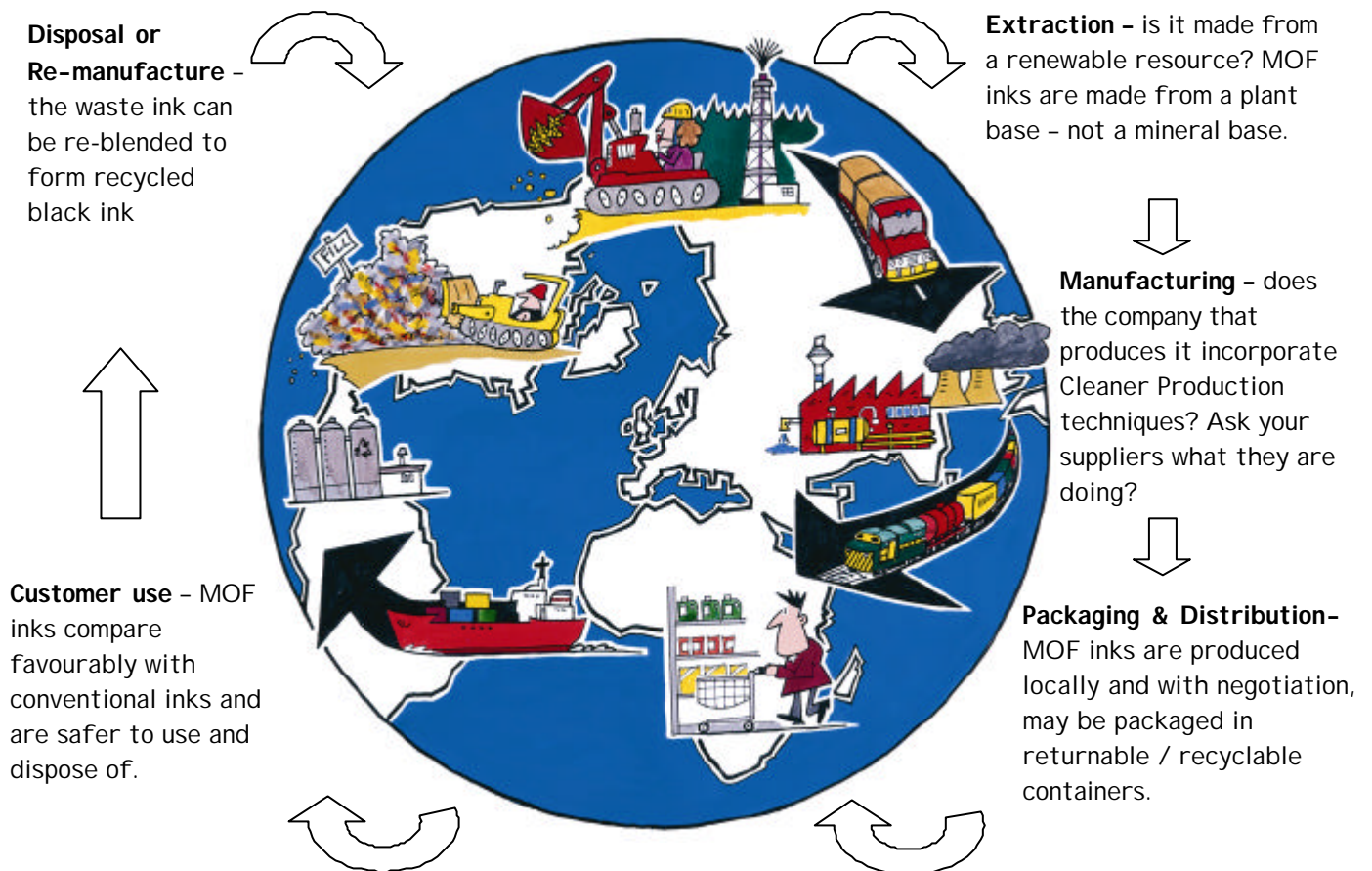


CLEANER PRODUCTION STRATEGIES

For Lithographic Printers

The printing industry has a tradition of pride, excellence and care for natural resources. However printing, like most industrial activities, uses hazardous chemicals, requires energy and water, and generates waste. The average printer is not a major source of pollution but collectively the impact of dozens of printers can be substantial. In adopting Cleaner Production practices, opportunities exist to **reduce environmental, and health and safety impacts, increase productivity and reduce costs.**

Cleaner Production involves looking at the life cycle of products from the cradle to the grave. Take mineral oil inks free ink as an example...



For Cleaner Production to work successfully in the printing industry it is crucial that printers **broaden their skills** and gain a better understanding of their processes and products. This will produce environmental benefits **as well as profits.**

Preventing waste at source is better than simply managing it once it has been produced. Remember **if it doesn't produce value then it is a waste!**

For free assistance to local business [Contact Us](#)

CLEANER PRODUCTION STRATEGIES

COMMITMENT

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| Environmental Policy & Plan | Work with staff to develop an environmental policy that incorporates goals for reducing air emissions, energy, water and waste. Back this up with a work programme or plan. | <i>This demonstrates your company's commitment to Cleaner Production and demonstrates how and when action is carried out.</i> <i><u>See environmental policy attached</u></i> |
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YOUR STAFF

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| Training & Supervision | Provide staff with information and incentives to minimise waste and hazardous materials. This may include training staff on new practices that minimise wastage. Note: Press operators are key to the successful changeover to Cleaner Production (e.g. with new cleanup procedures or new inks, etc) | <i>Train staff on waste reduction practices and goals – enrol them in seminars or workshops.</i> <i>Standard procedures should be used on equipment – these must be taught not assumed!</i> |
| Staff Incentives | Reward your staff for new ideas to minimise waste – or when they continue to reduce waste through routine practices. Encourage them to build on your successes! | <i>This will ensure that your staff are continually supporting your company's goals.</i> |

AUDITS

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| Look at your business with new eyes! | Develop a good picture of your business activities (including materials, water and energy), gather information on quantities and their related costs. | <i>This helps prioritise actions, and helps assess the benefits of possible changes.</i> |
| Energy Audits | Monitor energy use to identify peaks (high use times) and valleys (low use times). When buying new equipment always check its energy rating. | <i>This is to ensure that energy and machinery is used and running efficiently</i> |
| Water Audits | Monitor water use to ensure it is not being wasted. Carry out a water audit. | <i>A water audit is done to ensure that there are no leaks or dripping taps. Hidden leaks are common</i> |

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| | <p>A simple way to check for leaks is to inspect the meter at the end of the day (when all machines etc are off) – record the meter reading and the time, then do the same in the morning. If the meter has moved water is being used somewhere. You probably have a leak.</p> | <p><i>Hidden leaks are common and expensive if not detected.</i></p> <p><i>Toilets/ urinals are often areas where water is wasted.</i></p> |
| Solid Waste | <p>Monitor your waste.</p> <p>Check what is in your waste bins regularly. Ensure that all hazardous wastes, recyclable material and non-recyclable waste are separated out.</p> | <p><i>All waste has cost you money to purchase and costs you again when you dispose of it. Look for opportunities to reduce the generation of waste at its source.</i></p> |

PLANNING WITH YOUR CLIENTS

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| Work With Your Customer | <p>Check that the customer has approved the print job – paper, inks, colours, etc. Make sure you get it right the first time! Be sure you have a common target. Establish customer requirements, communicate those within the print shop and check processes are followed to ensure quality.</p> | <p><i>Products that don't meet your customers needs are expensive to re-print.</i></p> <p><i>Ideas...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>Get a colour sample from your customer. Then check the colour at the press.</i> <input type="checkbox"/> <i>Ensure the lighting is to industry standard!</i> |
| Offer Alternatives | <p>Help customers understand the impacts of their job design. Promote the use of left over colours, recycled inks, recycled papers, etc...</p> | <p><i>By increasing your business to business relationship you can build customer loyalty</i></p> |

NEW INFORMATION

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| Find Information Sources | <p>Information can come from suppliers, trade associations, and from your peers.</p> | <p><i>See the following information for useful contacts and information.</i></p> |
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PLANNING

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| Estimate Ink Quantities | <p>Reduce wasted ink by accurately estimating copy and coverage. Once you have the correct amount record it along with other job details for any future reprints.</p> | <p><i>This results in reduced ink waste ~ saving on ink purchasing, as well as disposing of waste.</i></p> |
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| Production Planning & Sequencing | Modify job sequencing. Schedule print runs from lighter to darker colours to minimise wash-ups. Group jobs with similar ink colours –if possible designate presses to certain runs. | <i>This is to ensure that only the necessary cleaning operations are performed – saving time and the solvents used for clean-ups</i> |
| Make Ready | Use both sides of the make-ready paper to cut the amount used and disposed of in half | <i>Some printers use make-ready paper again and again – adding a clean sheet after every 10th reused one to check the quality.</i> |

HOUSEKEEPING

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| Inventory Control | Set-up a 'materials inventory system'. Record all materials you have in stock and their shelf life. Return unused samples to suppliers. | <i>This will assist in avoiding products expiring, over-ordering, or running out of products.</i> |
| Preventative Maintenance | Make sure that you practice a routine preventative maintenance programme with all equipment. Develop a checklist for basic press maintenance. | <i>This includes monitoring water and energy, as well as machinery, products and materials. Preventative maintenance saves downtime, waste and product variation, and therefore saves money!</i> |
| Reduce Spoilage and Waste | Keep floors clean and litter free. Keep knives and press tools clean. Check films and plates for errors. | <i>This will reduce spoilage from dirt and grime on machines, etc.</i> |
| Calibrate Equipment | Periodically calibrate any pre-press electronic equipment and measuring tools. | <i>This keeps equipment running at an optimum level.</i> |
| Loss Prevention | Ensure lids are on all chemicals, solvents and inks to reduce loss. Use funnels or pumps to transfer liquids. Store materials in locations that preserve shelf life. Store wastes indoors or undercover (out of the rain) and away from drains. | <i>This is to prevent any evaporation, spills, "skinning" or contamination. This includes transferring any liquid wastes to storage. Store papers away from any moisture, solvents or areas where temperatures change. This is to prevent water damage and erosion, or spills of solvents into waterways</i> |
| Spills | Ensure that you have a spill contingency plan in place. | <i>Spills are costly and can result in serious environmental and health problems.</i> |

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| Protecting Against Spills | Always have a fully stocked spill kit handy. Regularly inspect waste skips and bins area for potential spills or leaks | <i>Try to use dry methods for cleaning wherever possible</i> |
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RAW MATERIAL SUBSTITUTION

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| Help Your Suppliers | Help suppliers understand your environmental challenges and ask them to find solutions. Prior to purchase review product content for possible impacts on wastewater, hazardous waste generation and air emissions. | <i>Suppliers should provide clear and accurate information on alternatives and demonstrate how to use them. Make sure that you understand the information provided in MSDS's.</i> |
| Solvents and Cleaners | Investigate the benefits of using low VOC solvents and, or water miscible cleaners. | <i>Work with your suppliers to find a solvent or cleaner that best suits your needs.</i> |
| Inks | Use mineral oil free inks instead of conventional 'heavy metal' based inks Always cover ink when in storage to reduce skinning, and to maintain ink quality | <i>Heavy metals are classified as hazardous Vegetable based inks do not contain petroleum oil-based materials</i> |
| Fountain Solution | Commit to a significant reduction in IPA (alcohol) in fountain solution. Keep IPA chilled to reduce evaporation. Check solution pH and conductivity regularly. | <i>If you are using IPA try to reduce the amount to less than 5%. IPA can result in health problems, causes air pollution and is flammable. The wrong pH/ conductivity will affect the final image.</i> |
| Papers | Use recycled and chlorine free (TCF or EFC) papers over virgin stocks. | <i>Your customers are often not aware of the benefits of TCF, EFC or recycled papers – offer your customers a range of products.</i> |

PROCESS and EQUIPMENT CHANGES

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| Process Control | Understand and document what each piece of equipment needs to consistently turn out high-quality printing. | <i>This enables you to have better control over your processes.</i> |
| Ink Clean-ups | When cleaning out inks use high pressure or low volume water sprays. Change your clean up procedure by: | <i>This results in less water used if managed properly. Solvent-soaked rags are a hazard so try to reduce the practice of soaking rags in</i> |

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| | <ol style="list-style-type: none"> 1. using a squeeze bottle to moisten rags or to apply directly onto the roller 2. limiting access to solvents (give a small amount to staff at the beginning of each day) 3. collect waste solvents using a hand wringer, or similar, to squeeze the excess out for reuse 4. Store spent rags in specifically labelled drums – put a lid on it. | <i>practice of soaking rags in solvent.</i> |
| Direct Imaging | When upgrading machinery look for opportunities to incorporate direct imaging - transferring digital information directly to the plates. | <i>This system reduces all pre press chemicals and results in reduced material and disposal costs.</i> |

WASTE and RECYCLING

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| Silver Recovery | <p>Work out the quantity of wastewater discharges coming from your shop – then check with Watercare to see if you require a consent.</p> <p>Look at options for silver recovery.</p> | <i>Contact Watercare for information on the Auckland Tradewaste Bylaw</i> |
| Packaging Reduction | Work with your suppliers to get appropriately sized containers and enquire if they can be returned for refilling. | <i>This will reduce your waste bill</i> |
| Paper Waste Reduction | Reuse any waste paper internally – for pads, or externally as a note pad for customers | <i>Again this reduces waste and cost</i> |
| Ink Waste Reduction | <p>Improve your ink estimating & your ink handling techniques. Cover all ink containers.</p> <p>Have any waste ink reformulated into recycled black ink. Use left over ink for in-house work or offer to customers at a reduced rate.</p> | <i>By reducing waste ink you save on purchase cost as well as disposal costs.</i> |

SEGREGATE WASTES

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| Waste Segregation | Separate both hazardous and non-hazardous wastes, as well as recyclable and non-recyclable wastes. | <i>This minimises costs as well as ensuring hazardous waste doesn't go to landfills. Ask your waste contractor</i> |
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| | recyclable wastes. | <i>what is acceptable in your waste.</i> |
| Recycling | <p>Separate the following for recycling:</p> <ul style="list-style-type: none"> • Paper and cardboard • Plates • Cans • Solvents • Silver • Waste inks • Rags • Drums | <p><i>Contact your local recycling operator or regional waste exchange (RENEW).</i></p> <p><i>Contact your suppliers to purchase inks and chemicals in bulk and in returnable containers (that can be refilled).</i></p> <p><i>Keep recycling area undercover to avoid rain infiltration.</i></p> |

FINISHING

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| Glues | <p>Avoid hot melt glues used in binding.</p> <p>Select glues that are low in volatiles.</p> | <p><i>These cause problems in the recycling process as the glue can attach to the machine or get imbedded in the paper/product itself.</i></p> <p><i>Close the recycling loop by buying recycled products.</i></p> |
| Materials | <p>Show a preference for recyclable or recycled materials.</p> | |
| PVC | <p>Avoid the use of PVC plastic for bindings, binders, folders and/or packaging.</p> | <p><i>PVC has a number of suspected environmental & health issues associated with its manufacture and disposal – it is better to avoid using it.</i></p> |

Where to go for information

Waitakere Printing Project - The Council has a specific programme for Lithographic Printers. [Contact us for further information.](#)

Eco Water – the Council has a business unit for water. Contact [Eco Water](#) for advice on reducing water use.

Solid Waste Business Unit - the Council has a business unit for solid waste – Contact them for specialist information on waste collection or recycling.

OSH – Occupational Safety & Health is a service provider for the Department of Labour and are responsible for the administration and enforcement of the H&S Employment Act 1992. [Contact them](#) for any information relating to Health and Safety issues in your workplace.

NZEPMU – New Zealand Engineering, Printing and Manufacturing Union aim to educate and promote safe working practices amongst their print members.

PIA - Printing Industry of Auckland aim to foster and encourage the development of the industry along sound lines and generally to promote, protect and safeguard the interests of members in trade matters. Contact them for information on new products and services available.

Print Product Suppliers and Manufacturers – A range of new and improved products are available. Contact your supplier and enquire about the benefits of their new product range and services.

Regional Councils – For information on the reduction of waste and water, hazardous waste, environmental legislation and other related issues contact your local or [Regional Council](#).

RENEW Wasteline – RENEW Resource Exchange is a region-wide information exchange designed to help your business find markets for your industrial by-products, surplus materials and waste.

EECA – The [Energy Efficiency & Conservation Authority](#) offer advice to businesses about energy savings.



RECYCLER LIST

FOR THE AUCKLAND PRINTING INDUSTRY



| MATERIAL | COMPANY | DETAILS |
|---|---|---|
| Pre-press Developers & Fixers; Plates (Aluminium); Silver Film (for silver recovery) | Ground Control | PO Box 187 Albany Ph: 413 7255 Fax 413 7256 |
| Solvents only | United Environmental | PO Box 58032 Greenmount Ph: 274 7963 Fax:274 1065 |
| Ink Containers <ul style="list-style-type: none"> • Plastic • Steel (Cleaners/Washes) | Whitehall Technical Services | P O Box 87 Clevedon Ph: 296 1826 |
| Solvent & Solvent Containers | Refined Solvents Limited | PO Box 13-364 Auckland 6 Ph: 274 9469 Fax 273 7147 |
| Aluminium/ Steel Containers | Sims Pacific Metals Ltd | 731 Great South Road PO Box 22648 Otahuhu Ph: 276 1809 Fax 276 6407 |
| Metal Containers and Plates <ul style="list-style-type: none"> • Aluminium • Lithographic plates • Containers | Metal Salvage Services | 16 Hillside Road Glenfield Ph: 444 6368 Fax 444 8069 |
| Steel Cans only | Steel Can Recycling | PO Box 92121 Auckland Ph: 835 0737 Ph/ Fax direct: (06) 835 0737 |
| Steel and Plastic Drums | Drum Factory | 112 Railside Rd Henderson Ph: 837 2801 Fax: 837 2711 |

RECYCLER LIST

cont...



| MATERIAL | COMPANY | DETAILS |
|--|--|---|
| Plates (aluminium) Paper & Wooden pallets | Printing Technologies | PO Box 97242 South Auckland Ph: 2621445 Fax 2621447 |
| Wooden Pallets and Wood Offcuts | Henderson Pallets | PO Box 21679 Henderson Ph: 835 1403 Fax: 820 0929 |
| Cardboard Cartons - new and used | Carton Traders | PO Box 12187 Penrose Ph: 636 1364 Fax 636 1389 |
| Cardboard Cartons - for resale | Packaging Recyclers | 36 Bancroft Cres. Glendene Ph: 818 7105 Fax: 818 2979 |
| Cardboard, Newsprint & Paper | Paper Chain (Carter Holt Harvey) | PO Box 12 689 Penrose Ph: 0800 444 600 Fax: 0800 444 605 |
| Cardboard & Paper, Glass, some Plastics and Cans. | Paper Reclaim | PO Box 12 187 Penrose Ph: 571 0242 Fax: 525 0615 |
| Cardboard & Paper Waste only | Wastecare | PO Box 12200 Penrose Ph: 571 1400 Fax: 571 1415 |
| Plastic Film (Shrink Wrap) | Astron Plastics Ltd | PO Box 58128 Greenmount Ph: 2740477 Fax 2741018 |

Environmental Policy (sample)



Declaration of Commitment

Our business recognises our responsibility to implement good business practises to reduce and minimise the environmental impacts of our business activities.

Policy

We aim to achieve this by implementing Cleaner Production to reduce business wastes and emissions by focusing on the practises, processes and products that produce them.

We aim to:

- ◆ Reduce air emissions from volatile organic compounds (VOCs) by purchasing inks, cleaners and washes which contain no or low VOCs
- ◆ Meet or exceed the requirements of all applicable governmental acts and regulations, and industrial safety standards
- ◆ Minimise our use of energy, water and resources
- ◆ Apply the principles of prevention, reduction, reuse and recycling to minimise waste
- ◆ Work in partnership with suppliers and the customer in achieving the aims of this policy
- ◆ To provide all employees with the training, support and resources required to meet our targets
- ◆ Monitor and review our performance against our aims on an annual basis
- ◆ Report and promote achievements to staff, suppliers and customers
- ◆ Seek continuous environmental improvement through regular assessments and setting of objectives, involving input from employees, suppliers, customers and trade associations
- ◆ Offer our customers the option of 'green printing' by promoting the use of recycled paper, mineral oil free inks, recycled inks and sound product design.

Components of a SUCCESSFUL Environmental Policy

The Environmental Policy is unique to each organisation. It expresses management intentions and goals of the organisation. It is a public statement, which can appear in annual reports and company literature.

An Environmental Policy should contain measurable goals specific to the organisation.

A policy should include:

1. Declaration of commitment
2. Simple and concise aims outlining what you want to achieve and how
3. Commitment from senior management to establish the policy and provide the resources and support for employees to implement it
4. Appointment of a co-ordinator who is motivated and responsible for the day to day implementation of the policy
5. Education of all employees - let them know why and how your business is going to fulfil it's environmental objectives, this is extremely important to achieve your goals
6. Provision of incentives for employees to contribute to the success of the policy
7. A report of successes to staff, suppliers and customers

Commitment, education, co-ordination and review are key factors to implementing and maintaining a successful environmental policy.