

Pure water savings at Australian Vinyls

Water Recycling Case Study

Cleaner Production 

Project Overview

PARTNER

Australian Vinyls

OBJECTIVE

To reduce the use of drinking water in the manufacturing process by 50%

HOW THE SAVINGS WERE ACHIEVED

Removal of solids from wastewater, enabling water to be recycled for the production process

TECHNOLOGY UTILISED

Microfiltration membrane technology and reverse osmosis

WATER SAVINGS

Approximately 325 million litres of water (50% of the volume previously used)

TRADE WASTE REDUCTION

Approximately 325 million litres per year

TOTAL PROJECT COST

\$5.5 million

PROJECT FUNDING

\$1.8 million from the Victorian Government.



Australian Vinyls makes vinyl resin for use in the production of goods including pipes, electric cable insulation, packaging, floor coverings and building profiles. The suspension resin manufacturing process requires a significant volume of high quality water, prompting Australian Vinyls to work with City West Water in recent years to identify water efficiency options.

The company has cut water use at the site by more than one-third since the late 1990s. In the past five years, it has spent \$400,000 on water-saving projects, which include recycling water from mechanical seals to cooling tower return lines and optimising boilers. Since 2001, there has been a reduction in the use of drinking water from 6.7 kilolitres per tonne of PVC produced, to 4.5 kilolitres in 2007.

Determined to take its water efficiency to a new level, Australian Vinyls is launching an innovative recycling scheme at its manufacturing plant in Laverton North. This type of plant, which is based on a purification system, is a world first and could cut drinking water use at the site by more than half – up to 325 million litres of water per year – and provide inspiration for other businesses to follow. Additionally, the volume of trade waste would be reduced by approximately the same amount each year.



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The purification system piloted in 2008/2009 was awarded a REWARDS grant of \$110,000, through the partnership between the Plastics and Chemicals Industries Association (PACIA) and the Environment Protection Authority Victoria. The pilot involved a three-stage process. The first stage was the pre-treatment of wastewater, removing large, sticky suspended solids through a combination of strainers and a hydrocyclone assembly.

Next, microfiltration membrane technology was used to remove the smallest suspended solids, followed by reverse osmosis to remove dissolved solids.

After the success of the pilot trial, Australian Vinyls decided to develop a permanent recycling plant during 2009. The Victorian Government provided a \$1.8 million grant to Australian Vinyls towards the total project, which had a capital cost of \$5.5 million.

The technology developed for this project is expected to help other industries to cut their water use and provide benefits to the wider community.

For ideas on different ways your business could improve its water efficiency, please speak to your City West Water Cleaner Production consultant.



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