Water Storage Cover Material

Technical Report

EvapGuard™ Evaporation Prevention

Performance evaluation by

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Introduction

A Plastipack EvapGuard™ Evaporation cover will eliminate water loss through evaporation by acting as a barrier between the water surface and surrounding air. Tests on the effectiveness of this product in evaporation prevention were carried out during the summer of 2006. An example of test results is given in this report.

Principal factors that affect evaporation rates from reservoirs, dams and pools:

- **Surface area**
  The bigger the reservoir, the more surface area, therefore the volume of water lost through evaporation is greater.

- **Water and air (ambient) temperature**
  Generally, the greater the difference between water and air temperatures, the higher the evaporation rate is from a water surface. Evaporation rates for a heated pool will be significantly higher than for an unheated pool.

- **Humidity**
  The drier the air is, the greater the evaporation rate. In very humid conditions less evaporation occurs.

- **Wind**
  Even a small increase in wind velocity can increase rates of evaporation significantly.

Correct Installation of Cover to ensure Water Savings

It is important that a EvapGuard™ evaporation cover is fitted correctly to assure maximum prevention of evaporation. Plastipack Ltd provides information on water savings and a 5 year limited pro rata warranty to the converter or fabricator. Installation and product care advice is provided by the converter or fabrication company to the end users.

Summary of Test Method

Two unheated tanks were used in this test, one as control (no EvapGuard™ evaporation cover) and one fitted with a EvapGuard™ cover using the installation method described above.

The tank sizes were 0.985 m x 1.48 m x 0.49 m depth. The water depth used was 0.435 m.

The tanks were situated outdoors in UK[1] summer weather conditions for 2 day/night cycles.

Water depth measurements were taken to calculate the volume of water lost through evaporation.

Water temperature measurements were data logged using temperature probes situated in the tanks. Relative humidity and air velocity measurements were recorded using data loggers also.

1 Location Latitude 50° 52', Longitude 0° 31'

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Test Conditions	
Ambient Temperature Range ° C	13.4– 21.3 Mean 17.4
Water Surface Temperature: ° C	
Covered tank	17.2 - 22.8 Mean 20.0
Uncovered tank (Control)	16.8 - 22.9 Mean 19.9
Wind Velocity m/s	0 - 4.0 Mean 1.6
Relative Humidity %	41.0 – 87.0 Mean 65.5

Test Day	Cover	Tank Width (cm)	Tank Length (cm)	Tank Depth (cm)	Volume (l)	Water Loss (l)	Average Loss (l/day)	Average Loss (l/m2/day)
	EvapGuard™							
1		98.5	148	43.5	634.14			
3		98.5	148	43.5	634.14			
					Totals	**0.00**	**0.00**	**0.00**
	No cover (Control)							
1		98.5	148	43.5	634.14			
3		98.5	148	42.9	625.40			
					Totals	**8.74**	**4.07**	**2.79**

The results show that there was **no water loss from the covered tank**, whereas **8.74 litres** were lost through evaporation from the uncovered control tank over the duration of the test. This equates to **1.4 % of original water volume lost in 2 days**.

Conclusions

The loss equals **4.07 litres** of water per day, or **2.79 litres** per square metre of water surface per day.

For a reservoir 100 m x 50 m, with a surface area of 5000 m2, this equates to **13,950 litres** per day lost through evaporation. At this rate **5, 091, 750,** which is **five million ninety-one thousand seven hundred and fifty litres** of water would be lost per year.

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