Experimental Report of the Artificial Diesel Oil and Artificial Glycol Processed from 75% and 60% Water Separately with Same Additive

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Abstract: The processing of artificial diesel oil and artificial glycol from 75% and 60% water separately with a little same special additive are reported. The main contents in both liquid were measured. The test results show that the density and the calorific value of the artificial diesel oil were close to the added original diesel oil, but its solidifying point lowers a lot. The elements of the artificial diesel oil are mainly carbon and hydrogen. Infrared spectrum diagrams also showed that there was no water in it. As a whole, the artificial diesel oil is not an oil-water emulsion, but a hydrocarbon liquid even after depositing for 13 years. In the artificial glycol the contents of hydrogen and carbide are closed to the theoretical value but it contained 0.45% water. The above mentioned two important facts show that the new chemical engineering utilizing water will be a very promising area in the near future.

Keywords: artificial diesel oil, artificial glycol, adaptive learning mechanism, chemistry engineering

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Introduction and Background

To avoid the crisis of energy resource shortages and simultaneously to improve the environment condition, many scientists and researchers are paying much attention to find a new resource. Adding water into oil is one of the most promising ways to solve these problems. In 1993, Wu Hongbo and Liu Donghua wrote a report titled ‘Can the water be transformed to oil?’ [1]. In their article, it was reported that large amount of water became diesel oil after putting a little additive invented by Wang Hongchen into the water. The new liquid was combustible and could be used as fuel to drive a random tractor running on the village road for a long distance. Even though the report’s answer was positive, no basic data of heat value and possible rudimental water content was presented. At the same time

there are many curious researchers including the author of this paper were very interested in that report. In order to make clear the fact, Professor S. Q. Yang, the former president of Harbin Institute of Technology asked ten famous professors from different area and different units in China to participate a witness experiment of making artificial oil diesel, measuring heat value, the water content, the element contents of oxygen and hydrogen immediately. All the participants were very excited to see the experimental results. They suggested a higher class national identifying meeting to carry out the experiment more precisely. After that somebody considered it was imppossible because the results violated the current theory although they never participate in the experiment themselves. Then the open research concerning water fuel suddenly stopped hereafter. Of course the production of artificial fuel was impossible in China.

As a co-organizer of the making artificial diesel oil experiment, the author of this paper kept a little amount of processed artificial diesel oil mentioned above and tested some properties many times during the past 13 year since it was as-processed. The first part of this paper describes the processing of artificial diesel oil and tested data both of as-produced and after years. The author of this paper was invited to attend making artificial diesel oil many times, especially the experiments of making artificial glycol using same secret additive, the later will also be introduced in this paper.

Experimental Details of Artificial diesel oil

The author participated in an experiment in which an artificial diesel oil was produced from about 25% diesel oil, 75% water (in volume), and a special additive (0.2%) provided by Mr. Hongcheng Wang. The purpose of the experiment was to verify and to confirm the reality and commercial value of the artificial fuel processed from large proportion (>50%) of water. It did on April 28,1995.

In the experiment, 0# diesel oil (in China, 0# diesel means its solidifying point equals to 0 °C) was used as the base liquid. The diesel oil and water were poured separately into 10 liters plastic barrel The volume ratio of oil-to-water was one to three. In the first period, the diesel oil was over the water and they were not soluble. There was an obvious interface between the two liquids. Then, a little amount of special additive (0.2%) was added into the plastic barrel. The barrel was overturned by hand for three times. Then some bubbles were found rising from the liquid, and the interface of the two liquids fell down. Five minutes later, the interface disappeared completely, the top surface was rose, that means the volume was increased and a homogeneous liquid fuel was obtained.

The Properties and the Elements of the Artificial Diesel Oil as Produced

On April 28, 1995, the diesel oil and the compound fuel were analyzed in the chemical laboratory of Harbin Institute of Technology (HIT). The results are listed as follows:

1. *Calorific Value and Density*. The test result of calorific value and density is listed in Table 1.
2. *Infrared Spectrogram*. Figure 1 is the infrared spectrogram of the compound fuel.

   No character of water can be seen in the IR spectrogram because there is no crest in the wave number range of 3200-3500, which corresponds to the O-H stretch.
3. *Distillation Test*. The distillation test results of the diesel oil and artificial oil diesel are shown

in Table 2.

In the distillation process, the compound fuel vaporized quickly for about 2/3 during the temperature interval from 116 to 176℃. It is much different with the 0# diesel oil we added as the base liquid. In later case the start temperature of vaporization is over 180℃ as shown inTable 2.

4. *CHN Analysis*. On May 4, 1995, the elements of the diesel oil and the artificial diesel oil were analyzed in the chemical test center of Jilin University using the NCH method. The test facility was PE2407. The results are listed in Table 3.

From Table 3 it can be seen that the artificial diesel oil is mainly composed of C and H, which was very close to the original diesel oil.

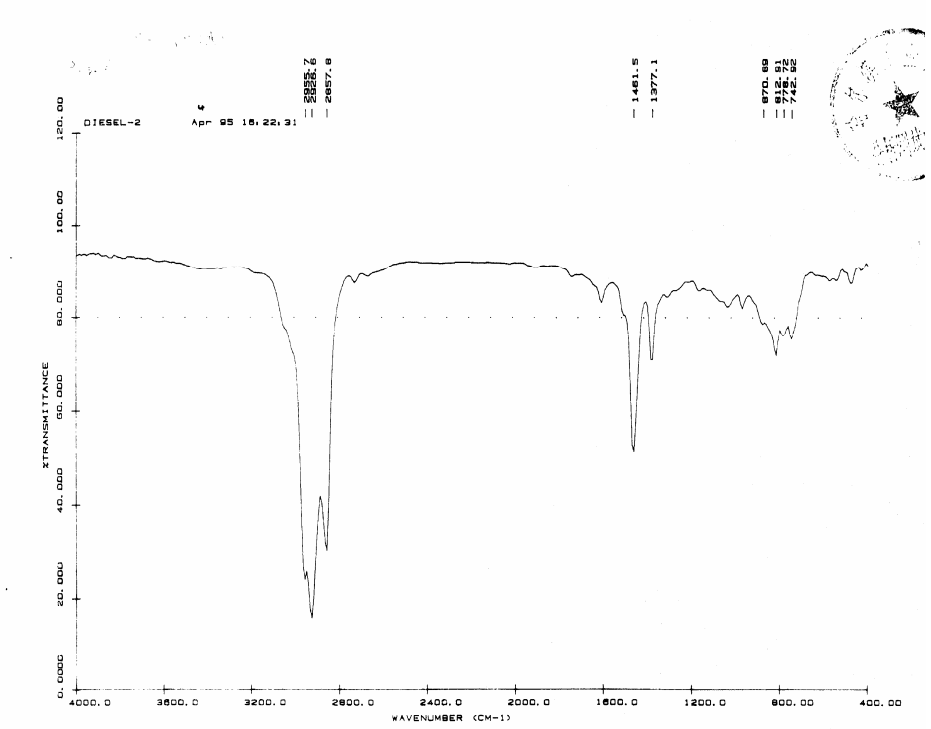

Fig.1 The infrared spectrogram

Table 1 Calorific Value and Density

Fuel	Calorific value (J/g)	Density (g/l)
Original diesel oil	40280	823
Artificial diesel oil	40116	825

Table 2 Distillation Tests of the Artificial Diesel Oil as Produced

temperature (℃)	fraction
<80	less than 3%
116~176	about 2/3
>200	about 1/3

Table 3 Main Elements of the Diesel Oil and the Artificial Diesel Oil as Produced

Fuel	Ingredient (%)		
	C	H	N

Original diesel oil	86.29	13.79	0.1
Artificial diesel oil	85.00	13.75	0.05

The Subsequent Test Results of the Properties and the Elements of the Artificial Diesel Oil

After deposition for many years, the properties and the elements of the artificial diesel oil were subsequently tested. To ensure the test reliability, the tests were done at different universities and the petroleum test stations of Harbin, Shanghai, and Jilin, respectively. The test results are listed in Tables 4-7. The corresponding values of as processed diesel oil are also listed for convenient comparison.

Table 4 Density Test Results [a]

Fuel	Test time	Test value (g/l)	Test unit
Original diesel oil	1995.04.28	823	A
As processed artificial diesel oil	1995.04.28	825	A
Deposited artificial diesel oil	1999.03.25	848	B
Deposited artificial diesel oil	1999.04.05	835	C
Deposited artificial diesel oil	2000.04.30	841	D

[a] Note: the test unit A, B, C and D refers to the Chemical Lab of HIT, Test Center of Wuhan University, Petroleum Test Station of Shanghai and the Test Center of Heilongjiang University, respectively.

Table 5 Calorific Value [b]

Fuel	Test time	Test value (J/g)	Test unit
Original diesel oil	1995.04.28	40280	A
As processed artificial diesel oil	1995.04.28	40116	A
Deposited artificial diesel oil	1999.04.05	41899	C
Deposited artificial diesel oil	1999.04.20	41843	D
Deposited artificial diesel oil	2000.05.20	46288	E
Deposited artificial diesel oil	2008.07.16	45590	E

[b] Note: test unit E refers to the Petroleum Test Stations of Heilongjiang.

Table 6 Solidifying Point

Fuel	Test time	Test value (℃)	Test unit
Original diesel oil	2000.04.30	-0.58	D
Deposited artificial diesel oil	2000.04.30	-11.18	D

Table 7 Elements Analysis Results [c]

fuel	test time	ingredient (%)			test unit
		C	H	N	

Original diesel oil	1995.05.04	86.29	13.79	0.19	F
As processed artificial diesel oil	1995.05.04	85.00	13.75	0.05	F
Deposited artificial diesel oil	2000.04.30	84.72	12.38	2.91	D
Deposited artificial diesel oil	2002.05.31	85.95	13.24	0.23	F

[c] Note: the test unit F refers to the Chemical Test Center of Jilin University.

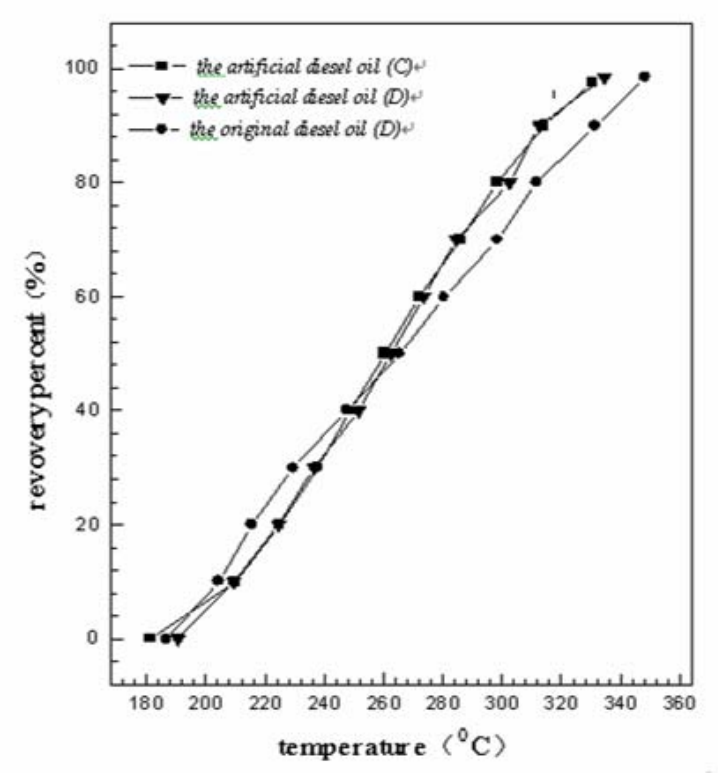

Fig. 2 Distillation test of the artificial diesel oil and original diesel oil

1. *The Density Test Results*. The density test results are listed in Table 4. It can be seen that the density of the original diesel oil and the artificial diesel oil is close, and the density of the artificial diesel oil rose slightly after being deposited for five years.

2. *Calorific Value Results*. The calorific value test results are listed in Table 5. It can be seen that the calorific values of the diesel oil and the artificial diesel oil were close. After long time deposition, the calorific values of artificial diesel oil are higher than the as produced and original diesel oil, even after 13 years.

3. *Distillation Results*. In 2000, distillation tests of the original diesel oil and artificial diesel oil were done again in Shanghai and Heilongjiang, respectively. The test results are shown as Figure 2.

From Figure 2 and Table 2, it can be seen that after about five years of deposition the distillation process of the artificial diesel oil and the diesel oil became similar.

4. *Solidifying Point*. The solidifying point measured is listed in Table 6. From Table 6, it can be seen that the solidifying point of the artificial diesel oil was under -10℃. It was obviously lower than that of 0# diesel oil, which means that the lightweight component of the artificial diesel oil is more

than that of the original diesel oil.

5. *CHN Contents*. The CHN analysis results of the original and artificial diesel oil are listed in Table 7. It can be seen that the components of carbon and hydrogen did not change much after 7 years.

6. *Oxygen Analysis*. In the elements analysis above, the component of oxygen cannot be analyzed directly by the facility (PE2047, CHN Analyzer) used.

To verify the change of oxygen in the artificial diesel oil, element analysis was done again in May 2002 using Flash EA 1112 (which can analyze the component of oxygen directly by oxygen method) in Jilin University. The oxygen method showed that there was only 0.48% oxygen in the artificial diesel oil. That means the large proportion of oxygen from water mixed with the diesel oil has been changed after a little additive was added in.

7. *Color of the artificial diesel oil.* After long time depositing the color of artificial diesel oil became dark. The photo of artificial diesel oil after 13 years deposition (as-produced in 1995) is shown in Fig. 3. It can be seen that the artificial diesel oil is uniformity and clarity.

Fig. 3 Artificial diesel oil after 13 years deposition

Contents of Artificial Glycol

There is a very interesting fact that the same additive for processing the artificial diesel oil can also be used for processing the artificial glycol. The author of this paper was also the eyewitness of processing the artificial glycol. In later case the volume ratio of water to glycol was 3:2. After repeat the similar procedure for processing the artificial diesel oil mentioned above, the artificial glycol was obtained. The measured contents of hydrogen, carbon and water of the artificial glycol are listed in Table 8 and Table 9.

Table 8 Theoretical and tested contents of hydrogen and carbon in artificial glycol

	H%	C%
Theoretical contents	9.68	38.71
Sample no.1	9.81	38.96
Sample no.2	9.97	39.86

From Table 8 it is shown the maximum differences between the theoretical and experimental data were less than 3% for element hydrogen and less than 3.2% for element carbon.

The amount of water measured in artificial glycol is shown in Tab.9. Its average value was 0.465%, which means almost the whole water added as raw material disappeared in artificial glycol.

Table 9 The contents of water measured in artificial glycol

Number of Sample	Water %
No.1	0.35
No.2	0.33
No.3	0.74
No.4	0.44
Average	0.465

The average amount of glycol measured in the final artificial glycol approximately was 98.5%, the other contents mainly were aldehyde, sulfate besides about 0.465% water.

From above mentioned two tables, phenomenological speaking, it is obvious that in the final artificial glycol the original water was almost transformed into glycol, although the transformation mechanism is unclear and the processed product is not very pure.

Conclusions

1 It is a very important fact that the calorific value, the density, and the main element of the artificial diesel oil are similar to the value of original diesel oil, but the solidifying point of the artificial diesel oil is under -10℃, which is obviously lower than that of the added original diesel oil (about 0℃). The contents of carbon and hydrogen in the artificial glycol are also close to the theoretical value of glycol. Although the measured water content is about 0.465%, it was much less than the water added (about 60%).

2 The real facts of processing the artificial diesel oil and artificial glycol open a new ‘water chemistry engineering’ area that means to make hydrocarbon, glycol and other organic liquid materials utilizing large amount of water.

3 Commercial diesel oil, glycol can be used as a ‘templet’ when mixed with large amount of water, after the special additive was added. The water was transformed to the artificial liquid similar to the templet. However the artificial liquid is not exactly sameness with the templet, because the forming conditions of the commercial liquid and the artificial liquid are not exactly the same.

4 The Special additive is the important invention of Mr. Wang Hongchen, it is a key material for making the artificial diesel oil and artificial glycol. But its mechanism is not clear yet. The author of this paper thinks that a new transformation process is stated under the action of additive. This action mechanism maybe be called ‘adaptive learn mechanism’. That means the water will be transformed to the structure similar to the templet liquid (the original diesel oil, glycol or other liquid organic material) in a micro-region. Then this transformation spreads to the neighbor region, and finally a homogeneous liquid similar to the added material can be obtained. The term ‘adaptive’ means learning different templet automatically.

5 It is a correct way of thinking that the facts mentioned above should be respected first，then a new theory which can explain this very important invention will be formed gradually, and the new

optimal additive can be found under the guiding of new theory and precision experiments. .

Acknowledgment

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References

[1] Wu Hongbo and Liu Donghua, '*Can the water be transformed to oil* ?' Economy Daily, January, 28, 1993 *(in Chinese)*