

Energy and the Environment

GE SUPER MIRACLE FUEL ADDITIVE [GE ONE] ONE

An Overview



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Extreme weather caused by global warming is occurring in all parts of the world. Therefore, climate change is a global issue that must be addressed by the entire international community. The energy sector, accounting as it does for the majority of greenhouse gas emissions, must also play its part in dealing with the issue.

Adopted as an internationally agreed framework for dealing with climate change, The Paris Agreement obliges all countries mainly responsible for greenhouse gas emissions—including developing countries—to take action in their reduction. The agreement is updated every 5 years once the countries have submitted their respective reduction targets.

The Paris Agreement actually started in the year 2020, and it was in these circumstances that great attention came to be focused on the movement to achieve net zero greenhouse gas emissions.

It is in this context that we have set up our “Carbon Neutral Declaration” , an environmental program that will make GE ONE zero-emission. We provide this as both a sponsor of The Paris Agreement, as well as human beings who are in receipt of the blessings of the earth.

*Aiming Towards a
Carbon Neutral Society*



Regular

High-Octane

Diesel

GE ONE : Decarbonization and the Carbon Neutral Declaration

An engine takes fuel and converts it into power. It is crucial to consider how to create this power in an environmentally efficient way, and look at how to reduce loss in high-temperature exhaust gas while taking into account decarbonization and improved fuel efficiency.

Although technological innovations made by automobile manufacturers are improving efficiency, unburned fuel is still lost from many exhaust pipes. This ultimately results in emission loss.

One of the main reasons for this is that the hydrocarbon fuel forms clusters of molecules which makes them difficult to burn.

The fuel activator "GE ONE" acts on the fuel itself by activating and subdividing the molecular group. The reaction with oxygen hence increases, promoting combustion, and by enacting a complete combustion state, there is a reduction in unburned fuel. As a result of the impact of this effect, overall fuel loss is reduced and acceleration response is improved, leading to improved acceleration, power and fuel efficiency.

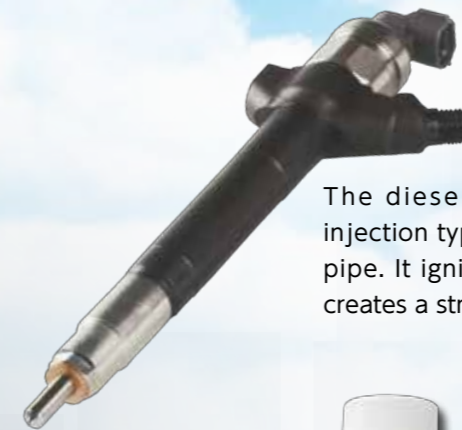
An Industry First! Change the Composition of Fuel
A Completely New Innovation A Fuel Activator

Fuel Injectors and Fuel Efficiency Mechanisms

The electronically controlled injector, a device that acts to supply fuel accurately, tends to wear out rapidly due to exposure to high levels of heat and pressure. A drop in power and diminished fuel consumption will be noticeable, and injector failure may also occur. Furthermore, since the injector is computer controlled, repair or replacement will entail the services of a specialist shop which may be costly.

Rather than injector replacement, GE ONE stimulates the restoration of function through fuel activation and cleaning.

The injector is the most important part of the engine, enabling fine-tuned fuel injection through electronic control, and supplying fuel that maximizes the efficiency of the engine. High-mileage vehicles which may see loss in power and fuel efficiency, require the composition of the fuel to be such that it can enable a state of complete combustion. GE ONE is the product which can allow this. It is a product which specializes in the internal engine while remaining true to an environmentally-friendly agenda.



The diesel injector is a direct injection type that does not have a pipe. It ignites spontaneously and creates a strong expansive force.

A gasoline injector is a device that is connected to the engine and mixes gasoline with air to efficiently supply fuel.



For business vehicles (diesel)



For ships and boats (crude oil and diesel)

The Effect of Gasoline Supplements (Activators)

The fragmentation and fusing of combustible substances present in gasoline (fuel) stimulates combustion. This is the unprecedented effect of gasoline supplements.

By stimulating the increase of driving torque of diesel and power generation engines, and allowing smooth engine shift movement, you can expect an improvement of fuel efficiency and increased power.



The mechanism for the complete combustion of hydrocarbons contained in gasoline

CO2 Exhaust Gas (PM, NOx, etc.)



Reduced environmental burden

The sight of high-fume diesel cars



High levels of fumes are caused by the incomplete combustion of the fuel injection device. Gasoline supplements will act to reduce not only CO2/NOx emissions, but also hydrogen sulfide, which causes odor.



A "Urea-SCR System" for Diesel Engines

Diesel engine vehicles emit an air pollutant called nitrogen oxide (NOx) from exhaust gas, and the movement toward stricter regulations of this is accelerating worldwide.

In Japan, too, a "Urea-SCR system" is used as a means of cleaning exhaust gas from diesel engine vehicles.

The system acts to purify nitrogen oxide (NOx) present in the exhaust gas of diesel engines by creating a chemical reaction with ammonia (NH3). This reaction breaks the nitrogen oxide down into its harmless separate components of nitrogen and water.

High-grade urea water (Ad Blue) is sprayed into the high-temperature catalyst to decompose it, and nitrogen oxides are then decomposed by the generated ammonia gas.

The "Urea-SCR system" works by purifying the exhaust gas by constantly spraying AdBlue on it. It therefore needs to be replenished regularly like fuel.



If Ad Blue is not replenished...

- Legal requirements will not be met
- The engine will not start
- Engine trouble may arise
- It will freeze when the outside temperature drops below zero

No Good!

(If Ad Blue is thawed after starting the engine, it will work normally)

When "GE ONE" is added to fuel, it has the effect of lowering the numerical value of nitrogen oxides (NOx).



CDM and J-Credit System

With the aim of achieving net zero greenhouse gas emissions by 2050, the government has put into action a plan of creating a new market where companies can trade in amounts of emissions by fiscal 2022.

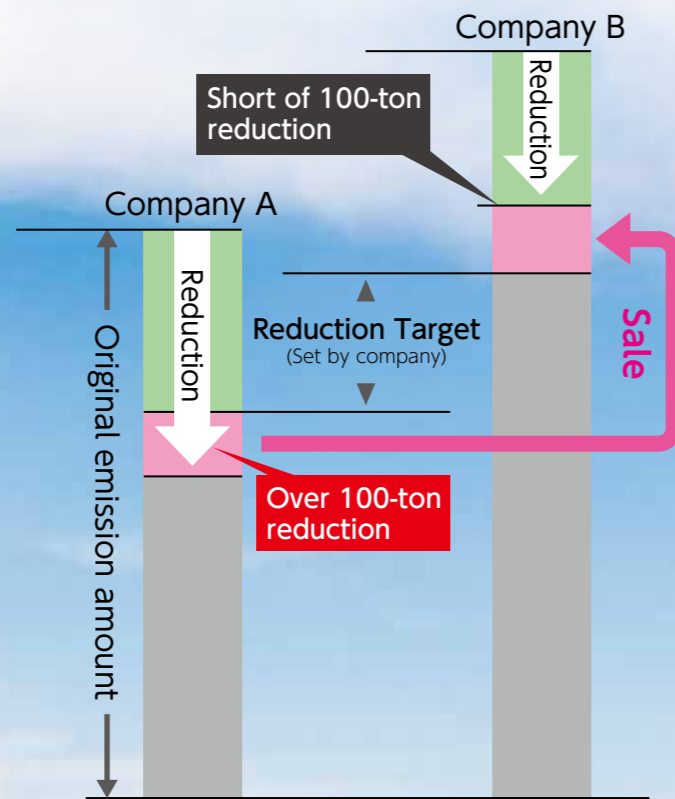
Trading markets will reward companies for their efforts to reduce greenhouse gas emissions. This will in turn provide incentives for further reductions.

In Japan, there is a system of "J-credit" that allows the government to certify the reduction amounts of companies proactive in decarbonization efforts; amounts which can then be sold on to other companies. However, in the European Union the participation of investment funds in the market has led to soaring transaction prices. In the new market in Japan, only companies that have voluntarily set CO2 reduction targets can participate in trading, and a mechanism to prevent excessive price fluctuations is under current consideration.

※Quoted and re-edited from the Yomiuri Shimbun Online (28th March, 2021)

Illustration of the inter-company CO2 emissions trading market

Government creates guidelines for targets and trading



Patent acquired for environmentally-friendly manufacturing method



GE ONE ECO CHALLENGE PROJECT



Simply by adding GE ONE you can play your part in the fight against global warming

Test Results

Certificate of registration to the database of dangerous goods

平成 28 年 10 月 11 日

危険物データベース登録確認書

危険物保安技術協会 

1 登録番号	4042-219161		
2 登録物品名	GE-ONE		
3 登録者名	株式会社GEH-JAPAN		
4 類・品名・性質	第四類 第二石油類 水溶性液体		
5 状態	6 引火点	21.8℃	

Test results after the immersion of metal test piece

証明書番号：02-CO-00264

同一試験試液に金属試験片を全て浸漬
浸漬時間 72 時間

試験片	質量変化率；質量%	試験片外観	試液外観
銅	±0.00	腐食を認めず	変化なし
はんだ	±0.00	腐食を認めず	
黄銅	±0.00	腐食を認めず	
鋼	±0.00	腐食を認めず	
鋳鉄	+0.02	少し錆が生成	
アルミニウム(H5202)	±0.00	腐食を認めず	
アルミニウム(A1050)	±0.00	腐食を認めず	

上記の通りの試験成績であることを証明する。

財団法人 新日本検定協会
中央研究所

Emission Concentration Comparison

10/15 mode emission test

◎ 10・15モード排出ガス試験

試験室内乾燥温度	24.4 °C ~ 23.8 °C	試験開始時刻	15 時 17 分	終了時刻	15 時 32 分
湿球温度	18.6 °C ~ 18.0 °C	冷却水温度	83 °C ~ 80 °C		
相対湿度	67 %	潤滑油温度	96 °C ~ 96 °C		
大気圧	101.1 kPa	シャシダイナモメータ負荷	187 N (20km/h)		
燃料消費率	13.9 km/L	相当のエンジン吸気圧	251 N (40km/h)		
NOx湿度補正係数(KH)	1.001		358 N (60km/h)		
		排気管開口部静圧差	kPa (70km/h)		

◎ 試験結果

成分	希釈排出ガス濃度 A	希釈空気濃度 B	正味濃度 A-[B×(1-1/DF)]	排出量
CO (NDIR)	1.88 ppm	0.79 ppm	1.14 ppm	0.016 g/km
HC (FID)	2.99 ppmC	2.13 ppmC	0.99 ppmC	0.006 g/km
NOx (CLD)	1.83 ppm	0.04 ppm	1.79 ppm	0.041 g/km
CO ₂ (NDIR)	0.803 %	0.039 %	0.766 %	171.0 g/km

◎ 備考 正規 無負荷回転速度 (N) 750 ± 50 min⁻¹・点火時期 15° / 750 BTDC/min

一酸化炭素等	種類	三元触媒	酸化触媒	E G R	エアポンプ	リードバルブ	O ₂ センサー
免散防止装置	構造	1	----	----	----	----	1
	製作者名	メーカー純正	----	----	----	----	メーカー純正

(注) 製作者名は、次の方法により記入すること。
① 一酸化炭素等免散防止装置の装着が原産国の自動車メーカーで行われている場合は、「メーカー純正」と記入する。
② ①以外の場合は、当該装置の製作者名の名称（略称でも良い。）を記入する。

GE ONE Mixed Value

Test Items	Existing Fuel and GE ONE Mixture (g/km) (Standard addition)	100% existing fuel (g/km)
CO	0.016	1.02
HC	0.006	0.366
NOx	0.041	0.202
CO ₂	171.0	195.0
※Figures excluding aromatic fractions	135.0	140.0

(Public) Based on data submitted by Japan Automobile Transport Technology Association

Automobile Emission Regulation Value

自動車排出ガス規制値

車種	試験モード	成分	規制年	規制値	試験モード	成分	規制年	規制値	備考
乗用車	J08モード (g/km) ※1	CO	平成17年	1.82 (1.95)	WLTC (g/km) ※4	CO	平成30年	1.93	
		NMHC	0.08 (0.08)	NMHC		0.08			
		NOx	0.08 (0.08)	NOx		0.08			
		PM※2	0.007 (0.008)	PM※2		0.005			
		CO	6.67 (4.02)	CO		4.02			
		NMHC	0.08 (0.08)	NMHC		0.10			
	軽自動車 (g/km) ※1	CO	平成19年	0.08 (0.08)	NOx	0.08			
		NMHC	0.08 (0.08)	PM※2	0.005				
		NOx	0.08 (0.08)	CO	4.02				
		PM※2	0.007 (0.008)	NMHC	0.10				
		CO	1.82 (1.15)	NOx	0.10				
		NMHC	0.08 (0.08)	PM※2	0.005				
軽自動車 (1.7t)(g/km) ※1	CO	平成17年	0.08 (0.08)	NOx	0.08				
	NMHC	0.08 (0.08)	PM※2	0.005					
	NOx	0.08 (0.08)	CO	2.55					
	PM※2	0.007 (0.008)	NMHC	0.10					
	CO	4.08 (2.55)	NOx	0.07					
	NMHC	0.08 (0.08)	PM※2	0.007					
中量車 (1.7t)(g/km) ※1	CO	平成17年	0.08 (0.08)	NOx	0.08				
	NMHC	0.08 (0.08)	PM※2	0.007					
	NOx	0.10 (0.07)	CO	2.55					
	PM※2	0.009 (0.008)	NMHC	0.10					
	CO	21.3 (16.0)	NOx	0.07					
	NMHC	0.31 (0.23)	PM						
重量車 (3.5t)(g/km) ※1	CO	平成17年	0.9 (0.7)	PM					
	NMHC	0.13 (0.10)	CO						
	NOx	0.13 (0.10)	NMHC						
	PM		NOx						
	CO	0.84 (0.83)	CO	0.83					
	NMHC	0.032 (0.024)	NMHC	0.024					
乗用車	J08モード (g/km) ※1	CO	平成21年	0.84 (0.83)	WLTC (g/km) ※4	CO	平成30年	0.83	
		NMHC	0.032 (0.024)	NMHC		0.024			
		NOx	0.11 (0.08)	NOx		0.15			
		PM	0.007 (0.008)	PM		0.005			
		CO	0.84 (0.83)	CO		0.83			
		NMHC	0.032 (0.024)	NMHC		0.024			
軽自動車 (1.7t)(g/km) ※1	J08モード (g/km) ※1	CO	平成21年 ※3	0.84 (0.83)	WLTC (g/km) ※4	CO	平成31年	0.83	
		NMHC	0.032 (0.024)	NMHC		0.024			
		NOx	0.11 (0.08)	NOx		0.15			
		PM	0.007 (0.008)	PM		0.007			
		CO	0.84 (0.83)	CO		0.83			
		NMHC	0.032 (0.024)	NMHC		0.024			
中量車 (1.7t)(g/km) ※1	J08モード (g/km) ※1	CO	平成21年 ※3	0.84 (0.83)	WLTC (g/km) ※4	CO	平成31年	0.83	
		NMHC	0.032 (0.024)	NMHC		0.024			
		NOx	0.11 (0.08)	NOx		0.15			
		PM	0.007 (0.008)	PM		0.007			
		CO	0.84 (0.83)	CO		0.83			
		NMHC	0.032 (0.024)	NMHC		0.024			
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		NMHC	0.032 (0.024)	NMHC		0.024			
		NOx	0.11 (0.08)	NOx		0.15			
		PM	0.007 (0.008)	PM		0.007			
		CO	0.84 (0.83)	CO		0.83			
		NMHC	0.032 (0.024)	NMHC		0.024			

CO：一酸化炭素、HC：炭化水素、NMHC：非メタン炭化水素、NOx：窒素酸化物、PM：粒子状物質
規制値：※1 (1.15) とは、1.9t以下の乗用車、※2 空燃比20.9の乗用車、※3 1.15を添う。
※1 J08モードを冷機状態で測定した値にCO25を乗じた値とJ08モードを暖機状態で測定した値に0.75を乗じた値との和で算出される値に對し適用。
※2 国産型NOx還元触媒を装備した乗用車方式の室内直接噴射ガソリンエンジン搭載車に對してのみ適用。
※3 GVW 700kg以下、3.5t以下の車両に對しては平成21年からの適用。
※4 WLTCを冷機状態で測定した値に對し適用。
※5 WHCを冷機状態で測定した値にCO14を乗じた値とWLTCモードを暖機状態で測定した値に0.88を乗じた値との和で算出される値に對し適用。
※6 トラックについては平成29年、GVW 5.5t以下の車両については平成30年から適用