

Basic Science of MMS (Chlorine Dioxide)

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What this document is about:

The purpose of this document is to show basic scientific proofs and logic of MMS. Scientific references are given where ever possible. MMS is not a bleach. MMS is an oxidizer that kills the pathogens of many different diseases. The chemical of MMS has been used to kill pathogens for 100 years, and purify water. This paper gives the chemical formula of MMS and explains how it works and explains the simplicity of making MMS. The basics of oxidation is explained as that is necessary to understand how MMS works. MMS kills viruses in a different manner than oxidation and that is explained. Information is given on [MMS2](#).

MMS are the initials for Master Mineral Solution:

This solution consists mostly of water with chlorine dioxide as a very weak solution along with regular table salt, and several other trace neutral chemicals, such as sodium hydroxide, sodium carbonate, and sodium bicarbonate, none of which are considered poisonous. The trace chemicals are neutralized by the acid that activates the chlorine dioxide.

Chemical Structure of MMS:

MMS is a 22.4% solution of sodium chlorite. It is made by adding sodium chlorite to water. Or sodium chlorite can be bought from chemical companies already in water or it can be bought as a powder. However, it is the sodium chlorite from which (MMS) chlorine dioxide is generated. The chemical formula of sodium chlorite is NaClO_2 . Sodium chlorite is a very stable chemical. It has been stored in airtight containers for more than 20 years and solutions of sodium chlorite are fully usable after being stored for 5 years.

Chemical formula of chlorine dioxide:

Chlorine dioxide is the active ingredient in MMS after it is activated by acid (see below). The Chemical formula of chlorine dioxide is ClO_2 . That formula shows that there is one atom of chlorine (Cl) and 2 atoms of oxygen (O_2) in a molecule of chlorine dioxide. These 3 atoms are held together by electrons to form the molecule of chlorine dioxide. Chlorine dioxide is a gas and MMS is normally used in most cases as a gas dissolved in water. The gas can be used at times directly on the skin or even in the mouth.

Chlorine dioxide is one of the most effective killers of pathogens such as bacteria, molds, fungus, viruses, bio-film, and other disease causing microorganisms which includes the vast majority of diseases of mankind. [Ref. \(5\)](#)

Making chlorine dioxide:

Chlorine Dioxide is generated from sodium chlorite which is NaClO_2 . Sodium chlorite has a pH of 13 which means it is highly alkaline. When citric acid or most any other acid is added they bring that pH down towards the acid condition causing the sodium chlorite to become unstable and begin to release chlorine dioxide ClO_2 from the sodium chlorite NaClO_2 . The more acid that is added the more chlorine dioxide is released and at a faster rate. That is until all of the chlorine dioxide is released. You can see that sodium chlorite is an unusual chemical that is made largely of chlorine dioxide, but the chlorine dioxide does not become available until the acid is added.

As it was stated above, chlorine dioxide is a gas, but it dissolves in any water that is present or that it is mixed with. Normally there is water present when the acid is added and most of the gas will remain right in that water. Just use the right number of drops with the instructions and you are OK.

Is MMS a bleach?

MMS is not a bleach. Every single chemical known to man can be poisonous when taken in too large of quantities. Recently - a girl died from drinking too much water. Ninety five percent of the medicines known to man are extremely poisonous when used in large quantities. About 15 aspirins can kill a person. One half of a cup of most of the chemicals under your sink would kill a person. I am very very sorry that no scientist or scientific laboratory has ever written up and signed a scientific paper stating that MMS is not a bleach. The fact is, no laboratory ever thought that it would be necessary to come out and say that. It never occurred to any of them that someone would be dumb enough to start calling dilute solutions of chlorine dioxide a bleach. It is ridiculous to push the idea that MMS is a bleach as no one has ever used MMS for a bleach. [Ref. \(7\)](#)

However, let me state this: 60% of the water companies in the USA are now using chlorine dioxide to purify drinking water. Chances are very high that if you believe that MMS (again that is chlorine dioxide) is a bleach, then my friend you are now drinking bleach in your home. Do you think then it is logical to start a campaign saying, "STOP USING BLEACH TO PURIFY OUR WATER." Well, the girl that has it figured out and is telling the world that MMS is bleach, just might start another such campaign with water. I am using a bit of sarcasm here but I hope you understand that someone pushing the idea that MMS is a bleach is highly illogical, and is something that probably wouldn't happen unless they were being paid to do it.

This paper is written for the layman to understand. Sometimes scientific proof of things exist only in logic. For example, scientists have never come out with a written and signed paper saying that ocean ships don't fly, or that one cannot fly a Piper Cub to the moon. Many highly obvious things are simply left to logic and there are no scientific papers making many obvious statements. Another example would be that there is no scientific written paper that states that the water will run out of a glass of water if the glass is held upside down. Obvious things are just assumed in this paper written here, and in civilization as a whole. I hope you understand this point, because one woman assumed for some unknown reason that MMS is a bleach, thereby causing irreparable harm to many people by continuing to push the idea. There will be those with children with autism that will walk away without giving their children a chance to be cured this way.

What our critics do that makes them dead wrong:

The critics all make the same mistake. They start talking from a total ignorance of the entire subject of

MMS and what ever it is they think they have found wrong with our handling of MMS. In every case they do much damage as people believe them and then go away believing that MMS doesn't work. This means many people lose their chance to overcome their suffering and possible death, or in the case of autism, they lose their chance to recover their children.

The worst part is that the critics continue to insist that they are right and they refuse to study the literature concerning the subject. No critic can remain a critic if he studies the subject. The facts are in the chemistry and literature. We work directly with the facts. Why wouldn't we. Why would we, after a period of 15 years not know the facts.

I am sorry to say this, but the woman that has been parading out the data and idea that MMS is a bleach is making those statements like she knows what she is talking about and therein is the lie. She doesn't know what she is talking about and thus she is trying to sell us with the idea that her opinion is the truth. And that is the lie. No one has ever used MMS as a bleach as it cannot possibly bleach anything. But she says everything with such confidence that she knows when she cannot know. Something that cannot do what a bleach should do, cannot be a bleach. Vinegar, which is a weak solution of acetic acid which in much stronger mixtures is used to clean toilets and other messes. Are we going to say vinegar is a toilet cleaner and quit using it for cooking. Likewise baking soda, sodium bicarbonate, is used in small amounts for baking, do we quit using it because it is used in large amounts to clean toilets?

Chlorine dioxide is used for thousands of things in our society, mostly in industry. It is used in hospitals to sterilize the floors and benches. It is used in stock yards to purify the beef, once slaughtered. It was used in government buildings to kill anthrax. It is used throughout the US to purify water. A search of the literature will turn up hundreds of these things in any city. One of the things is that it might have been used somewhere as an industrial bleach for an industrial process but that would have to be a solution 1000 times stronger than MMS. The fact is, however, that it has never been used in homes anywhere in the world as a bleach of any kind. So what if it has been used as a bleach, does that somehow change the chemistry of it? Once a critic spends a few hours studying the chemistry of MMS, they simply have to give up being a critic as they find that we remain with the chemistry to the technology. Chemistry is chemistry and the laws of chemistry are often as well defined as gravity. So please, if you know a critic that is unintentionally spreading misinformation, please ask him to spend some time studying the literature, or the chemistry of chlorine dioxide. It will be good for all of us. [Ref. \(7\)](#)

Oxidation as use to kill microorganisms:

Chlorine dioxide kills most microorganism through the process of oxidation. Oxidation is not always understood, with many people thinking that oxidation is the process of adding oxygen to other substances. But that is not the case. Oxidation is the process by which substances are destroyed. The electrons that hold a substance together are pulled off by the oxidizing chemical and thus the substance then comes apart, which of course, destroys it.

Chlorine dioxide is unique in the chemical world because the chlorine dioxide molecule has a chemical characteristic that changes and makes it selective for pathogens. The change happens when the chlorine dioxide molecule pulls one electron from a pathogen which normally is not enough to damage the pathogen, but that electron comes over to the chlorine dioxide molecule and changes it to a greater strength, which then allows it to pull 4 more electrons from the pathogen. When this happens a thousand times or a hundred thousand times , the pathogen is destroyed mainly because this process blows a hole in the side of the pathogen. [Ref. \(6\)](#)

Just for your information there is another oxidation process which is called "chlorination", which involves the chlorine coming over and combining with the item to be oxidized, thus making new compounds. When this happens with chlorination, many times, one of the new compounds because of the chlorine involved, is carcinogenic (cancer causing). This information is just added for reference. Chlorination has nothing to do with MMS but it might confuse some of the critics who happen to use Clorox bleach in their laundry, but again - it has nothing to do with MMS. [Ref. \(6\)](#)

Killing Viruses:

In the cases of viruses, oxidation is not the process. When chlorine dioxide is present in the environment of the virus the special proteins of which the virus is constructed, are prevented from forming. The virus cannot grow and thus it dies. From experiments it appears that it takes a virus several hours and up to several days of the presence of chlorine dioxide before it dies. [Ref. \(8\)](#)

Oxidation potential:

The chemical ClO₂ is a weak oxidizer with an oxidation potential of .95 volts. The oxidation potential determines the strength of the ability of an oxidizer, to oxidize other compounds. Chlorine dioxide is the weakest of all the oxidizers that are ever used in the human body. For your reference, oxygen has an oxidation potential of 1.28 volts, hydrogen peroxide has an oxidation potential of 1.80 volts, and the strongest oxidizer ever used in the body, ozone, has an oxidation potential of 2.07 volts. [Ref. \(7\)](#) Ref. (Any good chemistry manual will show you that there are only a small number of oxidizers. The only ones that could possibly be used in the body - are the 4 listed here in this paragraph.)

Why the chlorine dioxide does not harm the body:

Chlorine dioxide has the weakest oxidation potential (.95 volts) of all the oxidizers. Oxygen has a the next highest oxidation potentials of 1.28 volts. Those oxidation potentials of .95 and 1.28 volts can do very little damage to the human body. This is because these voltages cannot overcome the opposing oxidation potentials in the human cells and tissues. And as you can see, if oxygen does very little or no damage then the lesser oxidation voltage of chlorine dioxide is not likely to do any damage at all. [Ref. \(3\)](#)

Chlorine Dioxide is highly selective and does not harm stomach and intestine useful microorganisms: Chlorine dioxide is highly selective for pathogens that cause diseases in the body, and does not kill the various useful flora of the stomach and intestines. This is due to the unique properties of the chlorine dioxide molecule. Please see several explanations given in the references. [Ref. \(8\)](#), [\(9\)](#)

Why chlorine dioxide is more effective than oxygen:

Oxygen does kill pathogens when it contacts them, but oxygen has other jobs in the body as well. It oxidizes various body poisons generated during the course of the day. These poisons have an oxidization potential that allows oxygen to destroy them, but oxygen becomes neutralized in the process of destroying the poisons of which there are many. As the poisons are often released deep in the tissues, they work their way outward and oxygen destroys them, by working its way inward towards the poisons and when they meet, the poison is destroyed and the oxygen is neutralized. However, because chlorine dioxide does not destroy much of the poisons that oxygen does destroy, it can go deeper into the tissues where many of the pathogens hide from the oxygen, because the oxygen is used up by the poisons before it reaches the pathogens. But since the chlorine dioxide is not used up by these

particular poisons, it can go much deeper into the tissues and the pathogens cannot hide from the chlorine dioxide.

Chlorine dioxide has 2.5 times more capacity to kill pathogens than oxygen. What this means is that a small amount of chlorine dioxide is equal to a much larger amount of oxygen and other oxidizers. It may not be as strong, but it has a larger capacity to do what it does. [Ref. \(7\)](#)

Treatment of diseases and training:

Actually - we don't consider that we treat diseases. We believe that our product MMS brings health to all and especially those who are sick. With the thousands of testimonies with most known diseases represented, we believe that MMS brings health to those who are sick regardless of what they may be sick from. Each person is expected to know and use MMS for himself, and his children. We have the literature and we provide seminars that covers MMS data thoroughly, giving each student the opportunity to do each protocol so that he knows it. The data is provided online, and many different emails addresses bring in hundreds of letters daily that are answered so that people can use MMS safely. Our church the [Genesis 2 Church of Health and Healing](#) has more than 400 ministers of health and Healing and 35 Bishops of Health and Healing (as of 06.2012). These Ministers and Bishops help all who asks, with information on how to use MMS - and they often provide the MMS for free.

MMS2:

MMS2 is made from calcium hypochlorite which is a water purifier used for swimming pools and many other water purification uses - including some public water works. When calcium hypochlorite is dissolved in water, it becomes hypochlorous acid with the formula of HOCl. This formula means that one atom of hydrogen, one atom of oxygen, and one atom of chlorine is held together with electrons creating a molecule of this acid. Normally this acid, hypochlorous acid, will do most of the things that MMS will do. It usually is used in combination with MMS in bringing health to those with what is normally called incurable diseases. It has consistently been proven that MMS2 aids the action of MMS (MMS1) towards health.

The hypochlorous acid molecule is an oxidizer that is a little bit more powerful than oxygen. It can pull 2 electrons away from a substance that is oxidizable. These electrons then come over and destroy the balance of the electrons of the hypochlorous acid which destroys it releasing all the components which, are of course, HOCl. The H (hydrogen atom) just becomes part of the water of the body, the Cl (chlorine atom) becomes part of the salt in the body, and the O (oxygen atom) then acts as what it is, an oxidizer, and it will then draw two more electrons from the oxidizable substance which could be a pathogen's side. When this happens in the thousands of times, a hole is created in the side of the pathogen. The pathogen dies. The electrons that are drawn from the pathogen come back to the oxygen, causing it to become neutralized and then, eventually, breathed out of the body as carbon dioxide. [Ref. \(10\)](#)

Proof that FDA does not consider chlorine dioxide poisonous:

Obviously if the FDA approves of the use of chlorine dioxide on food it does not consider chlorine dioxide to be poisonous. **See below:** Ref. (1), and (2)

(1)

21 C.F.R. § 173.300 Chlorine dioxide.

Title 21 - Food and Drugs I have quoted the FDA regulation here in a few sentences, but if you want to read more, just put the 21 C.F.R. and numbers in the search engine, Google or others, and you can read it all. Keep in mind that Acidified Sodium chlorite produces chlorine dioxide.

Title 21: Food and Drugs

- [PART 173—SECONDARY DIRECT FOOD ADDITIVES PERMITTED IN FOOD FOR HUMAN CONSUMPTION \(backup mirror\)](#)
- [Subpart D—Specific Usage Additives \(backup mirror\)](#)
- [Browse Next \(backup mirror\)](#)

(2)

21 .C.F.R § 173.300 Chlorine dioxide.

Chlorine dioxide (CAS Reg. No. 10049–04–4) may be safely used in food in accordance with the following prescribed conditions:

21 C.F.R. 173.325 Acidified sodium chlorite solutions.

CHAPTER I: FOOD AND DRUG ADMINISTRATION, DEPARTMENT OF HEALTH AND HUMAN SERVICES (CONTINUED)

SUBCHAPTER B: FOOD FOR HUMAN CONSUMPTION (CONTINUED)

PART 173: SECONDARY DIRECT FOOD ADDITIVES PERMITTED IN FOOD FOR HUMAN CONSUMPTION

Subpart D: Specific Usage Additives

173.325 - Acidified sodium chlorite solutions.

Acidified sodium chlorite solutions may be safely used in accordance with the following prescribed conditions: READ MORE BY GOING TO THE INTERNET AND PUTTING THE C.F.R. § 73.300 NUMBER INTO GOOGLE.

(3) <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1569027/pdf/envhper00463-0059.pdf> **Controlled Clinical Evaluations of Chlorine Dioxide, Chlorite and Chlorate in Man.** This is a report of a test where people were given Chlorine dioxide for months with no bad effects. Copy and paste in the internet address area if it doesn't work by click.

By JudithR. Lubbers,*Sudha Chauan,*and Joseph R. Bianchine ([backup mirror](#))

(4) Masschelein, W.J. and Rice, R.G. editors. (1979) Chlorine Dioxide Chemistry and Environmental Impact of Oxychlorine Compounds. Ann Arbor Science

Publishers, Inc., Ann Arbor, MI. p.98, 111-145.

(5) <http://www.clordisys.com/WhatIsCD.pdf> What is Chlorine Dioxide? Where is it used? How does it

work? This is a write up by a company that has been using chlorine dioxide for more than 20 years. It gives details about chlorine dioxide. ([backup mirror](#))

(6) <http://chemistry.about.com/od/chemistryglossary/g/Oxidation-Definition.htm> There are many definitions of oxidation on the internet. Some are partly wrong and some are dead wrong. The one given here is correct. So click this link for more information on oxidation. ([backup mirror](#))

(7) http://www.epa.gov/ogwdw/mdbp/pdf/alter/chapt_4.pdf The EPA (Environmental Protection Agency) sponsors a long accurate article concerning chlorine dioxide and its chemistry. ([backup mirror](#))

(8) <http://www.lenntech.com/processes/disinfection/chemical/disinfectants-chlorine-dioxide.htm#ixzz0wGZVFWL> Lenntech is one of the largest industrial companies specializing in chlorine dioxide technology of all kinds. Please use this article to learn the data of why chlorine dioxide is selective for certain microorganism and not others. ([backup mirror](#))

(9) <http://www.cdgenvironmental.com/content/chemistry> This is an article explaining chlorine dioxide and the selective ability of chlorine dioxide to select certain organisms over others. CDG Environmental is one of the largest users and sellers of chlorine dioxide. ([backup mirror](#))

(10) http://www.puricore.com/technology_humanbody.aspx This article tells how the MMS2 or hypochlorous acid works in the body to kill diseases. The body always needs extra hypochlorous acid and although some critics have questioned this, the fact is, the chemical in the body from which hypochlorous acids is derived is called myeloperoxidase. This chemical has long been known to be deficient in many people. So this fact can be verified by simply putting myeloperoxidase into the google search engine. ([backup mirror](#))

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