

File No: PLC/313

September 2002

**NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION
AND ASSESSMENT SCHEME**

FULL PUBLIC REPORT

MP-WAX M-100

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**Director
Chemicals Notification and Assessment**

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FULL PUBLIC REPORT**MP-WAX M-100****1. APPLICANT AND NOTIFICATION DETAILS**

APPLICANT(S)

1. Lanier Australia Pty Ltd
854 Lorimar St, Port Melbourne VIC
ABN 39 001 568 958
2. Panasonic Australia Pty Ltd
Austlink Corporate Park, 1 Garigal Rd, Belrose NSW
ABN 83 001 592 187
3. Ricoh Australia Pty Ltd
8 Rodborough Rd, Frenchs Forest NSW
ABN 30 000 593 171

NOTIFICATION CATEGORY

The notified polymer meets the PLC criteria.

EXEMPT INFORMATION (SECTION 75 OF THE ACT)

Data items and details claimed exempt from publication:

- Chemical identity
- CAS Number
- Molecular Weights
- Molecular and Structural Formulae
- IR Spectrum
- Import volumes

VARIATION OF DATA REQUIREMENTS (SECTION 24 OF THE ACT)

No variation to the schedule of data requirements is claimed.

PREVIOUS NOTIFICATION IN AUSTRALIA BY APPLICANT(S)

None

NOTIFICATION IN OTHER COUNTRIES

The polymer has been notified under the polymer exemption scheme in the USA 2002.

2. IDENTITY OF CHEMICAL

MARKETING NAME(S)

MP-WAX M-100

METHODS OF DETECTION AND DETERMINATION

ANALYTICAL METHOD Infrared Spectroscopy
TEST FACILITY Not known

3. COMPOSITION

DEGRADATION PRODUCTS

None. Polymer is stable under normal conditions.

LOSS OF MONOMERS, OTHER REACTANTS, ADDITIVES, IMPURITIES

None.

4. INTRODUCTION AND USE INFORMATION

MODE OF INTRODUCTION OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

It is anticipated that less than 1 Tonne/annum of the notified polymer will be imported in the first 5 years. There will be no manufacturing or reformulation in Australia.

MAXIMUM INTRODUCTION VOLUME OF NOTIFIED CHEMICAL (100%) OVER NEXT 5 YEARS

There are three joint notifiers of this polymer. The individual import volumes for each notifier are given below.

Ricoh Australia

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Tonnes</i>	<1	<1	<1	<1	<1

Lanier Australia

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Tonnes</i>	<1	<1	<1	<1	<1

Panasonic Australia

<i>Year</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Tonnes</i>	<1	<1	<1	<1	<1

USE

Component of colour laser printer toner. Notified polymer acts as a fixing agent.

5. PROCESS AND RELEASE INFORMATION

5.1. Distribution, Transport and Storage

IDENTITY OF RECIPIENTS

Ricoh Australia Pty Ltd
Panasonic Australia Pty Ltd
Lanier Australia Pty Ltd

TRANSPORTATION AND PACKAGING

The notified polymer will be imported as a component of laser printer toners (<10%), in purpose-designed cartridges which will be packed in cardboard cartons (4-6 cartridges per carton).

5.2. Operation Description

The notified polymer will not be manufactured or reformulated in Australia. The notified polymer will be distributed to the Lanier warehouse in Port Melbourne VIC, the Ricoh Australia warehouse in Frenchs Forest NSW, and the Panasonic warehouse in Belrose NSW where they will be stored until distribution to customer outlets around Australia. Transport and storage workers load and unload cartons for either storage or distribution to customers. Lanier and Ricoh maintain copiers for their customers and in these cases the toner cartridges are replaced by trained customer service engineers.

5.3. Occupational exposure

Number and Category of Workers

<i>Category of Worker</i>	<i>Number</i>	<i>Exposure Duration</i>	<i>Exposure Frequency</i>
Waterside, Transport and Storage Workers	6-8	2-3 hours/day	10-15 days/year
Customer Service Engineers	200	5-20 minutes/day	100 days/year

Exposure Details

It is anticipated that waterside workers, drivers and warehouse workers would only be exposed to the notified polymer in the event of an accident.

Customer Service Engineers maintain photocopiers for Ricoh and Lanier and are required to replace old toner cartridges. Old cartridges are packaged and disposed via landfill. Customer Service Engineers wear cotton gloves if the maintenance requires direct contact with the toner. The toner is contained within cartridges which are not normally opened and which release toner only in very small doses.

5.4. Release

RELEASE OF CHEMICAL AT SITE

Release of the notified polymer to the environment during transport and installation is not anticipated. The polymer is housed in sealed cartridges which are designed to prevent release of the toner until the cartridges are inserted into the printer.

RELEASE OF CHEMICAL FROM USE

Up to 90% of the notified polymer may be deposited with the toner onto sheets of paper during the printing process. The fate of the polymer which is bound to printed paper will be dictated by paper disposal and recycling trends. The notifier estimates that up to 25% of the annual import volume will be recycled and the remainder will be sent to landfill. However, recent literature suggests that current paper recycling rates in Australia are even higher at 70-92% (Australian Environmental Review, 2001), resulting in <200 kg of polymer being incorporated into the paper recycling process..

The notifier estimates up to 10% of toner containing the notified polymer, may remain in spent cartridges. Release of the polymer following disposal of the spent toner cartridges may occur if the cartridges are ruptured.

5.5. Disposal

The waste paper generated will eventually be disposed of either through recycling, landfill or incineration. Most spent cartridges are disposed of through household and business waste, which are incinerated or sent to landfill. Due to the anticipated nationwide use, the disposal is expected to be widespread across Australia.

5.6. Public exposure

The notified polymer is only used for commercial purposes. Once printed onto paper the notified polymer is bound and unavailable for release.

6. PHYSICAL AND CHEMICAL PROPERTIES

Appearance at 20°C and 101.3 kPa Pale, yellow waxy solid.

Melting Point 98.4°C

Density 800 kg/m³

Water Solubility Expected to be negligible

Remarks Test was not conducted. Notified polymer is mainly based on polyolefin, which is known to be insoluble in water. However, it does contain a small proportion of

carboxylic acid functionalities, expected to have typical acidity and increase solubility under neutral and basic conditions.

Particle Size Median diameter 98.5 µm

Flammability

Remarks Test was not conducted

Explosive Properties Not explosive.

Remarks Not explosive based on structure; powdered material in air may form explosive mixtures.

7. TOXICOLOGICAL INVESTIGATIONS

No toxicological data were submitted.

8. ENVIRONMENT

No ecotoxicological data were submitted.

9. RISK ASSESSMENT

9.1. Environment

9.1.1. Environment – exposure assessment

Up to 90% of the notified polymer will be deposited with the toner onto sheets of paper during the printing process, while the remaining 10% will reside in used containers. The waste paper generated from printing will eventually be disposed of either through recycling, landfill, or incineration, while used cartridges will most likely be disposed of through household and business waste, which are incinerated or sent to landfill.

Paper recycling trends indicate a maximum of 200 kg of the notified polymer in the toner could be recycled with paper. During the recycling process, waste paper is repulped using a variety of chemical agents to enhance fibre separation, ink detachment from paper fibres, pulp brightness, and the whiteness of paper (EC, 1994). Removal rate of ink particles from paper during the de-inking phase of recycling is estimated to be from 30-60% (EC, 1994). These inks are expected to reside in the sewerage system and may eventually be released into the local sewage treatment works with the effluent water after treatment. The solid materials generated during paper recycling are expected to remain in the paper mills, where it is likely that at least primary sedimentation occurs, with some facilities also having biological treatment facilities. Because the notified polymer contained in the toner is poorly water soluble, it is expected that most of the substance will reside in solid wastes, which will be disposed of in landfill or incinerated. A small amount (< 25 kg) of the polymer may also enter the soil environment directly at landfill sites when spent cartridges are disposed of with normal office garbage.

Under normal usage, the polymer will not enter the aquatic compartment. Should the polymer enter the aquatic compartment, in the event of an accident, its high molecular weight would preclude any appreciable absorption across biological membrane. Hence the substance is not expected to bioaccumulate.

9.1.2. Environment – effects assessment

No ecotoxicological data were submitted for the polymer.

9.1.3. Environment – risk characterisation

Release of the polymer to the environment is not anticipated because the toner is housed in

sealed cartridges, designed to prevent release until the cartridges are inserted into the printer. Ultimately most of the notified polymer in the toner will be bound to printed paper, which at the end of its useful life will be either buried in landfill, incinerated, or recycled.

Owing to its low water solubility, polymer entering soils via landfill, either fixed to paper, residing in sludge, or released from ruptured cartridges, is not expected to be mobile and enter the aquatic compartment in surface runoff or percolating groundwater. In soil environments, the polymer is expected to undergo slow degradation by biotic and abiotic processes. The substance contains ester groups, which may be amenable to hydrolysis under suitable conditions. Incineration is expected to destroy the notified polymer resulting in the release of combustion products such as carbon monoxide, carbon dioxide, and low molecular weight organics.

Given these considerations, the potential risk to the environment posed by the use of the polymer is low.

9.2. Human health

9.2.1. Occupational health and safety – exposure assessment

The notified polymer will be imported in pre-packed cartridges. During transport and storage, workers are unlikely to be exposed to the notified polymer except when cartridges are accidentally breached.

There is potential for dermal and inhalation exposure to the notified polymer when replacing spent cartridges, however the concentration of the polymer in the toner is low (<10%). Airborne generated dust, including dust toner, around the printer may occur. Cartridges are not normally opened and toner release is not expected.

9.2.2. Public health – exposure assessment

Public exposure through importation, transportation or storage is assessed as negligible. There is potential for exposure during cartridge changes. Toner on the printed page is bound to the paper and is not biologically available. Public exposure is assessed as low.

9.2.3. Human health - effects assessment

The notified polymer meets the PLC criteria and therefore low hazard is expected due to the lack of reactive groups and the inability of the polymer to penetrate biological membranes.

The powder may cause mechanical irritation to the eyes, and to the respiratory tract if inhaled. The average particle size for the notified polymer is (98.5 µm) is in the inspirable range but above the respirable range. Repeated or prolonged skin contact may result in mild irritation. No adverse effects following exposure to the notified polymer have been noted.

9.2.4. Occupational health and safety – risk characterisation

The OHS risk presented by the notified polymer is expected to be low given that the notified polymer is of low hazard, is present in the toner at below 10%, and the toner is contained in enclosed cartridges. The notified polymer may be present in formulations containing hazardous ingredients. If these formulations are classified as hazardous to health in accordance with the NOHSC *Approved Criteria for Classifying Hazardous Substances* (NOHSC, 1999), workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

The toner is considered a nuisance dust and employers are responsible for maintaining atmospheric exposure levels for toner dust below 10mg/m³ (NOHSC, 1995).

9.2.5. Public health – risk characterisation

Members of the public may make contact with the notified polymer during cartridge changes. However, the risk to public health will be negligible because the notified polymer is present at low concentrations and unlikely to be bioavailable. Toner on the printed pages is bound to the paper is not bioavailable.

Therefore, the risk to public health from exposure to the notified polymer is considered low.

10. CONCLUSIONS – ASSESSMENT LEVEL OF CONCERN FOR THE ENVIRONMENT AND HUMANS

10.1. Hazard classification

Based on the available data the notified polymer is not classified as hazardous under the NOHSC *Approved Criteria for Classifying Hazardous Substances* (NOHSC, 1999).

10.2. Environmental risk assessment

Given the very low import volumes, low likelihood of exposure, and expected nationwide use of the product, the potential risk to the environment posed by the use of the polymer is low.

10.3. Human health risk assessment

10.3.1. Occupational health and safety

There is Low Concern to occupational health and safety under the conditions of the occupational settings described.

10.3.2. Public health

There is Negligible Concern to public health when used for the intended purpose and in the manner described by the notifier.

11. MATERIAL SAFETY DATA SHEET

11.1. Material Safety Data Sheet

The MSDS of the notified polymer and products containing the polymer provided by the notifier were in accordance with the NOHSC *National Code of Practice for the Preparation of Material Safety Data Sheets* (NOHSC, 1994a). They are published here as a matter of public record. The accuracy of the information on the MSDS remains the responsibility of the applicant.

11.2. Label

Neither the notified polymer or the toner product are hazardous substances, therefore, the requirements of the *National Model Regulations for the Control of Workplace Hazardous Substances* (NOHSC, 1994b) do not apply.

12. RECOMMENDATIONS

CONTROL MEASURES

Occupational Health and Safety

To minimise occupational exposure to the notified polymer, the following guidelines and precautions should be observed.

- Avoid generation of dust clouds when handling the toner.
- Service operators should wear cotton gloves when handling the toner.
- A copy of the MSDS should be easily accessible to employees.
- If products and mixtures containing the notified polymer are classified as hazardous to health in accordance with the NOHSC *Approved Criteria for Classifying Hazardous Substances* (NOHSC, 1999), workplace practices and control procedures consistent with provisions of State and Territory hazardous substances legislation must be in operation.

Environment

Disposal

- The MSDS for the toner containing the notified polymer recommends that the substance be disposed of in landfill in accordance with Local and State regulations.

Emergency procedures

- The MSDS for the toner containing the notified polymer recommends that spills/release of the notified polymer be vacuumed up and placed in containers for disposal in accordance with Local and State regulations.

Secondary notification

The Director of Chemicals Notification and Assessment must be notified in writing within 28 days by the notifier, other importer or manufacturer:

- (1) Under Sub-section 64(1) of the Act; if
 - the notified polymer is introduced in a chemical form that does not meet the PLC criteria.or
- (2) Under Sub-section 64(2) of the Act:
 - if any of the circumstances listed in the subsection arise.

The Director will then decide whether secondary notification is required.

No additional secondary notification conditions are stipulated.

13. BIBLIOGRAPHY

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EC (1994). Official Journal of the European Communities. Technical Guidance Document in Support of Commission Directive 93/67/EEC on Risk Assessment for New Notified Substances and Commission Regulation (EC) No 1488/94 on Risk Assessment for Existing Substances Part IV. pp 703-707.

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