



Future Water Testing

Palintest

Colin Day – Lovibond

Jessica McKenna - Palintest



Future Water Testing

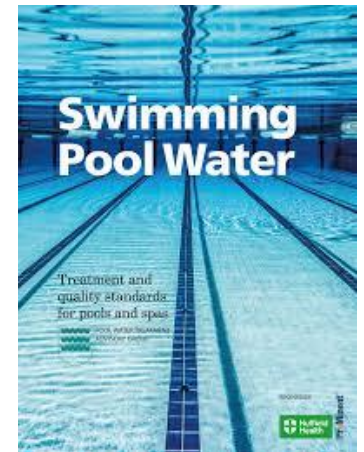
- Introduction
- Current Situation
- Future Testing
 - Testing systems
 - Connectivity
 - Parameters
 - Frequency of testing
 - Safety and sustainability
- Summary

Current Situation – How did we get here

- DPD test established in the early 60's
- Developed in partnership
- Comparators leading testing system
- Photometers established early 1980's
- Parameters tested changed
- PWTAG Swimming Pool Water and Code of Practice



Dr A.T. Palin, OBE



Current Situation – Testing Systems

- Visual testing still has its place
- Shift to digital instrumentation, especially in commercial settings

PWTAG Guidance Recommends
Photometers or Comparators
using recognised chemistries i.e. DPD



Future testing – Testing Systems

- DPD and Phenol Red* will still be kings
 - (* unless the pH range changes)
- Comparators – 60 years and still going strong
- Photometers will become more advanced
 - Greater accuracy
 - Quicker testing
 - Greater connectivity
- Reagentless systems

Future Testing - Connectivity

- Digital testing is now the standard in commercial pools
- Why it matters?
 - Removes user subjectivity
 - Provides precise, auditable results
 - Enables data connectivity and traceability

Will the use of log sheets become obsolete?

If so, the need to store and transfer results will become more important

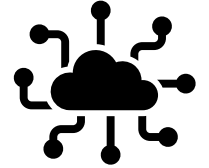
Future Testing - Connectivity

1. Evolving Connectivity



Current: USB, QR code, NFC, Bluetooth, WiFi-enabled photometers for real-time uploads

2. Integrated Ecosystem



Future vision: Pool testing devices linked with filtration, dosing, and monitoring systems

Goal: Automated, proactive water quality management using trusted, auditable digital data

Future Testing - Parameters

- The main tests will always be needed i.e. free and total chlorine , pH etc
- With the introduction of new technologies and changes to water supply other tests may become more routine.

Turbidity

Phosphate

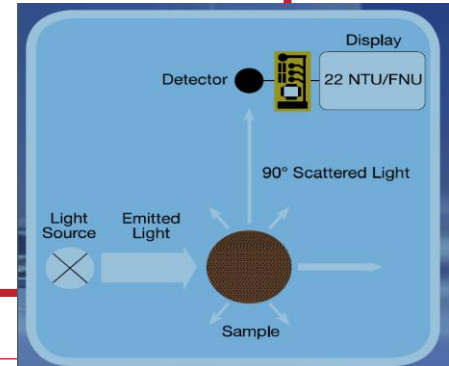
Sulfate

Future Testing - Turbidity

Turbidity refers to the cloudiness or haziness of water caused by suspended particles that are invisible to the naked eye.

Turbidity in Pools

- PWTAG Guidelines 0.5NTU – same as drinking water!
- ‘Can we see the bottom of the deep end?’ – is this good enough?
- Can it be measured easily?
- Need to have a dedicated instrument either handheld or inline
- Why should we measure?



Future Testing - Turbidity

Turbidity refers to the cloudiness or haziness of water caused by suspended particles that are invisible to the naked eye.

Why should you test for turbidity?

- Signals deteriorating water conditions before other indicators
- Can indicate poor filtration, organic contamination, issues with circulation, chemical imbalance etc
- Underwater drowning protection systems - rely on clear water to monitor swimmers
- UV Systems – Reduced efficiency due to suspended particles scatter and absorb UV light, preventing it from killing pathogens

Future Testing - Sulfate

Sulfates are salts or compounds containing sulfur

Enter pools through the use of sulfate-based chemicals, environmental runoff, or source water contamination

Why should you test for sulfate?

- Can cause 'sulfate attack' – chemical erosion of cement/ grout/ metal components. Can also degrade plastics.
- Contribute to elevated total dissolved solids, impacting water clarity and chemical balance
- Discharge water with high sulfate concentrations can harm aquatic ecosystems

Future Testing - Phosphate

Phosphates are nutrients that can fuel algae growth in pool water

Enter pools through mains water, swimmers, organic debris and some pool chemicals

Why should you test for phosphate?

- Even small amounts can promote algae blooms, especially if sanitiser levels drop
- Algae growth leads to cloudy water, increased chlorine demand, and filtration strain
- Discharge water rich in phosphates contributes to eutrophication in natural water bodies

Future Testing – Frequency of Testing

- Water is becoming scarcer



Holiday Park wastes 100,000 litres of water every week

will we need to use water longer

but test more frequently?



Future Testing – Safety and Sustainability

Water testing solutions need to prioritise user safety, environmental responsibility, and regulatory compliance.

Key Drivers of Change:

- Growing awareness of the environmental and health impacts of hazardous chemicals
- Regulatory updates, such as the reclassification of boric acid, are prompting industry-wide reassessments
- Customers and operators are increasingly seeking environmentally conscious solutions

Goal: Safer reagent formulations, reduced reliance on hazardous chemicals, and sustainable product design and packaging solutions

Future Testing – Safety and Sustainability

Safety Notice - Pool Water Testing Tablets

We are alerting pool operators to the serious health hazard that has been identified on some pool water testing tablets being distributed by their approved suppliers. Typically, DPD1, DPD3, and Phenol Red tablets have been deemed non-hazardous, as confirmed by the relevant safety data sheet and COSHH assessment, however, it appears that certain hazardous pool water testing tablets have been issued to some facilities.

Future Testing – Safety and Sustainability

- No formulation changes have been made to key reagents
- Manufacturers are actively developing or currently offer reduced hazard or hazard free reagents:
 - Boric Acid Free DPD No1 Tablets now available
 - Reduced Potassium Iodide DPD No3 now available
 - Phenol Tablets safe
- As with all chemistry there is a risk. With tablets the risk is reduced as much as possible, but users should:
 - Follow the users' instructions
 - Carry out a risk assessment and provide any PSE deemed necessary
 - Provide a method sheet / work instruction
 - Have copies of the relevant SDS available

Future Testing – Safety and Sustainability

- Sustainability goes beyond just the use of hazardous chemicals
- Product development now includes sustainability from the ground up.
- Examples include:
 - Recycled plastic foams and kit cases
 - Reduction or elimination of single-use plastics
 - Use of plastic free packaging

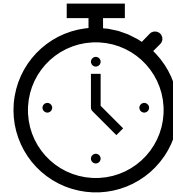
Future Testing – Summary



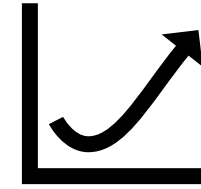
Sustainable kitting



Increased focus on turbidity, phosphates and sulfates



Increased frequency of testing



More advanced photometers

Reagentless systems?

Chemical hazard reduction



Connectivity – Access to real time data



Digital log sheets

Swimming Pool Log Sheet

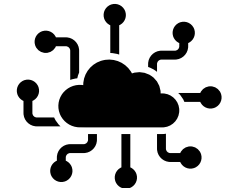
Pool Name: _____ Bath: _____ Year: _____ Size of Pool (gallons): _____ Free Chlorine Required (2PM): _____
 Type of Disinfectant: _____ Minimum of 1.5 PPM if organic chlorine, 1.0 PPM if stabilized or organic, and 0.5 PPM if Bromine.

Date	Water Clarity	Daily Tests			Weekly Tests			Chemicals Added		Maintenance & Notes		
		Disinfectant PPM	Combined Chlorine + Sulf. Res.	pH	Total Alkalinity	Free Chlorine	Chlorine Res. Range 86-162 PPM	Quantity of Disinfectant Added	Other Chemicals Added	Backwash	Vacuum or Brush	Comments / Issues
1												
2												
3												
4												
5												
6												

Hazard free chemicals



Integration and connectivity between all plant room equipment





Thank You

Come and visit our sponsorship stands

Palintest

Colin Day – Lovibond

Jessica McKenna - Palintest

