



Pool Care 101

Chlorine/Bromine

Take a water sample to Swim Rite once a month or after refilling from winter or leak.

WATER BALANCE

Water balance prevents corrosion/scale, protects investment, and provides sparkling water. Balanced pool water whose chemical properties are adjusted to help provide the most favorable conditions for pleasant swimming. The following properties must be considered and kept at specific levels.

They are:

- Chlorine/Bromine Level
- Ph
- Total Alkalinity
- Calcium Hardness
- Stabilizer (Chlorine Pool)
- Copper
- Iron
- Total Dissolved Solids

The pool water balance is constantly changing due to weather, location, and water addition. Swim Rite Pools has the equipment and expertise to test your pool water and recommend what you'll need to balance your water.

Take a pool water sample to Swim Rite once a month during the season for a complete analysis, or after significant make up water is added. Here are a few testing tips to keep in mind when bringing a water sample in to Swim Rite:

- Fill sample bottle to the top. We do not need that much water but it is easier for us.
- Take the water in a water sample bottle or a plastic bag.
- Take your sample about 18" below the surface, and away from the skimmer or filter returns.

Test your pool at least twice a week at home

- Take the sample in a Water Sample Bottle or Plastic bag
- Take the sample to Swim Rite as soon as you take it; don't let the water sit around.

TOTAL CHLORINE/BROMINE

Total Chlorine is ALL of the chlorine that is in the water vs Free Chlorine is the chlorine that is available to kill. When the Total Chlorine and the Free Chlorine are not equal is when the water will smell like chlorine.

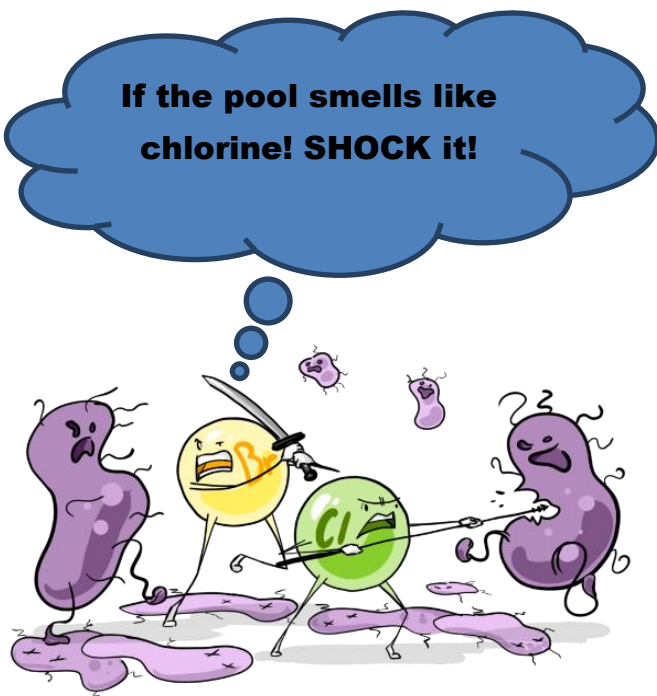
The solar cover needs to be kept off the pool for 4 hours so that the Ph and Total Alkalinity can gas off.

FREE CHLORINE BROMINE

Free available CHLORINE/BROMINE destroys harmful bacteria as well as algae. It also reacts with organic contaminants, which tend to dull the appearance of the water. Maintaining a "free available CHLORINE/BROMINE" level of 1-3 ppm {3-5 ppm for

Pools should be shocked weekly when the water temperature is above 80 degrees. It should also be shocked after a rain, after a party, and before and after a large party.

bromine} can help insure that the water has a sparkling and that it is also sanitized. It Will be necessary to "shock" the pool water by increasing the CHLORINE/BROMINE level to about 10 ppm. This helps to get rid of objectionable odors and also helps to kill off any algae, which may have started to grow.



Many kinds of organic compounds can pollute a swimming pool. The compounds react with CHLORINE/BROMINE to drastically reduce its germicidal efficiency. Once reacted, they are converted into chloramine-type/bromamine-type compounds and under some conditions, nitrogen trichloride. These compounds are poor sanitizing agents, poor algacides produce objectionable odors and cause eye irritation.

Chlorine alone is not sanitary

All pool water develops what is known as "CHLORINE/BROMINE demand" when insufficient CHLORINE/BROMINE is present. Such things as dissolved iron, bacteria of various kinds, perspiration, algae, pollen, spores and other organic materials create a "CHLORINE/BROMINE demand" in pool water. If sufficient CHLORINE/BROMINE were added to the water to oxidize all of the pollutants present, a "CHLORINE/BROMINE demand" would no longer exist because all substances capable of reacting with CHLORINE/BROMINE would have been destroyed.

Normally to shock the pool on a weekly basis, you want to use 1 gallon of liquid chlorine or 1 lb. of shock per every 20,000 gallons of pool water. When you have a problem, opening the pool for the year or closing then you want to use 1 gallon of liquid chlorine or 1 lb. of shock per 5,000 gallons of pool water, or a higher amount may be required depending on the pool problem.

Ph

The Ph of water is a measure of its acidity or basicity. Factors such as rain, dust, swimmer wastes and algae affect a pool's Ph. The Ph range runs from 0 to 14 with 7 being neutral (that is, not acidic or basic). Values less than 7 are acidic and values greater than 7 are basic. Ph must be maintained with in the recommended range to ensure bather comfort and prevent corrosion and scaling.

Ph values increase or decrease in geometric ratios, meaning that a pool water of Ph 7.2 is 10 times more acidic than one at 7.3. A water sample at Ph 7.2 is 100 times more acidic that one a Ph 7.4.

The overall range for Ph varies, 7.2 to 7.6 are a general target. To lower the Ph, Ph Decreaser may be used to adjust the Ph to 7.4. To raise the Ph, Ph Increaser may be used to adjust the Ph to 7.4.

When lowering the Ph broadcast the Ph Decreaser around the pool.

When Ph remains below 7.2, the water is considered to be corrosive. This means etching of plaster and metals in equipment such as heat exchangers will result. In addition, it is more difficult to keep chlorine in the pool because while more effective as a sanitizer at the low Ph, chlorine is also much less stable resulting in the consumption of larger quantities of chlorine than would be used at normal Ph levels.

TOTAL ALKALINITY

Total alkalinity refers to the ability of the pool water to resist a change in Ph. The key purpose total alkalinity serves is to help manage or control the Ph in the pool. It does this by acting as a buffer so that when materials are added to a pool that would otherwise cause the Ph to go up or down, these changes are controlled and do not result in severe changes to pool water balance.

ALWAYS adjust the Total Alkalinity before the PH

When a substance is added to pool water that could affect the Ph, total alkalinity will react to neutralize it and help keep the Ph in the desired range. Total alkalinity does not determine what the Ph will be, but rather acts to help keep the Ph in the range desired.

Maintaining the Ph higher than 7.8 will increase the tendency to form scale or cloudy water. Calcium, the major component in scale, is a relatively unstable mineral and when the Ph is high, the calcium is not as soluble and it will have a greater tendency to precipitate or “fall out” of solution resulting in cloudiness or scale. High Ph will also reduce chlorine effectiveness resulting in the need to maintain higher chlorine levels to achieve maximum sanitization.

When adding chemicals to a pool, unless told otherwise; dry/power chemicals broadcast them across the pool with the wind and liquid chemicals pour the chemicals around the pool as you walk them around

Total alkalinity is measured in parts per million {ppm} using a total alkalinity test kit. It is best kept in the range of 80-120 ppm.

When the total alkalinity value is less than 80 ppm, the water can become aggressive, causing eye irritation, etching, and corrosion of pipes. The Ph can also swing easily upward and downward and back again-called “Ph bounce”. If the value is higher than 120 ppm the water can become cloudy, scale forming, Ph will tend to drift upward, and cause eye irritation.

To lower the Total Alkalinity VERY carefully pour no more than 1 gallon of Muratic Acid per 20,000 pool every 24 hours. Pour the acid all in one spot away from the skimmer and the return. NO swimming or solar cover for 8 hours. Do NOT breath in the fumes or get the acid on you.

CALCIUM HARDNESS

The sum of all the calcium dissolved in water is referred to as the calcium hardness. Calcium is important since high levels are unstable, and can become even more

Add ONLY one chemical at a time with at least 15 minutes before the next chemical.

unstable if the Ph or the total alkalinity rise above the normal levels. These imbalances can result in cloudy water and/or scale. In addition, calcium does not like warm water. As water temperature rises, calcium becomes more likely to precipitate out of solution.

Calcium is actually more soluble in cold water, which is why scaling of heaters is so common.

With all of the difficulty's calcium can cause it would seem logical to use soft water in filling a pool. However, this is not the case! While high calcium levels can cause problems with cloudy water and scale, soft or low-calcium water is also of concern. Such water is aggressive and will actually remove calcium from plaster in order to satisfy its need for the mineral. If the pool is vinyl or fiberglass, the low calcium water will actually attack metal fittings and heat exchangers resulting in destruction of the

STABILIZER/CYA

Stabilizer/Cyanuric Acid/CYA is a chemical added to swimming pool water to slow the loss of CHLORINE due to sunlight. CYA is also known as stabilizer, Cyanuric Acid, Isocyanic Acid, or CYA.

CHLORINE is a very active chemical, and is easily dissipated by the ultra-violet energy in sunlight. But when CYA is used as a stabilizer in pool water, the useful life of CHLORINE is extended significantly. A bond forms between CHLORINE and CYA, which protects the chlorine from the effects of sunlight. However, the bond formed is

For most efficient results, add chlorine in the evening after the sun goes down

Do NOT fill a pool with soft water. The pool needs the hardness and you need to put the hardness back into the water!

fittings or pinhole leaks in the heater. When such corrosion occurs, it is also common for stains to appear on pool surfaces.

Calcium content is best in the range of 200-400 ppm. Unlike Ph or total alkalinity, however, both of which can be raised or lowered with reasonable ease, calcium levels cannot.

Adding calcium chloride {hardness increaser} to the water easily raises calcium levels. Conversely, there is no simple chemical addition that can be made that will reduce calcium hardness. The only way to reduce calcium hardness levels in the pool water is through dilution with water of a lesser hardness.

After adding chemicals there should be no swimming for 4 hours or more

not permanent and CHLORINE is released when needed. The generally accepted range for cyanuric acid is from 40 to 100 ppm. High CYA can drop out and cause a purple dust in the pool. To remove high CYA requires that a portion of the pool water be drained.

Shocking the pool with liquid chlorine or another high strength shock this should be done in the evening. It is best not to use a solar cover until the chlorine level goes down.

TOTAL DISSOLVED SOLIDS

Total dissolved solids {TDS} are normally the least worrisome factor. TDS is the sum of all materials dissolved in the water and normally runs in the range of 250 ppm and higher.

TDS is comprised of many different chemical compounds, which means that the issue of how much is too much actually depends more on what they consist of, than how much there is.

At elevated levels, TDS can lead to cloudy or hazy water, difficulty in maintaining water balance, reduction in sanitizer activity and foaming. Unfortunately, the only way to reduce TDS is to drain a portion of the water replace it with fresh water. Sequestering agents do not help when high TDS levels are causing cloudy water.

Chlorine Types:

- Sticks – Chlorinator, used to maintain chlorine level in pool
- Stix's - Skimmer, used to maintain chlorine level in pool
- 3" Tablets Stabilized – Chlorinator & Floater, used to maintain chlorine level in pool
- 3" Tablets Calcium – Floater or Skimmer, used when the stabilizer level gets to high
- 1" Tablets Stabilized – Chlorinator or floater, used to maintain chlorinate level
- Granular Stabilized – Broadcast into pool, used to maintain chlorine level in pool
- Granular Calcium Based Shock – used to shock pool, not for daily use
- Granular Multi Shock – used to shock the pool and you need pool used quickly
- Liquid Chlorine – used to shock the pool
- Bromine 1" Tablets – Brominator – up to 30% chlorine and 2 ½ times more is needed over chlorine

"Salt Pools"

Advantages

1. Will work on ANY filtering system
2. Salt water pools are NOT chlorine free. Chlorine is made using a salter generator and adding salt to the water.
3. Is gentle on Eyes, Skim and clothing.
4. Do not have to add chlorine directly to the pool to maintain the chlorine level but still have to shock the pool and balance the water
5. The water feels softer.

Disadvantages

1. More Expensive - have the cost for the generator and then the cost of the salt
2. The cost of the electricity to run the salt generator and chemicals to clean the cell.
3. Electricity, Water and Salt together allow equipment failure sooner vs later
4. Salt WILL damage heater, liners, lights, pumps, concrete deck, ladders, diving boards and slides
5. Ground Water Pollution
6. More Balancing chemicals needed
7. Have to maintain a higher stabilizer level.
8. More equipment repairs needed – O-rings and pump seals do not last as long
9. Salt Water Pools are outlawed in some areas
10. Killing your grass and landscaping

Low Chlorine Systems – Pool RX, Nature 2 & the Frog

- Replace mineral cartridge yearly, some can ONLY purchase where the unit came from
- Cartridge contains silver and copper to purify water instead of sanitizing it
- Able to maintain a lower chlorine level

Algaecide – It is used to slow down the growth of algae, there are a few types that will kill algae

Clarifier – Is used to make the particles in the water larger so that the filter will be removed them

Cover Cleaner – Is used to clean, deodorize and protect, can be used on either solar or winter cover

Filter Cleaner – It removes the body oils, dead skin and etc., any filter should be chemically cleaned at least once a year and after any algae. Cleaning a filter without a filter cleaner is like washing your hair without shampoo.

Floc – is a type of clarifier that drops the particles to the bottom of the pool to be vacuumed to waste.

Liquid Solar Cover – is a chemical that stops the vaporization of water which is how you lose heat

Metal/Stain Removers – added if there is a metal stain

Solar Cover – Bubbles go down and do not place on your yard the heat from the cover will damage your grass

Adjust the water return eyeball to create a circular motion going clock wise, this will allow debris to flow towards the skimmer more efficiently

CLEANING AND VACUUMING

Check and clean the pump basket and skimmer basket daily, as the debris can reduce the pump's ability to circulate the water. Clean the tile and walls regularly with a sponge or rag; this will help remove any scum at the waterline. Using a skim net to clean debris from the surface of the water is an easy way to keep the pool looking inviting. Brush the pool walls with a nylon brush to remove stubborn dirt and algae growth (this should be done twice per week). Use the brush from the top down to

the floor of the pool so the vacuum cleaner will collect the debris. Vacuuming is an important part of keeping a pool clean and should be done often to aid the filter in collecting unwanted debris. In addition, brushing any dirt toward the main drain will allow some of it to be pulled into the filter system.

Protect Vacuum Hose from direct sunlight for longer life

General Pump Care

To check the pump strainer pot to be certain it is full of water.

Be certain all valves are open, "if there are any are present" are open on both the suction and the discharge lines.

Clean Pump Basket

- 1) Turn off the power
- 2) Close any valves before the pump and on aboveground pools turn off/plug the return as well
- 3) Unscrew knobs/pump lid on basket lid
- 4) Take lid off

- 5) Pull out basket and hose off
- 6) Put basket back into pump
- 7) Put lid on
- 8) Screw on knobs/lid on pump
- 9) Open any valves & remove any plugs from step 2
- 10) Turn power on

Fill Chlorinator

- 1) Turn off power Press button on side of chlorinator lid and turn lid
- 2) ABOVEGROUND POOLS - Close valves before pump and after the filter or plug the return
- 3) Take off lid

- 4) Fill Chlorinator
- 5) Replace lid
- 6) ABOVEGROUND POOLS – open valves before pump and after the filter or unplug the return
- 7) Turn power ON

Vacuumping

- 1) Hook telescopic pole to vacuum head
- 2) Connect swivel end of vacuum hose to the vacuum head
- 3) Put vacuum pole, vacuum head, and vacuum hose in pool
- 4) Take other end of vacuum hose and hold against return until all of the bubbles come out of the vacuum head
- 5) Attach skim vac to vacuum hose
- 6) Put hose and skim vac onto the skimmer basket in the skimmer
- 7) Turn off main drain valve &/or second skimmer

Vacuumping Pool to Waste Sand and some DE Filter

- 1) Raise the Water in the pool to as high as you can (you can leave the hose water going into the skimmer the whole time that you are vacuumping)
- 2) Hook telescopic pole to vacuum head
- 3) Hook swivel end of vacuum hose to the vacuum head
- 4) Put vacuum pole, vacuum head, and vacuum hose in pool
- 5) Take other end of vacuum hose and hold against return until all of the bubbles come out of the vacuum head
- 6) Attach skim vac to vacuum hose
- 7) Put hose and skim vac onto the skimmer basket in the skimmer
- 8) Turn off main drain valve – you may not need to do this
- 9) Turn off power to the pump
- 10) Push valve handle down and turn in a clockwise direction to waste

Vacuumping Pool to Waste Cartridge Filters

- 1) Raise the Water in the pool to as high as you can (you can leave the hose water going into the skimmer the whole time that you are vacuumping)
- 2) Hook telescopic pole to vacuum head
- 3) Hook swivel end of vacuum hose to the vacuum head
- 4) Put vacuum pole, vacuum head, and vacuum hose in pool

- 8) Slowly move vacuum across the bottom of the pool
- 9) When finished vacuumping turn power OFF
- 10) Remove skim vac from skimmer
- 11) Remove debris from skimmer basket
- 12) Pull skim vac end of hose up and out of the water, while the vacuum head remains in the pool to allow water in the hose to drain into the pool
- 13) Remove hose, vacuum head, and pole from water and return them to their place of storage
- 14) Turn main drain valve ON and turn power

NEVER fill a pool with soft water.

- 11) Turn power on
- 12) Slowly move vacuum across the bottom of the pool
- 13) When finished vacuumping turn power OFF
- 14) Remove skim vac from skimmer
- 15) Remove debris from skimmer basket
- 16) Turn the valve back to filter
- 17) Turn the pump back on
- 18) Turn main drain valve ON
- 19) Pull skim vac end of hose up and out of the water, while the vacuum head remains in the pool to allow water in the hose to drain into the pool
- 20) Remove hose, vacuum head, and pole from water and return them to their place of storage

When filling a pool, put the garden hose in the skimmer, the pool filter will be able to remove the iron.

- 5) Take other end of vacuum hose and hold against return until all of the bubbles come out of the vacuum head
- 6) Turn off power to the pump
- 7) Remove the filter cartridge
- 8) Put the Cartridge filter back together
- 9) Attach skim vac to vacuum hose

- 10) Attach a backwash hose to the return, the other end of the backwash hose needs to be put out into the yard [if there are more than 1 return fitting, plug the others off]
- 11) Push valve handle down and turn in a clockwise direction to waste
- 12) Turn power on
- 13) Put hose and skim vac onto the skimmer basket in the skimmer
- 14) Turn off main drain valve – you may not need to do this
- 15) Move vacuum across the bottom of the pool
- 16) When finished vacuuming turn power OFF

- 17) Put the Backwash hose into the pool until you have it disconnected
- 18) Replace the cartridge
- 19) Remove skim vac from skimmer
- 20) Remove debris from skimmer basket
- 21) Turn on the Main Drain – if you have one and unplug any returns that you might have plugged
- 22) Turn the pump back on
- 23) Pull skim vac end of hose up and out of the water, while the vacuum head remains in the pool to allow water in the hose to drain into the pool
- 24) Remove hose, vacuum head, and pole from water and return them to their place of storage

FILTER

When filter pressure rises 10-15 psi over normal (or when flow going into pool is very low) backwashing, changing the cartridge or changing the DE is necessary.

Factors like weather conditions, water temperature, heavy rains, dust or pollen, algae, water chemistry, a buildup of minerals and oil may form deposits on the sand/fabric of the cartridge/grids/fingers/element. These will eventually result in shortened filter cycles.

Your filter is a pressure vessel and should never be serviced while under pressure. Always shut off pump and open-air bleeder to relieve tank pressure before attempting to service your filter. When restarting your filter, always open the manual air bleeder and stand clear of the filter.

CARTRIDGE FILTERS

Cartridge filters should be chemically cleaned once every 3-4 weeks, and after having algae or other water problems

- 1) Turn off the pump
- 2) Close off the skimmer and the return
- 3) Open the drain valve on the back of the filter
- 4) Open the air bleeder
- 5) Allow the filter tank to drain
- 6) Remove the Cartridge from the filter tank
- 7) Hose off filter
- 8) Soak/Spray filter with filter cleaner per cleaner recommendations.
- 9) Put the filter back together

You should have at least 2 sets of cartridges, replacing 1 set per year

- 10) Leave the air bleeder open
- 11) Close the drain valve
- 12) Open the skimmer and returns
- 13) Turn the pump on
- 14) Close the air bleeder when there is water coming out of the bleeder

Hosing off the cartridge without using a filter cleaner is like washing your hair without shampoo!

After changing the sand in the filter backwash the filter before going to filter, so that you get rid of the fine sand and dust.

- 1) Turn off power
- 2) Push valve handle down and turn in a clockwise direction to backwash

Sand Filters

Sand is good for 3-5 years as long as its chemically cleaned once a season, best in the fall of the year and after having algae or other problems

Backwash filter

- 3) Turn power on
- 4) Watch the site glass until the water running through it turns clear

- 5) Turn off power
- 6) Push valve handle down and turn in clockwise positions to rinse

- 7) Turn power on for 30 seconds
- 8) Repeat these steps until water running through sight glass is clear (minimum of 4 times)

De Filters

Chemically clean the filter yearly, best in the fall of the year, after having algae or other water problems. Grids or fingers do not need replaced unless they have holes in them.

When to Change the DE, it is recommended when the gauge pressure rises more than 10 psi in less than a 24-hour period or when cloudy water returns to the pool for more than 30 seconds after regeneration.

Grid Filter with Multiport Valve: (In ground pools mainly) follow backwashing instructions for sand filter
When finished backwashing, you just add DE back to the filter through the skimmer per filter recommendations.

Per-Flex Filters: have a bump handle

- 1) Turn the pump off
- 2) Move the bump handle down slowly, and then up briskly. Repeat 3 – 12 times. Restart the pump and filtration will resume at near the original flow and pressure.
- 3) After each regeneration, and until the filter is cleaned, there may be a slight increase in the starting pressure. This is the result of dirt accumulating within the filter and is completely normal

To change the DE in a Per-Flex Filter

- 1) Turn off the pump
- 2) Then move the bump handle down slowly, then up briskly. Repeat 8 times.
- 3) Open the vent valve, open the filter drain and allow water and-dirt-to-empty completely.
- 4) (If the filter is installed below the pool water line, close the suction and return valves)
- 5) After the filter has drained, and with the drain still open, run the pump for a few seconds to flush out any dirt remaining in the bottom of the filter.
- 6) (If the filter is installed below the pool water line, opening the suction valve for a few seconds with the pump off will adequately flush the unit.)
- 7) Close the filter drain and the vent valve.
- 8) Open the suction and return valves (when used).
- 9) Start the pump and let the filter fill with water.
- 10) Add DE into the skimmer as fast as the skimmer will take it

Add EC40 – 4 Scoops, EC65A – 6 Scoops, EC75A – 7 Scoops

Easy Clean DE Filter

- 1) Turn off pump.
- 2) Close valves from the skimmer and return or plug skimmer and return
- 3) Open discharge valve
- 4) Open air bleeder
- 5) When tank is empty, open the tank
- 6) Remove the element
- 7) Hose off the element
- 8) Hose out the tank
- 9) Put the element back in the tank
- 10) Close the tank
- 11) Open the valves from the return and the skimmer

- 12) Close the air bleeder when there is water coming out of it
- 13) Turn the pump on

- 14) Add 1 ½ scoops of DE, (for the Easy Clean 60 or 3 pounds for the Easy Clean 90) into skimmer

STAR 50 Regenerate

Swish when the flow has been reduced or the pressure gauge has increased

- 1) Turn off the pump
- 2) Move the knob back and forth to bump the grid. Repeat this operation 4 to 12 times.
- 3) This will “bump” the filter allowing the D.E. and dirt to intermix with the water within the filter chamber.

Change the DE in a Star 50 Filter

- 1) Turn the pump off
- 2) Close the valves from the skimmer and the return or plug them
- 3) Open the drain plug or drain valve at the bottom of the filter
- 4) Open the air bleeder on the top of the tank.
- 5) “Bump” the filter as the filter drains
- 6) Wait until the filter is completely empty, replace the drain plug keeping the air bleeder open and stand clear of the filter. Turn the pump on and completely fill the filter with water. Shut off the pump and relieve the internal pressure.
- 7) “Swish and bump” another 4 times and again allow the filter to drain. Close the drain plug.
- 8) Open the manual air bleeder on the top of the tank.
- 9) Close the air bleeder when steady stream water emerges.
- 10) Remove the skimmer lid; put 4 pounds of diatomaceous earth (D.E.) into the skimmer. The D.E. will be drawn into the filter and deposited evenly upon the grid elements.

DO NOT OPERATE FILTER WITHOUT DE FOR MORE THAN TWO MINUTES

DO NOT USE MORE DE THAN THE RECOMMENDED.