

Problem Solving - Some Frequently Asked Questions

The following Technical Information Bulletin comprises a selection of "Frequently Asked" technical questions. Many of these have been adapted from the BioGuard Product Reference Manual issued to participants at the annual BioGuard workshops. Technical problems are often the subject of Technical Information Bulletins; consult your BioGuard Account Manager or check the Bio-Lab website for updates.

- A. Green Water
- B. Cloudy Water (White, Grey or Blue, not Green)
- C. Cannot Maintain Chlorine Residual
- D. Metal Stains or Coloured Water
- E. Black Spot Algae
- F. Mustard Algae
- G. Pink Slime (Pink or Red Algae)
- H. Pool Goo or Pool Tar
- I. Disappearance of Cyanuric Acid
- J. Purple Deposits Around Skimmer or at Waterline
- K. Products Compatible with Ionisers, Ozonators and Salt-Chlorinators

A. Green Water

The following set of questions will help identify the most probable cause of green water and direct the best recommendation to remedy the problem as quickly as possible.

| Question | Action |
|--|--|
| A1 Is the water cloudy or hazy? | Yes: Question A3. No: Question A2. |
| A2 Is the water clear with a green tint? | Yes: Question A3. No: Question A3. |
| A3 Is the pH of the water within normal range (7.4 - 7.6)? | Yes: Question A4. No: Adjust pH, then proceed to Question A4. |
| A4 Has there been a recent problem with low pH or low Total Alkalinity? | Yes: Question A5. No: Question A5. |
| A5 Have you found copper and/or iron in the pool water? | Yes: Treatment A1. |

No: Question A6. The water must be tested for metals before treatment can begin. In determining the origin of these metals, it is advised that the source water be checked for copper and iron, too.

A6

Are you able to keep chlorine in the water?

Yes: Question A7.

No: Treatment A2.

A7

A7 Have you recently opened the pool for the

season?

Yes: Treatment A3.

No: Question A8.

A8

A8 Have you recently drained or refilled the

pool?

Yes: Treatment A3.

No: Question A9.

A9

Has the pool recently been re-surfaced?

Yes: Treatment A3.

No: Contact Bio-Lab.

Treatment A1 - Copper and/or Iron in Water:

- If the water contains free copper and/or iron at levels greater than 0.1 ppm, Pool Magnet (250 mL per 10,000 litres for each 1 ppm of metal) and Quick Clear should be used. The filter should be run at least 8 hours per day and backwashed until the metal level has dropped below 0.1 ppm. Remember to reapply Quick Clear after backwashing.
- If the source (fill) water has metals, recommend treatment with Pool Magnet and Quick Clear whenever the customer tops their pool up with water. This will prevent water discoloration and the staining of pool surfaces.
- If the pH and/or the total alkalinity are low, these parameters should be raised slowly with Balance Pak 100. Rapidly increasing the pH and/or total alkalinity may cause the metals to precipitate out, resulting in the staining of pool surfaces.
- Important: Copper and iron can only be removed from the pool water if they are physically taken out through the filtration system, or the pool is completely drained and refilled with metal-free water. Whenever possible, avoid draining the pool.

Treatment A2 - Algae:

- If there is less than 0.1 ppm copper and/or iron in the water, then the problem is most likely to be algae. Algae can have any number of causes.
- To treat, first check the filtration system for any problems or malfunctions. If pH is out of range, adjust pH to 7.4 - 7.6. Treat with 300 grams of Burn Out 35 per 10,000 litres or 120 grams of Burn Out Extreme per 10,000 litres. Several treatments may be necessary, depending on the amount and type of algae in the water. Check the chlorine residual often to determine when to apply another treatment.

- An algaecide should also be used. Apply MSA II at the rate of 100 mL per 10,000 litres or Polygard at the rate of 225 mL per 10,000 litres.

Treatment A3 - Trace Organics:

- If the water is clear with no metals, the pH is within range and the total alkalinity is normal, then there is most likely a large build-up of organic contaminants, or a very light algae infestation in the water.
- To treat, use Lite, Burn Out 35 or Burn Out Extreme every 2 to 4 days until the water turns clear. If the customer wants to speed up the clearing process, use Quick Clear, remembering to reapply after backwashing.

B. Cloudy Water (White, Grey or Blue, not Green)

Cloudy water is one of the most common complaints of customers. Treatment depends on the cause and rarely is there an overnight cure, although Super Clear Tabs, Polysheen Plus and Quick Clear can often be used to speed up the removal of particulate (undissolved) matter from the water. In all cases of cloudy water, the very first thing that must be checked is the filtration system. The following are questions you should ask to identify the probable cause and, in turn, enable you to prescribe the most suitable remedy.

| Question | Action |
|---|---|
| B1 Is the pH of the water within normal range (7.4 - 7.6)? | Yes: Question B2. No: Treatment B1. |
| B2 Has the filter been cleaned recently? | Yes: Question B3. No: Treatment B2. |
| B3 Has the filtration system been checked for broken or worn parts? | Yes: Question B4. No: Check filtration system. |
| B4 Are there any broken or worn parts? | Yes: Treatment B2. No: Question B5. |
| B5 Has the pool maintained a steady chlorine residual of 1 ppm or greater for the past few days? | Yes: Question B6. No: Treatment B3. |
| B6 Is the total alkalinity of the water high? | Yes: Treatment B4. No: Question B7. |
| B7 Is the calcium hardness within range (plaster 200 - 275 ppm, vinyl 175 - 225 ppm)? | Yes: Question B8. No: Treatment B5. |
| B8 Does the pool use calcium hypochlorite (eg. BioGuard Cal Chlor CLC) for normal chlorination? | Yes: Treatment B5. |

No: The water appears to be in good balance and has no chlorine demand. In all probability, the customer has a filtration problem they are not aware of. Suggest that they have a serviceman check the filtration system

Treatment B1 - pH:

- The pH is one of the most important parameters in pool water chemistry. After the filter has been checked and cleaned, the next item to correct is the pH. Use Lo'N'Slo or Balance Pak 200 to bring the pH back into range (7.4 - 7.6). If pH is high (most likely), determine how much Lo'N'Slo to add by performing an acid demand test. If pH is low (unlikely if water cloudy), determine how much Balance Pak 200 to add by performing an alkali demand test.

Treatment B2 - Filtration Problems:

- The filter must be serviced and, if necessary, repaired before the clearing process can begin. Once the filter problem has been corrected, clean the filter media overnight with Filter Brite. After flushing the filter to waste, the pH and water balance should be adjusted to proper ranges.

- Add Super Clear Tabs or Polysheen Plus and Quick Clear, then apply Lite, Burn Out 35 or Burn Out Extreme, if needed. Run filter continuously until the water clears, backwashing when necessary.

Treatment B3 - Chlorine Demand:

- Make sure there are no problems with the filtration system, then add Burn Out Extreme with the pump operating. Check the free chlorine level every 2 to 3 hours using a DPD #1 tablet. If the free chlorine drops back to zero, shock again. Continue until able to maintain a steady chlorine level.

Treatment B4 - Water Out of Balance:

- The best treatment in this case is to use Super Clear Tabs or Polysheen Plus and Quick Clear, then run the filter continuously until the water has cleared. Whilst the water is clearing, adjust the pH and balance the water.

- After the water has cleared, use Scale Inhibitor to prevent the cloudiness from returning.

Treatment B5 - High Calcium Hardness and/or Excessive Use of Calcium Hypochlorite:

- In both cases, partial draining to 0.5 metres below the original waterline is usually the best way to remedy the problem. When the pool is refilled, the total alkalinity, pH and other chemical parameters should be adjusted.

- To prevent cloudiness from recurring, suggest that the customer discontinue use of calcium hypochlorite as a sanitiser and go onto a program using Power Chlor, Power Tabs or Smart Sticks (Authorised Dealers only).

C. Cannot Maintain Chlorine Residual

If a customer cannot get a chlorine reading or keep chlorine in the water, the following questions should be asked before a recommendation can be given.

| Question | Action |
|---|--|
| C1 Is the pH within range (7.4-7.6)? | Yes: Question C2. No: Adjust pH, then proceed to Question C2. |
| C2 Is the stabiliser (cyanuric acid) 30 ppm or above? | Yes: Question C3. No: Raise stabiliser level to at least 30 ppm and proceed to Question C3. |
| C3 Have you double-checked the chlorine reading by diluting test sample with tap water (1 part sample to 4 parts tap water) and retesting? | Yes: Question C4. No: Dilute sample as directed, then multiply reading obtained by 5 to get Free Available Chlorine (FAC) level. Then proceed to Question C4. |
| C4 Is the Free Available Chlorine (FAC) reading still zero? | Yes: Treatment C1. No: Question C5. |
| C5 Is the Free Available Chlorine (FAC) greater than 5 ppm for a residential pool, or 10 ppm for a commercial pool? | Yes: Treatment C2. No: Contact Bio-Lab. |

Treatment C1 - Chlorine Demand:

- Make sure there are no problems with the filtration system. The filter must be clean and working properly to aid in the removal of small particles that could contribute to the chlorine demand.
- With the pump on, add Burn Out Extreme or 2 - 3 times the normal shock dose of Burn Out 35 (for pools with bleachable surfaces, it is recommended that large quantities be

pre-dissolved). When the chlorine is low or gone, shock again. Continue until you are able to maintain a steady chlorine level.

- With most chlorine demands, the initial double or triple shock will satisfy the demand. However, in some cases, it may take several Burn Out Extreme or Burn Out 35 treatments to reach break-point chlorination. Lite is not recommended for treating chlorine demand problems.

- If the customer asks you how much chlorine it will take to reach break-point, inform them that this is hard to determine without performing a chlorine demand test. In this case, contact your local BioGuard Account Manager regarding chlorine demand testing. Alternatively, you may purchase a Chlorine Demand Test Station from Bio-Lab. Again, contact your local BioGuard Account Manager for pricing details.

- Note that if you obtain non-zero values for free and total chlorine - even if the total chlorine value is far in excess of the free chlorine value (i.e. high levels of chloramines present) - do not request or perform a chlorine demand test. The chlorine demand test only provides corrective information when the sample has no chlorine residual.

Treatment C2 - Too Much Chlorine:

- Too much chlorine can bleach out DPD #1 tablets, giving a false zero chlorine reading. If there is too much chlorine in the water, apply Chem Out according to the label directions or stop chlorination until chlorine residual falls to the desired level.

D. Metal Stains or Coloured Water

The following questions will help you to identify the potential problem but not necessarily the cause. Given that you can't always explain to a customer why a stain occurred, your main goal should be to remedy the situation.

| Question | Action |
|--|--|
| D1 Is the pH within range (7.4-7.6)? | Yes: Question D2. No: Adjust pH, then proceed to Question D2. |
| D2 Has there been a recent problem with a low pH and/or total alkalinity? | Yes: Question D3. No: Question D3. |
| D3 Has the pool water been tested for iron, copper and manganese? | Yes: Question D4. No: Perform tests, then proceed to Question D4. |
| D4 Has MSA II, Back-Up II or Protector been added to the water? | Yes: Question D5. No: Question D6. |
| D5 Were levels of copper in excess of 0.8 ppm and/or iron and/or manganese in excess of 0.1 ppm detected in the pool water? | Yes: Question D7. |

No: Question D7. There can be metal stains even though no metals have been detected in the water. All this means is that the metals have completely precipitated out of solution.

D6 Were levels of copper and/or iron and/or manganese in excess of 0.1 ppm detected in the pool water? Yes: Question D7.

No: Question D7. There can be metal stains even though no metals have been detected in the water. All this means is that the metals have completely precipitated out of solution.

D7 Does the pool have a heater? Yes: Question D8. High levels of copper may indicate that the heater element or exchanger is corroding. If this is suspected, advise the customer immediately to minimise further heater damage.

No: Question D8.

D8 Is the fill water from a bore or some other groundwater source (ie. not municipal water)? Yes: Question D9. Apart from calcium, bore water is often high in metals like copper and iron.

No: Question D9.

D9 Has the source water been tested for metals recently? Yes: Question D10.

No: Test source water for metals, then proceed to Question D10.

D10 Does the source water contain metals in excess of 0.1 ppm? Yes: Treatment D1.

No: Question D11.

D11 Is the water discoloured? Yes: Note colour and check Table below, then perform Treatment D2.

No: Question D12.

D12 Can the stain be removed or partially removed with brushing? Yes: Stain is most probably due to algae. See sections on treating black spot, mustard algae and pink slime, below.

No: Note colour and check Table below, then perform Treatment D3.

No: Note colour and check Table below, then perform Treatment D3.

Table - Metal Stains and Discolouration

| Metal | Surface Stains | Water Discoloration |
|-------------|----------------|---------------------|
| Iron | Brownish | |
| Rust colour | | |

| | |
|-------------------|-----------------|
| Orange/Brown | Rust colour |
| Light brown | |
| Greenish | |
| Copper | Blue |
| Black | |
| Grey | Turquoise Green |
| Deep Blue | |
| Grey (not common) | |
| Manganese | Black |
| Dark Brown | Coffee Brown |
| Violet Purple | |

Treatment D1 - Metals in Source Water:

- If the source water contains metals, you might suggest that the customer use Pool Magnet and Quick Clear to remove the metals when filling the pool or topping it up. After testing the water and finding metal levels of 0.1 ppm or less, the pool may be balanced and chlorinated as per usual.

Treatment D2 - Discoloured Water Due to Metal Ion Contamination:

- Once it has been determined that metals are the cause of the discoloured water, use Pool Magnet at the rate of 250 mL per 10,000 litres for every 1.0 ppm metal present. Never exceed the maximum dosage rate of 750 per 10,000 litres at any one time. In addition, apply Quick Clear to the filter. Remember that although Pool Magnet binds the metals in the water, it is the Quick Clear that removes the metals from the pool.

- When using Quick Clear, the customer should monitor filter pressures closely. In helping to trap particles in the filter, Quick Clear can cause filter pressures to rise quickly. If this occurs, backwash the filter then reapply Quick Clear and continue filtration until the pool clears.

- In some instances, the pool may be in such bad shape that the most cost-effective solution would be to partially or completely drain it. Never completely drain an inground fibreglass pool as it could collapse in upon itself.

- If the pH or total alkalinity is low in a pool with discoloured water, these parameters should be raised slowly after the addition of Pool Magnet and Quick Clear. Balance Pak 100 can be used to raise the total alkalinity and pH whilst there are metals still in the water.

Treatment D3 - Metal Stains:

- Once you have determined that the stain is due to metals and is not some type of algal growth, use Pool Magnet at the rate described in Treatment D2, pouring it directly onto the stained area. A piece of plastic tubing (eg. Polypipe) can be used to direct Pool Magnet onto stains on the floor of a pool. Brush these areas frequently and apply Quick Clear to the filter.

- Pool Magnet may not always be able to completely remove stains, particularly if the stains have been present for a considerable period of time. The only option may be to drain the pool and acid wash the affected areas. As a rule, Bio-Lab does not recommend acid washing because it is time-consuming and can damage the pool surface. If acid washing is the only alternative, dilute the liquid acid at least 1 part in 4 prior to use. Never apply concentrated hydrochloric acid directly onto pool (or, for that matter, spa) surfaces.

E. Black Spot Algae

The following questions are used to determine if the customer has black algae.

| Question | Action |
|--|--|
| E1 Are the black spots raised on the pool surface? | Yes: Possibility of black spot algae. Go to Question E2. No: Question E2. |
| E2 Do the spots feel slippery? | Yes: Possibility of black spot algae. Go to Question E3. No: Question E3. |
| E3 Can the spots be removed partially or totally by brushing? | Yes: Black spot algae confirmed. Perform Treatment E1. No: Black spot algae unlikely. Go to Question E4. |
| E4 Is the pool surface fibreglass? | Yes: Possibility of black spot osmosis due to damaged gel coat. Perform Treatment E2. No: Most likely metals-related. See section on metal stains, above. |

Treatment E1 - Black Spot Algae:

- Adjust the pH to 7.4 - 7.6 before treatment. With the pump and filter running, add MSA II as per the label dosage rate, pouring around edges of pool. Allow the water to circulate for at least 1 hour after application. Vacuum dead algae to waste. Dead algae should appear pale grey in colour.

- Alternatively, adjust the pH to 7.4 - 7.6 before treatment, then shut off the pump, brush the algae vigorously and allow 4 hours for the water to settle. Whilst pool is not in use and preferably at night, add Spot Kill (pre-dissolve for bleachable surfaces - see below) by pouring the product into the water around pool edges and onto areas of heavy algal growth. After 12 - 24 hours, turn the pump back on and remove the dead algae by brushing. Clean the filter to remove dead algae. Repeat treatment if living algae is still present.

- Pre-dissolution for bleachable surfaces: Add 10 litres of water to a clean plastic bucket and slowly dissolve 500 grams of Spot Kill. Stir with a stick or plastic spoon until dissolved. Never dissolve more than 500 grams of Spot Kill at a time.

- Treatment E2 - Black Spot Osmosis:

- Unfortunately, short of resurfacing the pool, there is little you can do to rectify a damaged gel coat. The black spots are the result of cobalt in the fibreglass substrate migrating to the surface and reacting with chlorine or bromine. Acid washing or treatment with an anti-oxidant (eg. a strong solution of ascorbic acid) will decolourise the stain, but the cobalt will eventually react again with the sanitiser and the stain will reappear. Whilst it won't prevent osmosis once the gel coat is damaged, rigidly maintaining good water balance (particularly in terms of pH and Total Alkalinity) will aid in keeping outbreaks of staining few and far between.

F. Mustard Algae

The following questions are used to determine if the customer has black algae, mustard algae or a stain of some sort. After determining that they do have one of the two then you can prescribe a treatment.

| Question | Action |
|---|---|
| F1 Is the surface growth a yellowish-orange to mustard colour? | Yes: Possibility of mustard algae. Go to Question F2. |
| No: Question F2 | |
| F2 Does it readily brush off like a powder, only to return shortly afterwards? | Yes: Possibility of mustard algae. Go to Question F3. |
| No: Most likely metals-related. See section on metal stains, above. | |
| F3 Has the water maintained a 1.0 - 3.0 ppm chlorine residual for the past couple of days? | Yes: Mustard algae confirmed. Perform Treatment F1. |
| No: Satisfy chlorine demand (see above,) then perform Treatment F1. | |

Treatment F1 - Mustard Algae:

- Adjust the pH to 7.4 - 7.6 before treatment. Add 150 g of Burn Out 35 per 10,000 litres and allow to circulate for one hour. Apply 100 mL of MSA II per 10,000 litres, diluting the algacide in a bucket of water and applying in areas of greatest circulation. Bathers may re-enter the pool when the chlorine residual falls to between 1.0 and 3.0 ppm.
- Repeat the treatment if algae persists.

G. Pink Slime (Pink or Red Algae)

Pink slime is a surface growth that is caused by bacteria (to be precise, Methylobacteria) and is often mistakenly called pink or red algae. Here are some questions that should be asked before a recommendation can be given.

| Question | Action |
|--|--|
| G1 No: Question G1. | Does the growth feel slimy? Yes: Question G1. No: Question G2. |
| G2 No: If the pool is vinyl-lined, the pink colouration could be due to a fungus that grows underneath the liner. Unfortunately, this discolouration appears to be permanent and no treatment exists for its removal. | Does the slime brush off the surface relatively easily? Yes: Pink slime confirmed. Go to Question G3. |
| G3 No: Satisfy chlorine demand (see above,) then perform Treatment G1. | Has the water held a steady chlorine residual between 1.0 - 3.0 ppm for the past couple of days? Yes: Treatment G1. |

Treatment G1 - Pink Slime:

- The treatment for pink slime is similar to that for black spot algae. Adjust the pH to 7.4 - 7.6 and balance the water, if necessary. With the pump on, brush the pink deposits briskly. Apply an initial treatment of Burn Out Extreme (200 grams per 10,000 litres) or Burn Out 35 (500 grams per 10,000 litres). Two or three hours later, treat with Polygard (250 mL per 10,000 litres), pouring directly over pink slime areas.
- The filter must be cleaned after treatment to remove dead and/or any living bacteria. Use Filter Brite to clean the filter. If there is any slime still living, a second treatment of Burn-Out Extreme or Burn Out 35 and Polygard may be needed.

Prevention of Pink Slime:

- Regularly brush pool surfaces, preferably once a week.
- Regularly use of Back-Up II Algae Inhibitor.
- Maintain chlorine residual using Power Chlor, Power Tabs or Smart Sticks (Authorised Dealers only).
- Oxidise using Lite or Burn Out 35 at least once every 14 days and immediately after heavy rains or bather loads.

For further information on this topic, see "Pink Slime", Bio-Lab Australia Technical Information Bulletin BG-027.

H. Pool Goo or Tar

The following questions should be asked to decide whether a pool has a tarry goo build-up or scum.

| Question | Action |
|-------------------------|--|
| H1 No: Treatment H1. | Is the goo on a vinyl liner pool? Yes: Question H2. |
| H2 No: Question H3. | Is the goo on the bottom and sides of the pool? Yes: Question H4. |
| H3 No: Question H4. | Is the goo at the waterline? Yes: Treatment H1. |
| H4 No: Treatment H1. | Is the vinyl liner in its first or second season and/or has this pool been opened for the season recently? Yes: Treatment H2. |

Treatment H1 - Waterline Scum:

- Sometimes what looks like pool tar is actually nothing but scum. The difference between pool goo and scum is that the former is the result of vinyl liner plasticisers leaching and can be evident anywhere in the pool, especially on the bottom and sides of the pool, whereas the latter is simply a deposit comprising dirt, oils and other organic matter than normally appears at the waterline. Scum is relatively easy to remove using Off The Wall on a sponge or brush.

Treatment H2 - Pool Goo or Tar:

- There is no proven way to prevent pool goo or tar. However, here is a procedure that may hasten the removal of the goo. Even if the customer follows this suggestion, it will probably take 2 - 4 weeks before the goo will completely disappear. Note that goo will not permanently stain a liner.

- If the pool has a heater, turn it on to warm the water. If not, you may have to rely on the water temperature rising over summer. Add Back-Up II Algae Inhibitor (50 mL per 10,000 litres)

and oxidise plasticiser in the water using Lite, Burn Out Extreme or Burn Out 35. Maintaining the pH slightly higher than normal (ie. between 7.6 and 7.8) may assist.

- Swimmers can introduce materials into the water that can cause the goo to darken. You may wish to advise your client not to allow swimmers in the pool until all the goo is gone. For further information on this topic, see "Vinyl Pool Goo", Bio-Lab Australia Technical Information Bulletin BG- 015.

I. Disappearance of Cyanuric Acid

The following questions should be asked to determine which of five mechanisms could be the cause of cyanuric acid disappearance. Irrespective of the mechanism, the corrective action is generally the same.

| Question | Action |
|--|--|
| I1 Has Stabiliser 100 or Salt Pool Stabiliser been added to the pool recently? | Yes: Question I2. No: Treat with Stabiliser 100 or Salt Pool Stabiliser. Monitor stabiliser levels to ensure no further disappearance. |
| I2 Was the pump run continuously and not backwashed for 24 - 48 hours after the addition of Stabiliser 100 or Salt Pool Stabiliser? | Yes: Question I3. No: The stabiliser has not had time to completely dissolve and has been largely removed by the pool's filter. Reapply Stabiliser 100 or Salt Pool Stabiliser, ensuring that the pump runs for 24 - 48 hours. Do not backwash during this time. Monitor stabiliser levels to ensure no further disappearance. |
| I3 Did you neutralise the chlorine in the water sample before you added the cyanuric acid test tablet? | Yes: Question I4. No: Repeat the cyanuric acid test, adding 2 drops of No. 4 Chlorine Neutraliser before adding the test tablet. In cases where the chlorine level is high (> 3.0 ppm), add 1 additional drop of Chlorine Neutraliser for every additional 2.0 ppm of chlorine. If cyanuric acid still reads zero, go to Question I4. |

I4 Are the cyanuric acid test tablets relatively new (not more than a year old)?

Yes: Cyanuric acid level is low. Go to Question I5.

No: Obtain fresher tablets and repeat test. If cyanuric acid still reads zero, go to Question I5.

I5 Was the pool just opened for the season when you noticed that the cyanuric acid level had dropped? Yes: Clean filter with Filter Brite, re-balance pool and shock with Burn Out Extreme (120 grams per 10,000 litres). Monitor stabiliser levels to ensure no further disappearance.

No: Question I6.

I6 Has the pool had an algae or bacteria (slime) problem recently? Yes: Clean filter with Filter Brite, re-balance pool and shock with Burn Out Extreme (120 grams per 10,000 litres). Monitor stabiliser levels to ensure no further disappearance.

No: Question I7.

I7 Has the cyanuric acid disappeared in a short period of time (around 2 to 3 weeks)? Yes: Treat with Stabiliser 100 or Salt Pool Stabiliser. Monitor stabiliser levels to ensure no further disappearance.

No: Question I8.

I8 Has the pool had a chlorine demand problem recently? Yes: Clean filter with Filter Brite, re-balance pool and shock with Burn Out Extreme (120 grams per 10,000 litres). Monitor stabiliser levels to ensure no further disappearance.

No: Question I9.

I9 Was the chlorine level too high for any length of time? Yes: Treat with Stabiliser 100 or Salt Pool Stabiliser. Monitor stabiliser levels to ensure no further disappearance.

No: Question I10.

I10 Has the pH been high (above 7.6) for any length of time in the past 2 to 3 weeks? Yes: Treat with Stabiliser 100 or Salt Pool Stabiliser. Monitor stabiliser levels to ensure no further disappearance.

No: Question I11.

I11 Is the pool on a non-stabilised chlorination

program (ie. salt chlorination, liquid chlorine, cal hypo or lithium hypochlorite). Convert pool to a program involving either Power Chlor, Power Tabs or Smart Sticks (Authorised Dealers only).

No: Question I12.

I12 Does the pool have, or had, a slow leak as indicated by having to add more than the usual volume of make-up water? If pool is leaking then it must be repaired before making any water balance adjustments and re-stabilising the pool.

No: Reason for stabiliser loss could not be ascertained. Treat pool with Stabiliser 100 or Salt Pool Stabiliser, and monitor stabiliser levels to ensure no further disappearance.

J. Purple Deposits Around Skimmer or at Waterline

This problem tends to show up in pools with very high stabiliser levels and at least 1 ppm of copper.

| Question | Action |
|--|--------|
| J1 Are there any plants with purple foliage and/or flowers near the pool? Yes: Skim the material off the water and wipe surfaces, using Off The Wall if necessary. No: Question J2. | |
| J2 Is there any copper (above 0.1 ppm) in the pool? Yes: Question J3. No: There can be copper present in a pool even though no copper has been detected in the water. All this means is that the copper has completely precipitated out of solution. Go to Question J3. | |
| J3 Is the cyanuric acid level in excess of 200 ppm? Yes: See comments below regarding testing. The cyanuric acid level must be lowered by partially draining and refilling the pool with fresh water. Remove any deposits using Treatment J1. No: Question J4. | |
| J4 Does the pool have a very high chlorine residual (> 10 ppm)? Yes: Lower the chlorine residual using Chem Out; 18 grams per 10,000 litres will reduce the chlorine residual by 1 ppm. Once chlorine level is less than 5 ppm, remove the purple deposit using | |

Treatment J1.

No: Question J5.

J5 Does the pool use Power Chlor or Smart Sticks?
Yes: More than likely, the deposit will be confined to the area around the skimmer. Remove the deposit using Treatment J1.

No: The source is unknown but may be fallout from some process in the vicinity of the pool.

Skim the material off the water and wipe surfaces, using Off The Wall if necessary.

Treatment J1 - Purple Deposits:

- After dilution to lower any excessive levels of stabiliser and treatment with Chem Out to reduce chlorine levels to less than 5 ppm, apply undiluted Pool Magnet directly to the affected areas, taking care not to exceed the maximum dosage rate of 750 per 10,000 litres at any one time. Add Quick Clear to the filter to remove any liberated copper to waste.
- The purple deposit is copper cyanurate, formed when free copper comes into contact with high concentrations of cyanuric acid. In the case of Smart Sticks and, to a lesser extent, Power Chlor, the cyanuric acid concentration in the immediate vicinity of the skimmer may be high without the pool necessarily having a high overall stabiliser level.
- If the cyanuric acid level is high enough (well in excess of 200 ppm), it is possible to form this purple compound in the presence of MSA II, Back-Up II or Protector. Tests have shown that other factors also come into play, including pH and Total Alkalinity. You should investigate why the levels of cyanuric acid are so high by asking questions regarding the amount of chlorine being added, the time of filtration, the frequency of backwashing, etc. This phenomenon has occasionally appeared at the start of the swimming season where pool owners have operated their chlorination systems at summer dosage rates over the entire winter period, thus overdosing the pool with chlorine and stabiliser.

Testing Cyanuric Acid Concentrations in Excess of 100 ppm Using the Wet-Lab

- The method is much the same as that for testing high levels of chlorine or bromine, namely diluting the sample with fresh water before testing. As a first step, it is recommended to dilute 1 part water sample in 4 parts tap or distilled water (for instance, add 5 mL of sample to 20 mL of tap water). Neutralise and test as per usual, multiplying the result by 5 to get the cyanuric acid concentration in the original sample. This will permit you to measure up to 500 ppm of stabiliser (ie. five times the level permitted in commercial outdoor pools, according to Australian State Government legislations at the time of writing).
- If the level of cyanuric acid in the diluted sample exceeds 100 ppm, make up a second dilution using 1 part sample in 9 parts tap or distilled water. Neutralise and test as per usual, multiplying the result by 10 to get the cyanuric acid concentration in the original sample. This second dilution allows measurements of up to 1000 ppm cyanuric acid.

K. Products Compatible with Ionisers, Ozonators and Salt-Chlorinators

- Whilst Bio-Lab does not encourage the use of ionisers in pools and spas, it is evident that there are numerous units in operation around Australia and New Zealand. Some manufacturers caution against the use of copper-based algaecides with their ionisers, but we have found that MSA II, Back-Up II and Protector work perfectly well with these devices. Indeed, the excess polyacrylate in the formations can bind with the copper from an ioniser, further protecting the surfaces from staining.

- The only product we would not recommend be used in an ionised pool is Perfect Balance. This is because the active constituent in Perfect Balance can precipitate the copper and silver generated by the ioniser, ultimately leading to metal staining.

- All products in the BioGuard and SpaGuard ranges are compatible with ozonators and salt-chlorinators.

The above information is supplied by Bio-Lab and represents its best interpretation of available technical information at the time of preparation. The sole purpose is to supply factual information to Bio-Lab customers. It is not to be taken out of context nor used as support for any other claim not made herein.