Introduction----Hydrogen molecular carbon removal machine

Brief content

- Why carbon in engine?
- Why it can solve PM2.5 caused by car ?
- The comparison between different cleaning methods
- Brief introduction of Prostal products
- The applications of Prostal products

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■Why carbon in engine?

- Gasoline, diesel and other fules are hydrocarbons themselves. The incomplete combustion and a small amount of tar in the engine room cause carbon deposits in the engine room, which affects the combustion efficiency of the engine, thereby reducing the horsepower torque of the vehicle and increasing the fuel consumption of the vehicle.
- Using the solid proton exchange membrane and nano-catalyst technology, Prostal develops the world number one high efficiency engine carbon cleaner machine

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■Why carbon in engine?

- The inner impurities of paint-like colloid grease filth formed by failure of gasification of petroleum and petroleum coke due to imperfect combustion will be emitted via gasification of such impurities reacting with hydrogen.

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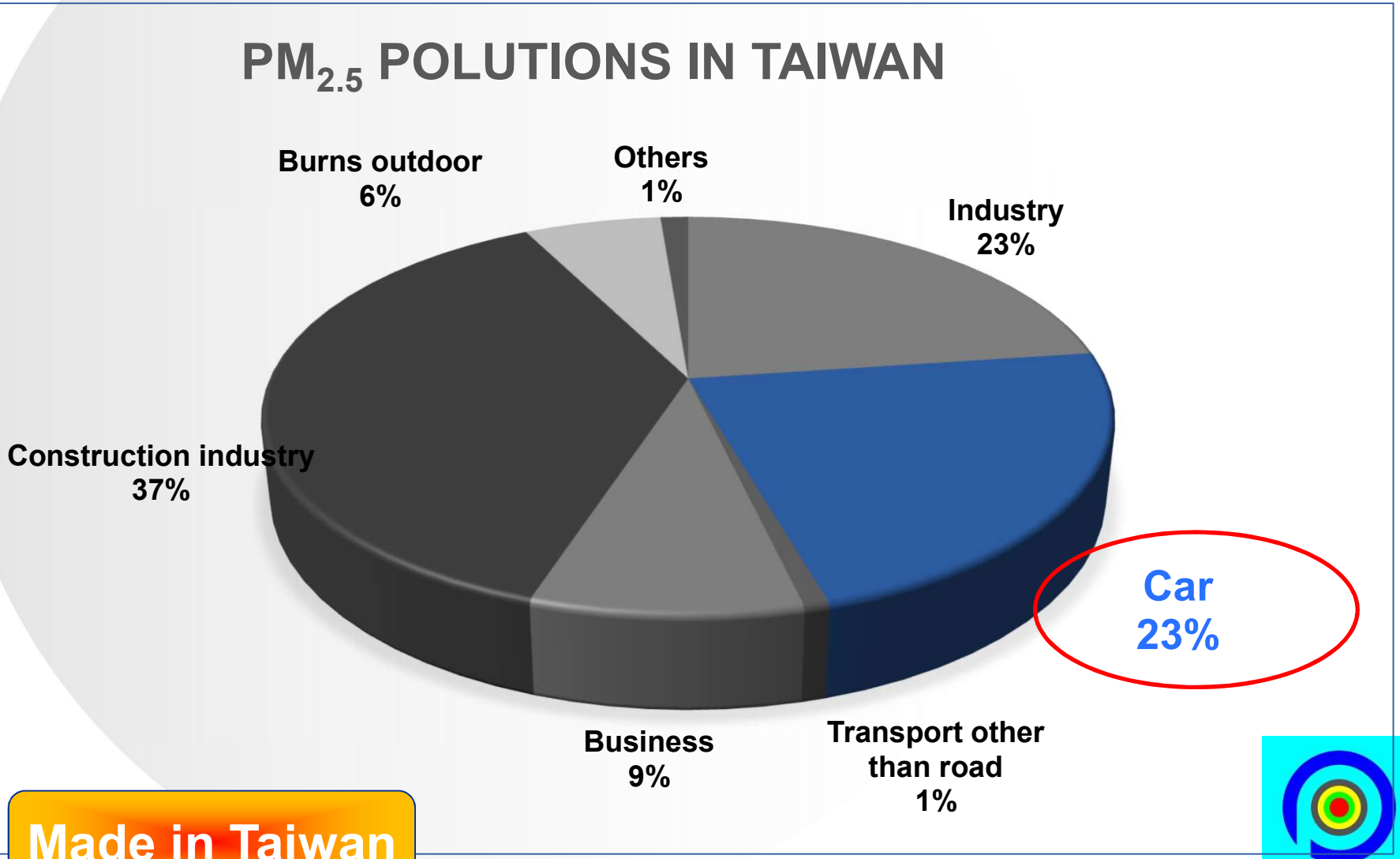
How PM2.5 caused by car engines ?



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Why it can solve PM2.5 caused by car ?

- According to the study of Taiwan PM2.5 caused by car, 44% of them can be solved by cleaning engine.
- hydrogen and oxygen molecules, introduce hydrogen and oxygen molecules in the engine combustion chamber.
- Due to environmental protection and easy operation, our technology has become a popular trend in the field of vehicle warranty.
- The engine cleans up the accumulated carbon deposits of the cylinder for a long time, improving engine efficiency, enhancing horsepower and reducing exhaust emissions.

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It’s important to clean the engine regularly.

The word’s first ultra-fine hydrogen-oxygen molecular car engine unique carbon innovation technology.

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The comparison between different cleaning methods

	Traditional cleaning -- manually	Chemical cleaning	Prostal machine
Time	4HR	40 min.	30 / 40 min.
Cost	High	Low	Low
Result	Open the engine manually, and clean. Good cleaning result.	Use chemical liquid to clean engine, the cleaning result is not good	Good cleaning result
Advan-tages	Good cleaning result	Low cost, high speed	• Good cleaning result • No chemical using • low cost
Dis-advant ages	• long time, high labor cost • need to change the engine oil • need to open engine, by specialist.	• cleaning result not good. • carbon transmit to engine combustion chamber. • May hurt some parts of the engine.	• No dis-advantages caused by the traditional or chemical cleaning.

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Brief introduction of Prostal products

We use Hydrogen to clean the carbon composition in the engine, in the following equation:

$H2 \rightarrow 2H^*$ (Hydrogen dissociation，~2500°K)

$$C_xH_y + H^* \rightarrow C_{(x-k)}H_y$$

$$C_{(x-k)}H_y + O_2 \rightarrow CO_2 + H_2O$$

Our machine will consume water to produce Hydrogen, and clean the engine effectively. The cleaning process will produce CO_2 and H_2O only. H_2O produced by the cleaning process will be invisible due to high temperature of the engine (the water will became as water vapor when temperate higher than 100 centigrade)

So our cleaning process will not produce the 2nd pollution to the engine. All the carbon composition in engine will turn to be air via exhaust pipe.

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Brief introduction of Prostal products

- **Model A is suitable for car engine lower than 3000CC**
- **Model C is suitable for car engine lower than 5000CC**

Model	A	C
AC input	100-240V	100-240V
Max operating power	700W/H	2KW/H
Water consumption	0.084L/H	0.252L/H
Time	40 minutes	40 minutes
Gross weight	42 kgs	60 kgs
Size	46*60*87cm	49*73*89cm
Working temperature	5~40℃	
Water type	Tap water	

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Brief introduction of Prostal products

- **Model D & E are suitable for car engine lower than from 4000CC to 15,000CC**

Model	D	E
H2 output	8.25L/minute	16.5L/minute
Max. operating power	3.5kw	6kw
Gross weight	115 kgs	136 kgs
Size	52cm*94cm*104cm (L*W*H)	

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Brief introduction of Prostal products

Simple three steps: ABC

Step A, To connect our cleaning machine with air input of the engine of car.

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Cable connect with engine air input

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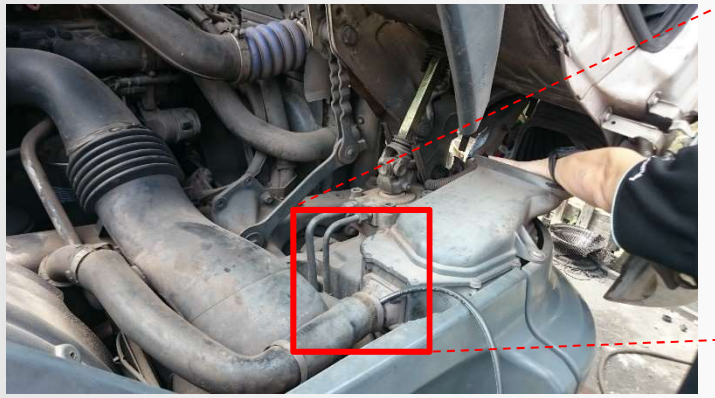
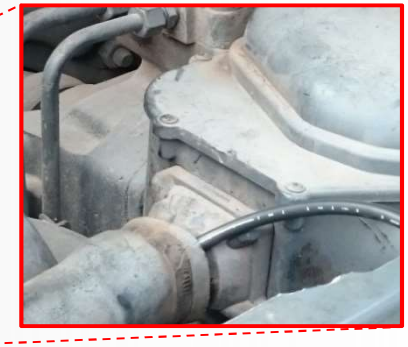
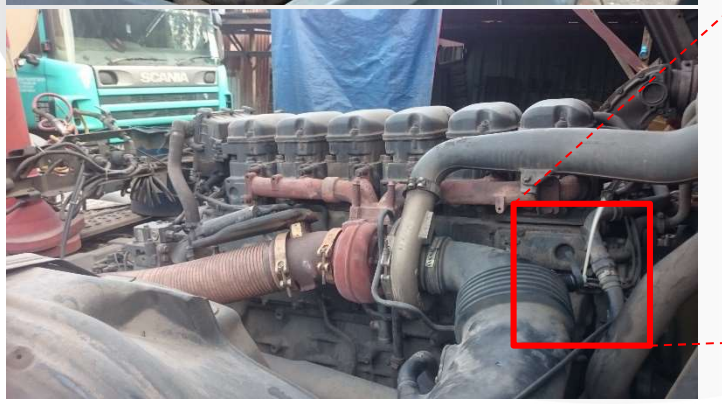
Brief introduction of Prostal products Step A

Example 1





Example 2



Example 3

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Brief introduction of Prostal products Step B

Step B: To Power on the engine of car (N position), than power on the cleaning machine, and press the start button. The cleaning machine will stop working after 40 minutes.

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Start workig

(1)

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Brief introduction of Prostal products Step C

Step C, When the cleaning machine stop working. Please power off the car engine. Pull off the cable from car engine. The cleaning process ended successfully.

Dis-connect the cable between the car and cleaning machine.

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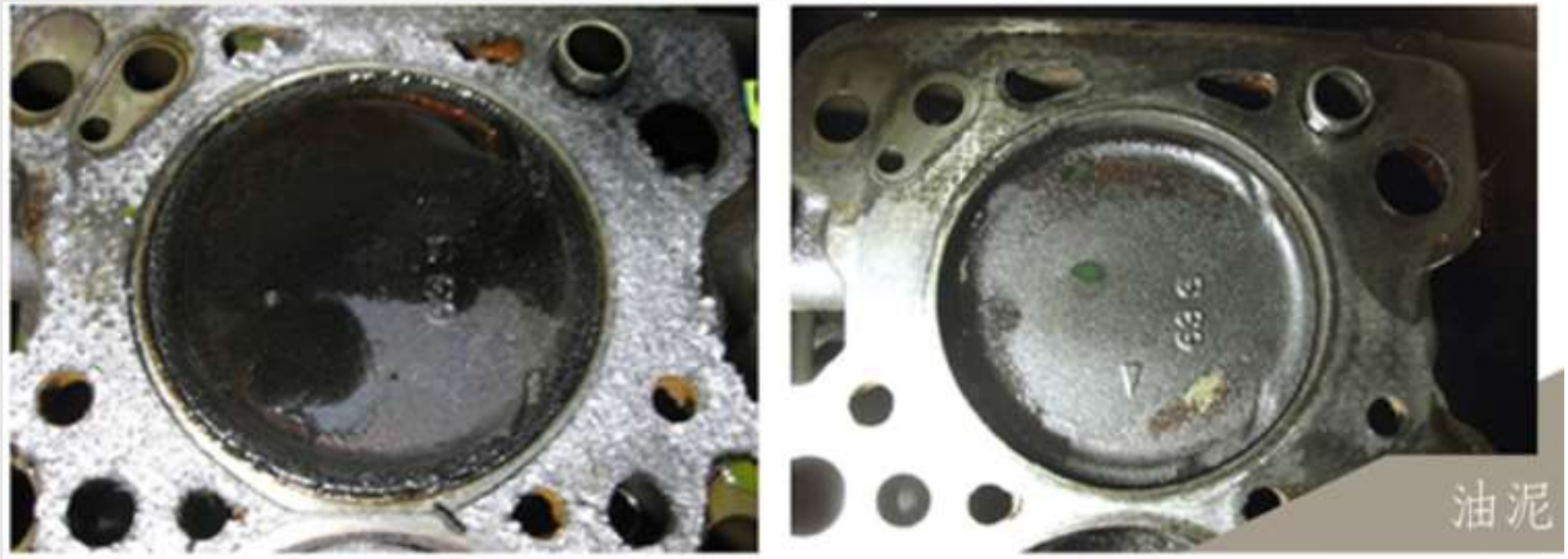
Brief introduction of Prostal products

Cleaning performance ---- Oil muds



Before *After*

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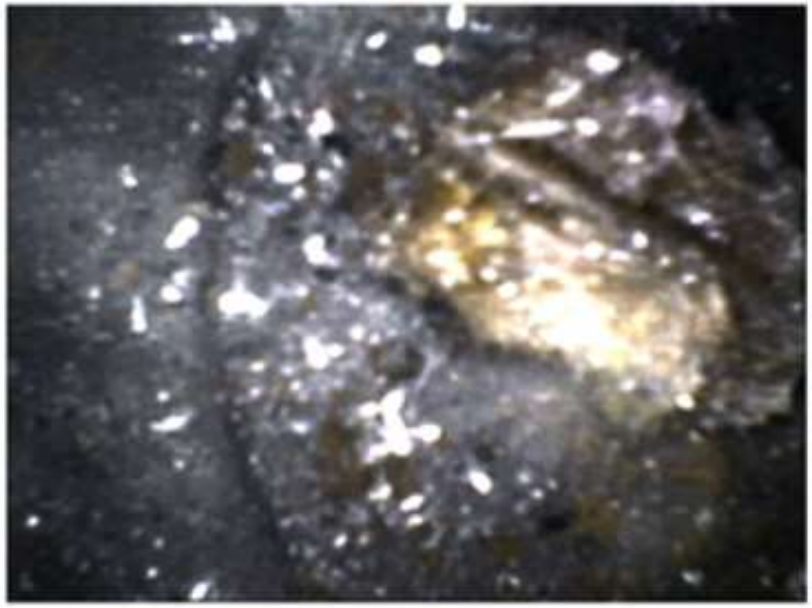
Brief introduction of Prostal products

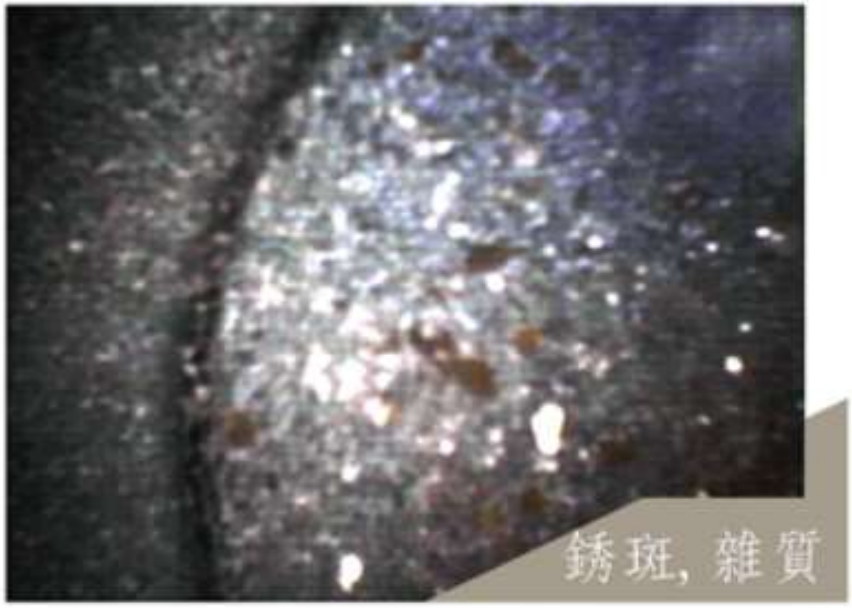
Cleaning performance--- Carbon elements

Before *After*

Brief introduction of Prostal products

Cleaning performance --- rusts etc.





Before

After

TUV test in Singapore

RESULTS

Table 1 : Fuel consumption

Test conditions	Before using HG-CR Engine Cleaner	After using HG-CR Engine Cleaner
Date of test	02 January 2012	03 January 2012
Time of travelling, hr	0945 hr – 1230 hr	0920 hr – 1205 hr
Distance travelled, km	199	199
Fuel consumed, litre	10.967	9.620
Fuel efficiency, km/l	18.15	20.69
Improvement in fuel efficiency (%)	14.0	

Improve fuel efficiency upto 14%

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Test in India

RESULTS AS PER TEST CONDUCTED BY CIRT", PUNE

Constant Speed Fuel Consumption tests

Before Auto-Decarb

Speed (kmph)	Fuel Economy (kmpl)
40.53	5.79
60.33	3.98

After Auto-Decarb

Speed (kmph)	Fuel Economy (kmpl)
40.92	6.67
60.24	6.24

Fuel Efficiency Improvement of **15.19 %** at 40kmph speed

This means **Saving Rs. 1.2/km travelled** by the bus.

* Calculation based on diesel rates in Pune as on 30/6/15

The test was conducted on ONE MSRTC Tata BSIII Bus

Taiwan | Singapore | Japan | Korea | Malaysia | China | Thailand | India | Ireland

Tested & Approved by

LEADING CERTIFIED AGENCIES IN INDIA & ABROAD

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Test in India

Before Auto-Decarb

Speed Range Km/hr	Time Taken (sec)						Average time (sec)	Speed (km/hr)	Speed (m/sec)	Acceleration (m/sec^2)
0-10	2.2	2.2	2.2	2.2	2.2	2.2	2.2	10	2.78	1.26
0-20	6.8	6.6	6.6	6.8	7	7.3	6.85	20	5.56	0.81
0-30	13	12.3	12	13	13.2	14.1	12.93	30	8.33	0.64
0-40	24	20.5	19.6	24	22	25.2	22.55	40	11.11	0.49
0-50	35.7	31.1	30.4	35.7	33.8	34.7	33.57	50	13.89	0.41
0-60	46.7	43.4	42.6	46.7	45	44.8	44.87	60	16.67	0.37

After Auto-Decarb

Speed Range Km/hr	Time Taken (sec)						Average time (sec)	Speed (km/hr)	Speed (m/sec)	Acceleration (m/sec^2)
0-10	2.2	2.1	2.8	2.2	2.1	2.2	2.15	10	2.8	1.29
0-20	5.1	4.9	4.8	5.1	6.7	5.1	5.28	20	5.6	1.05
0-30	10.3	10.7	10.3	11.3	11.6	11.3	10.92	30	8.3	0.76
0-40	17.4	17.7	17.2	18.3	18.2	18.3	17.85	40	11.1	0.62
0-50	25.6	25.8	25.6	26.8	26.7	26.8	26.22	50	13.9	0.53
0-60	34.95	35.06	34.9	36.07	35.7	36.07	35.46	60	16.7	0.47

Inference :Time taken to do 0 kmph to 60 kmph speed is reduced by 9.41 seconds **Over 20% Improvement**

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Test in India

Engine Oil Composition Test

Actual Test Results

Test Component Description: Engine Oil 15W40 CI4

	Test Description	Fresh Engine Oil SAE 15W40 CI4 Plus			Before Auto-Decarb treatment			After Auto-Decarb treatment			
		First sample	Second sample	Average	First sample	Second sample	Average A	First sample	Second sample	Average B	Variation
1	Sulphated ash,% by mass part 4 of IS: 1448 & ASTM D 482, IS: 13656	1.070%	1.048%	1.059%	1.232%	1.226%	1.229%	1.238%	1.232%	1.235%	0.003%
2	Carbon residue (Ramsbottom) % by mass ASTM D 524, IS: 1118	1.465%	~	1.465%	4.039%	4.157%	4.098%	3.900%	3.823%	3.861%	0.237%

There is NO Substantial Variation in engine oil parameters tested, before and after Auto -Decarb.
There is NO need to change Engine Oil due to Auto-Decarb Hydrogen Based Engine Cleaning.

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Test in India

MSRTC, Vallabh nagar,Pune - AUTODECARB, Hydrogen Cleaning- PUC Study

S.No	Vehicle Reg No		H.S.U Reading									
			Before Decarb	After Decarb	Difference	Percentage	After 2 Mnth	Difference	Percentage	After 3 Mnth	Difference	Percentage
			B	A1	A1-B		A2	A2-B		A3	A3-B	
1	MH14BT	512	85.53	47.06	-38.47	-44.98	64.49	-21.04	-24.60	66.21	-19.32	-22.59
2	MH14BT	1331	85.31	37.84	-47.47	-55.64	18.84	-66.47	-77.92	23.32	-61.99	-72.66
3	MH14BT	1275	78.95	44.33	-34.62	-43.85	64.50	-14.45	-18.30	70.05	-8.90	-11.27
4	MH14BT	3163	78.19	13.53	-64.66	-82.70	29.79	-48.40	-61.90	43.66	-34.53	-44.16
5	MH14BT	3488	74.85	32.26	-42.59	-56.90	39.91	-34.94	-46.68	40.86	-33.99	-45.41
6	MH07C	7580	71.37	25.72	-45.65	-63.96	24.22	-47.15	-66.06	71.78	0.41	0.57
7	MH14BT	3989	67.61	15.90	-51.71	-76.48	17.10	-50.51	-74.71	65.27	-2.34	-3.46
8	MH06S	8322	67.32	11.78	-55.54	-82.50	18.79	-48.53	-72.09	40.53	-26.79	-39.80
9	MH14BT	1684	59.86	37.56	-22.30	-37.25	40.66	-19.20	-32.07	At DWS		
10	MH14BT	4154	59.15	27.77	-31.38	-53.05	39.35	-19.80	-33.47	59.07	-0.08	-0.14
11	MH07C	7582	52.74	20.41	-32.33	-61.30	19.36	-33.38	-63.29	41.13	-11.61	-22.01
12	MH14BT	4396	52.07	23.10	-28.97	-55.64	25.48	-26.59	-51.07	36.79	-15.28	-29.35
13	MH14BT	1097	42.03	20.66	-21.37	-50.84	34.76	-7.27	-17.30	45.48	3.45	8.21
14	MH14BT	1558	41.23	17.13	-24.10	-58.45	21.63	-19.60	-47.54	42.62	1.39	3.37
15	MH14BT	3182	40.85	18.99	-21.86	-53.51	20.62	-20.23	-49.52	37.58	-3.27	-8.00
16	MH07C	7082	37.65	11.90	-25.75	-68.39	31.45	-6.20	-16.47	46.23	8.58	22.79
17	MH14BT	3168	32.06	0.73	-31.33	-97.72	4.97	-27.09	-84.50	34.85	2.79	8.70
18	MH14BT	3162	26.36	6.30	-20.06	-76.10	15.92	-10.44	-39.61	19.7	-6.66	-25.27
19	MH06S	8918	21.35	4.71	-16.64	-77.94	12.62	-8.73	-40.89	At DWS		
20	**MH07C**	**7543**	**19.79**	**20.22**	**0.43**	**2.17**	**46.69**	**26.90**	**135.93**	**50.63**	**30.84**	**155.84**
21	MH14BT	3499	16.34	1.73	-14.61	-89.41	14.24	-2.10	-12.85	17.95	1.61	9.85
22	MH14BT	4397	7.63	2.64	-4.99	-65.40	3.80	-3.83	-50.20	5.09	-2.54	-33.29
23	MH14BT	3466	97.59	14.09	-83.50	-85.56	32.37	-65.22	-66.83	44.23	-53.36	-54.68
24	MH06S	8368	89.28	51.10	-38.18	-42.76	69.15	-20.13	-22.55	77.74	-11.54	-12.93
25	MH14BT	4682	22.27	7.74	-14.53	-65.24	36.57	14.30	64.21	57.73	35.46	159.23
26	MH40N	9286	89.28	51.10	-38.18	-42.76	51.44	-37.84	-42.38	65.29	-23.99	-26.87

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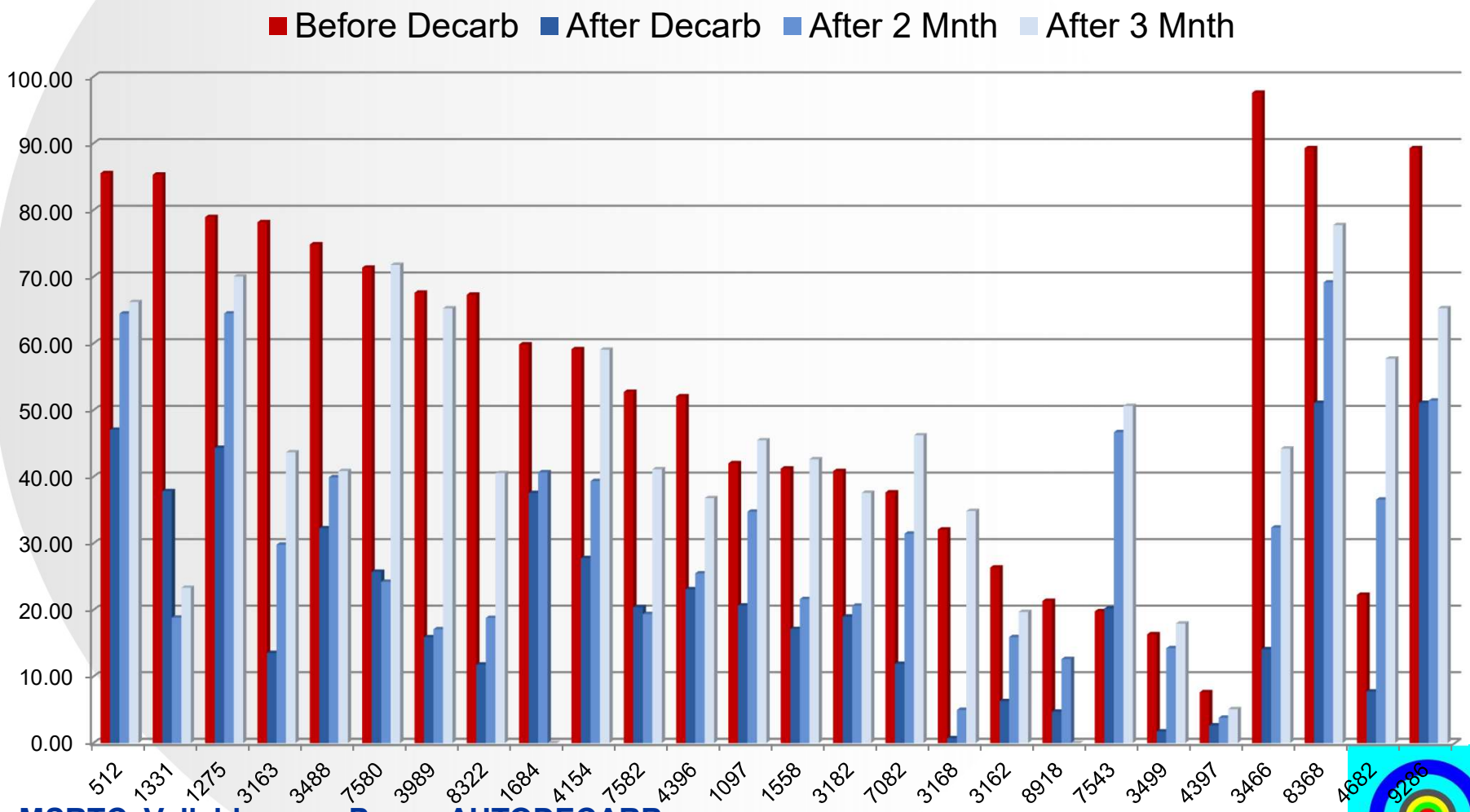
Test in India



MSRTC, Vallabh nagar,Pune - AUTODECARB, Hydrogen Cleaning- PUC Study

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Test in Malaysia

No.	日期 Date	车型Vehicle info.					尾气不透光度 Opacity(%)			油耗(km/L) Fuel consumption			备注 Note
		车牌 License Plate	排气量 (cc.)	行驶里程 ODO (km)	车龄 age	厂牌 Brand	清洗前 before	清洗后 after	变化率 %	清洗前 before	清洗后 after	省油 %	
1	2016/1/28	BGM9206	11,705	2,000,000	15	SCANIA P380	12.7	4.8	-62%	2.6	2.9	12%	空滤后进气
2		BMY9208	11,705	300,000	1.25	SCANIA R420	2.8	2	-29%	2.9	3.3	14%	空滤后进气
3		NSC9407	11,705	930,000	5	SCANIA R420	2.3	1	-57%	2.9	3.2	10%	空滤后进气





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