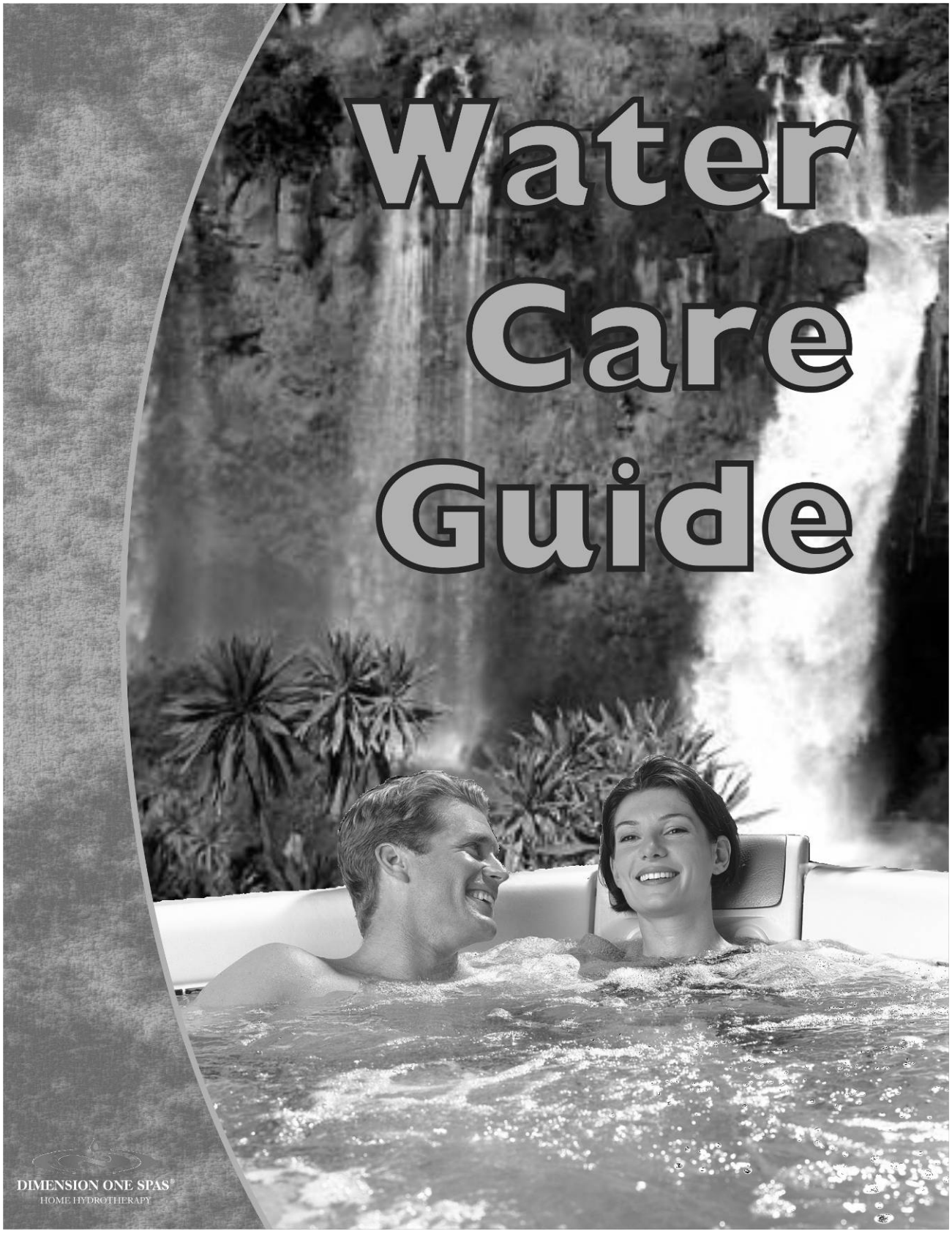
Water Care Guide



DIMENSION ONE SPAS®
HOME HYDROTHERAPY

Table of Contents

Water Care

Water Start-Up Procedure

Warning	Never add any chemicals until ***all*** occupants are out of the water. Chemicals coming in contact with humans can cause skin or eye irritation.

Note	All chemical dosages in this manual are based on treating 100 gallons (379 liters) of water. Refer to the Capacity Table in the D1 Water Care Guide Supplement for the details on the capacity of your model and adjust the dosage appropriately.

Note	One ounce (29.6 ml) is approximately equal to two tablespoons or six teaspoons .

The procedures in this section must be followed upon your initial water fill, anytime you drain or fill your Dimension One product, or if your source water changes.

Test Your Water

Check Water Hardness

Test your "source water" for **Calcium**, **Total Dissolved Solids** (TDS) and **Metals** (i.e. Iron, Copper, and Manganese). Consult with an authorized Dimension One Spas Dealer if you need assistance testing your "source water". It is also possible that your dealer may already have the necessary results for your area. Knowing these three "source water" conditions is important to properly balancing your water.

Properly balanced water can greatly prolong the life of your equipment and make it easier to maintain healthy clean clear water. The following three "source water" conditions typically only need to be tested once, however, you should retest if you move, or your "source water" changes.

1. **Calcium Level – (*Acceptable Calcium Range is 200 – 400 ppm)***

   This should be between 200 and 400 ppm (parts per million). If it is not, **contact your dealer for guidance.**

2. **TDS** – ***(Acceptable range is 300 – 2000 ppm)***

   Should be above 300 ppm.

   For Example: If your **Calcium** is 200 ppm and **TDS** is only 200, then you may add 1 ½ oz (44.4 ml) **Sodium Chloride** (common table salt) to raise **TDS** to the 300 ppm (minimum ppm). 1 ounce (29.6 ml) of **Sodium Chloride** per 100 gallons (379 liters) of water will raise **TDS** by approx. 63 ppm.

3. **Metals – (Acceptable range is None)**

If metals are present, add ½ ounce (14.7 ml) per 100 gallons (379 liters) of Dimension One Spas' **Sequestrant**, while water is being added to the system.

Recording Test Results

Record your test results in this table for future reference. This table can then be used for future water changes or major refills without retesting – unless you move or something changes your local source water.

Water Refill Data Table				
Model Type:			**Capacity (From Table):**	**gallons (liters)**
	Ideal Conditions	**Your Water**	**Required Adjustments**	**Actual Chemical Additions**
Calcium (Hardness)	200 – 400 ppm	_____ ppm	See your dealer if not between 200 – 400 ppm	Add _____ ounces/milliliters of _____
Total Dissolved Solids (TDS)	300 – 2000 ppm	_____ ppm	1 ounce (29.6 milliliters) of **Sodium Chloride** per 100 gallons (379 liters) (table salt) raises **TDS** content by 63 ppm	Add _____ ounces/milliliters of Sodium Chloride (table salt).
Metals	None	_____ ppm	½ ounce (14.7 milliliters) of **Sequesterant** per100 gallons (379 liters)	Add _____ ounces/milliliters of **Sequesterant**

Check Your Water

Total Alkalinity

Total Alkalinity (**TA**) is a measurement of the water's ability to resist changes in **pH** (Hydrogen Ion Concentration). **TA** affects and buffers the **pH** of the water. With **TA** above 120 ppm, **pH** becomes difficult to adjust. With **TA** below 80 ppm, **pH** becomes unstable and is more difficult to keep in the ideal range. Proper **TA** levels also allow other chemicals to perform optimally.

Test the **Total Alkalinity** (**TA**) and **pH** utilizing the **Test Strips** (available in **Spa Starter Kits,** from your local Dimension One Spas dealer.

1. Turns the jets off

2. Follow the directions on the Test Strips container to ensure an accurate reading.

   TA should read between 80 - 120 ppm, and
   pH should read between 7.2 - 7.8


Note

Adjust **Total Alkalinity** first, when **TA** is in the proper range, adjust the **pH**, then check and adjust the sanitizer level.

Use the following guidelines if you need to make adjustments:

1. **Total Alkalinity is above 120 ppm**

    a. Turn the jets off and then add 1 ounce (29.6 ml) of **pH/Alkalinity Decreaser** into the center of the water area.

    b. Wait 1 minute, then turn the jets on at high speed for at least 5 minutes.

    c. Turn jets off and retest.

    d. Repeat this procedure until the **TA** reads close to 80 ppm.


Note

When **Total Alkalinity** is above 120 ppm the **pH** will change slower than the **Total Alkalinity.**

2. **Total Alkalinity is below 80 ppm**

    a. Add 1 ounce (29.6 ml) of **pH/Alkalinity Increaser** with the jets turned on high speed.

    b. Continue running jets on high speed for at least 5 minutes.

    c. Turn the jets off and retest.

    d. Repeat this procedure until the **TA** reads close to 80 ppm.


Note

When **Total Alkalinity** is below 80 ppm the **pH** will change faster than the **Total Alkalinity.**

pH Control

All bodies of water have **pH** (Hydrogen Ion Concentration), which is a measurement of the Hydrogen ion concentration in the water. A **pH** reading of 7.0 is considered neutral, a lower reading is considered "acidic" and a higher reading is considered "basic". The proper **pH** for your water should be between 7.2 – 7.8. High **pH** (above 7.8) can reduce sanitizer efficiency, cloud the water, promote scale formation on surfaces and equipment, and interfere with filter operations. When **pH** is too high, add **pH/Alkalinity Decreaser**. Low **pH** (below 7.2) is equally damaging and can cause equipment corrosion, water that is irritating, and rapid sanitizer dissipation. When **pH** is too low, add **pH/Alkalinity Increaser**.

1. **pH above 7.8**

    a. First, test and adjust **Total Alkalinity** per the instructions in the Total Alkalinity section then test and balance the **pH**.

b. Add 1 ounce (29.6 ml) of **pH/Alkalinity Decreaser** with the jets turned to high speed.

c. Continue running jets on high for at least 5 minutes.

d. Turn the jets off and retest.

e. Repeat procedure until the **pH** reads between 7.2 – 7.8.

2. **pH below 7.2**

a. First, test and adjust **Total Alkalinity** per the instructions in the Total Alkalinity section then test and balance the **pH**.

b. Add 1 ounce (29.6 ml) of **pH/Alkalinity Increaser** with the jets turned to high speed.

c. Continue running jets on high for at least 5 minutes.

d. Turn jets off, retest and repeat procedure until the **pH** reads between 7.2 – 7.8.

Water Sanitation

Before describing the actual procedures for sanitizing your water it will be helpful for you to understand the general concepts of water sanitation.

Chlorine

What is Chlorine

Chlorine is the most commonly used pool sanitizer. In addition to killing bacteria, Chlorine, like Bromine helps to kill algae and oxidize waste material not removed by your filter. Chlorine is a gas in its natural or elemental state. Because Chlorine gas is very toxic and hard to handle, Chlorine is usually combined with other compounds to form liquids or solids. These liquids and solids are effective sanitizers and are safer to handle than Chlorine gas. You should only use Di-Chlor Granuals in a spa. Chlorine sanitation can be initiated by using a **Chlorine Starter Kit**.

Ozone Sanitation For Your Water

One of the best technologies in the spa industry is the use of ozone as a sanitizer. Ozone treatment is a simple idea that has been around for a long time. Ozone gas is Oxygen with three atoms instead of two. When Ozone comes into contact with water-borne material, it releases its extra atom onto that material. So the algae, bacteria, body oils, or other contaminants are oxidized, or burned up, by the extra Oxygen atom.

Another positive aspect of ozone is the fact that it is a clean chemical. Its only by-product is Oxygen, which is released into the air. It is produced on an "ongoing basis" by combining electrical discharge or ultraviolet light to dry air to drive the process of changing Oxygen into Ozone.

Ozone is an effective sanitizer because it is highly reactive. However it decomposes quickly. This means that you must also use an additional method for residual sanitation of your water, such as Vision, Bromine, or Chlorine, which are explained in more detail in this section. The use of Ozone sanitation will also reduce overall chemical use.


Feature

For your convenience, your owner's package contains an initial supply of Chlorine to help you get started. You should, however, carefully review this *Water Care Guide* and discuss your options with your dealer before adding any chemicals to your water.


Caution

Remember, once you have started using one method of sanitation (Vision, Bromine, or Chlorine), changing to a different method will require a complete water change.

Vision

What is Vision

Vision is an alternative sanitizing system that can be used in conjunction with your **UltraPure™ Water Management System, CrystalZone®,** or **ClearZone® Water Management Systems**, except for some models of the **Aquatic Fitness Systems**. The advantage of Vision over conventional halogens (Bromine and Chlorine) is that it will, as a result of lower chemical use, provide softer-feeling water. Additionally, low chemical levels can mean fewer dissolved solids, which results in less water chemistry maintenance.

How Does Vision Work

The Vision Sanitizing System has no moving parts and requires no electrical connections. It contains a powerful, Silver (Ag) catalyst bed with a large surface area. In the **UltraPure™ Water Management System, CrystalZone® Water Management System**, or **ClearZone® Water Management System** water circulates through the Vision Sanitizing System, then through the filter, then through the heater housing and is then ozonated before being returned to the bathing area. When used with a combination of one of these Water Management Systems and a Chlorine base, Vision provides a soft, residual bactericide that compliments the natural oxidizing power of ozone and the sanitizing power of Chlorine. Refer to the ***Water Care Guide Supplement*** for information on your spa's Water Management System.

Warning	While Vision is a bactericide that compliments Chlorine, *it is **not** a "chemical free" system*. In order to gain the maximum benefits of the Vision Sanitizing System, follow the manufacturer's directions. All other aspects and adjustments of water chemistry such as **Total Alkalinity** and **pH** must adhere to the manufacturer's instructions relative to that specific product. Because Dimension One Spas has no control over the water source used in any application, it will not be responsible for any discolorations below the water line and any such occurrence will not be covered under any of its warranties.

Warning	**Do not use Vision with Bromine!**

Bromine

What is Bromine

Bromine is similar to Chlorine in its effectiveness as a sanitizer, but there are some important advantages. Bromine requires less work and fewer chemical additions than Chlorine. Water sanitized with Bromine is more stable and consistent. Bromine typically provides less irritation, is less hazardous, more versatile, and more effective at spa temperatures.

How Does Bromine Work

Bromine is typically dispensed using a Floating Bromine Tablet Dispenser, available from your local dealer. The Bromine feeder disperses the correct amount of bromine to kill bacteria and algae, and oxidize organic waste.

Bromine, like Chlorine, combines with "amine" containing compounds to form Bromamines (similar to Chloramines). However Bromamines, unlike Chloramines, have sanitizing capability. The Bromine sanitizer can be initiated by using a **Bromine Starter Kit**.

Warning

Do not use Bromine with Vision!

Choosing Your Sanitizer

The three methods are described in the table below to help you decide which method you should use.

Features	Chlorine (Cl)	Vision	Bromine (Br)
Sanitizer ppm Range	1 to 3 ppm (Cl)	1 to 3 ppm (Cl)	2 to 6 ppm (Br)
Average Maintenance	5 x per week	1 x per week	3 x per week
Replacement Schedule	2 x per week	2 x per year	2 x per month*
7.2 pH Effective %	96%	99%	96%
7.5 pH Effective %	48%	99%	94%
7.8 pH Effective %	33%	99%	87%
pH Bounce	Yes	No	Yes
Eye Irritation	Yes	No	Yes
Dry Skin	Yes	No	Yes
Chemical Odor	Yes	No	Yes
Swimsuit Bleaching	Yes	No	Yes
Friendly to Sensitive Skin	No	Yes	No

*Bromine Tablet Dispenser

There are many different methods and chemicals to help you manage your water. The three water management systems shown above have been evaluated for use with Dimension One Spas Inc. Spas and **Aquatic Fitness Systems** and are recommended for your use.


Caution

Refer to the instructions that accompany the chemicals you use for recommended dosages.

Adding Your Sanitizer

Adding Vision Sanitizer

1. Refer to the instructions provided with the **Vision Sanitizing System** for installation and startup procedures.


Note

For those who wish to use **Chlorine** as a sanitizer, the NSPI standard is 1- 3 ppm.

Once this initial sanitation process is completed, you can maintain a healthy sanitation level by using the procedures detailed in the *Routine Water Care* section for day-to-day maintenance of your sanitizer.

Adding Bromine Sanitizer

Day 1:

1. Fill a Bromine tablet dispenser with **Brominating Tablets** and place in the water

2. Next add ½ ounce (14.7ml) per 100 gallons (379 liters) of **Sodium Bromide** and ½ ounce (14.7 ml) per 100 gallons (379 liters) of **Shock Treatment** to the water.

3. Run jets on high for at least 5 minutes.

4. When **Sodium Bromide** is "activated" with an oxidizer (i.e. Shock, Chlorine, Ozone) it will quickly establish an initial **Bromine** (Hypobromous Acid) level in your water.

5. Before each use monitor **Bromine** level with a **Spa Test Strip** and maintain a residual of 3 to 5 ppm.

Day 2:

1. After day one, add ¼ ounce (7.39 ml) per 100 gallons (379 liters) Dimension One Spas' **Enzyme Formula** to reduce water line build-up normally associated with body oils.

2. Run jets on high speed for at least 5 minutes.

Once this initial sanitation process is completed, you can maintain a healthy sanitation level by using the procedures detailed in the *Routine Water Care* section for day-to-day maintenance of your sanitizer.

Add Chlorine Sanitizer

Day 1

1. Add ½ ounce (14.7 ml) **Concentrated Chlorinating Granuals** per 100 gallons (379 liters). Run jets on high for at least 5 minutes.

2. Before each use monitor Chlorine level with a **Spa Test Strip** and maintain a residual of 1 – 3 ppm.

Day 2

1. After day one, shock the water with ½ oz (14.7 ml) per 100 gallons (379 liters) of **Shock Treatment** (Potassium Monopersulfate) with jets running on high speed.

2. Continue running jets on high speed for at least 5 minutes.

Day 3

1. After day two, add ¼ ounce (7.39 ml) per 100 gallons (379 liters) **Enzyme Formula** to reduce water line build-up normally associated with body oils.

2. Run jets on high speed for at least 5 minutes.

The chemicals mentioned in this section may be purchased from your Authorized Dimension One Spas Dealer.

Caution

Refer to the instructions that accompany the chemicals you use for recommended dosages.

Once this initial sanitation process is completed, you can maintain a healthy sanitation level by using the procedures detailed in the *Routine Water Care* section for day-to-day maintenance of your sanitizer.

Routine Water Care

Maintaining proper water conditions is imperative to maintaining safe water and preventing possible damage to your system's components. The more often you use the water, or expose it to direct sunlight, the more your **Sanitizers**, **TA**, and **pH** will need to be adjusted. Usage and sunlight have a direct impact on your water's chemistry and you must take a few minutes to ensure your water is safe to enjoy.

Water Testing

We recommend testing your water before each use with a **Spa Test Strip.** These are available from an authorized Dimension One Spas Dealer.

Total Alkalinity

Total Alkalinity (**TA**) should be in the 80-120ppm range. If not, refer to the *Check Your Water* section for details on bringing your **TA** back within acceptable range.

pH Control

The acceptable range for **pH** is between 7.2 and 7.8. If not, refer to the *Check Your Water* section for details on bringing your **pH** back within acceptable range.

Bromine Sanitizer

If you are using Bromine as your sanitizer, the acceptable range is between 2 – 6 ppm of Bromine. If the reading is below 2 ppm, the level should be raised before the spa is used. If the reading is above 6 ppm, it should be allowed to drop to the proper range before using the spa.

Read the instructions on the **Brominating Tablets** container carefully, or consult with the local Authorized Dimension One Spas Dealer if you are having difficulty adjusting the Bromine level.

 Warning	Do not drop Bromine tablets directly into the water as this may damage the spa's surface.

 Warning	**Bromine** cannot be used with the **Vision** system.

 Note	Shocking Bromine sanitized water at least once a week will help keep water clean, clear, and odor free by reducing the build-up of "Bromamines".

Chlorine Sanitizer (Sodium Dichloro-s-triazinetrione)

If you are using Chlorine as your sanitizer, the acceptable range is 1 – 3 ppm of Chlorine.

You must also be aware that Chlorine is **pH** sensitive. To be effective, the water's **pH** range must be maintained between 7.2 – 7.8. A **pH level above 7.8** reduces Chlorine's efficiency and a **pH level below 7.2** causes Chlorine to dissipate rapidly.

The only **Chlorine** that can be used with spas is granular "Di-Chlor" (Sodium Dichloro-s-triazinetrione), such as **Concentrated Chlorine Granules**. It dissolves quickly in moving water and has a **pH** of 6. Be sure to add **Chlorine** while the jets are running, then let the jets run on high speed for at least 5 more minutes.

Caution

Never use Trichloro or Calcium Hypochlorite.

Use **Spa Test Strips** to maintain a reading of 1 – 3 ppm of **Chlorine**. If the reading is below 1 ppm, the level should be raised before the water is used. If the reading is above 3 ppm, it should be allowed to drop to the proper range before use. Read the instructions on the **Concentrated Chlorine Granules** container carefully, or consult with an authorized Dimension One Spas Dealer if you are having difficulty in adjusting the **Chlorine** level.

Note

Shocking "Chlorine sanitized" water at least once a week will help keep the water clean, clear, and odor free by reducing the build-up of "Chloramines".

Shocking

Super Chlorination

Super chlorination also quickly oxidizes and burns out body waste such as body oils, hair spray, lotions, etc. that cannot be removed by the system's filter. This waste build-up reduces the power of the sanitizer, making the water dull and irritating to the eyes and skin. This waste build-up may also produce an unpleasant odor. When this occurs, "Free – Chlorine" has become "Chloramine" which is ineffective for sanitizing. Super chlorinating can eliminate this. Raising the water Chlorine level to 10x (ten times) the water's "Combined Chlorine/Chloramine" ppm level (existing Total Chlorine minus Free Chlorine) for at least 24 hours will act as an adequate treatment.

Note

Do not use the water until the Chlorine level of the water has dissipated to 1 – 3 ppm. We also recommend waiting until the water's Chlorine level has returned to 1 – 3 ppm before adding any other chemicals as this will help maximize their effectiveness.

Shock Treatment (Potassium Monopersulfate)

Even with regular sanitization, "shocking" with non-Chlorine **Shock Treatment** is still necessary. "Shocking" with non-Chlorine **Shock Treatment** is recommended over "shocking" with Chlorine (also known as "super chlorination") because it does not add additional sanitizer to the water. "Shocking" quickly oxidizes the water and burns out body waste such as body oils, hair spray, lotions, etc. that cannot be removed by your system's filter. This waste build-up reduces the power of the sanitizer making the water dull and irritating to the eyes and skin. This waste build-up may also produce an unpleasant odor. "Shocking" is also effective in reducing Chloramines or Bromamines. Follow the instructions listed on the label.

Helpful guidelines for Shock Treatment:

1. If using your water 1 – 3 times a week – shock the water with 1 ounce (29.6 ml) per 100 gallons (379 liters) once per week. *See the Capacity Table in the D1* ***Water Care Guide Supplement*** *for the capacity of your system.*
2. If using your water 4 – 6 times a week – shock the water with 1 ounce (29.6 ml) per 100 gallons (379 liters) twice per week. *See the Capacity Table in the D1* ***Water Care Guide Supplement*** *for the capacity of your system.*


Note

To maximize the effectiveness of shocking with non-Chlorine **Shock Treatment** we recommend shocking at least 24 hours ahead of, or 24 hours after, adding any other water chemicals.

Enzyme

Some wastes (such as body oils) may not be filtered and can result in water lines and other aesthetically undesirable accumulations in your water. Using **Enzyme Formula** whenever filling your system, and weekly thereafter, will help reduce these build-ups. This mild enzyme is a derivative of plants and is an effective alternative to stronger water clarification chemicals. It uses natural enzymatic processes to "digest" excess waste in water.


Note

Water lines can be a result of oils present in the water supply. We recommend checking the system's filter(s) 24 hours after filling. If filters are discolored, remove, and rinse.

Water Clarifiers

Water Clarifier is a polymer based clarifier that is Ozone compatible. Be careful to follow dosage instructions, because using more than the recommended dose may cause the water to turn milky.


Note

If the water turns milky, you can clear most cloudy water situations by testing and adjusting for proper **TA/pH** levels and shocking with approximately 1 oz (29.6 ml) per 100 gallons (379 liters) of **Shock Treatment**, and/or ½ ounce (14.7 ml) per 100 gallons (379 liters) of **Concentrated Chlorine Granules**.

Sequesterants (Agents for Controlling Stains and Scale)

(If using Vision, stain and scale inhibitors can be used only upon initial fill up. Install the Vision cartridge 48 hours later.)

If you are not using Vision, a weekly dose of **Sequesterant** should help minimize staining caused by metals, and scale caused by excessive Calcium (over 500 ppm). **Sequesterant** should be added to the water upon initial fill or whenever changing the water. This will suspend metals and Calcium in the water and increase the life of your equipment.


Note

Another option for reducing metals present in source water is to use a **Water Pre-filter Conditioner**. These may reduce organics and some metals found in
source water.

Foam Remover

Soap residue from a bather's body, hair, and swimsuit combined with rapid circulation of hot tub water may eventually cause foaming in your water. **Foam Remover** will suppress foam, but cannot remove soap from the water. When foaming occurs, add a small amount (1/2 Teaspoon per 100 gallons [379 liters]) of **Foam Remover** to the base of foam area. Use only the amount necessary to remove the foam. If foam remains a problem, change the water.


Note

Excessive foaming can be an indication that water Hardness is below 200 ppm. Test and, if necessary, raise Hardness with **Liquid Hardness Increaser**. Rinsing swimsuits thoroughly with fresh water after laundering will also help reduce foaming by minimizing the introduction of laundry detergents into water.

Spa Information

It is very important that you gather the following information on your spa and enter it in the blanks provided below. The **Warranty Card** should also be completed at the same time, and submitted to the address below. This information will be needed if you ever want to purchase additional items for your spa, or if service is ever required. Be sure to consult with your Dealer to ensure the accuracy of this important information.

My Spa

Model Name: _____ Serial Number: _____

Date Purchased: _____ Date Installed: _____

Gallons/Liters: _____

Notes: _____

_____

_____

_____

_____

_____

Dealer Information:

Dealer's Name: _____

Address: _____

City: _____ State, Zip: _____

Telephone: _____ Fax: _____

Dimension One Spas Inc. Information

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A Higher Degree of Indulgence

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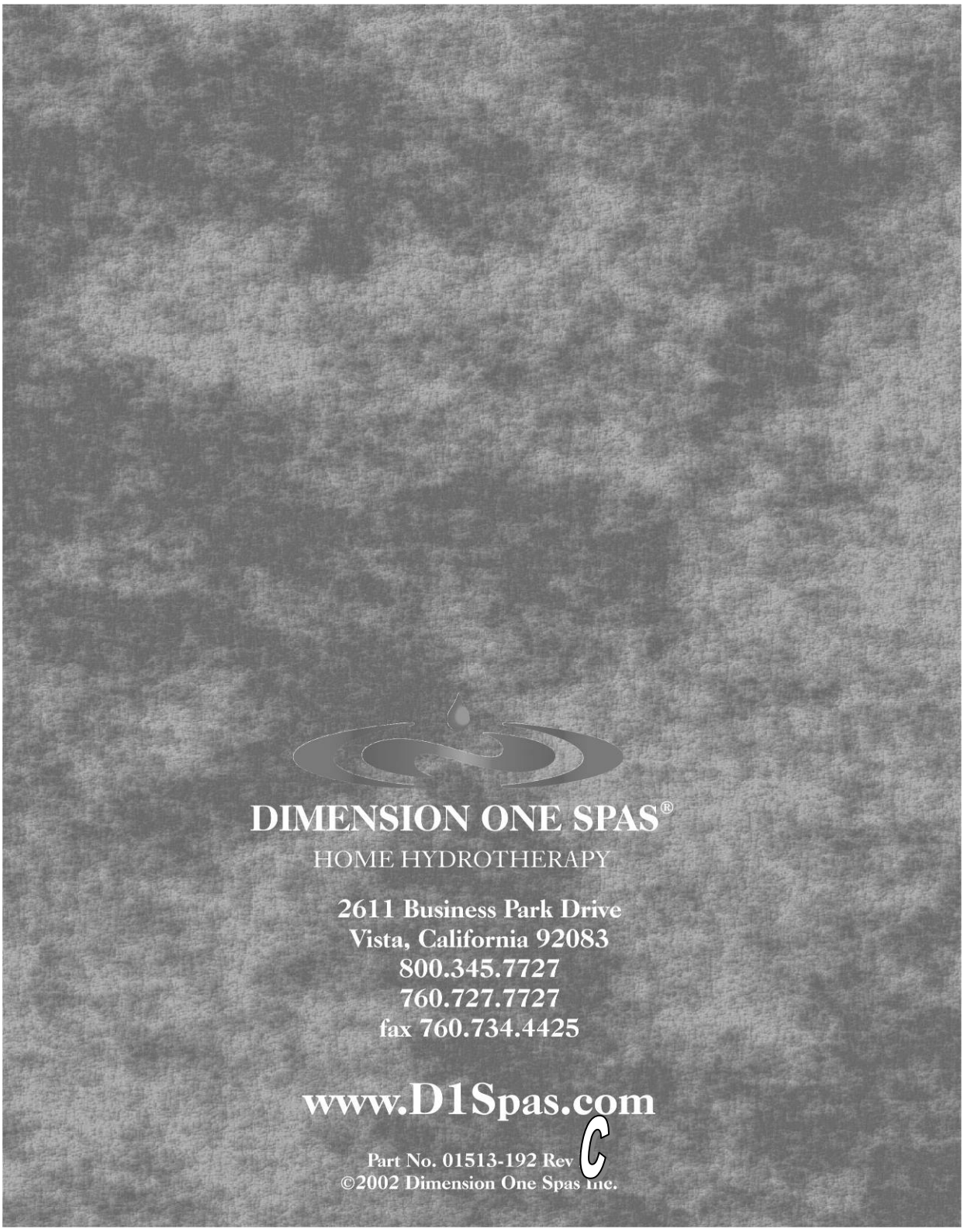

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Part No. 01513-192 Rev C