

## **FOREWORD**

The concept of Cleaner Production is gaining recognition world-wide as a means for industry to reduce waste, and as a result, reduce the costs associated with waste. As regulations become tighter, and as the costs of waste treatment and disposal increase, businesses will have much to gain from adopting Cleaner Production practices. This is particularly true for the Metal Finishing Industry which is a significant generator of wastes, particularly liquid wastes.

In North America and Europe, Cleaner Production in the Metal Finishing Industry has been well promoted and there are many documented case studies where benefits have been gained. There are even examples in literature of sites claiming zero waste discharges. The acceptance of waste avoidance and minimisation as a business consideration in these parts of the world is principally due to the very strict discharge limits and environmental regulations that businesses operate under. For Queensland, exposure to the concept of Cleaner Production has been quite low to date, however in the coming decade, the trends which are in evidence overseas will become a business reality in Queensland too.

As part of this project, a number of businesses were visited to discuss the potential for Cleaner Production in the industry, and a number of key themes came out of these discussions. Most operators were very open to discussing the concept, however waste minimisation tends to have less importance than compliance issues in their busy day-to-day operations.

Some companies have successfully implemented waste minimisation, however it tends to be in the areas of improved housekeeping or minor process modifications. The nature of the industry is such that the development and optimisation of processes is undertaken by the supply houses and operators simply 'follow the recipe' provided. Therefore, modifications to processes are less likely to be considered. Many companies, particularly small firms, have a high degree of knowledge about their particular process but are unaware of alternatives or are unsure of how to evaluate them. Operators can benefit from information that evaluates alternative technologies. This manual includes information on alternative methods and describes how technologies have been implemented elsewhere, and their cost.

Most operators have a 'gut feeling' that significant scope exists for reducing waste from their operations, however they have not had the opportunity to quantify the extent of savings that could be made. This lack of opportunity is often due to either lack of time, or lack of in-house expertise to undertake an assessment, or lack of belief that such action will lead to savings.

Experiences with Cleaner Production elsewhere indicate that the most significant gains have been made through process control and operating practices rather than through new technology. Careful control of process parameters (temperature, flow rates, contaminant control, pH, density, etc)

and process modifications (extending drain times to reduce drag-out, extending the life of cleaners, rinsing techniques, etc) are the key to waste reduction in this industry. The "technology" associated with these activities is usually quite simple and within the grasp of all businesses. (WRITA)

This manual provides information about Cleaner Production opportunities within the Metal Finishing Industry, to point the way towards greater profitability and improved environmental performance. It focuses on those aspects which are most achievable in the short and medium term, and which require limited or no capital expenditure. It has been developed with small business in mind, as it is recognised that small business is unable to self-fund research and develop training programs.

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The authors would also like to thank the following people and companies for their assistance with the project.

***Trade Waste Officers from Brisbane City Council***

***Whitco***

***A1 Quality Chrome***

***Ram Tapware***

***Welded Tube Mills***

***Pacific Plating***

***AJ Parkes***

***Metalart***

***MM Kembla Plumbing Fittings***

***A & G Powder Coating***

***Queensland Nameplate***

***Palmer Tube Mills***

***Capral Aluminium***

***Transfield Zincline***

***Anodising & Aluminium Finishers***

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