Test for Turbidity / Ammonia Collection using Zeoclere 30 0.8mm 1.24mm>< Premium Grade Filter Media

INTRODUCTION

Arrangements were made to carry out tests for turbidity (NTU) and ammonia collection (Mg/lN).

The site incorporated an external holding tank of 100m³/22,000 imp. galls filtered by Zeoclere 30 with a filter area of 1.12m² and medium bed depth of 400mm. The Flow Rate was 28 m³/hr = (6.160 gph.) to provide a three and a half hour turnover at a medium filtration rate of 25m³/m²/HR.

Geoff Shute F.I.S.P.E., Chief Chemist of The Tintometer Ltd. carried out direction, control and supervision of the tests, which were monitored by Jim Johnson Hon. F.I.S.P.E. Past President of the Institute of Swimming Pool Engineers.

TIME	DATE	TURBIDITY (NTU)	SAMPLE
12.15	7/7	0.33	Control
12.30	7/7	0.46	After Backwashing
17.15	7/7	0.26	After Filtration
20.30	7/7	0.19	After Filtration
10.15	8/7	0.19	After Filtration
11.30	8/7	0.19	After Filtration
13.40	8/7	*0.19	
*Accepted standard for commercial pools is 0.6 Turbidity or less.			

Summary of tests:-

1. Chlorine - Zero. Nil Free or Combined.

Note: It had been previously decided that any chlorine present would be removed using Sodium Thiosulphate prior to the addition of ammonia to avoid any combination of the added ammonia with chlorine in the water.

2. Turbidity - Reduction

Day One: Prior to the actual field tests the filter system was backwashed directly into the 'pool' to create turbid conditions. This was carried out after a control sample had been taken (sample 1).
A further sample was then taken (sample 2) to indicate any increase in turbidity. Further samples (3 and 4) were taken during the day and evening.

3. Ammonia Reduction/Removal.

A previously determined quantity of ammonium sulphate (236 gramms) was added directly into the water to provide a reading of 0.5 mg/lN as Ammonia.

Time	Date	Readings (mg/lN)	
10.30	8/7	0.70	*See Note A.*
11.00	8/7	0.40	
11.30	8/7	0.30	
12.30	8/7	0.30	
14.15	8/7	0.25	
20.30	8/7	0.10	

Note A. The initial reading of ammonia 0.7 mg/l may have been misleading as the predetermined quantity of ammonium sulphate had been calculated to provide 0.5 mg/l. This is attributed to the mix not having been thoroughly dissipated within the water prior to sample 1 being taken.
It can be seen, however, that in approximately 3 turnovers of the water (9 hours) the ammonia concentrate had been reduced from 0.4 to 0.1 mg/l.

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4. Water Characteristics

(a) Tank
Chlorine - Nil.
pH 7.6
T.A 100
C.H 100
Temperature 23°C (Ambient 25°C)

(b) Mains Supply Turbidity 0.12 NTU pH7.55
T.A.100 CH100

5. Summary and Conclusions

It is fair to say that these tests could not have been conclusively undertaken without the precision testing equipment under the control of a professional on the subject of water testing procedures.

The Turbidity Meter Model DRF15C was by The Tintometer Ltd.

Ammonia testing was by Tintometer Disc 3/113 (0.0 - 1.0 mg/lN)

It can be seen from the readings that both turbidity and ammonia were reduced - a pleasing result.

The conclusion may be drawn that Zeoclere 30 0.8 – 1.24mm>< filter media, when used in a shallow bed filter operating at a medium rate with no coagulation does improve turbidity conditions and does remove and retain ammonia in the pool water. The ammonia will build in the bed and removal is by regeneration. This is carried out by the use of common food salt to saturate over a period of 12 hours minimum.

Jim Johnson FISPE.

Ref: ZTestReport 7/99

Exchange capacity depends on sample pre-treatment and analytical methods used. Sequence selectivity is generalised. Actual selectivity and exchange capacity for specifications should be determined by tests with actual solutions to be used/treated.While technical data is presented as accurately as possible, being a natural product some variation is possible. Users should determine by independent testing suitability of product for particular uses.

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Tested: Horizontal filter bed depth 400mm

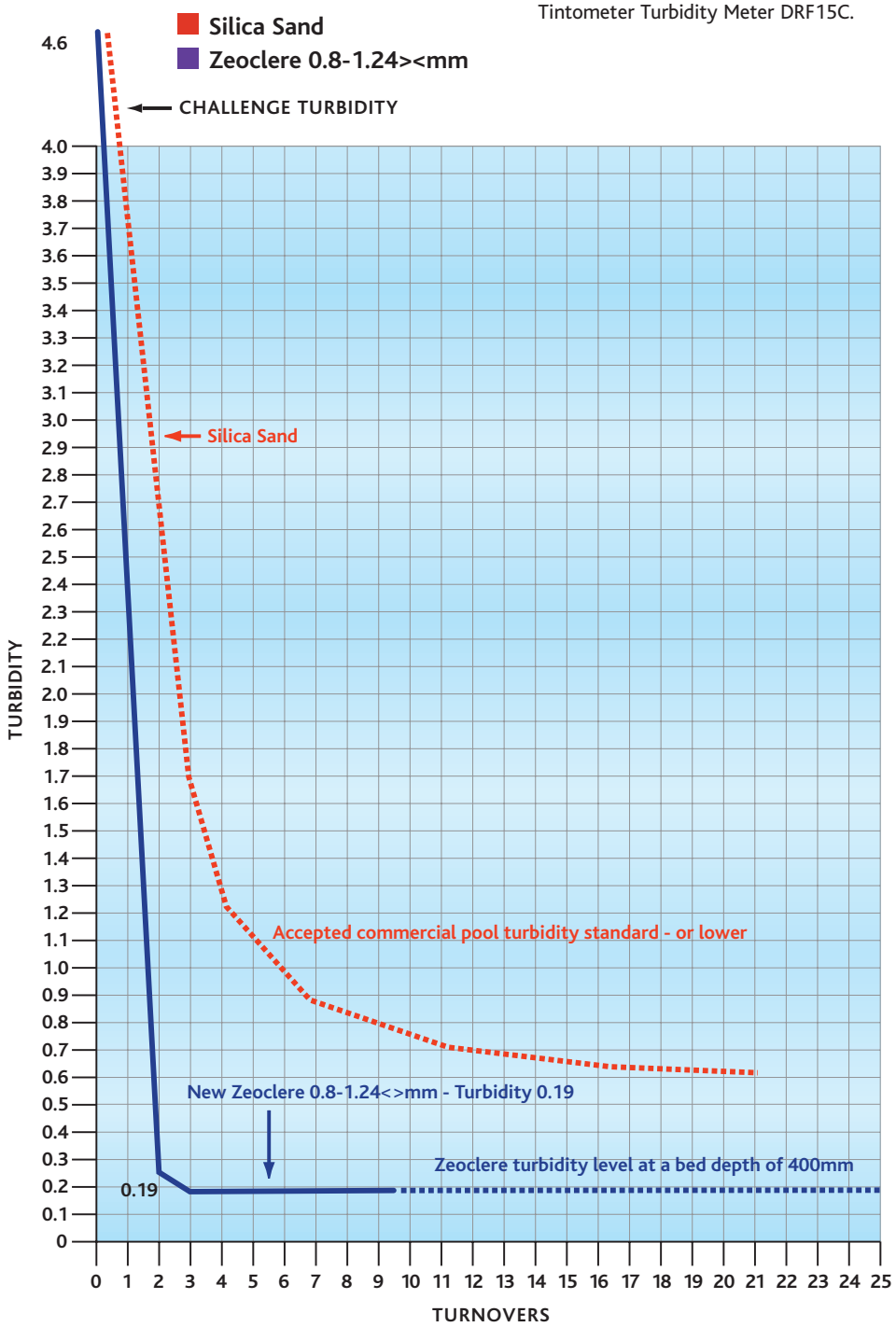
Increased bed depth will improve take up.

Certificated: NSF 50 – for Pools and Spas
NSF 61 – Drinking Water
DWI approved for Public Pools.

Test Tank: 100m^3 filtered by Zeoclere 0.8-1.24><mm with a filter area of 1.12^2 and meduim bed depth of 400mm.

The flow rate was 28 m^3/hr to provide a 3.5 HR turnover at a medium rate of 25m^3/m^2/HR

Tests carried out by Tintometer Ltd
Equipment used:-
Tintometer Turbidity Meter DRF15C.



Flow rates can vary these figures

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