ISPE
THE INSTITUTE OF SWIMMING POOL ENGINEERS

MAGAZINE

October 2018 Vol. 29 No. 3

- *SPATEX 2019*
  - The ISPE Workshop Programme
- *More Model Answers*
- *Transportation of Dangerous Goods*

Whenever Paul delivers, he'll always go the extra mile for you.

You shop, we don't drop; we deliver.

Whether it is a pool kit to one of your customers or an order for your business, Paul and our other drivers take the care to make sure that the goods arrive in good shape, in good time and with a smile. It's called customer service. We know that you are looking for the right product at the right price but we also know that we need to deliver more than that to keep growing our business.

So, from picking up the phone when it rings to unloading a 250 kg sauna, we'll go that extra mile to get it right.

Call any of our customer service team on **01271 378 100** and tell them what you'd like us to deliver.

Phone: +44 (0) 1271 378 100 | **Web:** www.goldenc.com

40 Years of Innovation

SPATA

Golden Coast

COUNCIL OF MANAGEMENT

Officers of the Council

President
JOHN CHEEK

Vice-President
COLIN DAY

Honorary Treasurer
IAN BETTS

Company Secretary
CHRIS CARR

Elected Members of the Council
PHILIP BARLOW
HOWARD GOSLING
COLIN JENKINSON
JOHN SCOTT
MALCOLM SHARP
MIKE SHUFF
BEN STUDDY
ALLEN WILSON

Co-opted Members of the Council
BOB JUDD
GRAHAM KNEALE
JIMMY LAMB

General Secretary
ROSS ALCOCK

The Institute of Swimming Pool Engineers Limited,
P.O. Box 3083,
Norwich,
Norfolk NR6 7YL
Tel: 01603 499 959
www.ispe.co.uk
email: ross@ispe.co.uk

© ISPE. The Institute of Swimming Pool Engineers accepts no responsibility whatsoever in respect of any advertisements appearing herein, or for any opinion or statement expressed in technical articles, correspondence or other items.

NOTICE TO ALL READERS

Articles and advice in the ISPE Magazine are for guidance only. Further professional advice should always be sought before acting upon, or refraining from acting upon, a course of action. Health & Safety is of paramount importance and the correct PPE (personal protective equipment) should always be utilised before undertaking any job.
If in doubt, ASK!

INDEX

Front Cover Picture and Editorial	2
SPATEX- the next chapter	4
SPATEX 2019 - ISPE Programme of Workshops and Demonstrations	6
ISPE Statement on ISPE-Endorsed Pool Plant Operator Training	8
More Model Answers	9
The ISPE Filtration Workshop	13
Transportation of Dangerous Goods	14
Ideal Solar Collection	19
Product Profile - *'Hydrosense' Rapid Testing*	22
Project Profile - from *London Swimming Pool Company Ltd.*	28
Wilson's Words of Wisdom	30
New Members & Students and Stop Press!	32

Front Cover Picture

Integrated Pool and Spa

Designed and built for a client in the construction industry, this integrated luxury pool and spa won LSPC the top award in the In-ground Residential Spas and Wellness category in the recent SPATA Awards. The 13.5m x 4.20m pool has a shallow end of 1.5m falling to 2m deep. The pool is fitted with Wibre underwater lighting; sports Astral neck-jet water cannons; and steps are located on both sides of the spa leading into the pool. The 2.1m diameter spa seats five bathers and has an extended seatback and footwell. Multiple jets deliver massage via standard air/water mix jets.

The same bespoke tiling design runs throughout the pool and spa - large format porcelain tiles in a travertine design were cut to mosaic size and fixed to a backing sheet. To give the tiling extra pizzazz, different shades of beige and brown tiles were combined. An Ocea automatic slatted pool cover is installed in a recessed floor. The pool cover mechanism is hidden under a structural false floor panel, which is completely blended into the pool finish. A great example of design excellence for an exacting client in the construction industry!

www.londonswimmingpools.com
enquiries@londonswimmingpools.com
Tel: 020 8605 1255

Editorial

With the warm days of the record-equalling Summer now behind us, our thoughts turn toward the Autumn and the forthcoming ISPE Seminars, SPATEX 2019 and 'Industry-supported' CPD training.

The 119th ISPE One-Day Seminar will take place near Hemel Hempstead on Thursday 18th October.

This will be closely followed by the 2018 ISPE Filtration workshop, on Thursday 8th November, held near Hastings in East Sussex and full details appear on page 13 of this issue.

The 120th ISPE One-Day Seminar will be on Thursday 22nd November, back in Clevedon, North Somerset.

ISPE Seminar programmes are sent to all ISPE members or may be downloaded from the ISPE website (www.ispe.co.uk) under 'Diary Dates'.

Also see the ISPE website for the latest dates for the 'Industry-supported' CPD training sessions, which are all free to attend and an invaluable way to benefit from lots of different aspects of training from various sectors of the pool and spa industry and associated trades.

We are delighted to be able to reveal the ISPE Workshop programme for SPATEX 2019 in this issue, a 'do not miss' event!

I hope to see you all at one or more of these events but in the meantime, keep busy!

Ross Alcock - September 2018.

OC-1
FILTRATION MEDIA

Join the OC-1 revolution

Unlike traditional methods that use entrapment, OC-1 works through settlement which means that the debris settles within the cells of OC-1 throughout the entire bed rather than being trapped on top of the media bed. By replacing commonly used media, such as sand and glass, with OC-1 it is possible to reduce the head loss in the filtration system and filter with a constant flow regardless of debris retention.

- Out performs traditional filter media
- Increased debris retention
- Decreased head loss
- Independently tested by the IFTS
- Suitable for all applications
- Potential energy savings
- Lightweight and easy to transport
- Manufactured in Britain
- Low maintenance and recyclable

01993 777200 oc-1@certikin.co.uk

www.oc-1filtrationmedia.com

Certikin

SPATEX 2019 - the next chapter

It's that time of the year when thoughts inevitably turn to the winter and, aside from Christmas, the one event that we, in the wet leisure industry, all have to look forward to is SPATEX 2019. The UK's one and only dedicated wet leisure Exhibition at Coventry's Ricoh Arena, Tuesday Jan 29th to Thurs 31st, is a must-attend date.

SPATEX 2019 - the next chapter.

SPATEX is, of course, the ideal hunting ground to source new products and innovations. New ways to save energy is a topic high on the agenda and there will be lots of new launches promising just that! But, thanks to ISPE, it is also so much more than that. ISPE, with its programme of free workshops, each year imparts a massive amount of knowledge and provides free education and training that is recognised throughout the Industry as being a unique and very valuable resource.

For 2019, the ISPE will once again be presenting its own, much-loved brand of free to enter technical workshops – with 22 different sessions running throughout the three days of the Show. The dynamic, varied programme contains 19 new titles for SPATEX 2019.

The Show will see the return of the popular 'Mega-Demo' which will feature various aspects of water testing, allowing delegates to get 'hands-on' with some of the equipment, as well as experts demonstrating the dos and don'ts. The vast majority of pool service engineers carry out some aspect of water testing during their busy working weeks and these Mega-Demos will give lots of useful tips and advice which should prove invaluable as the Spring approaches. There will also be a competition towards the end of the session to find the 'Champion Tester' – more details coming soon. The Mega-Demos will take place on both Tuesday and Thursday lunchtimes.

Chris Carr and Phil Barlow - All you need to know about filters and pumps.

In addition, there will be a live demonstration, with commentary, of how to install, service and repair, both filters and pumps for domestic pools on the Tuesday afternoon.

This is a must-attend session for any pool engineers that are concerned with on-site servicing and maintenance.

With further topics including, health and safety issues, aspects of chemical treatment, heating hot tubs, tiling in pools, liner pools, and maintenance of dehumidification systems, the first day sets the bar for the three days of the ISPE technical programme.

Colin Day will be on hand for three presentations during SPATEX 2019, including the return of the Mega-Demos.

The programme continues on the second day with a look at the latest Transport of Dangerous Goods Regulations, and includes topics on liners, tips on servicing filters and pumps, high rate filtration, ductwork, balanced water, and the day finishes with Allen Wilson looking at how to avoid waterborne problems causing ill health.

The final day will include sessions on pump inverter technology, microbiological testing and leak detection, in addition to the Mega-Demo.

For anyone already in the pool industry or those looking to start a career, there will be something of interest for everyone at some point over the three days of the technical programme and for those who are keen to record their Continuous Professional Development, attendance certificates indicating one CPD point per Workshop will be issued after the event. Find details of the ISPE Workshop programme on pages 6 & 7 and on the SPATEX website, www.spatex.co.uk.

Allen Wilson will return for SPATEX 2019.

And there's more! In addition to the ISPE workshops, SPATEX will once again be offering a parallel programme of seminars on a diverse range of topics such as the most successful ways of marketing your company and the latest health and safety legislation.

Visitor registration is FREE – register now at www.spatex.co.uk
SPATEX 2019: Tuesday January 29th to Thursday January 31st 2019, the Ricoh Arena, Ericsson Exhibition Hall, Coventry. For further information please call Michele or Helen on +44 (0) 1264 358558 or email michele@spatex.co.uk; helen@spatex.co.uk

SPATEX 2019
THE POOL, SPA & WELLNESS SHOW
TUESDAY 29 JANUARY – THURSDAY 31 JANUARY 2019
ERICSSON EXHIBITION HALL · RICOH ARENA · COVENTRY UK

PROGRAMME OF WORKSHOPS AND DEMONSTRATIONS

Organised by the ISPE on behalf of SPATEX Ltd.

ERICSSON EXHIBITION HALL, RICOH ARENA, COVENTRY

Tuesday 29th January - Thursday 31st January 2019

Ref.	Subject Presentations	Tue. 29th Jan.	Wed. 30th Jan.	Thur. 31st Jan.
1. NEW	**HEALTH AND SAFETY UPDATE FOR THE POOL & SPA OPERATOR** An annual update on legislation and cases over the past 12 months and details of any forthcoming changes. (20 minute session) Colin Jenkinson, MISPE - Leisure Safety Training	**10.00-10.20**		
2. NEW	**STABILISED CHLORINE GRANULES** What is the future and what are the alternatives? (20 minute session) Jimmy Lamb, TnISPE(Cert.) - Pollet Pool Group	**10.30-10.50**		
3. NEW	**HEATING HOT TUBS FASTER – AND REDUCING ENERGY COSTS!** How using an external heating source, plus a heat exchanger, can save money and get hot tubs heated significantly quicker. Tony Carter - Bowman (30 minute session)	**11.00-11.30**		
4.	**HSG282 – THE FACTS** What you and your spa customers need to know. Martin Rigby – Complete Pool Controls Ltd. (20 minute session)	**11.45-12.05**		
5.	**TILING IN SWIMMING POOLS** Ensuring that the correct waterproofing, adhesive and grout choices are made to ensure a quality long-lasting tiling installation. Shaun Howarth - Ardex (30 minute session)	**12.15-12.45**		
6. NEW	**MEGA DEMO - WATER TESTING** Demonstration of How Not To Do Water Testing – What's going wrong here? Testing Systems – What's available and the pros and cons of each. Let's do some testing – hands-on using the kits. Looking at the unusual, including: Turbidity, Copper and Sulphates, etc. Who's the Champion Tester? Speed and Accuracy Competition. (60 minute session) Colin Day, FISPE and Matthew Smith - Lovibond Tintometer	**1.00-2.00**		
7. NEW	**SITE LINING – THE FUTURE OF LINER POOLS** The financial and practical advantages of site lining over pre-tailored liners for both pool owner and installer. Dan Thatcher, MISPE and Bradley Armstrong – Aquaflex Ltd (20 minute session)	**2.30 2-50**		
8. NEW	**MAINTENANCE PRINCIPLES OF DEHUMIDIFICATION SYSTEMS** Learn the fundamentals of swimming pool heating and ventilation and how to install, commission and maintain a specialised system. David Hayles - Heatstar Ltd. (30 minute session)	**3.15 3.45**		
9. NEW	**ALL PUMPED UP** A practical demonstration on how best to install, service and repair pumps for domestic pools. (45 minute session) Chris Carr, FISPE - Chris Carr Filtration Services and Phil Barlow, FISPE - Philip Barlow Swimming Pools	**4.00 4.45**		

Ref.	Subject Presentations	Tue. 29th Jan.	**Wed. 30th Jan.**	Thur. 31st Jan.
10. NEW	**HOW WILL BREXIT AFFECT THE TRANSPORT OF DANGEROUS GOODS REGULATIONS?** What you need to know. (20 minute session) Howard Gosling, FISPE		**10.15-10.35**	
11. NEW	**SWIMMING POOL PVC LINERS** A professional guide to their correct fitting and care. Will Dando, FISPE - Plastica Ltd. (30 minute session)		**10.45-11.15**	
12. NEW	**HEATING HOT TUBS FASTER – AND REDUCING ENERGY COSTS!** *(Repeat of session no. 3)* Tony Carter - Bowman (30 minute session)		**11.30-12.00**	
13. NEW	**TIPS ON SERVICING & MAINTAINING FILTERS AND PUMPS** A PowerPoint presentation considering how to avoid wasting time on site, potential problems when servicing and keeping your customer happy! (30 minute session) Chris Carr, FISPE - Chris Carr Filtration Services		**12.15-12.45**	
14. NEW	**HIGH RATE FILTRATION** Is this really suitable for use in swimming pool water treatment? Jimmy Lamb, TnISPE(Cert.) - Pollet Pool Group (20 minute session)		**1.15-1.35**	
15. NEW	**TO DUCT OR NOT TO DUCT** A comparison of ducted ventilation systems and wall mounted dehumidifiers. (30 minute session) Graham Kneale, FISPE - Certikin International		**2.00-2.30**	
16. NEW	**DON'T LOSE YOUR BALANCE** An overview of balanced water and how it is measured. Colin Day, FISPE - Lovibond Tintometer (20 minute session)		**2.45-3.05**	
17. NEW	**WATERBORNE PROBLEMS CAUSING ILL HEALTH** We have all heard the slogan "Kills 99.9% of known germs" but what about the other 0.1%? What are they, what can they do and how can we control them? (30 minute session) Allen Wilson, FISPE - Studies in Work		**3.30-4.00**	

Ref.	Subject Presentations	Tue. 29th Jan.	Wed. 30th Jan.	**Thur. 31st Jan.**
18. NEW	**HOT TUB MAINTENANCE ADVICE** HSG282 Recommendations for maintenance of hot tubs in a "Business Setting". Martin Rigby – Complete Pool Controls Ltd. (20 minute session)			**10.15-10.35**
19. NEW	**PUMP INVERTER TECHNOLOGY** Maximising efficiency to save energy & money Will Dando, FISPE - Plastica Ltd. (30 minute session)			**11.00-11.30**
20. NEW	**WHY WE MUST REGULARLY MICROBIOLOGICALLY TEST** How do we comply with the legal requirements of HASAW, COSHH and best guidance? What are TVCs, Coliforms and Pseudomonas? A protocol for dealing with these problems. When should we close, and how to prevent bad readings? Allen Wilson, FISPE - Studies in Work (30 minute session)			**12.15-12.45**
21.	**MEGA DEMO - WATER TESTING** *(Repeat of session no. 6)* (60 minute session) Colin Day, FISPE and Matthew Smith - Lovibond Tintometer			**1.00-2.00**
22. NEW	**LEAK DETECTION IN SWIMMING POOLS** A look at some of the methods and equipment used (applicable to domestic and commercial pools). Steve Burke, MISPE – Aquaplan Ltd. (30 minute session)			**2.15 2.45**

All ISPE Workshops at SPATEX are free-to-enter and after the event, delegates will receive a CPD certificate for each Workshop they attend indicating one CPD point.

THE INSTITUTE OF
SWIMMING POOL ENGINEERS

PO BOX 3083, Norwich, NR6 7YL
Tel: (01603) 499959

email: ross@ispe.co.uk
www.ispe.co.uk

Statement by the Institute of Swimming Pool Engineers' Council of Management

ISPE-Endorsed Pool Plant Operator Training

Since the publication of the Swimming Pool Water book by the PWTAG in November 2017, there has been some confusion with regard to the suitability of ISPE-Endorsed Pool Plant Operator training courses. The following statement has been issued by the PWTAG to try to remove some of this misunderstanding *(Source: PWTAG website www.pwtag.org.uk)*:

"Training accreditation

The 2017 edition of Swimming Pool Water (page 33) recommends that pool operator training should be: 'suitable and sufficient and should be accredited by the Pool Water Treatment Advisory Group (PWTAG).' Accreditation shows that the training meets the requirements of the Code of Practice. To clarify, training that is to the same standard as PWTAG's, but is not formally endorsed by PWTAG, may also be suitable and sufficient. In such circumstances, pool managers should satisfy themselves that the training provided incorporates the information in PWTAG's training syllabus. It can of course include additional material."

While the PWTAG may recommend that all pool operator training for (public) pools be PWTAG-accredited, there are a number of other well-established training providers that are suitably experienced in delivering pool plant operator training that are not PWTAG-accredited and are not required to be so. This was confirmed in answer to a question at the CIMSPA Conference in Kenilworth in February 2018, when an HSE speaker replied "Training does not have to be PWTAG-accredited".

All ISPE-Endorsed Pool Plant Operator training providers (see list below) have confirmed to the ISPE Council of Management that their training is kept up-to-date and is amended, as required, on a continuous basis, to reflect lead body guidance and new Regulations and Standards that are introduced, including but not limited to, the new PWTAG CoP and the new PWTAG book. Therefore, all ISPE-Endorsed Pool Plant Operator training can be recommended to meet all your pool plant training needs and keep you compliant with current guidelines.

Council of Management, Institute of Swimming Pool Engineers (ISPE) - August 2018.

ISPE-Endorsed Training Providers: 'Studies in Work', 'PALM Academy', 'Flowman Leisure' and 'Leisure Safety Training' - further details available from ISPE.

More Model Answers

The second part of two articles looking at the 2018 ISPE Student Exams.

Construction

What is 'hydration' relative to concrete?

Only that specific amount of water necessary for the proper hydration of the mix used. (**6 marks)**

Other Answers: Hydration is the process of keeping the concrete wet during curing**. (2 marks)**

When the concrete has been allowed to go off **(1 mark)**

This is when concrete sucks-up water **(1 mark)**

Define the term 'Newton' and what is the equivalent of 5000 lbs/sq.inch in Newtons per sq.mm?

Newton is an international unit of force based on a mass of kilogram acting under the force of gravity. 1lb/sq.in is equivalent to approximately 0.0069 Newtons/sq.mm and 5000 lbs/sq.inch is 34.5 N/sq.mm **(6 marks)**

or

A Newton is the force required to produce the unit acceleration on a mass of 1 kg and 5000 lbs/sq.inch is equivalent to 34.5 N/sq.mm **(6 marks)**

Other Answers: Is a term of pressure based on a kilogramme of weight and 5000 lbs/sq.inch is equivalent to 25 N/sq.mm **(4 marks)**

Newton is a measure of mass and is the same as about 0.25 lbs. **(1 mark)**

Explain what a beaded liner is.

A beaded liner is a liner manufactured with the top of the liner having a wedge shaped beading welded to the full perimeter to allow for the liner to be held in position in to a suitable extruded linerlock fixed either under the copings or at the top of the pool wall**. (6 marks)**

Other Answers: A beaded liner is a liner that has been specifically manufactured to fit a block work pool shell. **(1 mark)**

A beaded liner is when a fabric is provided between the liner and the shell of the pool. **(0 marks)**

At what stage does most concrete, including Shotcrete, achieve 60% of its strength?

Under proper curing conditions most concrete, including Shotcrete, will attain at least 60% of its design strength in 7 days. **(6 marks)**

Other Answers:

Most concrete gains 60% of its strength in 5 days **(2 marks)**

Within 48 hours **(0 marks)**

Give three examples of reinforcement bar diameters and state the recommended maximum 'rule of thumb' height of the pool walls that they should be used in.

10mm diameter bars should be used in walls up to 1.2m

12mm diameter bars should be used in walls up to 1.8m
15mm diameter bars should be used in walls over 1.8m **(6 marks)**
Other Answers: 10mm -1.2m, 14mm 1.2 to 1.6m, 18mm -1.8m **(3 marks)**
Reinforcement sheets should be used in all pool walls and floor. **(0 marks)**

How do you ensure proper curing of concrete in the pool shell?
Proper curing is essential and a light spray of water should be applied to the exposed surfaces of the concrete as soon as is possible without causing any damage to the surface. After the surface has hardened it should be kept moist for a period of 5 to 7 days depending on atmospheric conditions. **(6)**
Other Answers: Cover the surfaces of the concrete with polythene or similar and let it dry out**. (2 marks)**
Leave the concrete to dry out to harden and cure; the warmer the weather the quicker it hardens. **(2 marks)**

Filtration

Name and describe briefly at least three various types of media used in swimming pool filtration.

16/30 Grade Silica Sand: is probably the most widely used media in the UK for swimming pools. The term 16/30 refers to the sieve grade sizes used and for size 16 the sieve has an aperture of around 1mm, and for size 30 a sieve with an aperture of around 0.5mm is used.

Pea gravel: Often used in (larger or commercial) filters as a support medium to assist with getting uniform flow around the lateral (or collector) system, so as to aid filtering & backwash and to help avoid dead areas in the media. Gravel used for filtering pool water usually ranges between 3 – 6mmØ in size.

Activated Carbon: This is normally used on larger commercial applications in conjunction with sand as a surface layer and may be around 300mm in depth. Activated Carbon can be used to remove colour staining as well as being able to strip out unwanted (or excess) chlorine & ozone from the swimming pool water. Activated carbon can range in size but an average grade may be in the order of 1.2 – 2.5mm nominal diameter.

Why is it usually considered to be a better practice to use a 90º bend in preference to a 90º elbow in pipework installations?
A 90 degree bend (as opposed to a 90 degree elbow) will greatly aid flow and reduce resistance (therefore reducing pressure/stress) within the pipework and load on the pump. Swept bends also reduce the risk of the pipework becoming clogged by debris such as leaves or similar.

Describe briefly the term "Filtration Rate".
The term Filtration Rate refers to the velocity of the water (being filtered) passing through the media. The three categories usually referred to are:
Slow Rate: 0 -10$m^3/m^2/hr$ typically used for drinking water applications.
Medium rate: 11 - 25$m^3/m^2/hr$ typically used for commercial swimming pools.
High Rate: 25 - 50$m^3/m^2/hr$ typically used for domestic swimming pools.

The velocity (or speed) of water flowing through a pipeline may be expressed in ft/sec or m/sec. State the ideal range of velocities for suction and return pipelines in a filtration system.

Suction pipework: 1.2 – 1.5m/s - 4 - 5ft/sec
Return pipework: 2.4 – 2.7m/s - 8 - 9ft/sec

Define the turnover periods for:

a) A spa pool in heavy use.

b) A private open air unheated pool

a) Commercial Spa = 7 – 10 minutes

b) A private open air unheated pool = SPATA Standards say: 4 – 8 hours, but 8 hours would be acceptable for this application.

All the answers can be found in the ISPE Home Study Course so students must study this before taking the exam. As always, we are happy to help if you have any queries. Please send these via the ISPE office ross@ispe.co.uk or telephone 01603 499959.

The model answers to this year's Chemicals and Heating exam papers appeared in the June 2018 ISPE Magazine (available on the ISPE website www.ispe.co.uk or from the ISPE office).

We are grateful to Colin Day, FISPE, Ian Betts, FISPE, Ben Studdy, FISPE and Chris Carr, FISPE.

DON'T MISS OUT ON YOUR OWN COPY OF

SPN

www.swimmingpoolnews.co.uk

OFFICIAL MAGAZINE FOR THE UK INDUSTRY

BSPF 'promoting pools, spas & allied leisure' | SPATA | BISHTA PROMOTING SAFE HOT TUB STANDARDS | sta

An annual subscription to **SPN** costs just £30 (UK) – and represents terrific value for the most respected and established title in the industry.

Every issue of **SPN** is packed full of essential information from the UK and global pool and spa industry – **can you afford not to have your own copy?**

SUBSCRIBE NOW AND YOU WILL:

- Never miss an issue
- Pay no charge for post and packaging (UK)
- Have you own copy delivered direct to your door (home or office)
- Benefit from our satisfaction guarantee – your money back for any unmailed issues
- Receive your copy at least a week before our 'virtual' edition goes live

SAVE £££'S

SUBSCRIBE TODAY & GET YOUR SECOND YEAR **HALF PRICE!**

SUBSCRIBING TO SPN COULDN'T BE EASIER...

Just visit our website at www.swimmingpoolnews.co.uk and click on any of the 'subscription' links. You can pay online with any major credit card using our secure PayPal checkout – it'll only take a couple of minutes!

Your SPN contacts are:

For editorial enquiries contact Jon Wadeson on 020 8306 8150 or email jon@aqua-publishing.co.uk
For advertising enquiries contact Tony Weston on 01474 813433 or email tony@aqua-publishing.co.uk

THE INSTITUTE OF
SWIMMING POOL ENGINEERS

FILTRATION WORKSHOP

For Domestic Installations

Thursday 8th November, 2018

at Plastipack Ltd., St, Leonards on Sea, East Sussex

(By kind permission of Peter Adlington, FISPE)

This workshop, presented by Chris Carr, FISPE and Philip Barlow FISPE, on behalf of the Institute of Swimming Pool Engineers will give basic training & guidance to new recruits and/or service personnel with limited experience of swimming pool filtration and servicing. The Workshop is particularly useful for ISPE Students in preparation for the Filtration exam (although the workshop is not part of the course).

This comprehensive Workshop will be for between eight and sixteen delegates and the cost, including lunch and all refreshments, will be £60.00 (ISPE Members and Students) and £80.00 (non-members).

Towards the end of the day there will be a multiple-choice questionnaire. Certificates indicating 4 CPD points will be presented to delegates reflecting how successfully these questions are answered. There will be ample opportunity to ask questions throughout the day.

WORKSHOP SCHEDULE *(approximate times)*

09.00 – 09.30 **Arrival - Report to Chris Carr, FISPE or Phil Barlow MISPE**
Coffee/Tea & Biscuits.
Health & Safety briefing.

09.30 – 10.15 **'Measure Twice – Cut Once' – Part 1**
A PowerPoint presentation on: Pipe-work installation and correct pipe-work sizing.

10.15 – 11.00 **Pipe-work Practical Trade Test**
Delegates get 'hands-on' making a pipe-work test set.

11.00 – 11.15 **Coffee/Tea - Comfort break**

11.15 – 12.00 **The Principles of Filtration - Part 2**
A PowerPoint presentation by Chris Carr, 'Sizing a pump, sand filter & pipe-work for a domestic pool'.

12.00 – 12.30 **The Principles of Filtration - Part 3**
Continuation - PowerPoint presentation by Chris Carr, 'Installation & servicing tips'.

12.30 – 13.00 **Buffet Lunch**

13.00 – 14.30 **Filter & Pump Practical Trade Test**
There are two elements to this practical experience:
1. Filter strip-down & rebuild,
2. Pump strip-down & rebuild.

14.30 – 14.50 **Mini Exam -** A 20-minute multi-choice exam based on the day's events.

14.50 – 15.00 **Comfort break**

15.00 – 15.30 **A 30 minute guided tour of the hosting company.**

15.30 – 16.00 **Sizing Equipment for Commercial Pools - Part 4**
A PowerPoint presentation by Chris Carr to show how to calculate equipment sizing for a commercial pool.

16.00 – 16.30 **Q & A - Exam Results - Presentation and Close**

Please Note: Times and/or activities may be subject to change.

If you are interested in attending the Workshop, please register your interest with the ISPE Office (01603 499959 or ross@ispe.co.uk) where we will be holding a waiting list. Once the minimum number of delegates is reached, we will contact everyone on the list to confirm their place and will send an invoice.

Transportation of Dangerous Goods

By Howard Gosling, FISPE

Do you know how Dangerous Goods are defined?

The answer is that you have to look at the Safety Data Sheet, Section 14. The Safety Data Sheet used to be called a Material Safety Data Sheet and you should have one of these for every chemical that you handle, including products such as test tablets. Indeed, for the test tablets you must have the Safety Data Sheets that relates to the test tablets that you use for each of the test kits that you supply and stock, because not all test tablets are the same. They need to be the test tablets for each specific manufacturer's test kit. If it is not the same manufacturer's test tablets the results will not be correct. Speak to your test kit supplier and make sure you have the correct Safety Data Sheet.

Over the past decade, we have been governed in the UK by the Carriage of Dangerous Goods Regulations 2009 and the Amendments that were issued in 2011. These are not terribly straightforward to read but the basic reference is to ADR as well as EU legislation.

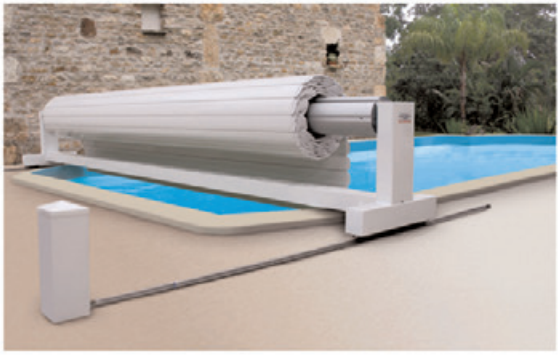
"Accord europeen relatif au transport international des marchandises dangereuse par route".

People keep asking now what difference Brexit will make and at the 23rd Department of Transport Annual Dangerous Goods Seminar in June this year, we found out! Later this year or early in 2019, there will be a completely new set of Dangerous Goods Regulations issued which will no longer make any reference to the EU, but they will still refer to ADR which is far more than just the EU, being some 49 countries.

Currently we are governed via Carriage of Dangerous Goods 2009 and 2011, and ADR 2017, Volumes I and II. These are readily available free of charge on the internet but before you press the print button, be aware that ADR Volume I is 630 pages and ADR Volume II is a further 614 pages. It is much easier to buy the books complete but if you attend a training programme you can probably avoid that expense because a good training course can demonstrate to you how to avoid many of the Regulations that apply.

However, ADR, Chapter 1.3, Training of persons involved in the carriage of Dangerous Goods, is detailed and covers three main areas, General Awareness Training (1.3.2.1) which requires personnel to be familiar with the general requirements of the provisions for the Carriage of Dangerous Goods by Road. Function Specific Training (1.3.2.2) which says that personnel should be trained commensurate directly with their duties and responsibilities in the requirements of the Regulations concerning the Carriage of Dangerous Goods and where the Carriage of Dangerous Goods involves a multi-model operation, the personnel should be aware of the Requirements concerning other transport modes. That means that if you normally ship by road, but there is a ferry journey involved such as to the Isle of Wight or to one of the Scottish Islands then you have to have some training in that as well.

Committed to supplying you with quality products delivered on time, every time.



SCP Basildon
Unit 5
Festival Business Park
Festival Way
Basildon
Essex
SS14 3WB
tel: 01268 273 040
fax: 01268 273 041

www.scppool.com
email: info.uk@scppool.com

SCP Gatwick
Head Office
1 Church Road
Lowfield Heath
Crawley
West Sussex
RH11 OPQ
tel: 01293 546 126
fax: 01293 528 442

Safety Training (1.3.2.3) must be commensurate with the degree of risk of injury or exposure arising from an incident involving the Carriage of Dangerous Goods including loading and unloading. Personnel should be trained in the hazards and dangers presented by Dangerous Goods. The training provided "shall aim to make personnel aware of the safe handling and emergency response procedures". Moreover, 1.3.2.4 requires the training shall be periodically supplemented with "refresher training" to take account of changes in Regulations, so it is not a once and for all thing. There is also a requirement for "security training", and elements of "security awareness" have to be included in the Dangerous Goods training.

Documentation (1.3.3) records of training received according to Chapter 1.3 shall be kept by the employer and made available to the employee or competent authority upon request. Records should be kept by the employer for a period of time established by the competent authority; in the UK that is five years. Records of training should be verified on commencing a new employment. You are not allowed to take up employment until such time as you have been trained if your work involves Dangerous Goods.

At the Department for Transport update Seminar in June 2018, there was considerable mention of the penalties which are currently imposed on mainland Europe for transgressions in terms of goods being sent out incorrectly labelled (a fine in Holland of Euros 300) or being wrongly loaded on a vehicle, and there is a move to have these sorts of penalties imposed in the UK also.

There is a whole new gambit of labels that have been introduced in the last couple of years, as well as changes to the nomenclature of chemical (CLP Regulations). These names are mainly as a result of the Global Harmonisation System Regulations. The new labels are shown in a very useful leaflet from HSE Books, Read the Label, reference ISBN 978 07176 6414 6, where you can get a web version or a single copy free, but you have to pay for these in bulk. This leaflet explains what the labels mean. Some chemicals are Dangerous but without reaching the criteria of ADR as being Dangerous for Road Transport. Only the latter are covered by the Carriage of Dangerous Goods Regulations (CGD).

As yet we do not formally know how REACH will operate after Brexit, nor the European Chemicals Agency but we hope some further information will come out before the ISPE Workshop I will be presenting on the subject, at SPATEX 2019 (note the early dates Tuesday 29th to Thursday 31st January - please see: www.spatex.co.uk or see pages 6 & 7 of this issue for the full programme).

The Explosive Precursor Regulations were updated on 1st July 2018 and that means that sulphuric acid above 15% w/w is now governed for sale to private individuals in the same way that hydrogen peroxide above 12% has been since 2015 and requires an EPP Licence (Explosive Precursor & Poisons e.g. oxalic acid above 10% w/w.)

Businesses who sell or supply such chemicals MUST report suspicious transactions and significant losses or thefts by phone to 0800 789321 or email chemical.reporting@metpolice.uk

Failure to report can result in a fine and/or imprisonment.

For the swimming or spa pool engineer carrying a few chemicals on their van, the essential thing is that they have to have a Certificate showing that they have been trained, and that Certificate should explain exactly what they have been trained in. This may well include Exemp-tions from ADR, what is meant by Limited Quantities and new identification labels, as well as training in how to calculate Small Load Limits and understanding Instructions in Writing. A Fire extinguisher (2kg) is required in any vehicle carrying Dangerous Goods to deal with an engine fire.

The new ADR 2019 will come into effect on 1st January 2019 but there is then a six month period when one can still apply ADR 2017 - to the end of June 2019, when it then becomes definite that one has to apply ADR 2019.

If in your despatch department you still have the Royal Mail and Parcelforce list of 'Prohibited and Restricted Items, A guide to what you can and cannot send in the mail', which was valid from 15th July 2013, you can now throw that away because it is out of date. The new Regulations were announced and came into effect on 30th January 2017. It should be appreciated that Royal Mail is not a Dangerous Goods carrier. The internet companies selling for example, a Tri-Chlor tablet in a jiffy bag, are breaking the law. They should be reported and if you email me with details I can pass it on to the appropriate person at Royal Mail (howard@poolandspaadvice.co.uk).

Not only are there the Explosive Precursors Regulations 2018 but there is also security awareness and terrorism checks and these are supplemented by the Police and VCA (Vehicle Certification Agency) which took over from VOSA (Vehicle and Operator Services Agency) who will carry out roadside checks on a quarterly basis automatically as well as in people's premises throughout the year.

Training courses will be held around the UK or they can be held at your premises. Email your interest to: alex@poolandspaadvice.co.uk.

Remember, Dangerous Goods include adhesives, as well as Aerosols and Gases. Check your Safety Data Sheet!

A new website with its own email address is being set up to collect details of the chemicals sold in the pool and spa industry.

Pool & Spa Scene

THE VOICE OF WATER LEISURE
The biggest and best readership

GLOBAL COVERAGE
Reaching more than 95 countries

MAKING A SPLASH
In depth news and reports

MARKET LEADERS
The industry's number one choice

To ensure you receive your very own copy please subscribe online
www.poolandspascene.com

INTERNATIONAL POOL & SPA PRESS ALLIANCE

Pool & Spa Scene 2014 RECOMMENDED

Water Leisure • Residential Pools • Commercial Pools • Spas & Hot Tubs • Wellbeing

Ideal Solar Collection

© John Dawes Aug 2018

The garden swimming pool is a natural solar collector. And solar energy conversion and storage can be enhanced with add-on passive or active solar collectors. In fact, swimming pools and sunshine go together like beaches and ice-cream. One brings warmth, while the other offers coolth. It's the quality (i.e. temperature degrees C or F) as well as the quantity (i.e. Btu or kWh) of energy captured that's so important for operational solar effectiveness.

In the 1970's, we faced some serious oil price increases, almost tenfold overnight, provoking an investigative booklet '*SOLAR ENERGY in Britain ... its' potential for the 1980s'.*

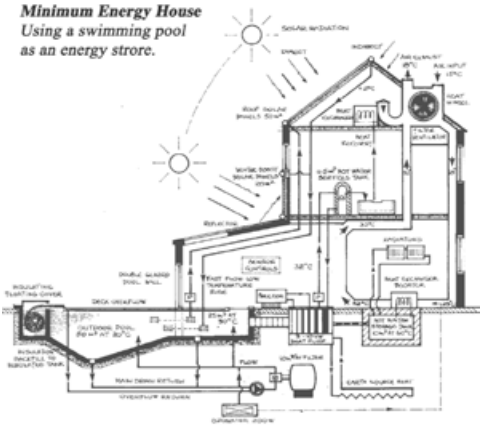
SOLAR ENERGY in Britain ... its potential for the 1980s.

Experiments at *The Centre for Alternative Technology,* in Machynlleth, Wales showed that the cooler the working collector plate, the more efficient the solar heat transfer. Also a heat saving cover over a pool was the best first step to conservation.

Today, the cost of oil fluctuates between $65 and $75 per barrel. Increases have inspired solar R&D, experiments and demos aiming to harvest 'free' solar energy and even to export the collected or stored energy. It also inspired a review article for the *New Scientist* 1st September 1977 ... '*A dip in the energy store'*. This review showed how the pool industry had taken to solar collection with gusto and was leading with new ideas in various ways – like more efficient collection panels to comprehensive heat recovery and recycling systems.

The pool collection and conservation system now has also been developed as a solar pond – a highly effective heat generator or electricity power station. When a large amount of salt is dissolved in a pool, the heavier high density water sinks to form a bottom zone or layer collecting and storing heat nearly up to boiling point. The top zone being lighter with much less salt content is transparent to sunlight and acts as an insulator – it only warms slightly. In between the top and bottom layers, there's a '*gradient zone*' where salt content increases as depth deepens, thereby separating the lighter and heavier water zones: it entraps solar heat to be drawn off in the form of hot brine to power a heat pump or electricity generator. A 5MW power station has been created at the north end of the Dead Sea in Israel based upon this solar pond process – but note that tonnes of salt are needed that can be expensive if not conserved for re-use.

When swimming pool water employed as a heat store system is coupled with '*Integrated Environmental Design*' (e.g. CEGB Regional HQ's at Bristol and Harrogate) the holding and re-using of solar heat and recycled heat in such highly insulated buildings is infinitely better than burning high grade fuel just to produce low grade heat.



Energy Store: Minimum Energy House – using a swimming pool as an energy store. (Larger copy on request!)

The initiative has now been taken up by Highways to build experimental roads to collect that widespread 'free' solar energy and put it to good use for winter warming or electricity generation. France installed the first solar panel road '*Solar Highway Normandy*', while the Netherlands built in 2015

45 YEARS Plastica
The UK's Leading Independent Swimming Pool Manufacturer and Distributor
01424 857802 01424 875858 orders@plasticapools.net www.plasticapools.net

an energy-harvesting prototype bike-path paved with glass-coated solar panels. China has just completed its first 'solar motorway', a 1km pilot project situated under 'transparent concrete', said to be tougher than asphalt and capable of withstanding 45,000 car journeys a day. But they are currently dealing with a large crack in its surface and it will be some time before the electromagnetic induction coil planted in the road will be able to charge electric vehicles driving along.

Solar Highway France – 1 km Solar Panel Road with 2800sq.m of electricity- generating panels in a Normandy village claims to be the world's first solar panel road.

In Britain, on an access road to the M1 Toddington Motorway service station, an R&D project has already demonstrated that the solar energy collected in thermal banks beneath or adjacent to the road in summer, can be held for winter warming to keep surfaces clear of snow and ice. The Highways Agency confirms that the 'Interseasonal Heat Transfer' scheme has performed as designed.

It is going to be interesting to see how the Pool Industry will progress its own Energy Regeneration opportunities – it already embraces a large number of suitable pool sites for serious recycling investment. A particularly rewarding example in the 1970s, is the outdoor Olympic-sized pool at Market Drayton in Shropshire, which quickly proved the viability of collecting low grade heat from the river Tern and upgrading it with a Prestcold 80kW compressor, serving a shell and tube condenser and evaporator system. The pool water temperature was raised by the heat pump to between 22 and 27 degrees, reducing heating costs to approximately 25 per cent of the previous level.

Fortuitously, solar panel efficiency is highest for large temperature difference, so offering when allied to the heat pump a potentially perfect blend of ambient technology for low grade heating of carefully insulated buildings. The Market Drayton pool engineer proved the effectiveness by digging a trench around his garden, installing a brine pipe to collect steady subsoil warmth and upgrading that with a heat pump to heat his home.

If roads can now collect and store energy, it's natural that pool surrounds, garden patios and the swimming pool 'heat dump' are ready-made for further rewarding investment.

The next ISPE Magazine will be distributed just before SPATEX 2019 in late-January.

Please send all items to be considered for inclusion by Friday 21st December, 2018, to:

ross@ispe.co.uk

Product Profile - 'Hydrosense' Rapid Testing

Testing Legionella in Spa Pools – Is It Time To Take A New Approach?

Last year saw the publication of HSG282 whose aim was to try and reduce the risk and therefore number of cases of Legionnaires' disease associated with Spas and Hot Tubs. The guideline tightens up the water testing procedures covering Spa pools including the testing for *Legionella*. As with all microbiological testing the recommendation is to send samples away for analysis – this can typically take between 7 – 10 days for a Legionella result. As the ways available for testing have changed you could ask:

- Is this really still the best practice?
- What action can you take if you receive a positive result after 10 days – are we too late?
- If you get a negative result is the system actually safe now it is 10 days later?
- If there was a way of obtaining an instant reading, wouldn't this be better?

Before we try and answer these questions let's have a look at what *Legionella* is. *Legionella pneumophila*, is a waterborne bacterium which can cause Legionnaires' disease, Pontiac Fever, or other diseases, collectively known as Legionellosis. Around 15% of patients die of Legionnaires' disease and between 95-100% of people exposed to *Legionella* pneumophila will contract Pontiac Fever, which has flu-like symptoms.

Legionnaires' disease is a severe form of lung infection. Infection occurs when the bacteria is inhaled from aerosols of contaminated water. People at higher risk of becoming infected with Legionnaires' disease include:

- Older people (usually 50 years or older, especially male)
- Current or former smokers
- People with a chronic lung disease
- People with a weak immune system from diseases like cancer, diabetes, or kidney failure
- People who take drugs that suppress (weaken) the immune system (e.g. after a transplant operation or chemotherapy)

What does HSG282 say?

Spa-pool systems, which include whirlpools and hot tubs, are a known source of diseases including Legionnaires' disease. Hot tubs or spa pools are popular in gyms, hotels and increasingly in people's back gardens. Hot tub sales in the UK are growing at more than 20% a year, much of which is due to installations at leisure and holiday rental properties.

The water in hot tubs is typically kept around 30 to 35°C, which is the ideal temperature for L*egionella* bacteria to grow. The aerosols produced by splashing and bubbling in a hot tub can then throw the water droplets contacting

CLEAR 'N' CLEAN

Now fully authorised under ECHA Biocidal Product Regulations.

APPROVED • APPROVED • APPROVED

ECHA
EUROPEAN CHEMICALS AGENCY

MSI
An MSI product - England

For more info on Clear'n'Clean call MSI now on **+44 (0)1825 790524**
Mineral Supplies International Ltd, RH17 7AR, England E **sales@mineralsi.com** **www.mineralsi.com**

the bacteria into the air, and these can then float, potentially for considerable distances. As a result, you don't even have to be sitting in the hot tub to inhale the bacteria, though an infected tub can create dramatic levels of exposure for those that do. Outbreaks of Legionnaires' disease have been linked to spa pools in leisure centres, hotels, holiday homes and cruise ships and other facilities. HSG282 was published in January 2017 to help those that manage Spa pools to reduce the risk and includes details on maintenance and design as well as water chemistry such as disinfection levels and pH.

Managing the Risk

The systems of filters, pumps and pipes, used in spa pools are complex, and have significant surface areas upon which biofilm may build up. Biofilm is an ideal breeding ground for *Legionella* and it will protect the bacteria from biocides. Therefore, these components need to be well-managed to ensure the purity of the water and reduction of bacteria levels. Testing of water quality, using chemical and microbiological monitoring, is an essential part of the spa pool treatment regime.

Regular testing of TDS, disinfectant, chlorine, pH, ACC, coliforms, *E coli*, *P aeruginosa* and *Legionella* must be carried out and proper records must be kept. The guidelines recommend that 'Water in spa pools should be free from irritant substances, chemicals and infectious microbiological agents at levels which may be harmful to health.'

Water in spa pools should be routinely analysed to ensure the effectiveness of the water management programme. The frequency of testing will depend on risk factors and will typically include 'daily, monthly and/or quarterly actions'. The risk factors may include volume of water, operating temperature, location of the pool and bather loads.

The publication states that 'the microbiological monitoring programme should include the routine sampling and testing for the presence of bacteria (…) the frequency of sampling should be determined by the risk assessment but should be carried out at least (…) quarterly for *Legionella*.'

This must be done by a UKAS accredited lab. However, the

guidelines also suggest that additional routine microbiological sampling should be carried out to minimise the risks. The alternative testing methods can be used to enable a faster and better-informed decision-making process. The reason being, that even small variations in temperature or biocide level can result in non-conformance and a possible loss of control.

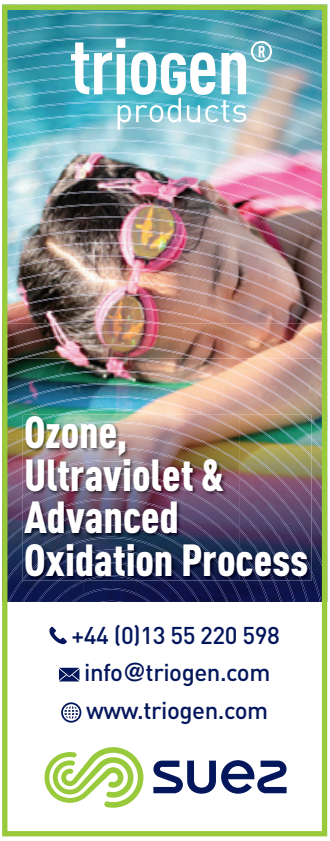
The recommended call for action for spa pools is >1000 CFU *Legionella* per litre. If testing indicates levels above 1000 CFU/L immediate closure of the pool is recommended.

If testing indicates levels of > 100 CFU/L and up to 1000 CFU/L, reviewing control measures and carrying out remedial action is recommended.

However, considering the fact that *Legionella pneumophila* can proliferate very rapidly, potentially doubling population within a mere 24 hours, waiting 14 days for your reading could lead to an unwanted situation. Slow time to result is a very high-risk factor, especially since the risk of acquiring Legionnaires' disease can increase by 64% for every hour spent near the source of an outbreak. This is why the HSG suggest that additional routine testing should be carried out. A rapid testing method allows duty holders to take a new, holistic approach to the risk management that focuses on prevention and control of risks associated with *Legionella* bacteria, rather than on taking a delayed action upon receiving historical results.

The role of rapid testing:

One of the alternative testing methods for *Legionella* available on the market is rapid antigen testing. Antigen testing is optimised to quickly detect cell surface of *Legionella* antigen on-site, in environmental water and biofilm samples, and in all phases of the *Legionella* life cycle. The test is designed to be highly specific for *Legionella pneumophila serogroup 1* - the species of *Legionella* which causes 95% of all cases of Legionnaires' disease. Rapid testing can be done on-site and provides results in 25 minutes. This is a massive improvement from a traditional lab testing method which takes 10-14 days to provide results.



The advantages of using antigen testing method include:

- Reducing public and employee health risks by minimising the time taken to identify *Legionella*.
- Improving the accuracy of the results by testing for *Legionella* on-site, in its natural environment.
- Improving detection rates of *Legionella sg1* by detecting Viable but-non-Culturable bacteria, which cannot be detected by the lab culture method.
- Receiving an immediate picture of *Legionella* contamination risk. This enables duty holders to make quicker, better-informed decisions about improving water quality.
- Minimising the complexity of a laboratory test by carrying out an easy self-test.

Several types of rapid tests for *Legionella* have been developed for use in environmental water samples, but only the Hydrosense antigen test can be used on-site without using further analysis.

Reading and Recording of rapid testing

HSE guidelines for the control of *Legionella* bacteria in spa pools insist on the importance of keeping a record of precautionary measures and control treatments. Records help to prove that adequate actions to prevent the disease were carried out. In a response to this need, Hydrosense developed a smartphone test reader app and an online logbook which, for the first time, enable the real-time risk management of *Legionella*.

The smartphone-based reader is designed to semi-quantify test results and read the test more accurately than a human eye. It also offers a function to share the test results with duty holders immediately which enables a faster decision-making process.

The data recorded from the smartphone reader (i.e. test results, temperature, biocide, date, location, notes, etc.) is then automatically synchronised with the Hydrosense Pro portal. In the portal the user can view information from various locations and users, set alerts (automatic notification when parameters go out of conformance), schedule tests, print our certificates and much more.

The advantages of using rapid testing in spa pools

Spa pools are a recognised source of diseases caused by infectious agents, including *Legionella*, therefore they need to be monitored and well-managed to reduce bacteria levels.

Using rapid testing will provide an immediate answer on the need for corrective action. Why wait 14 days for the lab test results if you can get answers immediately, on-site? No training or experience is required to carry out Hydrosense tests. This means that now anyone can test a spa pool in their back garden. Filter the water sample using the tools provided, drop a water sample on the test and leave it for 25 minutes. It could not be easier.

The rapid test has a recovery rate of 80% compared with a variable rate of 10-80% for a lab test ('recovery rate' refers to the frequency with which a test can detect a positive sample). It also detects the motile form of bacteria which is the most dangerous to humans but cannot be cultured in the laboratory. The Hydrosense test is very sensitive (100CFU/L) and is as simple to read as a pregnancy test – one line signifies a negative result and two lines indicate a positive result. This means that receiving a positive result from a Hydrosense test is a call to action and should result in reviewing control measures and carrying out remedial actions.

It is recommended by HSE to carry out *Legionella* lab testing on a quarterly basis. Nevertheless, there are clear advantages of using the rapid test in between these periods as a continuous monitoring tool to minimise the risks associated with *Legionella* bacteria for customers, staff and the general public.

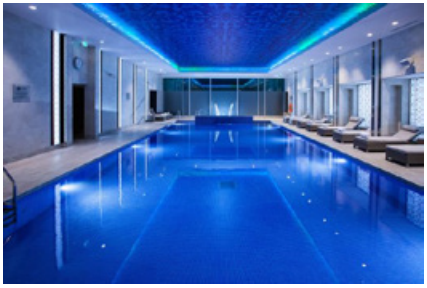
For more information contact
Lovibond Tintometer
www.lovibond.com

Colin Day, FISPE - Tintometer Ltd
Paulina Barela - Albagaia

Project Profile

The Spa at InterContinental London – The O2

Luxury pools are a big attraction for hotel guests and the growing interest in wellness has given a tremendous boost to hotels that offer a complete spa experience. *InterContinental London – The O2* on Greenwich Peninsula is capitalising on this trend by adding extensive spa facilities, including a swimming pool, spa, steam and sauna room, to complement its gym, massage and therapy rooms.



"We're aiming to become the No.1 luxury spa in Greenwich," said Operations Director, Heather Hamilton. "The pool is a big step towards achieving that goal. The facilities allow us to offer the entire spa experience, and our guests love the fact that our pool is larger than the average pool in a London hotel."

The spa facilities were designed and built by London Swimming Pool Company (LSPC). The pool is located on the ground floor which provides a light, airy feel. The bespoke design includes a large main pool (17 x 7m and 1.2m deep) with a waterfall that cascades from the pool and spa dividing wall. The pool interior is finished with Waxman Ceramic blue mosaic tiles, and Eva Optic underwater lighting.

LONDON SWIMMING POOL COMPANY
30 YEARS
Specialising in below ground and moving floor pools. Services include consultancy and design, custom pool plant and water treatment.
020 8605 1255 www.londonswimmingpools.com
Unit 1, Shannon Commercial Centre, New Malden KT3 4PT

The smaller spa pool is a bespoke concrete design measuring 4.4 x 2.7 metres (0.9 metres deep) with a lounger at each end of the central bench. The loungers have bubble trays which give full air massaging, and the bench has back and calf water/air mixture jets. AstralPool neck-jet water cannons send bursts of water into the spa pool. The spa recently won the SPATA In-ground Commercial Spas & Wellness award. The pool and spa surround are finished in large format porcelain tiles.

The plantroom is equipped with Astral Arctic filters and Badu pumps. LSPC also retro-fitted an automatic backwash system to make backwashing very easy. A simple push button mechanism on the electrical control panel stops, starts and times the backwashing process, while separate levers enable the hotel's pool engineer to control the flow-direction of water.

Heather Hamilton said: "Our spa is a haven for guests and the facilities make the hotel very competitive. Breaking away from the age-old tradition of locating spas in hotel basements gives the spa lots of daylight which appeals to customers."

For more information contact:
www.londonswimmingpools.com
enquiries@londonswimmingpools.com
Tel : 020 8605 1255

Do you have an interesting project you would like to feature in the ISPE Magazine? Please send details to: ross@ispe.co.uk

****

Pool Safety Records - USA

According to the Association of Pool & Spa Professionals (APSP), there are 10.4 million residential and 309,000 public swimming pools in the United States. The Consumer Product Safety Commission (CPSC), an agency independent of the US government, states that despite the numbers being down 11% nationwide since 2010, "Between 2013 and 2015, an estimated 5,600 children under 15 years old were treated each year in hospital emergency rooms for non-fatal drownings in pools or spas."
With thanks to John Dawes, FISPE.

ISPE Logo

All ISPE members are reminded that the ISPE logo may not be used under any circumstances (except for the special arrangements in place for the ISPE-Endorsed Training providers).

It is perfectly acceptable to state that one is a member of the ISPE and use the designated category letters, e.g., 'MISPE', after your name on personal or business stationery, or in adverts, but the ISPE logo may not be used anywhere, including websites, headed paper, adverts, vehicles or business cards, for example.

Wilsons Words of Wisdom

Why I don't like stabilised chlorine

So at last a memorable summer, memorable in the respect that we were exposed to halcyon sunny days. This made our outside pools so desirable and used to their optimum. Strangely, I read how an outside pool in South East England decided not to open until the water reached 24^{O}C, depriving their clientele of a safe place to swim and relax. Although I attach no blame to pools not opening until this sort of temperature is achieved, potential swimmers wishing to cool off may sadly choose lakes and rivers, generally with water temperatures below 20^{O}C, where they are exposed to unsafe conditions that have resulted in illnesses and drownings.

Also, due to the temperatures being experienced, green blue algae (cyanobacteria) appears to be thriving and this is toxic, especially to dogs who swim in the water, swallowing this cyanobacteria plus upon leaving the lakes and ponds, licking their coats, consuming this toxic cocktail. If you do have a lake or pond suffering with this problem, try a Barley Corn mattress floating in the water which will help control this problem.

Blue green algae

Studies In Work carry out microbiological testing for numerous outdoor facilities and one thing that we have noticed was an increase in pools showing elevated aerobic bacteria levels. These are also known as the total viable colony count (TVCs) and should be less than 10 colony forming units (CFUs) in one millilitre of water. Some samples revealed CFUs in excess of 1,000. Fortunately there was no indication of the presence of Coliforms or Pseudomonas aeruginosa.

Coliforms can include the deadly E.coli and providentially as long as you have at least 0.7 free chlorine at a pH around 7.3, it is unlikely to be a problem. Although lethal it is a fragile bacterium, easily controlled by an adequate level of disinfectant. Pseudomonas aeruginosa can cause skin irrirations (Pseudomonas folliculitis aka hot tub rash) or ear infections commonly referred to as 'Swimmer's ear' and these bacteria can be chlorine resistant.

Pseudomonas folliculitis

This is why I advocate a minimum free chlorine level of 1.0mg/l in any indoor pool not having a secondary system of UV or Ozone backing up the chlorine regime.

Stabilised chlorine contains Cyanuric acid (CYA) that prevents sunlight destabilising and using up the chlorine. The chlorine is then available for its true purpose; to keep

the water hygienic and safe for users. Our test kits show us when our chlorine levels are depleted and we then add further amounts of stabilised chlorine to replenish it. The CYA part of stabilised chlorine however does not get used up and with each addition continues to build in mg/l (ppm). Sadly there is 'nothing for nothing' as elevated levels of CYA will 'lock up' the chlorine, severely reducing its ability. In an outdoor pool using stabilised chlorine I always advocate a minimum of 2.5 mg/l due to the presence of Cyanuric acid in stabilised chlorine. Testing for the level of CYA is relatively simple but is a 'must do' as the higher levels of CYA radically effects the strength of the free chlorine. The higher the level of CYA the less effective the free chlorine.

Robert Lowry, a US authority on water chemistry, recommended that the free chlorine should be maintained at 7.5 percent of the CYA concentration, which ideally should not exceed 50 ppm. So if your CYA is 50mg/l the free chlorine should be a minimum 3.75. There is no way of removing CYA apart from dilution. Introducing fresh water is generally part of the backwashing procedure and again the use of a CYA tester or even a TDS meter will indicate that you are controlling this at the prescribed level.

CYA is a pure chemical and this is why I prefer to use a hypochlorite (Calcium or Sodium) separately. I appreciate that CYA is not the easiest substance to dissolve but I then add CYA separately and it is easy to calculate how much to use as it is pure chemical. If your pool is 25,000 litres, that is 1/40th of a million, so one kilo of Cyanuric acid would give you 40 mg/l (ppm). If your pool is 100,000 litres that is 1/10th of a million, so one kilo of Cyanuric acid would give you 10 mg/l (ppm).

CYA photometric tester

If you are unable to test it but think you have a problem send me a 100 ml sample for a free analysis. Unbelievably someone once asked me if they could email me a water sample...**NO!!!**

Send your sample to: Studies In Work, 90 Tuffley Crescent Gloucester GL1 5NE.

For details about micro-biological water testing just email me at info@studiesinwork.co.uk

Allen J Wilson FISPE, Tech IOSH

LEAK DETECTION & PRESSURE TESTING

EQUIPMENT HIRE AND SALES
COMPREHENSIVE ON-SITE SERVICE

'Phone for free Leak Detector!

UNIPOOLS LTD
621 Watford Way
Mill Hill
London NW7 3JN
Tel: 020 8959 8686
Fax: 020 8959 2037

New Members, Students and Stop Press!

We extend a very warm welcome to all those who have recently joined or re-joined the Institute. If you have a colleague who would like more information on the ISPE and its activities, please email ross@ispe.co.uk or telephone 01603 499959 for more details.

Beaton, C.R.E.	Dream Pools Ltd.
Blake, C.	Passion Pools & Spas
Bollen, M.	London Swimming Pool Co.
Ciewley, T.	Kingfisher Poolcare Ltd.
Eyre, R.	EMEC GB Ltd.
Golledge, T.	Leisure Pools Ltd.
Harper, M.	Astral Pool UK
Hurd, L.S.	Advanced Pools Service
Johnson, J.	Guncast Swimming Pools Ltd.
Margalit, S.	Jetform Swimming Pools
Melling, A.	Polaris Pools Ltd.
Pace, Mrs. S.	H20 Swimming Pools Ltd.
Seegobin, G.	Polaris Pools Ltd.
Stannand, M.	Kent
Tiley, A.	Clacot Health and Leisure Co. Ltd.
U'Dell, J.	Summit Pools and Heating Ltd.
Williams, J.	Astral Pool UK
Wilson, L.	Concept Pools Ltd.

Industry Supported CPD Training - New Dates Announced

We are delighted to announce that 'wedi Systems Ltd.' are presenting their new 'ISPE Wellness & Spa Training' sessions on two dates in October. Also, 'Complete Pool Controls' have offered four dates (October to January) for their sessions on 'Basic Dosing Principles and Controls'. For full detail of these **free-to-attend** sessions, see the News section of the ISPE website (www.ispe.co.uk) or contact the ISPE office on 01603 499959.

18th Edition of BS7671 Brings New Problems

This comes into force on 1st January 2019 and ISPE member Roger Caplin has shared some of his concerns with ISPE members. See: www.electair.co.uk for his full article.

FREE Pool Equipment

Available for collection from John Dawes in Hawkhurst, Kent.
Unused Balanced Water Test Kit with DPD tablets, Unused Aquabrome Brominator including fittings.
Useful flexible pool vacuum sweeper head.
Email: johnadawes12@gmail.com

Situations Vacant

No space in this issue but see the ISPE website under Situations Vacant for the latest jobs on offer. There's plenty to choose from!

HSG 282 and HSG 274

HSG 282 (£18) and HSG 274 (£20) are now available as hard copies at 'books.hse.gov.uk'.
Thanks to Howard Gosling, FISPE.

Nemo

The revolutionary and unique underwater drill.

Fairlocks
Pool Products

14 Hanborough Business Park Long Hanborough Oxfordshire OX29 8LH
Tel: +44 (0) 1865 988346 Fax: +44 (0) 1865 598990 Email: nemo@fairlocks.co.uk
www.fairlocks.co.uk

SPATEX 2019

THE POOL, SPA & WELLNESS SHOW

TUESDAY 29 - THURSDAY 31 JANUARY 2019

ERICSSON EXHIBITION HALL · RICOH ARENA · COVENTRY UK

THE UK'S ONLY INTERNATIONAL POOL, SPA AND WELLNESS EXHIBITION

FOR MORE INFORMATION OR TO BOOK YOUR STAND VISIT:

WWW.SPATEX.CO.UK OR CALL +44 1264 358558