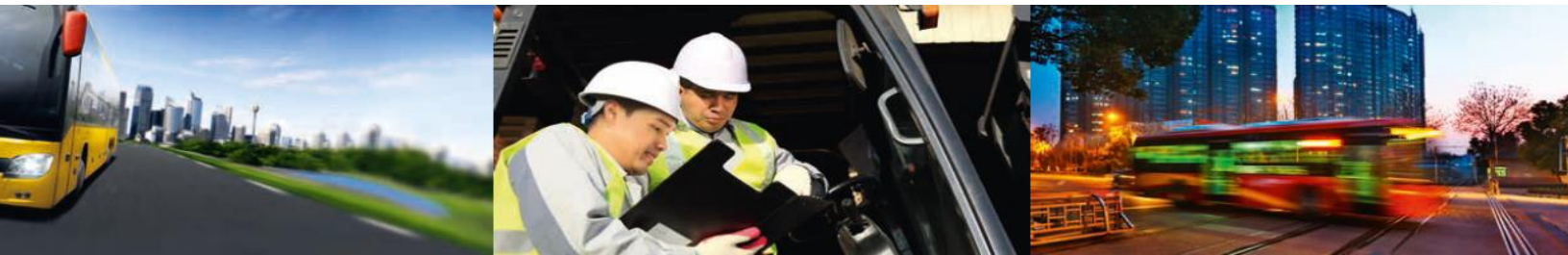
A: Performance benefits mainly come from the additive package and not the Sulphur content of fuels. Therefore, we recommend Shell FuelSave Diesel in either EURO 2M or EURO 5 grade according to your vehicle manufacturer's fuel requirement.

7. **Q: Will there be any issues using EURO 5 diesel on a EURO 2 engine?**

A: It is unlikely to be detrimental to the engine; however, you could incur higher cost of purchasing EURO 5 diesel.

8. **Q: I find that my EURO 2 engine gives better responsiveness when running on EURO 5 diesel fuel. Does this mean that EURO 5 diesel fuel is better for my engine?**

A: Better responsiveness typically comes from lower distillation of EURO 5 diesel fuel; however, changing the base fuel (essentially the Sulphur content) alone will not resolve inherent issues. To reduce carbon deposits, prevent corrosion, improve fuel stability, and reduce fuel foaming, you will need a fuel with an effective additive package such as Shell FuelSave Diesel.



9. **Q: Can I still run EURO 2M diesel fuel on EURO 5 engines?**

A: We would not recommend any lower grade of fuels than those specified by your vehicle manufacturer; as incompatible fuels could potentially be detrimental to the engine; e.g. injectors and exhaust system.

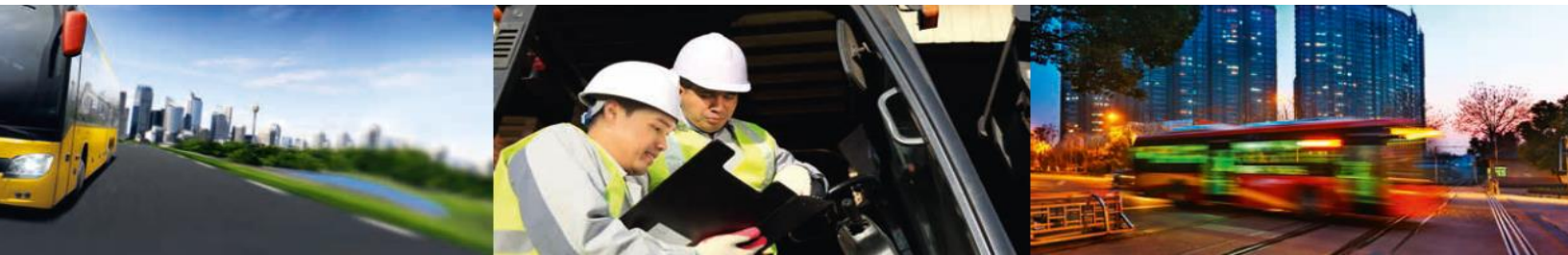
Shell FuelSave Diesel EURO 5 Product Overview

NOTE: Shell FuelSave Diesel EURO 2M and EURO 5 are fit for purpose fuels for your business. It is formulated with exclusive DYNAFLEX Technology to help you manage Total Cost of Ownership. These features and benefits are applicable to Heavy Duty commercial diesel vehicles or equipment.

1. **Q: What is the benefits of using Shell FuelSave Diesel EURO 5?**

A: Shell FuelSave Diesel EURO 5 has been formulated with exclusive DYNAFLEX Technology to deliver fuel efficiency to commercial heavy-duty operators over the lifetime of their vehicles. Its Dual Detergent technology can improve engine efficiency by preventing the deposits build up in injector nozzles¹.

- Shell FuelSave Diesel EURO 5 is designed to keep your engine clean which in turn, helps improve your engine's efficiency and saves fuel. If you use less fuel that means lower CO₂ emissions per kilometre. Preventing the build up of deposits on fuel injectors can also help to reduce exhaust emissions and black smoke². Shell FuelSave Diesel EURO 5 conforms to latest diesel fuel specifications established to control diesel vehicle emissions.
- Shell FuelSave Diesel EURO 5 also help to prevent rust in the fuel pump, lines and injectors. This, in turn, helps improve your engine's efficiency and can result in lower maintenance costs¹.
- Customer trials have shown fuel savings up to 3%. Do enquire for customer testimonials for further reference.
- Shell has always been dedicated to increase the performance of our fuels. Wide-ranging research into the needs of our regular commercial diesel customers demonstrates they are mostly looking for ways to achieve fuel savings. Shell FuelSave Diesel EURO 5 was developed by scientists at Shell's Research laboratories in the UK and Germany; laboratories that have an international reputation for their fuel research.
- Shell FuelSave Diesel EURO 5 is designed to improve heavy-duty vehicle engine efficiency by preventing the deposits build up in injector nozzles¹. Shell tests have shown that injector



deposits can affect engine efficiency leading to poorer fuel economy, higher emissions and poorer performance. This has also been recognised by leading manufacturers in the Worldwide Fuel Charter.

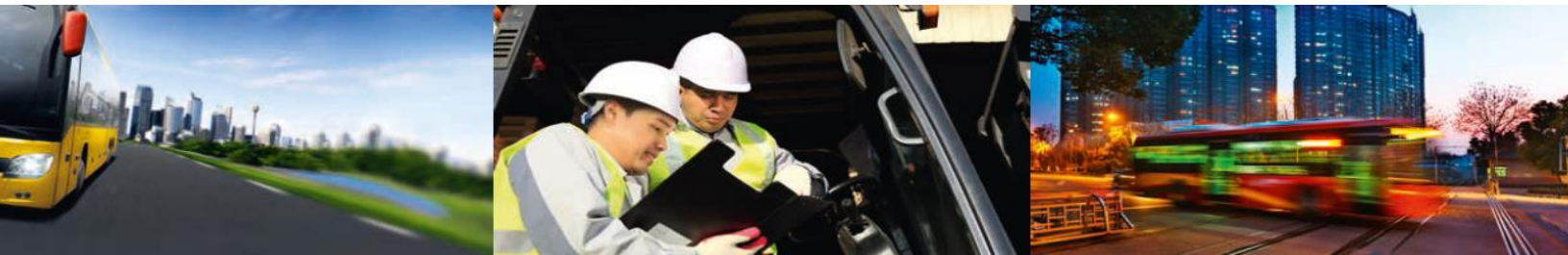
- Deposits in injector nozzles can also lead to torque loss, giving you less load-pulling power when you need it. NEW Shell FuelSave Diesel EURO 5 is designed to improve engine efficiency and retain power with higher loads³ – starting to work even after one tank.

2. Q: How does Shell FuelSave Diesel differ from other additivated diesel in the market?

A: Shell FuelSave Diesel EURO 5 has been formulated with exclusive Dual Detergent DYNAFLEX Technology². It is the diesel that meets the Worldwide Fuel Charter’s requirement of less than 2% power loss associated with injector cleanliness. The Worldwide Fuel Charter is developed by a group of engine manufacturer organizations (ACEA, Alliance, EMA, JAMA). Both Shell FuelSave Diesel EURO 2 and EURO 5 meet this requirement.

3. What benefits can I expect from using Shell FuelSave Diesel for both EURO 2M and EURO 5 grade diesel?

<p>NEW INJECTOR NOZZLES: CLEAN-UP OF DEPOSITS</p> <p>Whether your heavy-duty fleet is older or newer, carbon deposits can build up on the injectors, leading to less efficient combustion.</p>  <p>Regular Diesel</p>  <p>NEW Shell FuelSave Diesel</p> <p>NEW Shell FuelSave Diesel is formulated with exclusive dual detergent technology to help clean up the injectors from deposits and keep them clean, thus helping provide better fuel economy.</p>	<p>NEW ENGINE: MORE TORQUE</p> <p>Deposits in injector nozzles can also lead to torque loss, giving you less load-pulling power when you need it.</p>  <p>Regular Diesel</p>  <p>NEW Shell FuelSave Diesel</p> <p>NEW Shell FuelSave Diesel is designed to improve engine efficiency and retain power with higher loads³ – starting to work even after one tank.</p>	<p>NEW ENGINE AND STORAGE TANK: IMPROVED FUEL STABILITY</p> <p>NEW Shell FuelSave Diesel is designed to help improve oxidation stability and keep fuel more stable¹ in the presence of bio-components.</p>  <p>Regular Diesel</p>  <p>NEW Shell FuelSave Diesel</p> <p>It can help you use fuels with bio components and reduce risk of fuel degradation and sludge build-up.¹</p>
<p>EXHAUST: LOWER CO₂ EMISSIONS AND BLACK SMOKE</p> <p>Higher fuel consumption naturally leads to higher exhaust CO₂ emissions. Also, poor combustion can result in partially burnt fuel being emitted from the exhaust as black smoke.</p>  <p>Regular Diesel</p>  <p>NEW Shell FuelSave Diesel</p> <p>NEW Shell FuelSave Diesel is designed to help clean up the injectors from deposits and keep them clean. This helps promote more efficient combustion and in turn lower exhaust CO₂ emissions and black smoke.²</p>	<p>ENGINE AND STORAGE TANK: CORROSION PROTECTION</p> <p>Fuels are not naturally corrosive, but rust can form on metal parts when water and oxygen are present.</p>  <p>Regular Diesel</p>  <p>NEW Shell FuelSave Diesel</p> <p>NEW Shell FuelSave Diesel is designed to help prevent corrosion¹ in critical fuel system components and storage tanks by forming a protective barrier.</p>	<p>FUEL TANK: REDUCED FOAMING WHEN REFUELLING</p> <p>Diesel fuel has a natural tendency to produce foam, which takes up tank space and slows down the refuelling process.</p>  <p>Regular Diesel</p>  <p>NEW Shell FuelSave Diesel</p> <p>NEW Shell FuelSave Diesel is designed to help reduce foaming and allow a full tank refill.¹</p>



4. Whom do I contact for further enquiries?

A: Please feel free to contact your respective Shell Account Managers; or, alternatively, you may contact our Shell Customer Service Centre at details provided below:

Customer Service Centre: 1300 22 0003

Email: fuelsenquiries-my@shell.com

Fax: 1300 13 0041

Commercial Fuels Website

www.shell.com/commercialfuels

¹ Compared to our previous formulation.

² DYNAFLEX technology or DYNAFLEX formulation are our names for our latest generation of advanced formulations for gasoline and diesel fuels. See www.shell.com/commercialfuels for more information.

³ Compared to regular diesel without fuel economy formula. Actual savings may vary according to vehicle, driving conditions and driving style. Internal Shell tests and with our customers have shown a range of fuel savings depending on age of vehicle and type of operations.

SHELL COMMERCIAL FUELS
TOGETHER ANYTHING IS POSSIBLE

