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Prof. Dr. Konstantin Meyl

# Ozone containing water engine

## $CO_2$-free operation of machines

Questions

Water occupies a prominent place in the search for an alternative "fuel". As an environmentally sound substance it is available in sufficient quantities. This concerns water as fuel as well as the produced water gas at the exhaust which increases humidity or when it forms raindrops.

This raises a number of questions:

1. How do clouds form?

2. Why does the moisture accumulate at altitudes above about 1000 m?

3. Why is the gas relatively stable at minus temperatures?

So far following questions on lightning and thunder remain completely unanswered:

4. Under which conditions does a thunderstorm develop?

5. and how does thunder develop?

The next questions can only be answered subsequently:

6. How does a thunderstorm engine work?

7. and how does an ozone engine work?

## 1. cloud formation (Prof. Dr. Konstantin Meyl)

The contemporary consensus among experts on this question is: clouds are formed, among other things, on the open water surfaces of the worlds oceans. Radiation from the sun is said to be involved too. Visible clouds are are said to be formed by condensation of water crystals or water droplets.

I would like to contradict this and propose another model: 2 $H_2O$ join at the water surface to form the gas $H_4O_2$. This gas has slightly different properties. It weighs about as much as the air in our environment ($O_2$). However, the mean weight of $H_4$ has to be added. On the other hand the volume increase at the expense of the weight results in a phenomenon which compensates the effect [1]. Thus, the gas rises to an altitude of 1000 m and above.

Since individual gas molecules release loosely bound hydrogen dipoles, their weight as $H_4O_2$ will decrease further. As a result, clouds can rise to a height of 8 km.

Strong compression of the gas reverses this process and dissolves the gas molecule:

$H_4O_2$ gas $\Rightarrow$ 2 $H_2O$ water

(or 2 $H_2O_2 \Rightarrow 2\ H_2O + O_2$)

This means that it is raining [2]. (In the $2^{nd}$ case, the oxygen content in the air also increases somewhat. This can be observed especially when walking in the forest).

## 2. thermal differences

When $H_2O$ is heated in a kettle, the transition into water gas only occurs at the boiling point (from 100°C). In the case of $H_4O_2$ gas this barrier is much lower. The bathroom mirror for example, may fog up at temperatures as low as 30° to 40°C. This effect can be explained by the low boiling point of the $H_4O_2$ gas.

When $H_2O$ mutates to gas, it needs all its electrons for its ring: 8 e- for n = 2 according to Bohr's atomic model [3]. Hydrogen as a dipole is not available to the ring structure. Even the innermost and most tightly bound electron pair is needed. This increases energy demand.

This is equivalent to O and to $O_2$ in the respective gas state. While the same conditions apply to O as an atom, this state only occurs in extreme natural cases. Under normal conditions on the other hand, the compound of two oxygen atoms as $O_2$ is common.

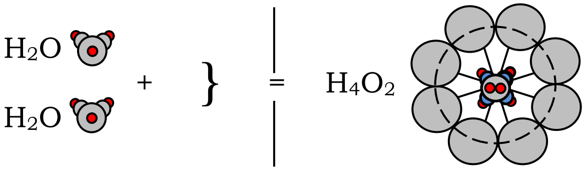
For $O_2$, the 8 electrons in the ring are divided between the two oxygen atoms. In addition, 2 electrons each are necessary for a double bond and 2 e- remain as the innermost pair of electrons. This conversion needs much less energy. (according to Nils Bohr for n = 2):

The nucleus is formed by the two O-atoms: |O = O|

So what is self-evident for $O_2$ would be equally valid for $H_4O_2$. The hydrogen forms dipoles (H+/e-), which attach to the nucleus without any constraint.

Thus the gas $H_4O_2$ does not need 100° to form.

## 3. water structure with $H_4O_2$




Water: liquid (n = 1) | gaseous (n = 2)
Figure 1: The formation of water from the liquid to the gaseous state as $H_4O_2$.

As said, the nucleus of $H_4O_2$ in its gaseous case consists of 2 oxygen atoms: |O = O| .

Each O molecule binds 4 electrons, both O: 8 e-

and 8 electrons are in the ring (n = 2): <u>8 e-</u>

$(H_4)O_2$: 16 e-.

The 4 electrons form dipoles with the hydrogen, which attach to the nucleus and are not counted.

The comparison of water gas ($H_4O_2$) and water vapor ($H_2O$) shows almost identical properties, therefore they are hardly distinguishable: The same number of molecules are present in a given volume with eight ring electrons as well.

When it condenses back to liquid water, it spontaneously decomposes into $H_2O$. The $H_4O_2$ is only permanently stable in the gaseous structure. It adopts the structure at temperatures well below 100°C, which may serve as a distinguishing factor.

As readily as $H_4O_2$ can be formed from 2 $H_2O$ and as loosely the two water molecules are bound they decompose again. That is, it rains.

## 4. clouds under pressure

$H_4O_2$ behaves completely differently when the pressure in the clouds increases and lightning appears, for example when clouds collide.

Thereby $H_4O_2 + H_2O = H_6O_3$

can form among a loud roar which is perceived as thunder. The gas generates its own visible ignition energy. When it changes its structure back again, the gas decomposes into

$$H_6O_3 = H_4O_2 \text{ (gas)} + H_2O \text{ (water)}$$

or into $H_6O_3 = 3\ H_2O$ (water)

Both cases result in rain falling back to earth. In addition, the blast wave caused by lightning also may be a hazard. Considering the blast effect, the shock wave equates to about 30 kg of TNT.

However only 10% of all lightning strike the ground. The vast majority exists as cloud or space lightning.

*Nobel laureates (like Charles T. R. Wilson) have already completely missed the mark with their speculations by assuming space charges and separation of charge in thunderclouds. They consider lightning as potential equalization between the cloud and the ground. This may be true for the 10% earth lightning. However, the required field strength of about 3 million volts per meter has never been measured. In any case, it is not true in more than 90% of the cases.*

## 5. $H_6O_3$ with ozone

Lightning is caused by the structural change in $H_6O_3$. It is always accompanied by loud thunder. The lightning also does not run towards the target directly, but rather lashes, flickers and spreads over several targets in the case of ground lightning.

As another possibility, $H_6O_3$ dodges upward or strikes sideways (90% of all lightning). Cloud lightning, usually called sheet lightning, may not cause rain at all. It is also referred to as silent lightning, summer lightning or dry lightning.

Lightning is always ignited at low altitude. Sheet lightning appears as a flat luminous effect on the nightly horizon. Only after that the low weight of the gas $H_6O_3$ comes into play. These flashes drift to much higher altitudes, but remain largely invisible to our eyes.

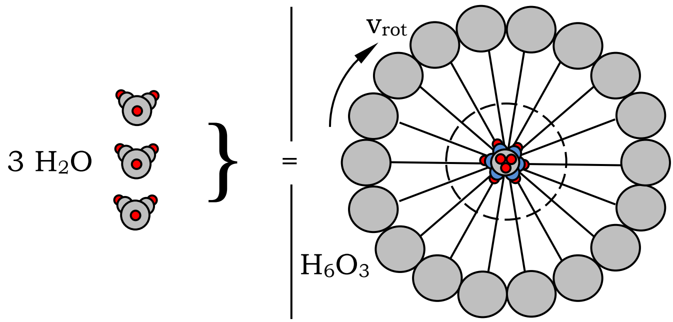
If two water molecules can be combined into one, then this should also work with three. For supercritical water to bond, a high energy must be assumed.

This would be the case at 18 ring electrons, and should only be found above the critical point. For supercritical water to form, not less than a temperature of 374°C and a pressure of 221 bar is required (according to the dictionary).

The high temperature is necessary to send the additional electrons into the ring further outside. In addition, the volume expansion is associated with an increase in pressure and temperature.

$$P_{krit} = 221\ P_0$$
$$T_{krit} = 374° - 20° = 354°\ C$$
$$V_{krit} = 1170000/221{,}354 = 15 \text{ times expansion.}$$

That is, when supercritical water is injected (at $P_{krit}$ and $T_{krit}$), the volume ($V_{krit}$) will increase by at least 15 times when ignited [2].




Water: liquid (n = 1) | gaseous explosive (n = 3)

Figure 2: From liquid water to explosive gas ($H_6O_3$).
The nucleus of $H_6O_3$

consists of three oxygen atoms, where each O is interconnected as in ozone: 6 e-

18 electrons are in the ring (n = 3): <u>18 e-</u>

in summary $O_3$ has (as $H_6O_3$ as well): 24 e-.

(The e- of the hydrogen are not counted).

## 6. ozone-containing water engine

The molecule $H_6O_3$ is extremely symmetrical and very reminiscent of ozone (Fig. 2). It may also be called ozoniferous water. With this water containing ozone we want to operate a water engine, which may also be referred to as "thunderstorm engine".

Merely a few examples of an energy-technical use of $H_6O_3$ are known. The Chernobyl nuclear disaster in 1986 comes to my mind. At that time, the temperature and pressure conditions were met for a steam explosion to occur.

According to eyewitness accounts two explosions appeared shortly after each other, the first being a smaller steam explosion that tore the reactor apart. Seconds later, a much more powerful explosion followed, which is attributed to hydrogen.

This however is hard to reconcile with another observation. A blue flash shot up from the open reactor to a height of over 3 km, according to the observation of a fisherman [4]. Even 35 years later speculation on the blue color origin still thrives.

The $H_2O$ used as extinguishing water was put into the critical state during the explosion and evaporated abruptly. As $H_6O_3$ it can reach the observed height. However, as the water vapor hits cold air layers, some molecules will fall back to lower orbits, glowing blue.

The blue color reminds of the ozone layer and the blue sky when ozone changes from quantum number *(n = 3 to n = 2);* and thus 8 electrons fall back from $r_3$ = 477 pm to $r_2$ = 212 pm and at the same time 10 electrons fall back from $r_3$ = 477 pm to $r_1$ = 53 pm, accordingly to the radius of a gas molecule radiating a blue color.

It is a pure structural change with the same modules, and not a chemical reaction. Further reports on water vapor explosions and their catastrophic effects can be found in [5].

This explanation along general lines outlines the requirements for a water engine [see also 2 and 3].

**B. The water engine with ozone** (Prof. Dr. K. Meyl)

Now that the prerequisites for consideration of the final conclusion are met, the concept for the construction of a water based thunderstorm machine may be established.

## 7. The thunderstorm machine with $H_6O_3$.

To begin with, a conventional high-density diesel engine – usually as a four-stroke engine – is thought as foundation,. Furthermore lubrication for continuous operation, as well as utilization of noncorroding materials should be well considered. A ceramic engine e.g. would be eligible.

**1st stroke:** The first phase of four strokes is about the intake, in which the liquid water is injected into the cylinder together with gas, preferably with some exhaust gas. The gas is necessary due to the incompressibility of water. Gas, on the other hand, is well compressible and will pass the pressure on to the water.

**2nd stroke**: This is followed by the compression phase, in which water is compressed to its liquid state, allowing it to form to $3 (H_2O) = H_6O_3$. This is assisted by the magnetic field, which causes the rotation of the electrically charged ring perpendicular to the plane of rotation to produce a magnetic component ($v_{rot}$ in Fig. 2).

Normally, a maximum of 2 $H_2O$ molecules may fuse in this way, whilst both of them rotate against each other and compensate their magnetic field in this way (see para-water). 3 $H_2O$ can only be fused if the molecules are aligned in an external field (in the sense of ortho-water). For this purpose, a strong permanent magnet can be mounted on the piston and, if necessary, a second one in the cylinder head to amplify the field.

**3rd stroke:** The third cycle is the expansion phase, in which the usable energy is released. It is triggered at the top dead center by an ignition pulse or by spontaneous ignition. A chain reaction follows.

Individual e- leave the molecular bond towards the ring. According to the gas law, this volume increase results, among other things, in an increase in temperature. The gas that drives the piston is thus created explosively. The generation of a sufficient amount of "fuel" is the prerequisite for maximizing efficiency. This is created during the fusion of 3 $H_2O$ into the explosive gas $H_6O_3$.

**4th stroke:** After this carbonless combustion the hot gas is ejected into the 4th phase. In this state the gas is lighter than air and rises. It comes back to earth only when regenerated to water vapor or as single raindrops.

This return to water may also take place in a downstream catalytic converter. The obtained water may be reused to reduce water consumption.

## 8. $H_6O_3$ motor as a two-stroke engine

Due to the exhaust gas recirculation, a low-cost operation of a two-stroke engine is conceivable.

**1st stroke:** In the first stroke, about 80% of the used gas is exhausted. The remaining 20% exhaust gas is enriched with fresh water, which is injected into the combustion chamber via a nozzle and then compressed together with the exhaust gas.

As already mentioned, this occurs in the magnetic field between the two poles (at top dead center).

**2nd stroke:**

The second phase begins just after top dead center with the ignition of the mixture. The electrons take each other "by the hand" magnetically as they move outward into the ring. The state will change to that of gas (n=3) explosively, expanding and doing the desired work.

We already know this process from the four-stroke concept, except that the second stroke is immediately followed by the first. Thus, a two-stroke engine theoretically has up to twice the power in comparison to a four-stroke engine.

Another advantage of the two-stroke is the avoidance of nitrogen oxides in the exhaust gas, such as nitrous oxide $N_2O$.

If proven expedient to mix the new, incompressible "fuel" with a gas, the exhaust gas should be used in favor of ambient air. The residual gas is hot and only partially compressible, thus exerting a pressure on the injected water. Exhaust gas recirculation can largely avoid the creation of nitrogen compounds in the exhaust gas.

A water engine hence receives water as fuel, which it changes in structure magnetically, ignites and converts into $H_6O_3$. The ozone $O_3$ is enriched by 6 hydrogen dipoles, which fit without constraint into the field that holds together the ring consisting of 18 electrons.

At high altitude, the external temperature will decrease, causing the extended molecule to decay back into water. It will form clouds and rain.

Prof. Dr.-Ing. Konstantin Meyl,

Radolfzell, March 1st 2021

## C. **Ozone engine** (summary)

based on fuel made of oxygen instead of carbon and with ozone $O_3$, respectively $H_6O_3$ instead of carbon dioxide $CO_2$ as exhaust gas.

### **9. internal combustion engine** (state of the art)

In an internal combustion engine, an ignitable mixture of some fuel with oxygen from the air is burned in a combustion chamber. The thermal expansion of the gas is utilized. Among other things $CO_2$ is produced, which sccording to recent political guidelines is a greenhouse gas that must be avoided.

Strictly speaking, a total of 18 of the 22 electrons in the atomic shell of carbon dioxide are arranged in a ring (according to Bohr's atomic model for the quantum number n = 3). The remaining 4 electrons serve as binders for the O-C-O nucleus.

As a consequence of spin, each electron forms a magnetic north pole and a south pole in opposition, thus they will attract each other via their poles and join together to form a ring.

This gaseous state must be maintained from one ignition event to the next in order to unfold its full effect. During this phase the ring stabilizes and the electrons cannot fall back into the nucleus.

Consequently, the volume expansion of the gas is utilized at its ignition temperature (above the critical temperature of the gas mixture).

**10. ozone engine** (criticism on the state of the art).

However, todays gasoline has been discredited as a greenhouse gas due to the intensive production of $CO_2$. If the use of carbon is not necessary and combustion is not required for volume expansion, then carbon may be replaced by oxygen. The conventional internal combustion engine becomes an ozone engine.

The volume expansion and the ignition temperature (reduced by 40 K) are about the same in both engines. Instead of the carbon based fuel, the oxygen based substance is injected into the combustion chamber. At the exhaust ozone ($O_3$) instead of $CO_2$ is now emitted, which rises to the ozone layer. Due to local low temperature it will be transformed back (to $n = 2$) to oxygen $O_2$ and made available for our respiration to a predominant part.

The main difference to today's engines is that carbon based fuels are solely refueled in exchange for money, whereas ozone can be produced spontaneously from oxygen or $H_2O$ which is largely free of charge. However, the production consumes energy which is deducted from the amount produced.

As mentioned, the temperature level for ozone is about 40°C lower compared to gasoline. The critical point is at -12°C. To ensure that the conversion from $n = 2$ to $n = 3$ does not occur too early, the substance should be kept below -12°C or it should be produced on-site. Only when reaching the combustion chamber the conversion may be initiated by the ignition spark (at about 200°C) and succeed into the expansion of the gas.

In detail, a total of 18 of the 24 electrons in the ozone atomic shell ($O_3$ at $n = 3$) are arranged in a ring. The remaining 6 electrons serve as bonding agents for the 18-fold ionized nucleus, with each oxygen nucleus forming a single bond with each of the two others (ideal configuration).

**11. ozone-containing water engine** (description)

As mentioned, the direct extraction of oxygen from water is possible. The liquid state has several advantages: $H_2O$ is rotatable, electrically and magnetically alignable and the distance to neighbors is minimal (water colloids in chain structure).

Thus water is fusible into the desired form by compression. (The desired target is $H_6O_3$, consisting of ozone $O_3$, which can also incorporate 6 hydrogen dipoles ($6H = 3H_2$) in the core).

Initially the water injected into the piston is in its liquid state due to high compression (e.g. similar to a diesel engine). After top dead center, the actual explosion is triggered by the ignition spark. Abruptly it will expand into ozoniferous water gas. The critical point is reached at supercritical water (according to the dictionary at 374°C and 221 bar pressure). At this point a considerable volume change occurs which drives the piston.

Water appears as liquid and in three different gaseous forms:

(a) as clouds in a cool environment (as $2\ H_2O = H_4O_2$),

b) as water vapor (from 100°C) from the boiling point with much lower weight and

c) as supercritical, ozone-containing water vapor ($3\ H_2O = H_6O_3$). This is the particularly explosive form of water that enables lightning. It is supposed to serve as the driving source in the ozone-containing engine.

Evidently this system is not limited to motor vehicles, but may reasonably be applied wherever previous carbonaceous fuels can be replaced by ozone or ozone-containing water, for airplanes and rockets, as ship-, truck- or car propulsion, and so on.

## 12. license regulation

Ozone engine or ozone-containing water engine, is characterized as, 12.1 an engine that operates with oxygen or with water instead of carbonaceous engine fuel. It expands in ozone $O_3$ or in $H_6O_3$. As a result, no carbon dioxide ($CO_2$) is emitted.

12.2 Prof. Dr.-Ing. Konstantin Meyl has applied for a patent for the ozone engine or ozone-containing water engine (on October 21$^{st}$, 2021). EN 10 2021 127 321.8

12.3 The ozone engine or ozone-containing water engine may be produced and marketed by anyone for experimental purposes exclusively as single unit: for a maximum of 1 unit per month, the patent remains "open source"; i.e. a small and manageable quantity of engines may be developed and sold free of royalties: max. 1 engine per workshop and month.

12.4 It is recommended to inform the inventor about the ozone or ozoniferous water motors produced for experimental purposes.

12.5 The ozone motor or ozone-containing water motor is licensed for commercial use only. More detailed information can be obtained from the inventor.

## literature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