

Woolworths Ltd – Trial Report 01.07.2006

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APPENDICES

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INTRODUCTION

HUMITECH has developed an all-natural, non-toxic, mineral-based Humidity and Bacteria Control System (HABCS), a simple and effective refrigeration filtration system, which maintains refrigerators colder, drier, cleaner, fresher and more efficient. By providing effective humidity control within a refrigerated environment the filters assist the refrigeration equipment in achieving the ideal, preset storage conditions faster, more efficiently – maintaining optimal cold storage conditions for perishable produce - resulting in a number of tangible benefits: HUMITECH Filters reduce product shrinkage, spoilage/wastage and bacterial cross-contamination risk – assisting in the maintenance of HACCP based Food Safety Plans; increase production output; reduce the running costs of cooler systems via a more efficient use of energy and reduce the risk of work place injury by maintaining dry floors in walk-in refrigerated areas.

HUMITECH Filters absorb ethylene gas produced by ripening fruits and vegetables, preventing the gas from reaching other produce. This has an effect on the reduced ripening rate of fruits and vegetables, considerably slowing their deterioration rate, maintaining top quality and fresh visual appearance of produce, extending its shelf-life by up to 100%.

The Humitech system has been assessed by AQIS as suitable for use in export registered establishments.

HUMITECH approached Woolworths Ltd, Regional Maintenance Coordinator, Colin Kane with a proposal to conduct trials in selected stores. Starting in January 2006 the trials were conducted in 2 Woolworths stores within region 9: Woolworths – Tweed Heads, Fresh Produce Department and Woolworths Mermaid Waters, Deli Department.

1. Woolworths Tweed Heads Fresh Produce Department

The fresh produce cool room was fitted with 20 HT-200 Filters and the open refrigerated display isle was fitted with 10 HT-200 Filters.

The following issues were identified by store management:

Display Isle:

- Large amount of free moisture build-up on the ceiling of the display isle, water dripping on produce.
- Large amounts of daily trim-loss and wastage from produce discarded as un-sellable

Fresh Produce Cold Room:

- Mould build-up on walls and ceiling of cold room
- Moisture on leaf lines

Data-loggers, monitoring temperature and relative humidity, were fitted in the refrigeration units during the trials – before and after the installation of the filters. Data was recorded before and after the installation of the filters.

The following results were noted:

The produce manager reports the department's GP being considerably up in the first half of 2006 and wastage being considerably down.

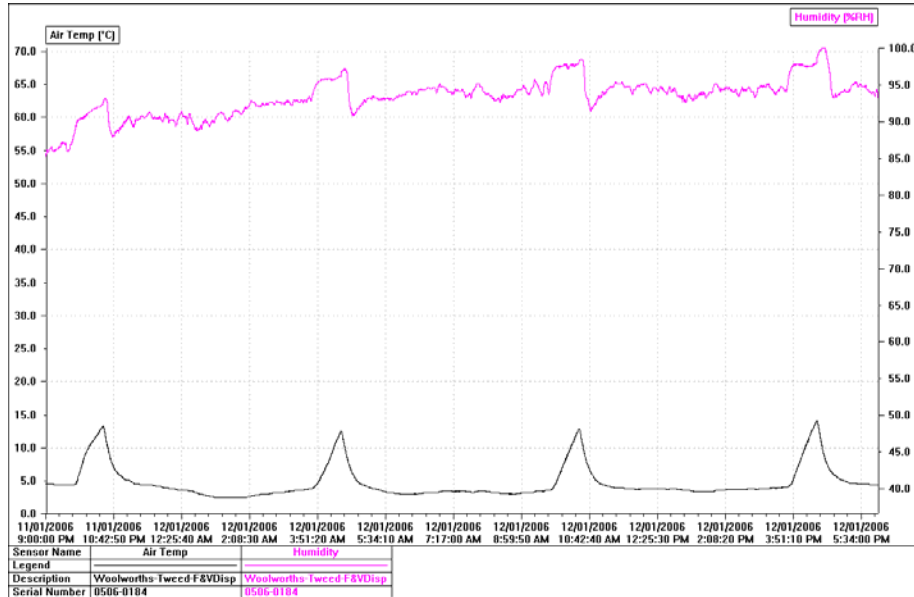
Display Isle:

Free moisture had been considerably reduced, the average temperature dropped to 3.9°C (from 4.8°C) and relative humidity was averaging an optimal level for displayed produce - 94.7%. Results are demonstrated by charts, summary of data and photographs on pages 4 and 5.

The filters are also absorbing the produced ethylene gas, maintaining quality of produce, reducing trim-loss and product wastage.

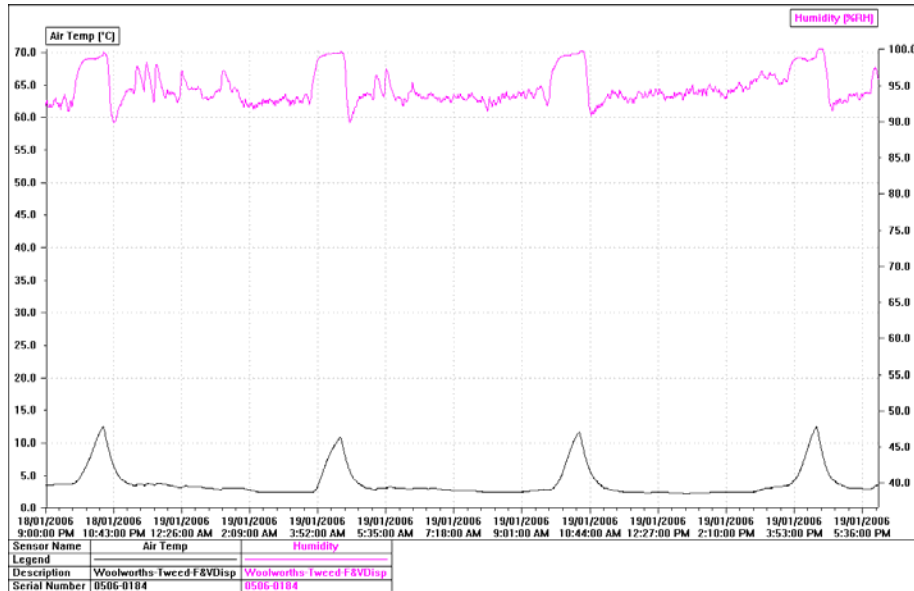


Before HUMITECH



	Temperature	RH
Average	4.7°C	93.4%
Highest	14.1°C	100%
Lowest	2.5°C	85.3%

After installation of 10 HT-200 Filters



	Temperature	RH
Average	3.8°C	94.7%
Highest	12.5°C	100%
Lowest	2.2°C	89.9%

Before HUMITECH



Large amounts of free moisture

After installation of 10 HT-200 Filters



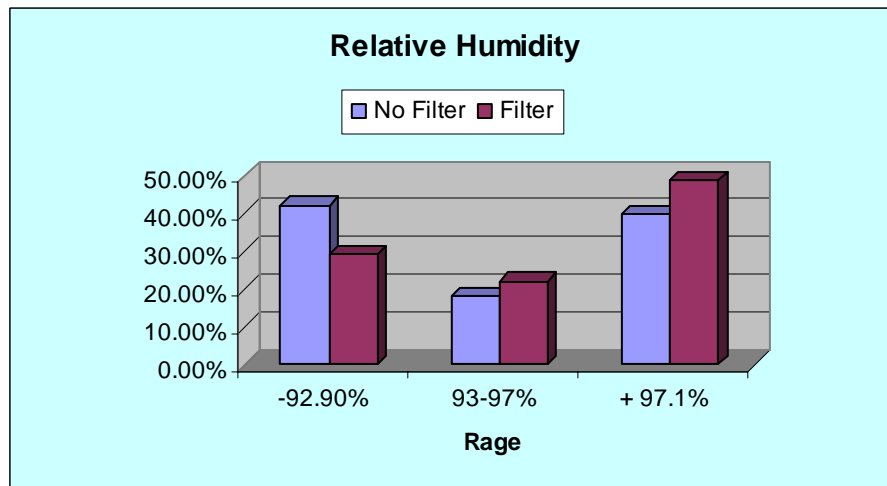
Moisture removed

Fresh Produce Cold Room

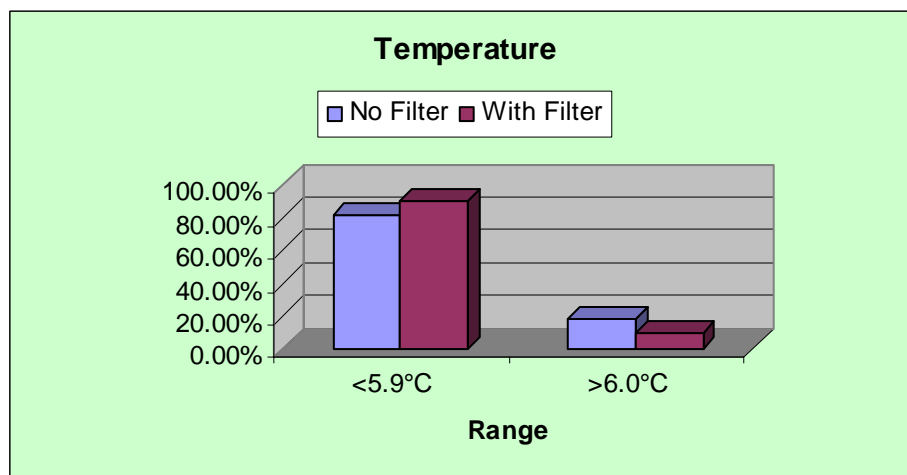
Data-loggers were placed in the cool room for 1 week prior to the installation and for 1 week after the installation of the filters. The obtained data clearly shows that with the filters the cool rooms average temperature has dropped by 0.9°C (from 5.35 °C to 4.45°C) and average relative humidity was maintained at 95.33% (compared to 91.65% without the filters).

The summary of data below also demonstrates that with the filters the optimal storage conditions are maintained in the cool room for a greater percentage of time.

Relative Humidity	No Filter	Filter	Difference
-92.90%	42.15%	29.24%	-12.92%
93-97%	18.11%	22.07%	3.96%
+ 97.1%	39.74%	48.69%	8.96%



Temperature	No Filter	With Filter
<5.9°C	81.34%	90.18%
>6.0°C	18.66%	9.82%



1. Woolworths Mermaid Waters – Deli Department.

The deli cold room was fitted with 5 HT-200 Filters and the deli case was fitted with 5 HT-50 Filters

The data below clearly demonstrates that after the installation of the filters the value of damaged stock/wastage has been significantly reduced.

Woolworths Q-Centre Wastage		
Week Ending	Out of date	Damaged stock
4.12.05	\$846.65	\$1,094.84
11.12.05	\$423.46	\$1,024.20
18.12.05	\$272.79	\$978.19
25.12.05	\$770.94	\$1,543.49
01.01.06	\$702.85	\$2,732.05
08.01.06	\$134.13	\$1,207.62
15.01.06	\$1,966.70	\$996.04
22.01.06	\$241.96	\$984.67
24.01.06 - Filters Installed		
05.02.06	\$51.75	\$490.90
12.02.06	\$388.01	\$545.54
19.02.06		\$423.43



Deli Cold Room – 5 HT-200 Filters



Deli Case – 5 HT-50 Filters