ALGARID TREATMENT AIDS SWIMMING POOL MANAGEMENT

Algarid magnetic water stabilizers have now been in use for more than a decade as an aid in swimming pool management in many parts of the world. The main benefits of this treatment are greatly reduced demand for biocides (eg. Chlorine), improved swimmer comfort and more efficient filtration leading to clearer water and greatly extended filter cycles. A typical installation involves the straight forward fitting of an Algarid unit in the pool filter circuit, and as the units themselves entail no running costs so the treatment results in substantial long-term savings.

Evidence of the effectiveness of Algarid magnetic water stabilizers in reducing the consumption of chlorine in swimming pools comes from many sources in many countries. Before outlining this evidence, however, it should be pointed out that the chlorine added to swimming pools is consumed in two ways - firstly in the process of oxidizing algae, bacteria and other organic matter such as that introduced by swimmers or from overhanging vegetation, and secondly, through dissipation to the atmosphere which is promoted by sunlight and heat.

Chlorine consumption of the first kind is largely determined by the density of the algae and bacteria and the availability of the nutrients that enable them to multiply, as well as the amount of non -living organic matter present. The main effect of the Algarid is to inhibit the growth of algae and bacteria, thereby minimizing the amount of chlorine (or alternative biocides) required to maintain residual biocidal activity at the recommended level where pool-borne microbes present a negligible health risk.

The rate of loss of chlorine to the atmosphere, which is proportional to the amount of chlorine in the pool, can be reduced to some extent by using stabilizing chemicals (eg. Cyanuric acid) or by adding chlorine compounds to the pool after sunset. Losses of this kind can also be reduced by Algarid treatment because by limiting the growth of algae and bacteria, the chlorine demand is also limited, and the smaller the amount of chlorine which needs to be added to the pool, the lesser the amount which will be lost to the atmosphere. Under any regime of pool management a reduction in chlorine consumption will result from the regular removal of oxidizable abiotic organic matter (eg. dead leaves and insects).

THE EVIDENCE

The observations, which led to the development of the Algarid devices, were in fact made in a swimming pool in Melbourne, Australia, and during the development of the device, units were installed in other pools, also in Melbourne. The effect of these trial installations was to greatly reduce - in several cases by at least 50% - the amount of chlorine compounds needed to maintain the pools in a clean sta te.

Since then, countless units have been installed in swimming pools, and the only circumstances under which installations have not immediately yielded the claimed benefits have been situations where the chemical balance of the water has been totally neglected leg. where the level of total dissolved solids or of cyanuric acid has been allowed to exceed the maximum level which allows for the satisfactory performance of pool chemistry, or where non-flocculating biocides have been used without an auxiliary flocculation agent).

In order to obtain a patent for Algarid in the United States it was necessary to provide proof of the effectiveness of the device. To satisfy this requirement an experiment was carried out by the American Testing Institute (A.T.I.), in which after three weeks of Algarid treatment the amount of chlorine compound required to maintain a predetermined residual chlorine level in the test pool was 46% of the quantity required under control conditions.

Similar reductions in chlorine consumption have also been achieved in public swimming pool installations where Algarid units have been fitted into filter lines as large as 300 mm (12 inches) in diameter.

Pool users in Jakarta, Indonesia, have reported reductions in chlorine consumption in the order of 75% after fitting Algarid units. Although no controlled experiments have as yet been carried out in warm climates, these results are to be expected since the growth rates of algae and bacteria are temperature dependent and hence the amount of chlorine required to keep these organisms in check in swimming pools normally is greater and therefore the amount saved by using Algarid treatment is also greater than in cooler climates.

After reviewing the experimental and anecdotal evidence relating to the effectiveness of Algarid in pool management, an experiment aimed at quantifying the reduction in chlorine consumption resulting from its use was carried out in Melbourne (1-2-78 to 24-4-78) by the manufacturer. Two identical PVC-lined swimming pools (4,500 litre capacity) were fitted with untreated tap water and were "seasoned" by allowing populations of algae and bacteria to become established. Both pools were fitted with identical cartridge-type filters of appropriate capacity. After "seasoning" the sides and bottoms of both pools were swept and both pools brought to a "clean" state (residual chlorine level 0.5ppm) using the chlorination and filtration practices as recommended for domestic swimming pools.

An Algarid was fitted in the filter line of the "experimental" pool and with the filters running for 6 hours each day, the water in the experimental pool was progressively treated (N.B. for optimum results it is recommended that pools also be filled through an Algarid). Sodium Hypochlorite solution (Ajax Chemicals - 125 grams per litre available chlorine) was routinely added to the control pool (no Algarid) so as to maintain a satisfactory residual chlorine reading (approximately 0.5ppm). Whenever chlorine compound was added to the control pool an amount determined as outlined below was also added to the experimental pool. The level of residual chlorine was always measured before adding chlorine compound to the pools.

During weeks one to three of the experiment the chlorine dose for the experimental pool (with Algarid) was fixed at 50% of the dose required by the control pool. At this dosage level the residual chlorine reading in the experimental pool gradually rose. The experimental dosage was lowered to 45% of the control level during weeks four to six. The chlorine residual declined during this period. Dosage in the experimental pool was then raised once more to 50% of the control level in week seven with the result that the residual readings rose again.

These results indicate that the treatment of swimming pool water with an Algarid unit resulted in a reduction in the amount of chlorine required to maintain a satisfactory level of residual chlorine of between 50% and 55% when compared with an identical pool not treated with Algarid.

Many factors have a major effect on the consumption of chlorine in swimming pools. These include the number of swimmers, time of day when chlorine is added, care taken in removing organic matter from the pool and the concentration in the water of dissolved substances in general and of certain chemical compounds (eg. cyanuric acid) in particular. Algarid treatment is not a substitute for all other forms of pool maintenance but through its use, swimming pools can be maintained in peak condition from the point of view of both appearance and swimmer comfort with a minimum of labour and expense.

Algarids have been marketed for more than seventeen years and in excess of 32,000 units are currently in use for the control of algae and bacteria, not only in swimming pools but also in photographic processors, cooling towers in air-conditioning and other plant, and town, institutional, industrial and domestic water supplies located in many parts of the world, including Australasia, Japan, South-east Asia, North America, Europe and Africa. A recent analysis indicated that approximately 90% of Algarid sales have resulted either from the recommendations of users or from repeat sales.

(Text written late 1980's)