OC-1
FILTRATION MEDIA

100% Recyclable at end of product life

THE FUTURE OF SUSTAINABILITY IN SWIMMING POOL FILTRATION

OC-1 Filtration Media

OC-1 is an open cell media that has very low resistance to allow more water to be turned over in a pool. It has a huge capacity to store debris and matches the filtration quality of sand and glass filter media. However unlike all other media, the flow rate will not slow down once a small amount of dirt is caught, therefore optimising your filtration system and **resulting in healthier water for you and your clients.**

OC-1 SAVES YOU MONEY
Return on Investment in 12-18 months due to the unique filtration method, enabling pump speeds to be reduced, whilst maintaining required Flow Rate through filters

OC-1 INCREASES PERFORMANCE
OC-1 has a Unique filtration method providing huge debris retention - up to 20 times the capacity of sand or glass and can even filter down to 1 Micron

OC-1 SAVES YOU POWER
The proven, scientific design and ability, means extended Back Washing cycles which translates into thousands of litres saved annually

OC-1 SAVES YOU TIME
Extended back washing cycles along with faster back washing, due to open cell design, not only saves water but hours in Staff Time

ASTRALPOOL

Find out more about this revolutionary product at
astralpool.com.au/OC1

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AQUATICS

Astral Pools' OC-1 Filtration Media delivers sustainability at Willoughby Leisure Centre

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Sustainably Conscious

James Croll discovers how a Change in filter media has not only resulted in more sustainable aquatic space at the Willoughby Leisure Centre but significant potential savings

Back in 2016, Willoughby Leisure Centre had plans to change the media of its entire filter system due to its objectives to be as sustainably conscious as possible. The management discussed various options with Willoughby City Council's Sustainability Department, a Service Contractor and other Industry Specialists.

Initial discussions centred around sand and glass options and the various pros and cons for each product. Then, in late 2016 the management were informed about a relatively new filtration media option on the market, OC-1, a unique plastic filtration product that had been achieving incredible results and savings in Europe.

Willoughby Leisure Centre were to learn that the OC-1 Filtration Media works through a method of settlement, as opposed to the traditional method of entrapment. With a debris capacity 20 times greater than sand, OC-1 media catches 81% of 10-micron particles in a single pass and can remove particles as small as 1 micron and all with no flocculation or coagulation.

The open cell design provides a constant flow without pressure build up, regardless of debris retention, which makes it possible to achieve a greater flow of water through the filter. A pump speed reduction of around 20% -25% is achievable with a VDR, without compromising the flow.

Willoughby Leisure Centre Manager, Roz Neville advised "the data and the research presented to us from Europe were extremely interesting.

"We had the opportunity to trial it in the spa filters which we decided to do. We decided that if the project was successful, we'd then look into upgrading the main pool filters later in the year."

The investment in OC-1 proved to be slightly higher than replacing existing media but the savings in water, chemicals and heat loss gained through longer cycles between backwashing, with less backwash water required to clean OC-1, along with electrical savings, promised an investment payback within 12 months.

Funded by the Council's environment levy, it cost $104,000.

Project 1 - Spa Pool Filter Upgrade and Filter Media Replacement

OC-1 was to solve the two main issues with the operations of the facility's spa pool.

As Neville explains "with the previous backwash process we not only experienced loss of operational hours but the loss of a large quantity of heated and treated water."

By installing OC-1, both these issues were immediately addressed.

The spa filter system consists of two Chadson filter vessels. The scope of works included fibreglass relining of the filter vessels and installation of laterals for both filters. Roejen NSW, who were contracted for the works, commenced at the end of July 2017 and the project was completed by mid-August 2017.

David Kennedy, Roejen NSW Operations Manager, commented "our first experience with OC-1 was at Willoughby Leisure Centre, a client for over 12 years with Roejen. I can honestly say I was sceptical that the OC1 could achieve the results claimed, but we found that it easily met expectations. From the point of view of installing the OC1 into the filters, the process saved a lot of time and limited the downtime on the system."

Results after OC1 was implemented in Spa Pool at Willoughby Leisure Centre

Data for the new OC1 media v's the original sand media. The readings are based on pump curves, pressures and actual measurements as the flow meter was unable to be used due to the pipework configuration.

Following the implementation of OC-1 in the Spa Pool, results were extremely encouraging. There were some significant savings from the reduced number of backwashes, whilst the backwash volume and the temperature loss also resulted in significant savings.

Willoughby Leisure Centre Manager, Roz Neville (above).

Table shows data for the new OC-1 media when compared to the original sand media. The readings are based on pump curves, pressures and actual measurements as the folw meter was unable to be used due to the pipework configuration.

	Sand Media	OC-1 Media	Comments
Operational Flow	51 metre³ per hour	64 metre³ per hour	Increase of flow by approx. 25%
Backwash Frequency	Once per week	Once per month	Backwashing frequency significantly decreased
Backwash Volume	4,500 litres	2,300 litres	Significant water savings of 2,200 litres per backwash
Temperature loss over backwash	15.5°C	2.2°C	Temperature loss reduced per backwash limiting pool downtime

Data from fillters while they were sand.

Filtered water flow with valves at 50%	50Hz	64 l/s	Pump 1: 15 A Pump 2: 18.6 A	Pump 1: 11.4 kw Pump 2: 13.9 kw
Filtered water flow with valves fully open.	47Hz	61 l/s	Pump 1: 13.7 A Pump 2: 16 A	Pump 1: 9.3 kw Pump 2: 11.5 kw
Filtered water flow with valves fully open	45Hz	58 l/s	Pump 1: 12 A Pump 2: 14.1 A	Pump 1: 8.4 kw Pump 2: 10.3 kw
Filtered water flow with valves fully open.	42Hz	54 l/s	Pump 1: 9.7 A Pump 2: 12 A	Pump 1: 6.8 kw Pump 2: 8.7 kw

Now the results with OC1

Filtered water flow with valves at 50%	45Hz	64 l/s	Pump 1: 12 A Pump 2: 14.1 A	Pump 1: 8.4 kw Pump 2: 10.3 kw
Filtered water flow with valves fully open.	40Hz	62 l/s	Pump 1: 9.7 A Pump 2: 12 A	Pump 1: 6.8 kw Pump 2: 7.7 kw

Neville adds "based on the figures there was a saving of approximately 206,400 litres per annum of backwash water.

"This is water that does not need to be heated or treated which therefore provided us with significant power and water savings across the pool."

"What's more, the water quality has been exceptional since the conversion with no adverse side effects from the much lower dilution rate. The water quality has also been assisted by the 25% increase on turnover of the pool which equates to approximately 18 extra turnovers per day. With the reduced downtime we were able to provide a better experience for the patrons at a lower running cost which equated to a good result from the project."

Project 2 - Main Pool Filter Upgrade and Filter Media Replacement

Based on the results of the spa filter media replacement the main pool filter system which consisted of four filters was converted in February 2018. Data is still being collected on these filters, but the Centre is backwashing at around one quarter of the sand backwashing schedule, compared to before. Statistics are as follows and are based on actual measurements from flow rate metres fitted to the system.

Sand backwashing volume – 120,000 litres of water per month, or 1.4 million litres per annum.

OC1 backwashing volume – 30,000 litres of water per month, or 360,000 litres per annum.

Saving $14,000 and 1 Million Litres per year.

Neville continues "there is a total water saving from backwashing of 1 million litres of water per annum. Quite impressive when you consider the pool itself is 800,000 litres.

"Pump speeds meanwhile have been reduced from 50Hz to 42Hz resulting in a KW saving of 70,000 kw hour/per annum. This equates to approximately $14,000 per year."

James Croll looks after is Client and Partnership relationships at Australasian Leisure Management.