

Making 3000 ppm CDS Using MMS & 4% HCL 24+ Hours Single Infusion Inside A Refrigerator

September 2019 <https://mmsinfo.org/> **Recipe:** 360 ml distilled water + 18 ml MMS + 18 ml 4% HCL



Cut-down 8 fl oz canning jar for use as CLO2 reactor.



Test #1 using a small reactor. The liquid surface area is much too small in comparison to the large liquid surface area of the receiver container.



Five tests were run. Test #1 was not successful due to using a too-small reactor. See photo above. Test #2 was successful when a larger reactor was used, but it was discovered the receiver container was leaking out CLO2 gas. Test #3 reduced the leakage by improving the receiver lid seal. Test results are shown to the right. → →



750 ml capacity glass storage container used as CDS receiver. Cut-down 8 fl oz glass canning jar used as CLO2 reactor. Receiver gross liquid surface area=15,000 sq mm. Net area=9720 Reactor liquid surface area=3400 sq mm.

Photo to show CLO2 gas pressure inside receiver.



Plastic LDPE 'lid' dome shape caused by expanding CLO2 gas when making CDS.

These tests were performed to determine if 3000 ppm CDS could be made using MMS and 4% HCL. Normally, 10% HCL or 50% citric acid are needed to get 3000 ppm CLO2 CDS.

**All tests were run inside a refrigerator.
Single infusion method used.**

Test #1 960 ppm at + 12 hours.

Test #2 2900 ppm at +14 hours, 2600 at +36 hrs.

Test #3 2800 ppm at +12 hrs, 3190 at +36 hrs ✓

Receiver container still leaking CLO2 gas. Will test again using different glass food storage container.



Test #4 using a 1000 ml (1 liter) capacity glass food storage container as a CDS receiver. Three glass votive candle holders were used as CDS gas reactors.

The gross liquid surface area of the receiver is 18,000 sq mm and the net is 13,000.

The liquid surface area of the three reactors combined is 4150 sq mm.

This follows the same approximate 3:1 ratio of containers used in tests #2 & #3.

Recipe: 360 ml distilled water + 18 ml MMS + 18 ml 4% HCL. The 18 ml reactor solutions are equally divided among the 3 reactors; 6 ml of each ingredient per reactor.

**All tests were run inside a refrigerator.
Single infusion method used.**

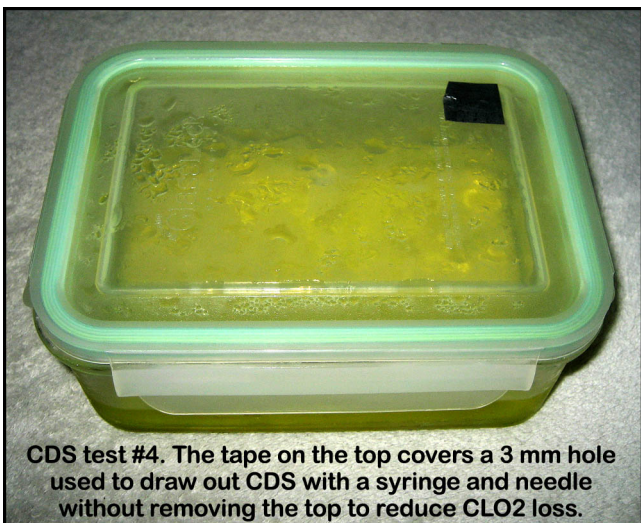
Test #4 2712 ppm at + 12 hours

Test #4 3175 ppm at + 24 hours ✓

Test #4 3180 ppm at + 36 hours

Maximum CLO₂ concentration occurred at +24 hours. The same amount of CLO₂ remained at +36 hours showing that the container is not leaking any CLO₂ gas out. The colors of both the reactor and receiver solutions appeared to be the same at +24 hours, so no more CLO₂ gas could be released from MMS.

60 mg of CLO₂ generated from 1 ml of MMS.



CDS test #4. The tape on the top covers a 3 mm hole used to draw out CDS with a syringe and needle without removing the top to reduce CLO₂ loss.



CDS test #4 at +36 hours. CDS & MMS + 4% HCL solution colors are the same as they appeared to be at + 24 hours. 9 September 2019

Test #5 used the same recipe as the previous 4 tests, but this time a very large glass jar was used for the receiver container. I wanted to know if a large amount of air space above CDS would reduce the CLO₂ concentration compared to the smaller jars used in previous tests. I assumed CDS ppm readings would be less due to the very large amount of air space as others have also suggested.

The jar used for the receiver container previously held sliced organic mangos and was purchased at Costco. The capacity of the jar is 1750 ml (1.75 liters). A thin piece of LDPE kitchen wrap was used as a gasket between the lid and jar top.



18 ml of MMS & 4% HCL were equally divided among the 2 votive candle holders.

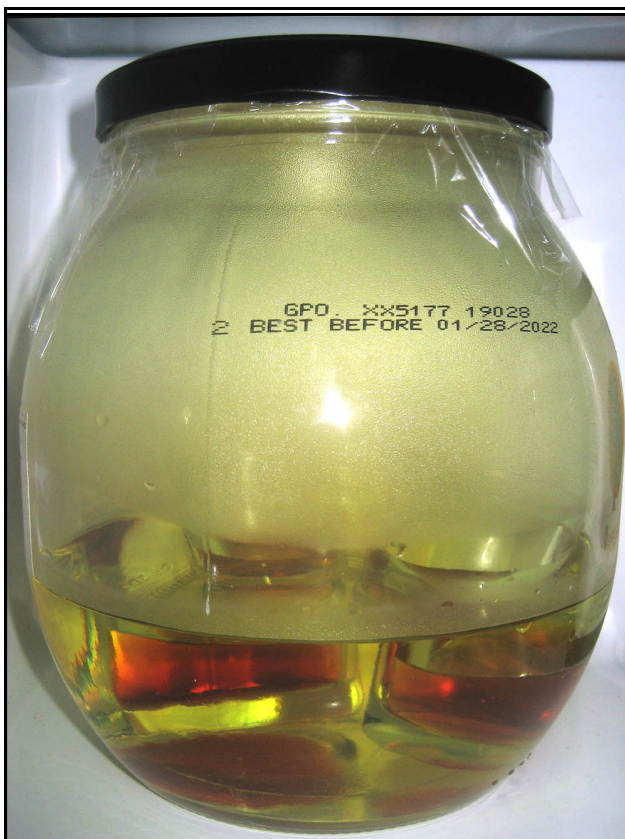


Photo a few minutes after start of test. The ratio of liquid surface areas of receiver to reactor is 2:1

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Receiver and reactor solution colors were equal at +36 hours and +48 hours.

Tests were run inside a refrigerator.
Single infusion method used.

Test #5 1944 ppm at + 12 hours
Test #5 2508 ppm at + 24 hours
Test #5 2628 ppm at + 36 hours
Test #5 3132 ppm at + 48 hours ✓

Summary: Recipe of water, MMS, 4% HCL is: 20 + 1 + 1 parts

1. Judging CLO₂ ppm by color is not accurate.
2. A receiver jar's large unused air space is not critical.
3. Receiver to reactor liquid surface areas should not be much more than 4 to 1. (4:1)
4. If you unable to measure CLO₂ ppm, then activate for 48 hours to be sure of getting 3000 ppm CDS.