

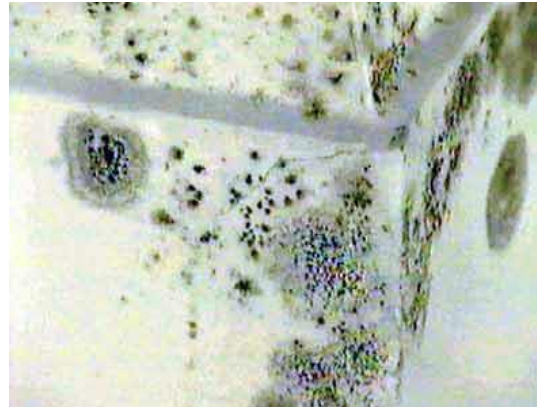
Gas Infusion Technology Apparatus Manual



The Rainbow Gas Infusion Technology Apparatus is a battery or mains powered system that provides a pre-determined batch dose of Chlorine Dioxide gas.

Designed for mould removal in homes, sheds and large buildings also disinfection of horticultural and animal husbandry facilities. The pre-dose is determined by the amount of stabilised chlorine dioxide solution and the amount and type of activator used.

A powerful aerator drives the activated chlorine dioxide gas from the relatively safe solution into the air and into circulation.



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Introduction

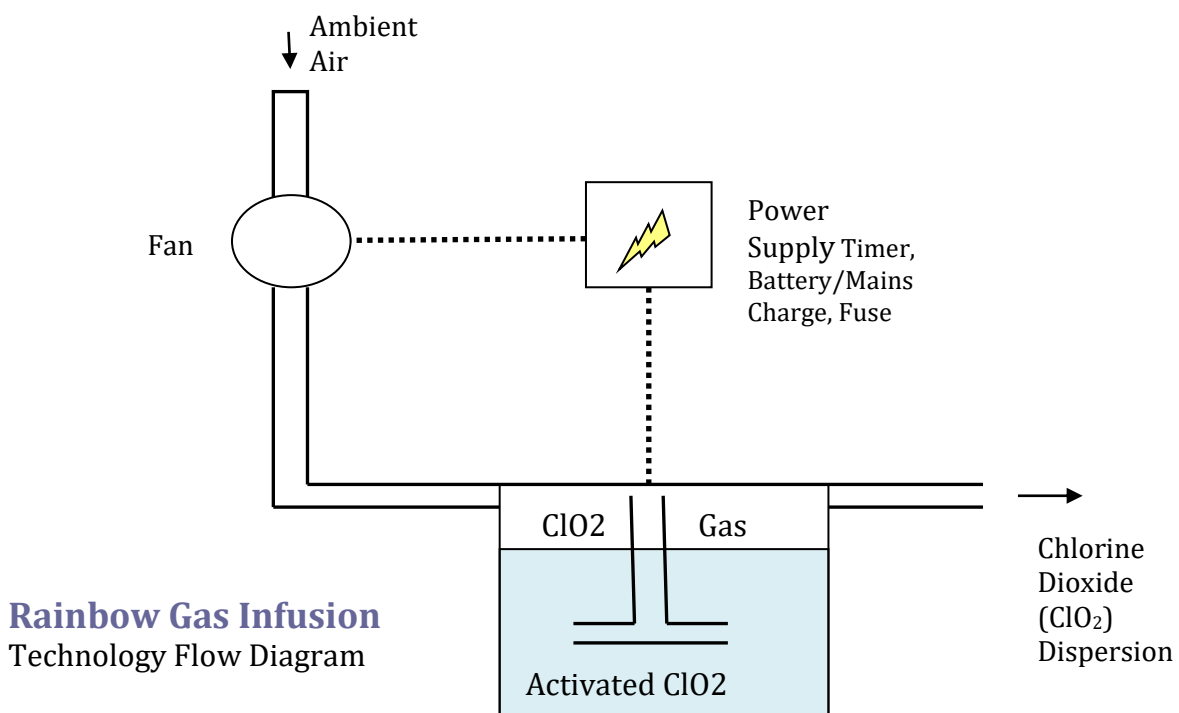
The Rainbow Gas Infusion Technology Apparatus (GITASAN) is a patented process for delivering fixed amounts of Chlorine Dioxide Gas. The Rainbow GITASAN is particularly suited for the removal of mould and fungus in small buildings, or disinfection of horticultural or animal husbandry facilities.

The key feature of the Rainbow GITASAN process is the use of a fixed amount of Stabilised Chlorine Dioxide solutions that are activated by a proprietary Rainbow Activator DRA2 to produce a predictable volume of Chlorine Dioxide Gas. The Rainbow GITASAN process maximises the amount of Chlorine Dioxide Gas that is kept in solution until it is released from the solution and into the air by the combination of the Rainbow micro-bubble technology and power air blowers that maximise the circulation. As a result, maximum safety is assured. The Rainbow GITASAN system is battery or mains powered, offering a high degree of flexibility in locations.

The pre-set concentrations of GITASAN Stabilised Chlorine Dioxide Solution, DRA2 Activator and the Rainbow GITASAN system are ideal for destroying mould in large rooms, homes and factories as well as horticultural and animal husbandry facilities.

Chlorine Dioxide gas is a potent oxidiser and sanitising agent with a short half life which makes it ideal to remove mould, pathogens and odours while not leaving potentially harmful residues. Large concentrations of chlorine dioxide in air can cause explosions and health risk and as a result the Rainbow GITASAN process is a major contribution in offering powerful and portable sanitation and mould removal systems with relatively high levels of safety.

It is important that the operator of the Rainbow GITASAN system should be accredited to use the system, understand building codes, safety procedures and competent to establish safety and evaluation protocols to ensure the effective and safe removal of mould from the site.





When to use Rainbow GITASAN

Chlorine Dioxide gas is a powerful oxidiser and biocide that is effective in killing bacteria, fungi, mould and other microorganisms. The Rainbow Gas Infusion Technology Apparatus was designed to offer a powerful solution for locations that are infested with mould or pathogens.

When not to use Rainbow GITASAN

The Rainbow Gas Infusion Technology Apparatus should not be used under the following conditions:

- In the presence of children or adults without appropriate protective gear
- In the presence of small animals and pets
- In areas that cannot be monitored by a responsible person for the entire treatment process
- If there are any materials present that can readily be oxidised
- If any unprotected materials can be damaged by chlorine dioxide e.g. electrical, carpets, furniture with finishes
- On porous dirty surfaces which may require cleaning and longer contact times.
- In areas that cannot be adequately sealed from potentially leaking chlorine dioxide gas
- In areas that do not meet the determined safety zone. (The safety zone will be determined by the operator and include adequate venting in case of accidental spill and/or total and rapid release of the chlorine dioxide gas)
- If the operator has not been trained in the mode of operation and safety requirements of large volumes of chlorine dioxide gas.
- If the operator is not using a safety plan that has been determined by a authorised person
- If the operator has not developed a comprehensive site treatment plan that includes: an estimate of the volume to be treated; the amount of chlorine dioxide gas required; the optimal contact time; the clean up required; the nature of materials in the area and their potential for porous penetration of the gas, the likelihood of oxidation; the risk and management of gas leaks; the risk and management of children and small animals; calculation of exposure levels and the development of a safe zone.

Rainbow Warranty

The GITASAN device is specifically designed for use with diluted GITASAN chlorine dioxide. Rainbow Filters Pty Ltd warrants that the GITASAN 4% product and DRA2 Activator contain the stated amount of ingredients. If used in accordance with the instructions in this manual the technology is likely to perform to expectations but no warranty is given or implied for use of the technology, which is at the risk of the user.



Important Things to do before using the Rainbow Gas Infusion Technology Apparatus (GITASAN) – Your responsibilities

The GITASAN device is intended for use only by those with Certification to use the GITASAN & GITASAN Chlorine Dioxide system, and with accredited training in mould, anti-bacterial remediation and odour removal techniques.

Users have the responsibility for the following areas:

Approvals

Site Inspection

- Porous materials
- Oxidation potential of materials present
- Mould removal goals – separate plan to remediation, treatment, risk planning and evaluation
 - Entire building
 - Air conditioning ducts
 - Electrics
 - Floor
 - Attic Space
 - Insulation
 - Between joists

Site Preparation

Safety Audit

Employees

Animals

Environment

Protection and Management of potential Oxidation risks

Testing Protocol

Leaks and their potential harm

Safe Zone and management

Overall Safety Plan

Overall customer assessment / approval plan

Safety

Aspirator and safety glasses should be used at all times in the presence of activated chlorine dioxide solutions



MACRO GITASAN OPERATIONAL INSTRUCTIONS

1. Fill Activation Tank with water to the desired level (See table for disinfection rate)
2. Adjust Gas Flow valve in proportion to water volume as marked
3. Add proportional volume of GITASAN 4%, stir to mix
4. Close lid and tighten bolts
5. Add DRA2 Activator via marked port or by removing the tank lid
6. Ensure hose fittings are secure (tape if in doubt)
7. Turn on power
8. Press red button ... LED light will glow red, showing power is on
9. Press red button again ... motor will start
10. Turn grey Timer Control to set time from 1 to 5 hours ... LED will flash to indicate the time chosen

**DO NOT REMAIN IN TREATMENT AREA WHILST GITASAN IS OPERATIONAL
WITHOUT APPROPRIATE BREATHING AND EYE PROTECTION**

Litres of GITASAN @ 40,000 ppm	Litres of Water	Total Stock Solution	DRA grams	ppm ClO2 @ 90% Activation	Area m ³	ppm ClO2 /m ³	ppm /m ³ v
4	26	30	300	144,000	400	360	1000
5	25	30	375	180,000	500	360	1000
6	34	40	450	216,000	600	360	1000
7	33	40	525	266,000	700	360	1000
8	32	40	600	252,000	800	360	1000
9	41	50	675	324,000	900	360	1000
10	40	50	750	360,000	1,000	360	1000
12	48	60	900	432,000	1,200	360	1000
14	46	60	1,050	504,000	1,400	360	1000
2 GITASANS x 8	2 x 32	2 x 40	1,200	576,000	2,800	228	638
2 GITASANS x 9	2 x 41	2 x 50	1,350	648,000	3,150	228	638
2 GITASANS x 10	2 x 40	2 x 50	1,500	720,000	3,500	228	638

MINI GITASAN OPERATIONAL INSTRUCTIONS

1. Place the required volume of water into the tank

2. Remove ExStinkt tabs from their foil wrap and place into the water in the tank in accord with the following scale:

1 tab to 1L = 2,000 ppm	400 ppm/m ³ in 10 m ³ = 1120 ppm ^{3v}
3 tabs to 1L = 6,000 ppm	300 ppm/m ³ in 20 m ³ = 840 ppm ^{3v}
4 tabs to 2L = 8,000 ppm	267 ppm/m ³ in 30 m ³ = 750 ppm ^{3v}
5 tabs to 2.5L = 10,000 ppm	250 ppm/m ³ in 40 m ³ = 700 ppm ^{3v}
6 tabs to 3L = 12,000 ppm	240 ppm/m ³ in 50 m ³ = 670 ppm ^{3v}
8 tabs to 3L = 16,000 ppm	267 ppm/m ³ in 60 m ³ = 750 ppm ^{3v}
9 tabs to 3.5L = 18,000 ppm	257 ppm/m ³ in 70 m ³ = 720 ppm ^{3v}

3. Press On/Off Button to connect battery
4. Press Small Metal Button on white panel to start
5. Light will flash and emit alarm warning
6. To turn alarm off, press flashing button again
7. GITASAN will run for two hours (Later models have 20 minute intervals)
8. Press Small Button to stop GITASAN at any time
9. NOTE: If light is flashing prior to pressing Start Button, this shows low batteries and unit will not run
10. Charge the batteries. NOTE: Always charge batteries after operation



GITASAN Dose Level Estimates



Gas Infusion Technology

Type	Shower Stall MINI	Small Room MINI	Large Room MINI	Small House MACRO	Small Shed MACRO	Large Shed MACRO	Small Warehouse MACRO	Outdoor Ventilation Zone
MINI								
Dimension Meters	1* 1* 2	3*3*2	5*5*3	10*20*2	3*3*4	6*6*5	10*20*5	60*60*60
Cubic Meters	2	18	75	400	36	180	1,000	216,000

PPM of Chlorine Dioxide per session

Potential Chlorine Dioxide Exposure in PPM per Cubic Meters over the duration of the GITASAN batch release

	2000	1,000	111	27	5	56	11	2	0.009
	4000	2,000	222	53	10	111	22	4	0.019
Litres of GITASAN									
1	8,100	4,050	450	108	20	225	45	8	0.038
2	16,200	8,100	900	216	41	450	90	16	0.075
3	24,300	12,150	1,350	324	61	675	135	24	0.113
4	32,400	16,200	1,800	432	81	900	180	32	0.150
5	40,500	20,250	2,250	540	101	1,125	225	41	0.188
10	81,000	40,500	4,500	1,080	203	2,250	450	81	0.375
20	162,000	81,000	9,000	2,160	405	4,500	900	162	0.75
30	243,000	121,500	13,500	3,240	608	6,750	1,350	243	1.13
40	324,000	162,000	18,000	4,320	810	9,000	1,800	324	1.50

NOT RECOMMENDED - THESE LEVELS ARE NOT SAFE IN CONFINED SPACES

NOTE: Tables are based on the headings and dimensions at the top of the page GITASAN Rate Table Assumptions



Gas Infusion Technology

#	Assumption for GITASAN Liquid	Reference
1	1 litre of 4% GITASAN solution has the potential to produce 40,000 ppm of Chlorine Dioxide if 100% activated	Rainbow in-house testing
2	1 litre of GITASAN solution diluted 1:5 has the potential to produce 9,000 ppm of Chlorine Dioxide if 100% activated	Rainbow in-house testing
3	DRA2 Activator is at least 90% effective	Rainbow in-house testing
4	WARNING – it is preferable not to use dilution water which may have impurities	Rainbow in-house testing
5	Chlorine Dioxide effectiveness is temperature dependant	http://www.epa.gov/ogwdw/mdbp/pdf/alter/chapt_4.pdf
6	Biocidal effectiveness	http://www.dioxide.com/Systems/Chlorine_Dioxide/chlorine_dioxide.html
7	MSDS Chlorine Dioxide	Rainbow Filters Pty Ltd
8	MSDS DRA2	Rainbow Filters Pty Ltd
9	USA OSHA Chlorine Dioxide Guidelines	http://www.osha.gov/SLTC/healthguidelines/chlorinedioxide/recognition.html
10	Chlorine Dioxide is soluble in water 6000 ppm at 77 degrees F.	http://www.onepetro.org/mslib/servlet/onepetropreview?id=00020626&soc=SPE
11	1500 to 2000 ppm solutions are safe for handling but potent oxidants	http://www.onepetro.org/mslib/servlet/onepetropreview?id=00020626&soc=SPE
12	Assorted Physical Properties of Chlorine Dioxide	http://www.lenntech.com/processes/disinfection/chemical/disinfectants-chlorine-dioxide.htm
13	Contact Times - minimum of 1 hour at 300ppm @ 20 degree C	

FOR FURTHER INFORMATION CONTACT RAINBOW FILTERS
PH: 1300-365-659 **www.rainbowfilters.com.au**