ProMed USA

products that REALLY work.

Model SG-C1

Mobile Disinfection Cart

ProMedUSA v100617

ProMedUSA Model SG-C1 Mobile Disinfection Cart

HAZMAT Decontamination with Ozonated Water

The ProMedUSA Model SG-C1 Mobile Disinfection Cart provides ozone enriched water for HAZMAT Response and general surface disinfection. It's manufactured in the USA for ProMedUSA by ClearWater Tech Ozone in California.

The SG-C1 is built with reliable state-of-the-art on-board technology, and powerful top-of-the-line components. Use it to wash down HAZMAT response areas and personnel, floors, walls, equipment, food chillers, stainless steel storage tanks, or rinse barrels and tanks with the push of a button and be assured that you receive the highly concentrated ozonated water you need to get the job done and kill germs, bacteria, mold and mildew. Easy to manoeuvre and simple to use, the C1 cart replaces traditional hot water and harsh chemicals with safe disinfection on contact using safe and pure ozone.

The SG-C1 Mobile Disinfection Cart is essential when you require ozone disinfection in multiple locations within a facility, different buildings, larger facilities, or when you simply want the convenience of mobility. It saves time and cost by simply converting normal tap water into a powerful stream of ozonated water containing up to 8-16ppm of dissolved ozone.

Note, that the FDA and various international testing laboratories have certified that 4PPM or less is all the dissolved ozone you need for a 5 to 6 log kill (99.999%) of all dangerous food pathogens, germs, viruses and

bacteria, mold and mildew including SARIN, Smallpox, Anthrax, E.Coli, Salmonella, Listeria, Hepatitis, Staph, MRSA, Hand Foot and Mouth, SARS, MERS, etc.

The SG-C1 Cart comes standard with a separately controlled ozone gassing feature. This supply of ozone gas offers you greater disinfection options and is used in the wine and brewing industry to gas and preserve stored barrels instead of using sulphur dioxide. Other uses include using the ozone gas to help disinfect HAZMAT tents, sealed containers or tanks, storage rooms, hospital rooms and operating theatres and as a part of your environmental disinfection protocol. Further, the ozone cart comes standard with a separately controlled oxygen gas feature useful in micro-oxy applications.

FEATURES

- Easy to use button controls/full system monitoring indicators
- Microprocessor controlled ozone system with built-in soft start and self diagnostics
- Rotary vane booster pump-boosts low pressure water supplies for better coverage
- Ozone gas production up to 18 grams per hour
- Ozonated Water up to 16 ppm depending upon flow (8.0 ppm at 10 gpm)
- Separately controlled ozone oxygen gas outlet
- Built-in oxygen concentrator delivering 93% oxygen at 15 SCFH
- Welded stainless steel tubing frame and water safe stainless exterior
- Built-in tool basket
- Designed for easy service access and maintenance
- Critical parts are fully-contained for water safe operation
- Designed with low center of gravity, well-balanced, and a small footprint

TYPICAL APPLICATIONS

- Civil Defense, HAZMAT, Chemical & Biological Decontamination
- Wineries, breweries, hard cider and beverage bottling facilities
- Surface sanitation of floors & walls, food chillers
- Disinfect shipping containers
- Meat, Poultry, Dairy, & general Food Processing, Commercial Kitchens
- Seafood Processing and Fishing vessels
- Hospitals and Clinics
- Bin Centres and Grease Trap Rooms
- Commercial Buildings – interior and exterior cleaning
- Shopping Malls, Shopping Centres and Public Plaza’s

THE PROMEDUSA SG-C1 MOBILE DISINFECTION CART

OZONATED WATER: UP TO 16 PPM
OZONE GAS: UP TO 18 G/Hr

Ozone Water Data

Ozone water decontamination data

Data by Ministry of Health, Labour and Welfare

Type of micro-organism		Aqueous ozone concentration ppm (mg/l)	Concentration of micro-organisms (No./ml)	Temperature (°C)	pH	Contact time	Death rate (%)
Viable bacteria	Colon bacterium	0.96	10^6 cells	21	7	5 secs.	100
	Staphylococcal bacteria	1.08	10^6 cells	21	7	5 secs.	100
Pseudomonas aeruginosa		1.01	10^6 cells	21	7	5 secs.	100
* (Bacillus tuberculosis) / Bacillus subtilis		0.3 - 0.5	10^6 cells	20	6.5	30 secs.	99.9
Influenza virus		0.96	$10^{8.5}$ EID50	21	7	5 secs.	100
Clostridia		0.96	10^6 cells	21	7	5 secs.	100
Perfringens		0.96	10^6 cells	21	7	5 secs.	100
Chicken encephalomyelitis virus		0.72	$10^{8.5}$ EID50	20	7	5 secs.	100
Canine infectious hepatitis virus		1.2	$10^{7.5}$ EID50	21	7	5 secs.	100
Canine parvovirus		0.96	$10^{8.5}$ TCID50	21	7	5 secs.	100
Chicken coccidium		1.92	Approx. 3×10^5 cells	20	7	30 secs.	100
Mold		0.3 - 0.5	10^6 cells	20	6.5	19 secs.	99.9
Yeast		0.3 - 0.5	10^6 cells	20	6.5	90 secs.	99.9

* The data on bacillus tuberculosis is based on information provided by the Research Institute of Tuberculosis, Japan Anti-Tuberculosis Association

Ozone water and Disinfectant Comparison Data

Disinfection object: Environment	Disinfectant: Appliance: Metal	Disinfectant: Appliance: Non-metal	Wound-healing: Fingers / Skin	Wound-healing: Mucous membrane	Excrement	Disinfectant	Object microorganism: Viable bacteria	MRSA	Pseudomonas aeruginosa, serratia etc.	Treponema Pallidum	Bacillus tuberculosis	True fungi	Spore bearing bacterium	Virus: Medium size containing fat	Virus: Small size not containing fat	Virus: HIV	Virus: HCV / HBV
○	△	△	○	○	×	Ozone water	○	○	○	○	○	○	○	×	○	○	○
△	○	○	×	×	○	Sterilhyde	○	○	○	○	○	○	△	○	○	○	○
△	△	△	×	×	×	Formalin	○	○	○	○	○	○	△	○	○	○	○
△	×	○	△	△	△	Sodium hypochlorite	○	○	○	○	△	○	△	○	○	○	○
△	○	○	○	×	×	Ethanol for disinfection	○	○	○	○	○	○	×	○	△	○	×
×	×	×	○	×	×	Welpas	○	○	○	○	○	○	×	○	△	○	×
△	○	○	○	×	×	Isopropanol	○	○	○	○	○	○	×	○	×	○	×
×	×	×	○	○	×	Povidone iodine	○	○	○	○	○	○	△	○	○	○	×
×	×	×	○	○	×	Prepodyne solution	○	○	○	○	○	○	△	○	○	○	×
×	×	×	○	×	×	Rare tincture of iodine	○	○	○	○	○	○	△	○	○	○	×
△	△	△	△	×	○	Phenol	○	○	○	○	○	△	×	△	×	×	×
△	△	△	△	△	○	Saponated cresol solution	○	○	○	○	○	△	×	△	×	×	×
○	○	○	○	○	×	Germitol	○	△	△	○	×	△	×	△	×	×	×
○	○	○	○	○	×	Benzethonium chloride	○	△	△	○	×	△	×	△	×	×	×
○	○	○	○	×	×	Maskin solution	○	△	△	○	×	△	×	△	×	×	×
○	○	○	○	○	×	Alkyldiaminoethylglycine hydrochloride	○	△	△	○	△	△	×	△	×	×	×

* Viruses included in excrement can be activated by ozone

* ○: Effective, △: Sufficient effect may be achieved, ×: Ineffective

Merits of ozone water decontamination

(1) Because decomposition and disinfection are performed while washing with ozone water, far superior effect as compared to decontamination with water can be achieved.
(2) Because ozone water is obtained from water and air, it need not be stored against emergency. There is no loss of ozone water as well.
(3) There is no variation in the cost as a result of usage frequency. The cost remains the same whether ozone water is used once or several thousand times.
(4) In the case of any disaster, the ozone water can be discharged as sewage after use.
(Even in the case of a disaster, as the contaminated water is broken down due to water decontamination, the cost and time required for post-processing is reduced to a great extent.)
(5) Reliable decontamination can be performed by using the CT value while checking the concentration of the ozone water.
(6) If the equipment is available, it can be taken to the workplace and used for all types of processing.
(7) Action can be taken even if the disinfection object is not clearly known.

Ozone water decontamination standard

Substance used	CT value	1 ppm (mg/l)	1.5 ppm (mg/l)	2 ppm (mg/l)	2.5 ppm (mg/l)	4 ppm (mg/l)	Death rate
Anthrax	6 to 10	6 to 10 min.	4 to 6.6 min.	3 to 5 min.	2.4 to 4 min.	1.5 to 2.5 min.	99.9%
Colon bacterium	0.6 to 1	36 to 60 secs.	24 to 40 secs.	18 to 30 secs.	14 to 24 secs.	9 to 15 secs.	100%
Staphylococcal bacteria	0.6 to 1	36 to 60 secs.	24 to 40 secs.	18 to 30 secs.	14 to 24 secs.	9 to 15 secs.	100%
Influenza virus	0.6 to 1	36 to 60 secs.	24 to 40 secs.	18 to 30 secs.	14 to 24 secs.	9 to 15 secs.	100%
Bacillus pestis	0.6 to 1	36 to 60 secs.	24 to 40 secs.	18 to 30 secs.	14 to 24 secs.	9 to 15 secs.	100%
Smallpox virus	0.6 to 1	36 to 60 secs.	24 to 40 secs.	18 to 30 secs.	14 to 24 secs.	9 to 15 secs.	100%
Hydrogen sulfide	1	60 secs.	40 secs.	30 secs.	24 secs.	15 secs.	
VX gas	10	10 min.	6.6 min.	5 min.	4 min.	25 min.	
Sarin	10	10 min.	6.6 min.	5 min.	4 min.	25 min.	

* The above values have been calculated based on the data of America CDC and the Ministry of Health, Labor, and Welfare.
* As regards the biological agents (because the bacteria and viruses cannot be measured), contact with the ozone water must be for more than the seconds and minutes determined after checking the ozone water concentration, while aiming at the CT value.
* Because the CT value and the decontamination time vary depending on the concentration of the disinfection object and the environment, these values are to be considered only as usage standards, and decontamination must be performed while checking a meter such as a counter. (As regards VX and sarin, some clearance is taken into consideration in the decontamination time.)

Ozone Gas Data

Gas Decontamination Technology

Features of gas decontamination

- Can be applied to non-heat resistant and non-water resistant equipment
- Has excellent permeability and diffusibility
- Bacterial resistance does not occur

Can be used in personal portable precision equipment, vehicles, and inside a shelter

Comparison of gas decontamination methods

Item	Hydrogen peroxide	Ozone	Ethylene oxide	Formaldehyde	Chlorine dioxide
Decontaminating property (performance against spore bearing bacterium)	○	○	○	○	○
Decontaminating property (performance against chemicals)	○	○	△	○	○
Effect on equipment	○	○	○	○	×
Effect on human beings	△	△	△	× (carcinogenicity)	△
Safe processing (processing time)	○	○	× (excessive processing time)	× (excessive processing time)	○
Total evaluation	○	○	×	×	×

Effect of disinfection of bacteria by low-concentration ozone gas

Bacteria strain	No. of unprocessed bacteria	No. of bacteria after ozone processing	Bactericidal effect	Ozone processing conditions
Colon bacterium	1×10^6	72	99.99	Ozone concentration: 1 ppm Processing time: 60 minutes
Staphylococcus aureus N20	5×10^6	57	99.98	
Staphylococcus aureus RN6677	5×10^6	45	99.99	
Streptococcus pyogenes	3×10^6	0	100	

See data provided by Laboratory of Microbiology, Showa Pharmaceutical University

Experiment category	Spraying amount of BCG Tokyo strain and time	No. of bacteria detected on a 7H 10 agar monotonous culture medium: Ozone	No. of bacteria detected on a 7H 10 agar monotonous culture medium: Positive control group
1	4.2 x 102 cfu/min	0	41
2	2.1 x 102 cfu/30 sec.	0	22
3	4.2 x 101 cfu/min	0	2
4	2.1 x 101 cfu/30 sec.	0	0
5	4.2 x 100 cfu/min	0	0
6	2.1 x 100 cfu/30 sec.	0	0

Research Institute of Tuberculosis, Japan Anti-Tuberculosis Association

Ozone gas bactericidal data

	Virus / bacteria	Bactericidal method	CT value (ppm x min)	Death rate (reduction rate) (%)		Virus / bacteria	Bactericidal method	CT value (ppm x min)	Death rate (reduction rate) (%)
(1)	Viable bacteria: Colon bacterium	Gas	60	99.99	(6)	Norovirus	Gas	72	100
(2)	Viable bacteria: Staphylococcus pyogenes (streptococcal bacteria)	Gas	60	100	(7)	Bacillus cereus IFO13494	Gas	24	100
(3)	Viable bacteria: Staphylococcus aureusIFO 12732 (streptococcal bacteria)	Gas	24	100	(8)	Vibio Parahaemolyticus IFO12711	Gas	24	100
(4)	New influenza (H1N1)	Gas	18	99.7	(9)	Salmonella typhimurium IFO14193	Gas	24	100
(5)	New influenza (H5N1)	Gas	60	100	(10)	Hydrogen sulfide	Gas	28	100

* Verification Institutions
(1), (2) Laboratory of Microbiology, Showa Pharmaceutical University
(4) Department of Viral Infection, Kitasato University
(5) The Ministry of Health, Labour and Welfare and the Fire Department
(6) Visionbio Corporation
(3), (7), (8) Japan Food Research Laboratories
(9) Okayama Industrial Technology Center
(10) Test results provided by Wakayama Fire Station Headquarters

Ozone gas decontamination standards

[Standards for various viruses and bacteria]

Colon bacterium, staphylococcus aureus (MRSA), pseudomonas aeruginosa, influenza virus, pests, bacillus tularensis, coccidioidomycosis, ebola, and smallpox virus

90% or higher decontamination standard CT value	25
99% or higher decontamination standard CT value	50
99.9% or higher decontamination standard CT value	60

(Note) The ambient humidity in the decontamination room is desired to be 60% or more.

[Standards for spore bearing bacterium (anthrax)]

90% or higher decontamination standard CT value	100
99% or higher decontamination standard CT value	150
99% or higher decontamination standard CT value	200

(Note) The ambient humidity in the decontamination room is desired to be 80% or more.

* The CT value standard is determined based on the CT value test performed by Showa Pharmaceutical University, Kyoto University (Japan Ozone Association), Sanyu Bookstore, Kitasato University, Japan Food Research Laboratories, and American Guideline CDC (Tokyo Healthcare University).

[Standards for chemical substances]

Hydrogen sulfide gas 90% or higher decontamination standard CT value	30
Hydrogen sulfide gas 99% or higher decontamination standard CT value	60
Chlorine gas 90% or higher decontamination standard CT value	30
Chlorine gas 99% or higher decontamination standard CT value	60
Ammonia 90% or higher decontamination standard CT value	75
Ammonia 99% or higher decontamination standard CT value	150

(Note) The ambient humidity in the decontamination room is desired to be between 60% and 80%.

[Processing time standard for a decontamination CT value of 60]

Starting from a zero ozone concentration when BT-082 is used in a closed space (humidity 60% or more and atmospheric temperature 20°C)

10 m^3	10 minutes
20 m^3	20 minutes
30 m^3	30 minutes

* The recommended space for the use of BT-082 is a 10 m3 space that is highly air tight.
The processing time (attainment time) of CT value 60 differs depending on the environment (dirt, air-tightness, atmospheric temperature, and humidity).

SG-C1 SERIES

Mobile Disinfection Cart

AGRI-FOOD

DAIRY FARMS

HATCHERIES/FISHERIES

WINERIES

ALL SURFACE CLEANING

Hose and wash gun not included

C-SERIES MOBILE DISINFECTION CART

Food and beverage professionals understand the benefits of ozone as a disinfection tool and a safe organic solution that can replace traditional or harsh chemicals. The trick has been, finding the perfect product that's powerful, effective, well designed and reliable, yet affordable. The ClearWater C-Series mobile disinfection cart is the perfect one-stop solution.

Designed specifically for clean-in-place and surface sanitation, the C-Series mobile disinfection cart uses ozone-enriched cold water supplied at the rate and concentration you desire. Wash down floors, walls, process equipment, rinse barrels, tanks, and any surfaces with the push of a button.

The C-Series mobile disinfection cart comes standard with a separately controlled ozone gassing feature. This supply of ozone gas offers you greater disinfection options and is typically used to gas and preserve stored barrels instead of Sulfur Dioxide.

In addition to ozonated water, ozone gas will help disinfect sealed containers or tanks, and work as a part of your environmental disinfection protocol. Further, the mobile cart comes standard with a separately controlled oxygen gas feature useful in micro-oxy applications.

APPLICATIONS:

- Seafood processing
- Wineries
- Breweries
- Cideries
- Bottled Beverages
- Surface sanitation of floors/walls
- Dairies
- Meat processing
- Poultry processing
- Food processing

FEATURES:

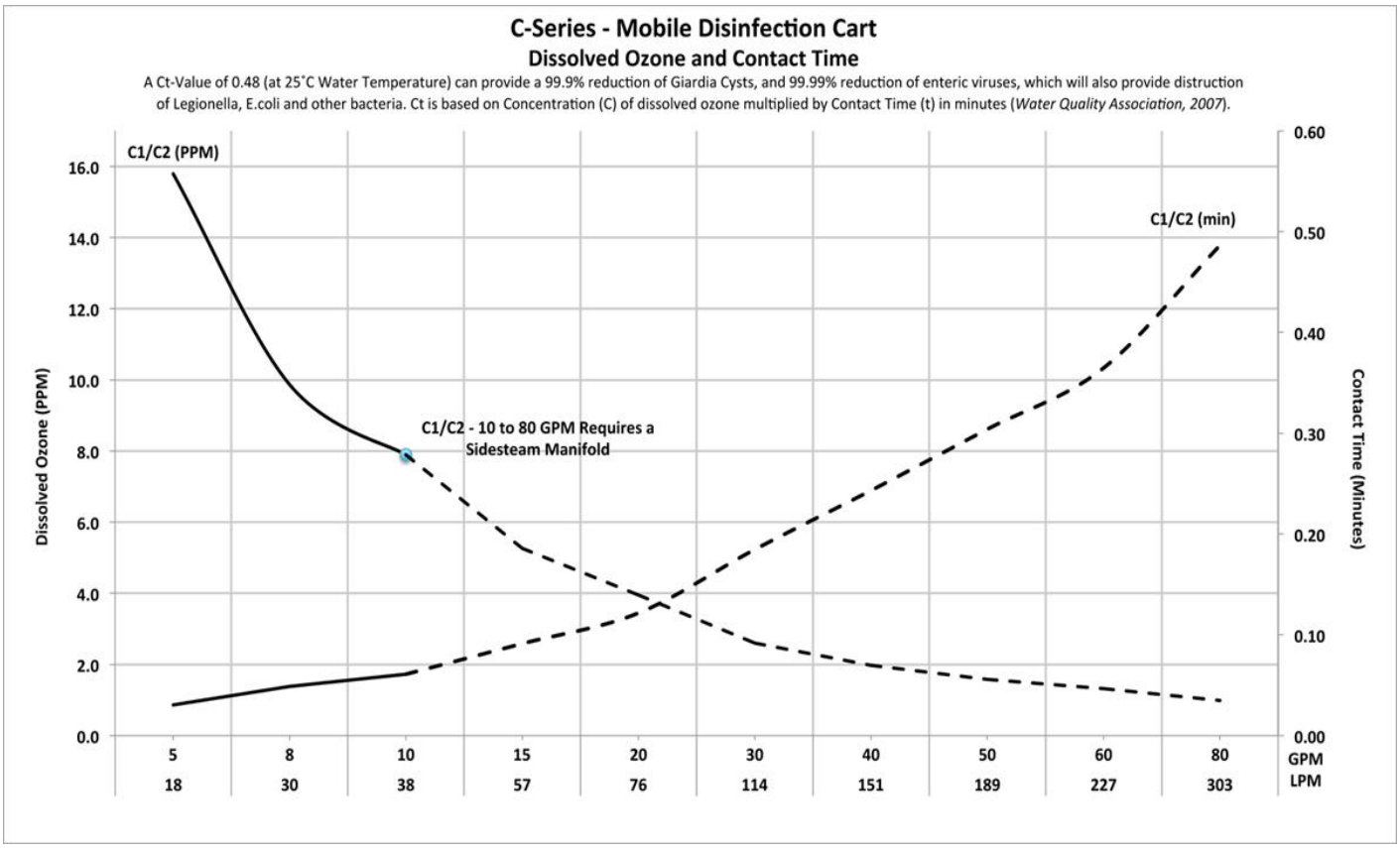
- Easy to use push button controls – full system monitoring indicators
- Microprocessor controlled ozone system with built-in soft start and self-diagnostics
- Rotary vane booster pump – boosts low pressure water supplies for better coverage
- Ozone production up to 18 grams/hour via gas outlet
- Typical ozone dosage rate is 8.0 ppm at 10 gpm (higher flow with side stream)
- Separately controlled ozone and oxygen gas outlet (user programmable)
- Built-in oxygen concentrator delivering 93% oxygen at 15 SCFH
- ¾ FNPT inlet (optional front or back location) and outlet
- Welded stainless steel tubing frame and water safe stainless exterior
- Built-in tool basket
- Designed for easy service access or maintenance
- Critical parts are fully-contained for water safe operation
- Designed with low center of gravity, well-balanced, and a small footprint
- Ozone/oxygen gas flow meter

C-SERIES MOBILE DISINFECTION CART SPECIFICATIONS			
Electrical	Main Power - GFCI protected	C1	110 VAC 60 Hz, 12 amps
		C2	220/240 VAC 50/60 Hz, 7 amps
	Power cord		10 feet
Ozone Gas Output	Ozone output via gas outlet		18 g/hr @ 12 SCFH oxygen, 4% by weight
Water Inlet	Water Inlet pressure (min-max) Water inlet temperature (min-max)		40 psi 50ºF - 100ºF
Ozone Water Output	Dissolved ozone water (max) @ GPM		8.0 ppm @ 10 GPM*
Water Supply Connections	Water inlet hose connection Dissolved ozone/water outlet		Tri-clover or 3/4" FNPT Tri-clover or 3/4" FNPT
Dimensions	54.3" h x 20.6" w x 26.3" d; weight: 160 lbs.		
Oxygen Gas Output	Oxygen output via gas outlet		90 +/- 3% @ 15 SCFH
Ozone/Oxygen Gas Outlet	Separately controlled Programmable Timers		Push connect fitting

*Anticipated results obtained at 7.5 pH, 70ºF municipal water. PPM is stated at 100% mass-transfer.

OPTIONS:

- Water hoses • Barrel washers • Tri-clover fittings • ORP monitor • Dissolved O_3 monitor • Ambient ozone monitor • Dissolved ozone test kit



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ProMED USA
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