



# aquacide®

Thermodynamic Sterilization

**NON-CHEMICAL**  
Destruction of Viruses, Bacteria  
& Vegetation on Contact



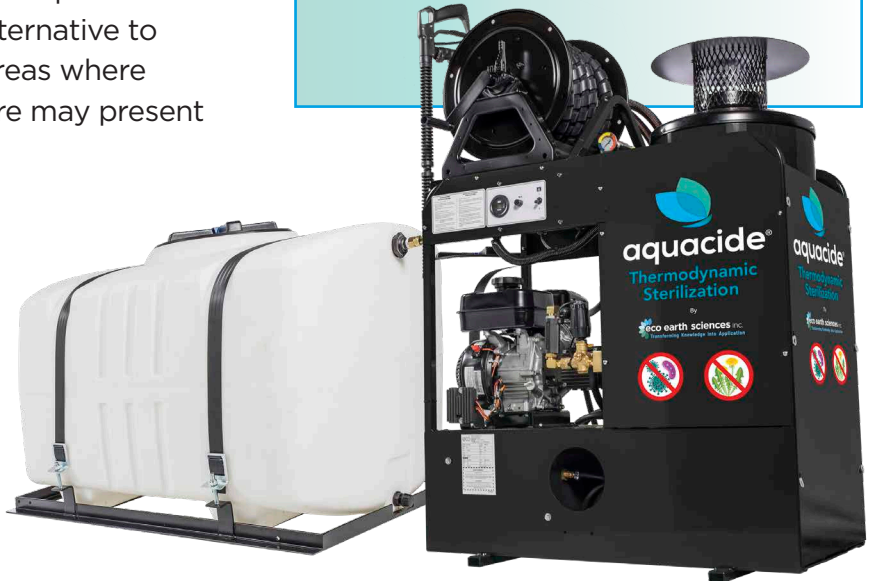
**AQUACIDE® Thermodynamic Sterilization** is a technology where Water, **NOT Steam** is Superheated beyond 125°C (260°F) and applied while still in a liquid state under low pressure.

The extreme temperature of the Superheated water sterilizes the target on contact, destroying viruses and killing pathogenic bacteria, protozoa in addition to mold, fungus or vegetation.

The **AQUACIDE® Thermodynamic Sterilization** process provides an extremely safe and effective alternative to chemical applications especially in urban areas where combustion, drift, direct or indirect exposure may present a secondary hazard.

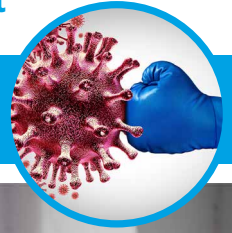
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 **eco earth sciences inc.**  
Transforming Knowledge into Application



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## TARGETING COVID19



### WHAT IS A VIRUS?

**A virus is genetic material contained within an organic particle that invades living cells and uses their host's metabolic processes to produce a new generation of viral particles.**

- The virus is not a living organism, but a protein molecule (RNA) covered by a protective layer of lipid (fat), which, when absorbed by the cells of the ocular, nasal or buccal mucosa, changes their genetic code. (mutation) and convert them into aggressor and multiplier cells.
- The virus is not a living organism like bacteria; you cannot kill what is not alive with antibiotics.
- The virus is fragile however; protected only by a thin outer layer of lipid (fat).

### TREATMENT

It is essential that we remain diligent and control all possible direct human to human exposure pathways.

It is equally important that we control indirect transmission as well where the virus may pass from a person to a surface or object and from that surface or object to another person.

**Preliminary reports suggest that COVID-19 can survive for up to 2-3 days on some surfaces. Location sterilization measures should be implemented and maintained to protect against any future viral transference threat.**

One of the most accepted forms of microbial control is through the use of heat. In fact, the CDC recommend heat energy as the preferred method for sterilizing medical and surgical instruments.

**The extreme heat energy contained in the Superheated water produced by the Aquacide<sup>®</sup> liquefies, oxidizes and destroys both the protective lipid layer of the virus as well as the protein molecule.**

**The ability for superheated water to flow around and envelope its target ensures coverage and heat uniformity in the most difficult, hard to reach locations and crevices.**





## DECONTAMINATION / STERILIZATION



The Extreme temperature of **Superheated Water** sterilizes target surfaces and inactivates all resistant bacterial spores in addition to fungi, bacteria, and viruses.

### THERMODYNAMIC STERILIZATION

**Thermodynamics** is the branch of physics that deals with the relationship between heat and other forms of energy. It describes how thermal energy is converted to and from other forms of energy and how it affects matter.

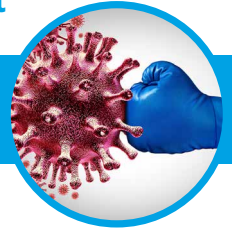
**Sterilization** refers to any process that eliminates, removes, kills, or deactivates all forms of life (in particular referring to microorganisms such as fungi, bacteria, viruses, spores, unicellular eukaryotic organisms such as Plasmodium, etc.) and other biological agents like prions present in a specific surface.

An **Autoclave** is a device that uses 121°C (250°F) + Superheated steam under low pressure to effectively sterilize medical instruments; non chemically.

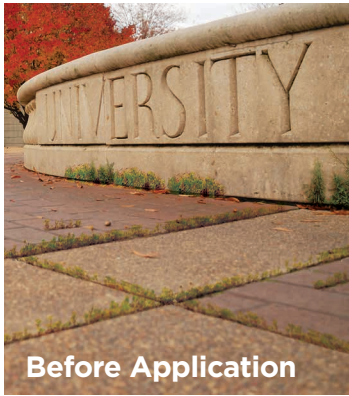
The **Aquacide**<sup>®</sup> is a device that uses 125°C (260°F) + Superheated water under low pressure to effectively sterilize large areas and surfaces; non chemically.

**Aquacide**<sup>®</sup> **Thermodynamic Sterilization** is used in high traffic, public pedestrian locations to control possible contact and transmission of any viral or bacterial contamination.

- Schools and Public Buildings
- Concourse, Facility Entrances
- Common Areas, Public Squares
- Plazas, Malls, Shopping Centers
- Transit Stops, Stations & Platforms
- Transit Vehicles & Equipment
- Handrails, Escalators, Steps and Benches
- Park Buildings, Amenities and Accessories
- Playground/Water park Equipment
- Sport Facilities/Bleachers
- Food Preparation/Dining Areas
- Public/Farmers Markets
- Entertainment Venues
- Healthcare Facilities



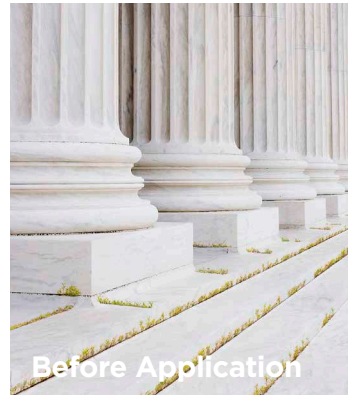
## NON-CHEMICAL HERBICIDE



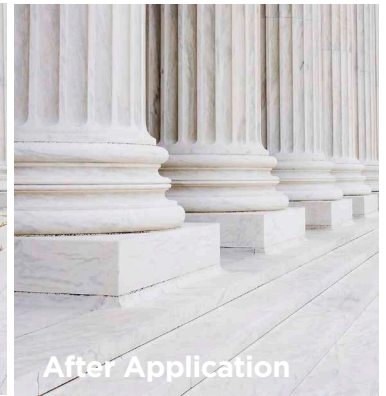
Before Application



After Application



Before Application



After Application

### The **AQUACIDE**<sup>®</sup> - A RESPONSIBLE ALTERNATIVE TO CHEMICAL HERBICIDES

To kill a biological as complex and structured such as a plant or weed without the use of chemicals, you need a great deal of heat and that heat must also be safe. Open flame and combustibles are not practical for these reasons.

Steam can be heated but cools too quickly. Steam also has a hot spot rather than enveloping a target and evenly distributing heat. High Pressure also accompanies steam.

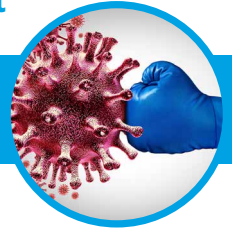
Water may be superheated, but usually only in a controlled environment as it converts from a liquid to a gas at 100°C (212°F). Saturated vapor pressure rises with an increase in water vapor as well!

**Aquacide<sup>®</sup> is an innovative breakthrough as the proprietary process allows incredible levels of heat to be transferred to the water; for that now superheated water not to gain significant pressure; and for that water to remain in liquid state at the point of application.**

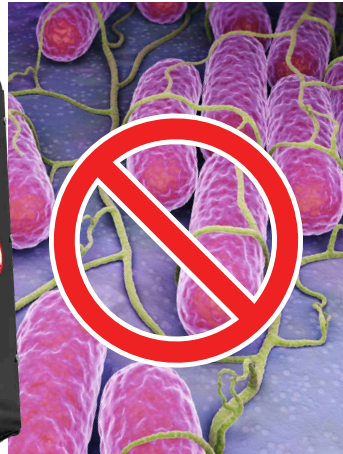
**The extreme temperature of the Superheated Water immediately destroys the cellular structure of vegetation killing the plant or weed on contact.**

The AQUACIDE<sup>®</sup> process of vegetation control provides a safe and dependable alternative to chemical herbicides used in:

- Parks
- Golf courses
- Playgrounds
- Public areas
- Greenhouses
- Near Waterways
- Sport Facilities/Bleachers
- Edge around trees & shrub beds
- Interlock, unit & cobble stone
- Roadways and shoulders
- Line-marking of sport fields
- Expansion & Control Joints
- Gum Removal
- Graffiti Removal
- Utility vaults and substations



## WHY AQUACIDE?



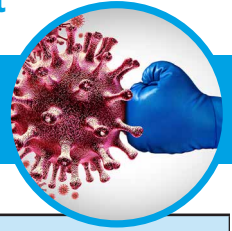
**AQUACIDE<sup>®</sup> Thermodynamic Sterilization uses only Water, superheated in excess of 125°C (260°F) and is applied under low pressure while still in a liquid state.**

### OTHER CONSIDERATIONS:

- Superheated water under low pressure ensures maximum coverage with minimum blow-back or scatter
- Destroys viruses or bacteria on contact
- Uses superheated water to sterilize - NO Toxic chemicals or combustibles
- No harmful drift, direct or indirect exposure concerns
- Safe to people and wildlife
- Can be used near bodies of water
- Application unaffected by weather; can be done in both wind and rain
- Easy to operate, One-person operation
- No groundwater, storm water or environmental contamination concerns
- Elimination of the hazards and costs associated with handling, licencing, posting, transporting and storing of chemicals
- Multifunctional - bacterial, viral and vegetation management
- Portable and compact. Can be mounted on existing equipment.

**SAFE | EFFECTIVE | RESPONSIBLE**





## AQUACIDE MODEL 355TS - SPECIFICATIONS

<b>ENGINE</b>	
<b>ENGINE</b>	6.5HP Vanguard gas engine, manual start, four stroke/ 3450 rpm. Oil alert protection.
<b>ENGINE CHARGING SYSTEM</b>	12 volts-240 watts
<b>BURNER &amp; COIL</b>	
<b>CAPACITY</b>	350,000 BTU/H
<b>CONSUMPTION</b>	2.5 GPH (9.5 L/H (no 2 fuel oil maximum consumption)
<b>FUEL TANK</b>	9.7 gal (37 liter) tank gives approximately 3.75 hours of heating at continuous full temperature use
<b>BURNER</b>	12 volt electronic ignition
<b>PRESSURE PROTECTION</b>	Safety valve at the coil outlet
<b>MAX OPERATING TEMP</b>	305°F (151°C)
<b>COMBUSTION QUALITY</b>	0 PPM of CO (carbon monoxide), 710°F (376°C) at the exhaust , 0 smoke
<b>PUMP, HOSE &amp; REEL</b>	
<b>TYPE</b>	3 plunger type ceramic pistons, oil bath pump, brass connecting rods, ball bearings
<b>MODEL</b>	3 GPM (11.4L/Min)
<b>SPEED</b>	3450 rpm
<b>SHAFT</b>	¾" hollow shaft
<b>REGULATOR</b>	Adjustable pressure
<b>HOSE &amp; REEL</b>	Manual 50' hose reel
<b>GUN</b>	8 GPM (30 LPM) capacity, 320°F
<b>APPLICATORS</b>	3" & 12" open wand interchangeable tools (standard).
<b>GENERAL</b>	
<b>FRAME SIZE</b>	23" x 40" x 57" Height
<b>WATER CONSUMPTION</b>	Approx. 2.6 gal/min (9.8 L/min max)
<b>SHIPPING WEIGHT</b>	Machine weight - 550lbs (250kg) Shipped on pallet, weight - 594lbs (269 kg)
<b>WARRANTY</b>	ECO Earth Sciences Inc. warrants only to the original retail purchaser ("Warrantee") that this product shall be free from defects in material and workmanship for a period of one year from the date of purchase.





## OUR CLIENTS

**ECO Earth Sciences Inc. is proud to have had the opportunity to work with a number of highly respected business partners over the years.**

Many organizations from the Private Sector, Government Agencies, Ministries, the Military, Education and over 200 Municipalities, Counties and Regions have placed their trust and confidence in technologies and solutions developed by ECO Earth Sciences Inc.

Here are but a few of note:

